User and Programming Manual

WaveLinx

This document is intended for installers, set-up technicians and IT professionals of the WaveLinx system

⚠ ATTENTION

Engage appropriate network security professionals to ensure all lighting control system hardware and servers are secure for access.

Ensure IT professionals review the WaveLinx network architecture document found at www.cooperlighting.com.

Network security is an important issue. Typically, the IT organization must approve configurations that expose networks to the Internet. Be sure to fully read and understand customer IT Compliance documentation.

DISCLAIMER OF LIABILITY: Cooper Lighting Solutions assumes no liability for damages or losses of any kind that may arise from the improper, careless, or negligent installation, handling or use of the products.

IMPORTANT: This manual provides information on the installation and operation of WaveLinx system. For proper operation it is important to follow the installation instructions for each product/component.

COOPER Lighting Solutions

a signify business

WaveLinx User Manual - Table of contents

Welcome and Introduction 11

WaveLinx PRO 11

WaveLinx CAT 11

WaveLinx DALI 12

WaveLinx Networked Relay Panel 12

Adding WaveLinx LV 13

WaveLinx CORE 13

Becoming Familiar with WaveLinx System Components 15

WaveLinx Device Reference Sheets 17

WaveLinx Area Controller Reference Sheets 18

WaveLinx Area Hub Reference Sheet 28

WaveLinx DALI Hub Reference Sheet 37

WaveLinx Networked Relay Panel Reference Sheet 47

WaveLinx Low-Voltage Power Module Reference Sheet 55

WaveLinx Touchscreen Reference Sheet 60

WaveLinx PRO Ambient Integrated Sensor Reference Sheet 61

WaveLinx PRO Emergency Ambient Integrated Sensor Reference Sheet 64

WaveLinx PRO Industrial Integrated Sensor Reference Sheet 67

WaveLinx PRO Outdoor Integrated Sensor Reference Sheet 70

WaveLinx PRO Outdoor Sensor Extender/Multiplier Reference Sheet 73

WaveLinx PRO Tilemount Sensor Reference Sheet 76

WaveLinx PRO Outdoor Lighting Control Module Reference Sheet 79

WaveLinx PRO Node Reference Sheet 81

WaveLinx PRO Universal Voltage Dimming Switchpack Reference Sheet 83

WaveLinx PRO Emergency Dimming Switchpack Reference Sheet 85

WaveLinx PRO Universal Voltage Dimming Switchpack with Dry Contact Input Reference Sheet 87

WaveLinx PRO Receptacle Reference Sheet 90

WaveLinx PRO Ceiling Sensor Reference Sheet 92

WaveLinx PRO W-Series Wallstation Reference Sheet 94

WaveLinx PRO WW-Series Wallstation Reference Sheet 96

WaveLinx PRO WB-Series Battery Powered Wallstation Reference Sheet 98

WaveLinx PRO WWB-Series Battery Powered Wallstation Reference Sheet 100

WaveLinx PRO Contact Closure Input Module Reference Sheet 102

WaveLinx PRO IR Remote Reference Sheet 105

WaveLinx CAT Dimming Switchpack Reference Sheet 106

WaveLinx CAT Emergency Dimming Switchpack Reference Sheet 108

WaveLinx CAT PIR Occupancy Ceiling Sensor Reference Sheet 110
WaveLinx CAT Dual Tech Occupancy Ceiling Sensor Reference Sheet 112
WaveLinx CAT WST-C Series Wallstation Reference Sheet 114
WaveLinx CAT Contact Closure Input Module Reference Sheet 117
WaveLinx CAT Sensor Interface Module Reference Sheet 119
WaveLinx DALI Field Relay Reference Sheet 121
WaveLinx DALI DAC Reference Sheet 122
WaveLinx DALI-2 WST-D2 Series Wallstation Reference Sheet 124
WaveLinx DALI-2 Occupancy Ceiling Sensor Reference Sheet 126
WaveLinx DALI: Luminaires with DALI-2 Device Type DT8: Tunable White LED Drivers Reference Sheet 128
WaveLinx DALI: Luminaires with DALI-2 Device Type DT6 LED Drivers Reference Sheet 130
WaveLinx LV Low-Voltage Fixture with Integrated Sensor Reference Sheet 131
WaveLinx LV Low-Voltage Fixture Reference Sheet 133
Additional Accessories: ISHH-01 Integrated Sensor Programming Remote Reference Sheet 134
WaveLinx Device Archive 135
Preparing the WaveLinx Apps for First Use 145
Preparing to use the WaveLinx Mobile App 145
Download and Install the WaveLinx Mobile App 145
Register for a WaveLinx Mobile App Account 145
Login to the WaveLinx Mobile App 147
Using the List of Controllers Screen 148
WaveLinx Area Controller Login using the WaveLinx Mobile App 151
Logout of the WaveLinx Area Controller using the WaveLinx Mobile App 156
Logout of the Mobile App 156
Preparing to use the WaveLinx WAC Lighting App 157
Logging in to the WaveLinx WAC Lighting App 157
Close and Logout of the WaveLinx WAC Lighting App 160
WaveLinx Area Controller Screen Layout and Navigation 161
Using the Area Screen 161
Using the Notifications Screen 164
Using the Schedule Screen 165
Using the Devices Screen 165
Viewing Alerts 166
Adding WaveLinx Devices to a WaveLinx Area Controller 167
Pair WaveLinx PRO and LV Devices with a WaveLinx Area Controller (Construction Grouping) 167
Part 1: Verify WaveLinx PRO and LV Devices are Ready for Pairing 167
Part 2: Pair WaveLinx PRO and LV Devices with a WaveLinx Area Controller (Construction Grouping) 167

Operation of Devices within the Construction Area 170
Discover the WaveLinx CAT Area Hub and Add CAT Devices 171
Part 1: Perform the Initial Configuration Steps for WaveLinx with CAT Devices 171
Part 2: Establish WaveLinx App Communication with a WaveLinx Area Controller 171
Part 3: Discover the WaveLinx CAT Area Hub and Add CAT Devices 172
Part 4: (Optional) Move WaveLinx CAT Devices to the Construction Area for Reassignment 174
View the WaveLinx CAT Areas and Devices 175
Operation of CAT Devices in the Imported Area Hub Port Area 176
Discover the WaveLinx DALI Hub and Add DALI Devices 177
Part 1: Perform the Initial Configuration Steps for WaveLinx with DALI Devices 177
Part 2: Establish WaveLinx App Communication with a WaveLinx Area Controller 177
Part 3: Discover the WaveLinx DALI Hub and Add DALI Devices 178
Operation of Devices within the Construction Area 180
Add WaveLinx Networked Relay Panels 181
Part 1: Perform the Initial Configuration Steps for the WaveLinx Networked Relay Panel 181
Part 2: Establish WaveLinx App Communication with a WaveLinx Area Controller 181
Part 3: Add the WaveLinx Networked Relay Panel 182
Part 4: Verify WaveLinx Networked Relay Panel Import and Rename the Panel (Optional) 183
Operation of WaveLinx Networked Relay Panel Devices within the Construction Area 184
Creating WaveLinx Areas and Zones 185
Part 1: Establish WaveLinx App Communication with a WaveLinx Area Controller 185
Part 2: Create Standard Areas and Zones for the Project 185
Step 1: Create a Standard Area 186
Step 2: Create a Zone in a Standard Area 187
Step 3: Create Additional Standard Areas/Use the Copy Area Function 189
Part 3: Create Partitioned Areas and Assign Zones 190
Important Partition Area Details 190
Step 1: Sketch a Preliminary Layout 191
Step 2: Create a Partitioned Area 192
Step 3: Create and Assign Zones in a Partitioned Area 195
Step 4: Create an Additional Partitioned Area/Use the Copy Area Function 197
Organizing WaveLinx Devices into Areas and Zones 198
Step 1: Access the Unassigned Devices 199
Step 2: Identify and Assign Devices to the Areas and Zones 200
Using Multi-Select During Device Assignment 201
Step 3: (Partitioned Areas Only) Assign the Partition Wall Device(s) to a Sub Area 202
Step 4: Identify, Assign and Dual Channel Control Devices 203

Changing Dual Channel WaveLinx PRO Node Configuration 205
Using Multi-Select During Dual Channel Device Assignment 207
Step 5: Configure WaveLinx Switchpacks and WaveLinx DALI DACs Controlling Tunable White Lighting Control Devices 207
Step 6: Configure Contact Closure Devices Connected to WaveLinx Universal Voltage Dimming Switchpacks 209
Step 7: Configure the WaveLinx PRO Contact Closure Input Module Mode 211
Step 8: Verify Area Assigned Device Types and Count 214
Creating and Organizing Emergency Sets for Emergency Devices 215
Step 1: Create a Wireless Emergency Set (WaveLinx PRO Devices) 216
Step 2: Configure the Emergency Set(s) 217
Understanding the Emergency Set Color Indicator 219
Additional Emergency Set Configuration Changes and Test Options 219
Understanding WaveLinx Area Controller Default Operation 220
Default Operation in Standard Areas 220
Default Operation in Partitioned Areas 221
Finalizing WaveLinx Area Controller Setup 222
Step 1: Remove Unassigned Devices from the Construction Area 222
WaveLinx Area Controller 222
WaveLinx Outdoor Area Controller 222
Step 2: Final Recommended Procedures 222
Customizing Programming 223
Modifying Areas, Zones, and Devices 223
Modifying Standard Areas and their Zones and Devices 223
Modifying Partitioned Areas and their Zones and Devices 230
Understanding and Modifying Area Settings 245
Understanding and Modifying Zone Settings 248
Modifying Scene Settings and Response 251
Modifying Wallstation Button Response 253
Changing Default Button Response 254
Enabling/Disabling Wallstations 257
Copying Wallstation Programming to Other Wallstations 258
Modifying Contact Closure Input Response 260
Configuring the Contact Input Actions for a WaveLinx Universal Voltage Dimming Switchpack (model WSP-CA-010) 261
Configuring the Contact Input Actions for a WaveLinx PRO Contact Closure Input Module (model CCI-P-V) 263
Configuring the Contact Input Actions for a WaveLinx CAT Contact Closure Module 266
Modifying Occupancy Sensor Response 269
Adjusting or Viewing Individual Sensor Settings (Based on Sensor Type) 269
Adjusting Occupancy Set Settings 279

Adjusting Occupancy Set Controlled Zones 284
Adjusting Occupancy Set Assigned Sensors 285
Enabling/Disabling Occupancy Sets 286
Using Occupancy Set Test Mode 286
Creating Additional Occupancy Sets in Standard Areas 288
Creating Additional Occupancy Sets in Partitioned Areas 290
Assigning Occupancy Sets to Partitioned Sub Areas 292
Associating Occupancy Sets for Overlapping or Cascading Control 293
Deleting Occupancy Sets 300
Modifying Light Levels for Daylight Sensors 301
Modifying Closed Loop Daylighting Control 302
Configuring Open Loop Daylighting Control 309
Adding Schedules to the Control Strategy 319
Adding a Schedule Event 320
Modifying a Schedule Event 327
Modifying and Testing Demand Response Behavior 329
Modifying the Demand Response Reduction Amount 329
Modifying the Zones that Respond to Demand Response 330
Testing Demand Response 330
Practical Implementation of White Tuning Control 331
Setting Up for Success 334
Understanding WaveLinx White Tuning Zone Behavior 334
Application 1: Separate Manual Controls for Intensity and White Tuning 335
Application 2: White Tuning Controlled by Automatic Timed Events 337
Application 3: White Tuning and Intensity Scenes with Flexible Adjustment 339
Modifying Emergency Sets and Testing Emergency Mode Operation 340
Important Information about Emergency Sets 340
Understanding Basic Navigation and Layout in the Emergency Mode Screens 341
Adding an Emergency Set 342
Configuring an Emergency Set 343
Deleting an Emergency Set 346
Using Emergency Test Mode 348
Viewing NPS and EM Device Details 350
Using the WaveLinx Apps to Control Lighting 351
Connect the WaveLinx Mobile App to a WaveLinx Area Controller as a Personal Control User 351
Assigning a Favorite Area 352
Controlling Lighting from the WaveLinx Apps 352

Raise and Lower the Light Level of all Controlled Zones in an Area 353
Raise and Lower the Light Level of all Controlled Sub Zones in a Partitioned Sub Area 353
Adjust the Light Level of Individual Zones in an Area 354
Issue Pre-Programmed Scene Commands to the Area 354
Issue a Temporary Command to a Specific Control Device 355
Configuring the WaveLinx Touchscreen 356
Getting Started: Configuring the Touchscreen for Initial Use 356
Configuring the Area(s) that the Touchscreen Displays 358
Selecting the Presets/Scenes that the Touchscreen Displays 360
Using the Touchscreen Controls 361
Important Connection Error Resolution and Power Up Details 362
Lost Connection to the WaveLinx Area Controller 362
Touchscreen Power Up Behavior 363
Performing Other Touchscreen Administrator Functions 363
Changing the Touchscreen User or WaveLinx Area Controller 363
Adjusting the Preferred Display Brightness and Auto-dim Timing 364
Viewing or Changing the Touchscreen's IP Address 365
Viewing the End User License Agreement (EULA) 366
Changing the Display Language 366
Changing the Administrator Passcode 367
Performing a Factory Reset 367
WaveLinx Area Controller Administration 368
Logging into the WaveLinx Area Controller Webpages 368
Setting the System Location, Time, Date and Time Zone 372
Managing User Accounts and Passwords 373
Adding a New User Account 374
Modifying Existing User Accounts and Passwords 375
Deleting a User Account 376
Using the Backup and Restore User Accounts Option 376
Renaming the WaveLinx Area Controller 379
Performing a System Backup 380
Performing a System Restore or WaveLinx Area Controller Replacement 381
Details on Restoring a Backup to the Same WaveLinx Area Controller 381
Details on Restoring a Backup to a Different WaveLinx Area Controller (WAC Replacement) 381
Viewing and Updating Firmware of the WaveLinx Area Controller and WaveLinx Devices 384
Obtaining the Latest Firmware/Software for the WaveLinx System 384
Viewing Firmware/Software of the WaveLinx Area Controller 384

Updating the Firmware/Software of the WaveLinx Area Controller ... 384
Updating the Firmware of WaveLinx Devices ... 386
Advanced Network Administration ... 388
Changing Wi-Fi Access Point Settings ... 389
Changing Wi-Fi Client Settings ... 390
Changing Ethernet Settings ... 390
Changing DNS Settings ... 391
Viewing 802.15.4 Network Settings ... 391
Custom Certificates ... 391
Enabling and Disabling the WaveLinx CORE Connection ... 392
Cross-WAC Coordinator Connections in a WaveLinx CORE System ... 392
Removing Devices in the Construction Area Using the Debug Page ... 393
Resetting the WaveLinx Outdoor Area Controller Credentials/Passwords ... 394
Rebooting the WaveLinx Area Controller ... 396
Viewing Disclaimers and End User License Agreements ... 397
Using the WaveLinx WAC Lighting App ... 397
WaveLinx Area Hub Administration ... 399
Using the Internal Webpages of the WaveLinx CAT Area Hub ... 399
Logging in to the WaveLinx CAT Area Hub Webpages ... 399
Using the System Page ... 400
Using the Network Page ... 402
Using the Maintenance Page to Factory Reset the Area Hub ... 403
Additional Menu Options ... 404
Logging Out of the WaveLinx CAT Area Hub Webpages ... 405
Replacing a WaveLinx CAT Area Hub ... 406
Deleting an Area Hub from the WaveLinx Area Controller ... 407
WaveLinx DALI Hub Administration ... 409
Using the Internal Webpages of the WaveLinx DALI Hub ... 409
Logging in to the WaveLinx DALI Hub Webpages ... 409
Using the Systems Page ... 410
Using the Network Page ... 413
Using the Maintenance Page ... 414
Additional DALI Hub Menu Options ... 415
Logging Out of the WaveLinx DALI Hub Webpages ... 416
Replacing a WaveLinx DALI Hub ... 417
Deleting a DALI Hub from the WaveLinx Area Controller ... 418
WaveLinx Networked Relay Panel Administration ... 420

Using the Onboard Display 420
Performing Relay Functions 420
Performing Dimmer Functions 424
Performing Network Functions 425
Sweeping Relays ON/OFF using the WaveLinx Networked Relay Panel Controller Card Buttons 429
Replacing a Relay Panel Controller 429
Reconnecting after an IP Address Change 430
Replacing Relays and Dimming Modules 430
Adding Relays or Dimming Modules using Reimport 430
Rebooting the WaveLinx Networked Relay Panel 431
Deleting a WaveLinx Networked Relay Panel from a WaveLinx Area Controller 431
WaveLinx Low-Voltage Power Module Administration 433
Using the Internal Webpages of the Low-Voltage Power Module 433
Logging in to the Low-Voltage Power Module Webpages 433
Reviewing and Changing General Settings 435
Updating Ethernet Settings 436
User Settings Administration 437
Firmware Administration 438
Identifying Power Modules and Connected Fixtures 438
Reconnecting after IP Address Changes 439
Replacing a WaveLinx Low-Voltage Power Module 440
Unpairing a Low-Voltage Power Module from the WaveLinx Area Controller 441
Rebooting the Low-Voltage Power Module 442
WaveLinx Device Administration 443
Adding a New Device to the WaveLinx Area Controller 443
Adding a WaveLinx PRO Device 443
Adding a WaveLinx LV Device 443
Adding a WaveLinx CAT Device 443
Adding a WaveLinx DALI Device or DALI Fixture 445
Adding a WaveLinx Networked Relay Panel Relay or Dimmer 446
Deleting a Device from a WaveLinx Area Controller 446
Adding a Deleted Device 447
Pairing a Deleted WaveLinx PRO Device 447
Pairing a Deleted Low-Voltage Device 447
Adding a Deleted WaveLinx CAT Device 447
Adding a Deleted WaveLinx DALI Device 447
Adding a WaveLinx Networked Relay Panel Deleted Relay or Dimmer 447

Moving a WaveLinx LV Device to a Different Low-Voltage Output 448
Replacing WaveLinx Devices 449
Replacing WaveLinx PRO Devices 449
Replacing WaveLinx LV Devices 451
Replacing WaveLinx CAT Devices 453
Replacing WaveLinx DALI Devices 455
Replacing WaveLinx Networked Relay Panel Devices 457
Performing a Factory Reset 457
WaveLinx Mobile App Administration 458
Viewing Mobile App Version 458
Updating the Mobile App 458
Deleting a WaveLinx Mobile App Cloud Account 458
Common Questions 459
Appendix A: Assigning Point Guards in WaveLinx PRO 475
What is a Point Guard? 475
Point Guard Details 475
Point Guard Best Practices 476
Using the WaveLinx Area Controller Webpage to Assign Point Guards/Create DomZones 476
Step 1: Enabling the /wlm Webpage 476
Step 2: Logging in to the /wlm Webpage 477
Step 3: Enable the HBIS DomZone (Industrial and Outdoor Integrated Sensors Only) 478
Step 4: Assign the Point Guard(s) 481
Step 5: Logout and Close 483
Appendix B: Accessing the WaveLinx CORE through a WaveLinx Area Controller 484
Step 1: If Disabled, Enable the WaveLinx Area Controller’s Wi-Fi Access Point 484
Step 2: Setup Access for the WaveLinx CORE 485
Step 3: Access the CORE 486
Appendix C: Cross-WAC Sharing in WaveLinx CORE 487
Using the CORE Lighting App to Program Cross-WAC Sharing 487
Programming Wallstation Buttons for Cross-WAC Sharing 487
Programming Contact Closure Inputs for Cross-WAC Sharing 488
Associating Occupancy Sets for Cross-WAC Control 490
Setting Coordinators for Cross-WAC Sharing 491

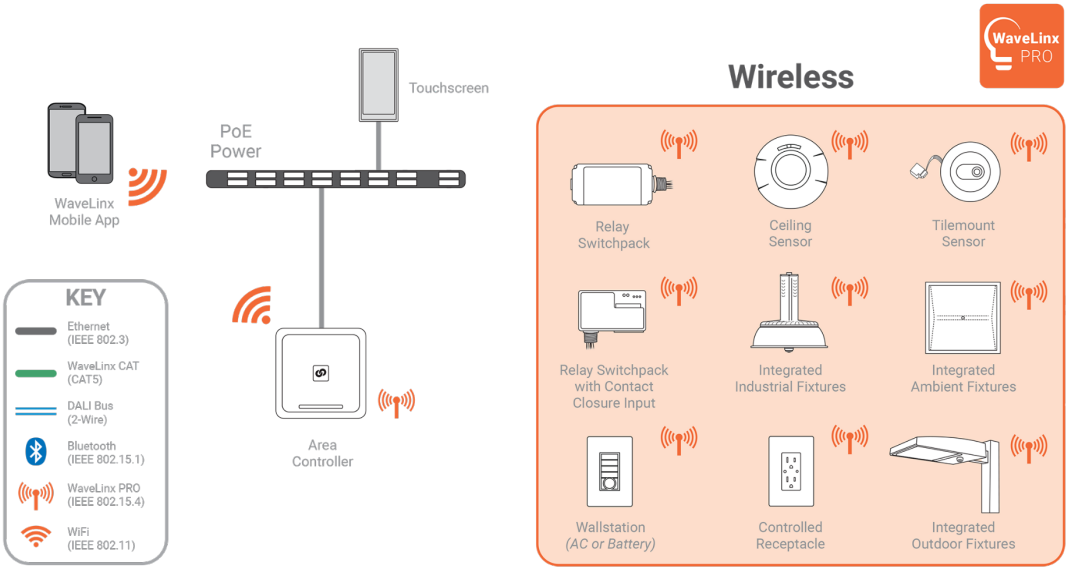
Welcome and Introduction

WaveLinx is a smart lighting system that helps organizations drive down energy costs while creating healthier spaces, indoors and outdoors. The system is easy to program and manage using the apps described in this user guide. It offers design flexibility, too. Choose from wired and wireless control devices and connected luminaires.

The WaveLinx system is scalable, allowing control from very simple stand-alone spaces to larger applications involving multiple floors, buildings, and even multiple locations.

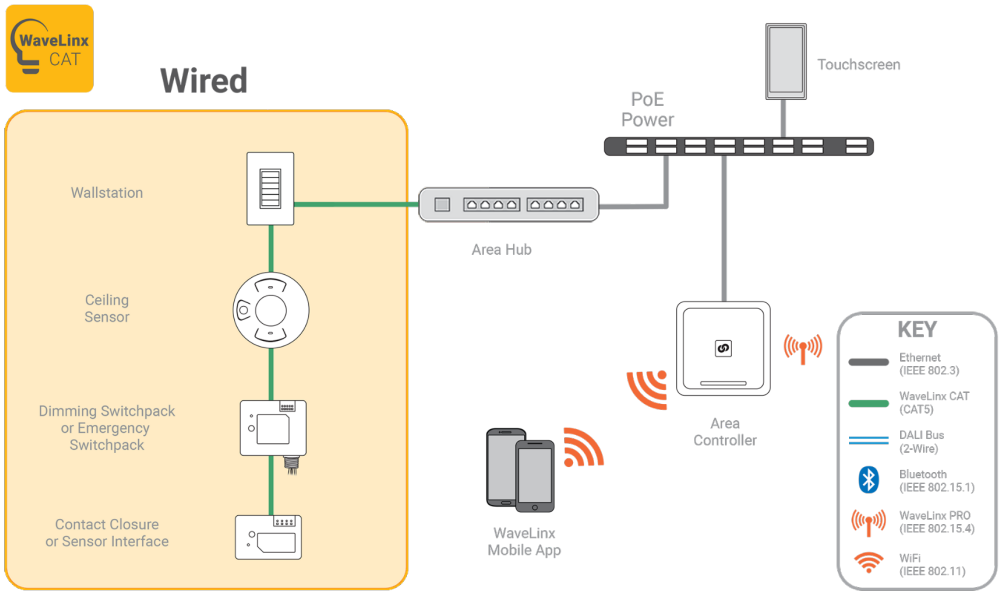
WaveLinx PRO

WaveLinx PRO is a distributed wireless lighting control system that operates in a WaveLinx system. The WaveLinx Area Controller directly communicates with WaveLinx PRO devices using IEEE 802.15.4 wireless communications.



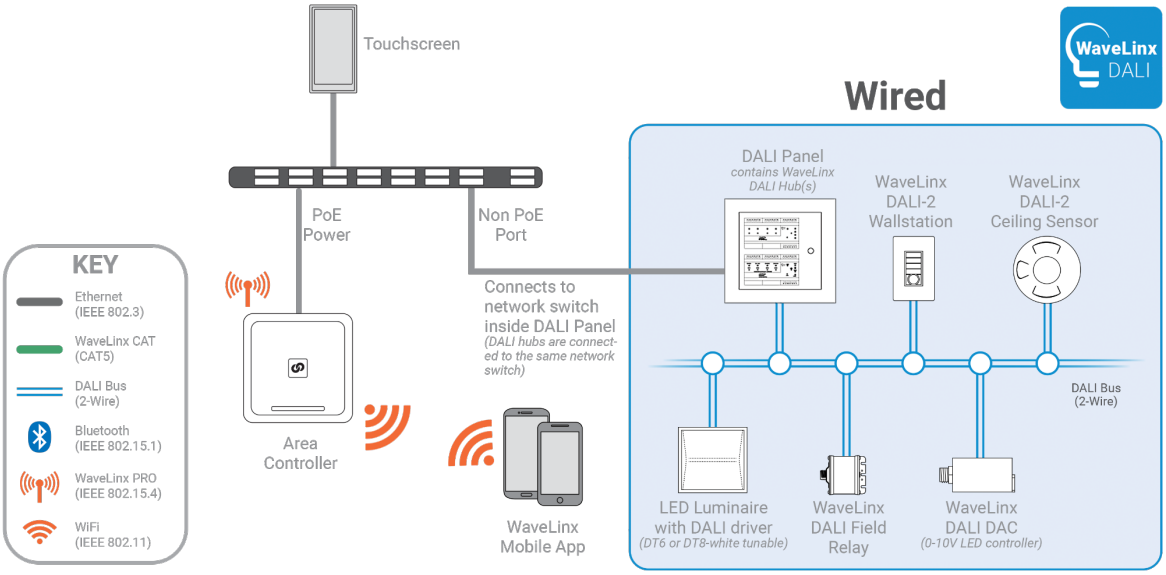
WaveLinx CAT

WaveLinx offers wired control devices that communicate with each other over a category 5 cable using WaveLinx CAT, a proprietary digital communication. While WaveLinx CAT devices can operate on their own in a standalone room-by-room system, the WaveLinx Area Hub can be added to allow the room-by-room systems to be combined for operation in a larger WaveLinx system.



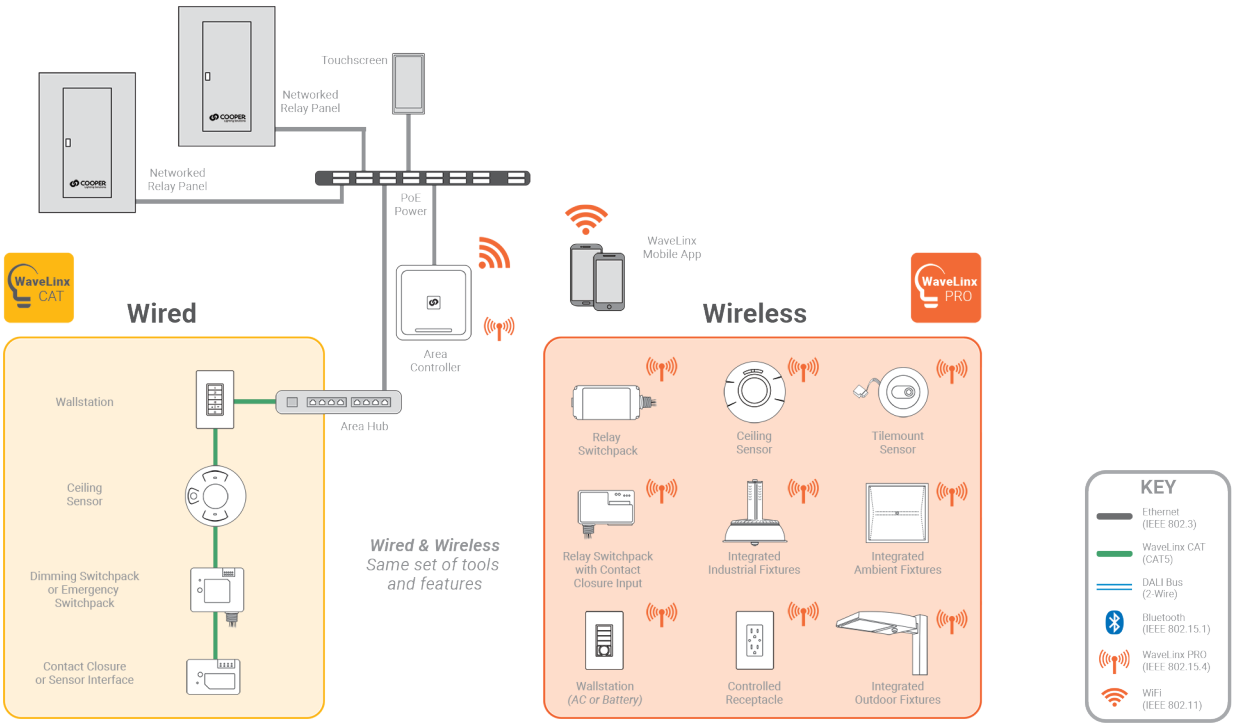
WaveLinx DALI

WaveLinx DALI connects to DALI-2 certified drivers and WaveLinx DALI peripherals to allow them to operate seamlessly with the WaveLinx system. DALI devices connect to the DAI bus using two-wire, topology and polarity free wiring which in turn connects to one of the four ports on a WaveLinx DALI Hub mounted in the WaveLinx DALI panel. The WaveLinx DALI Hub communicates to the WaveLinx Area Controller through an Ethernet connection.



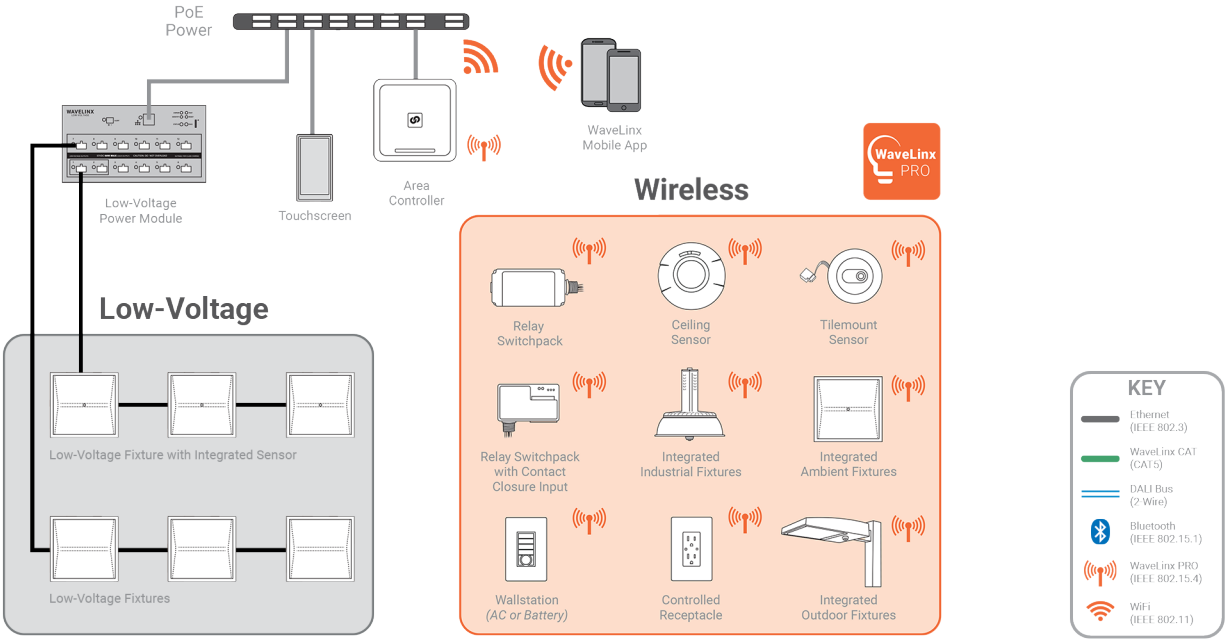
WaveLinx Networked Relay Panel

WaveLinx offers full relay panels that communicate directly with the WaveLinx Area Controller over an IP based Ethernet connection. Relay panels are available in both normal power or emergency power configurations and offer capacities for anywhere from four (4) relays to sixty-four (64) relays. Relays are available in 1, 2, or 3 pole options. Optional WaveLinx Panel Dimming Modules can be added within the panel or may be remotely mounted allowing for 0-10V dimming control for up to 64 dimmer channels. Relays and dimmers are controlled through the WaveLinx Area Controller by WaveLinx PRO and/or WaveLinx CAT devices.



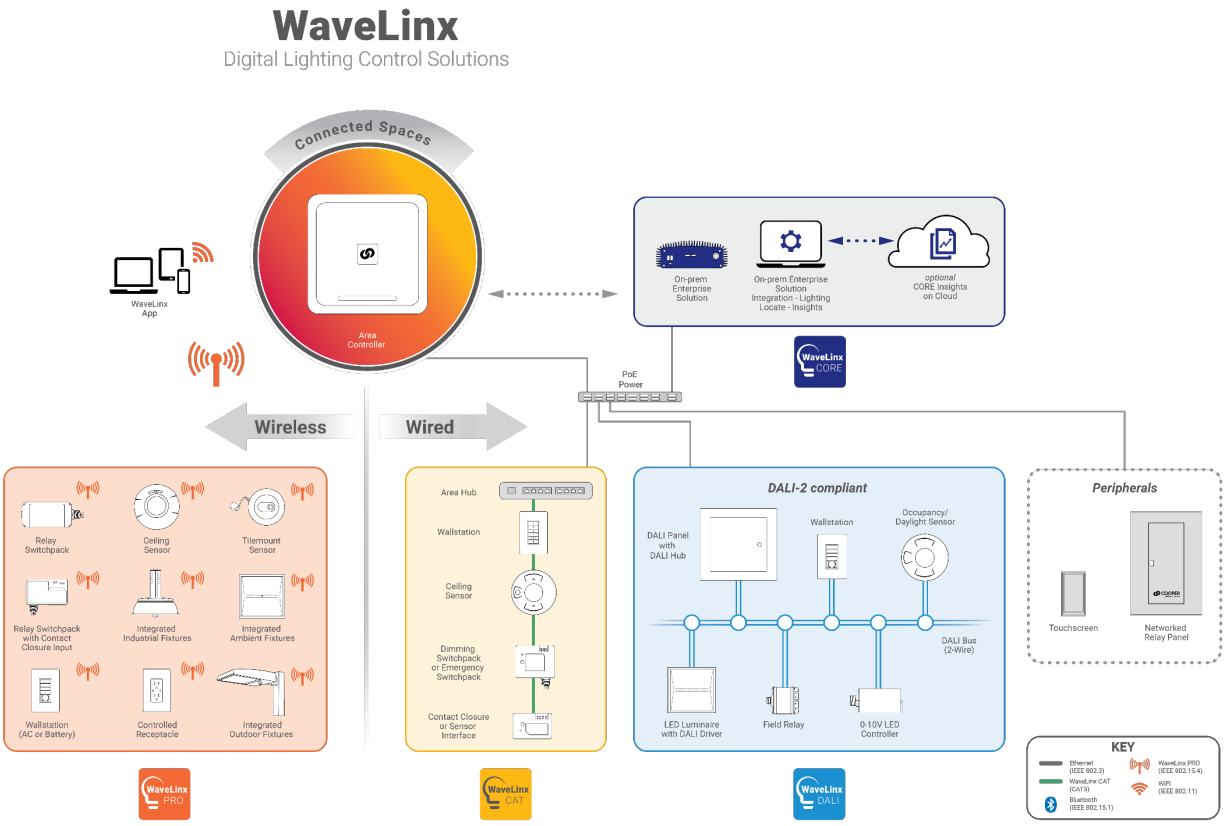
Adding WaveLinx LV

WaveLinx also offers wired low-voltage lighting (WaveLinx LV) that can be used in conjunction with WaveLinx PRO and WaveLinx CAT devices. WaveLinx LV luminaires can optionally contain integrated sensors. Sensors and luminaires receive low voltage power and route communications through a WaveLinx Low-Voltage Power Module which communicates to the WaveLinx Area Controller.



WaveLinx CORE

Larger spaces can be brought together for management and efficiency using WaveLinx CORE. WaveLinx CORE leverages the data generated by WaveLinx sensors and connected luminaires to improve operational efficiency and optimize experiences for occupants.



Regardless of what size system is being implemented, or which components are being used, it will be necessary to start by adding the devices to the appropriate WaveLinx Area Controller. Use this user manual to:

- Become familiar with WaveLinx system devices
- Prepare the WaveLinx Apps for first use
- Set up a new WaveLinx Area Controller for WaveLinx PRO, CAT, DALI, and LV devices
- Control lighting from the WaveLinx App
- Customize the WaveLinx default programming
- Configure a WaveLinx Touchscreen
- Perform administrator tasks to set the WaveLinx Area Controller system time, date, and location, change usernames and passwords, backup and restore databases (replacing a WaveLinx Area Controller), update software and firmware, and perform advanced network connection functions.
- Perform administrator tasks to update the Mobile App and replace WaveLinx devices.
- Perform administrator tasks to setup WaveLinx CAT Area Hubs.
- Perform administrator tasks to setup WaveLinx DALI Hubs.
- Perform administrator tasks to setup WaveLinx Networked Relay Panels.
- Perform administrator tasks to setup WaveLinx Low-Voltage Power Modules including changing or updating Ethernet settings, reconnecting communications to the WaveLinx Area Controller after IP Address changes, replacing a Low-Voltage Power Module, and unpairing and rebooting information.

For information on implementing WaveLinx CORE beyond specific features covered in the appendix of this manual, please refer to the WaveLinx CORE Lighting System Configuration Guide.

Becoming Familiar with WaveLinx System Components

All WaveLinx systems using WaveLinx PRO, CAT, DALI or LV components require the use of an Area Controller.

WaveLinx Area Controller

WAC2

WAC-MV-OD

The WaveLinx Area Controller is available in both an indoor (WAC2) and an outdoor (WAC-MV-OD) model.

The WaveLinx Area Controller is the central communications coordinator for the version 17.0 WaveLinx system.[1] It coordinates communication to and from WaveLinx devices.

The WaveLinx Area Controller can operate as a stand-alone coordinator or may be connected to a building network with other WaveLinx Area Controllers to meet larger building requirements.

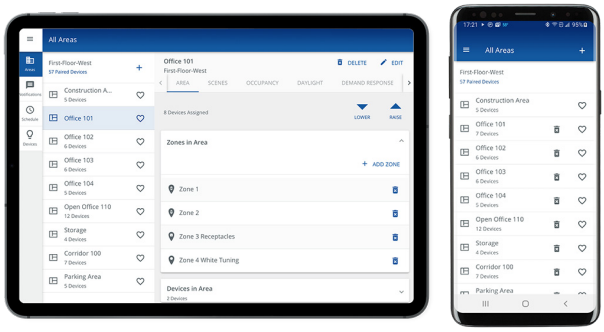
Installed as a stand-alone system, the WaveLinx Area Controller may use its internal wireless Wi-Fi access point to communicate to the WaveLinx Mobile App installed on a user provided iOS or Android smart phone/tablet or to a PC accessing the WaveLinx WAC Lighting App[2].

Installed in an Ethernet connected system or connected to the building network by Wi-Fi, each WaveLinx Area Controller operates independently for its paired devices, using the connected building network to communicate to the WaveLinx Mobile App or a PC accessing the WaveLinx WAC Lighting App.[2]

Systems that need cross WaveLinx Area Controller sharing can add the WaveLinx Area Controllers to WaveLinx CORE.

Administration and setup of the WaveLinx Area Controller and devices is performed using the WaveLinx Mobile App or the WaveLinx Area Controller Lighting App.[2]

WaveLinx Mobile App



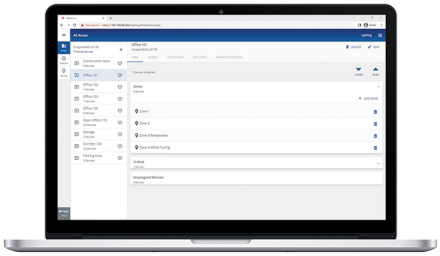
Use the WaveLinx Mobile App to set up the WaveLinx Area Controller. Once the WaveLinx Area Controller is programmed, the WaveLinx Mobile App can be used to control specific areas and zones in the facility, or to change the programmed behavior.

The WaveLinx Mobile App is supported on mobile devices running iOS 17+ or Android™14+ operating systems. Download the latest version of the WaveLinx Mobile App on the App Store® or get it on Google Play™. Install the mobile app on a smartphone or tablet.

Download on the App Store

GET IT ON Google Play

WaveLinx Area Controller (WAC) Lighting App



The WaveLinx Area Controller contains internal webpages that offer the ability to login via PC or device with a supported web browser to administer the lighting programming through the WAC Lighting App.

The WaveLinx WAC Lighting App will have the same appearance and functionality as the WaveLinx Mobile App.

[1] WAC (G1) is not supported for version 17.0 software. The WaveLinx Mobile App will allow connection to a WAC (G1) unit with the latest G1 firmware but connects through a browser based app rather than the Mobile App screens. Please refer to the User Guide for the WAC (G1) software version for details on expected configuration and operation.

[2] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

WaveLinx CORE

Larger systems may optionally use WaveLinx CORE, a smart spaces platform. WaveLinx CORE uses CORE devices to communicate with the WaveLinx Area Controller(s) and displays the data to Smart Spaces Apps that manage the system, provide user management and backup, review data to see trends, and even track space usage and user/equipment locations in the facility. WaveLinx CORE also allows sharing of commands between WaveLinx Area Controllers in larger sites and of data through Third Party integration via BACnet.

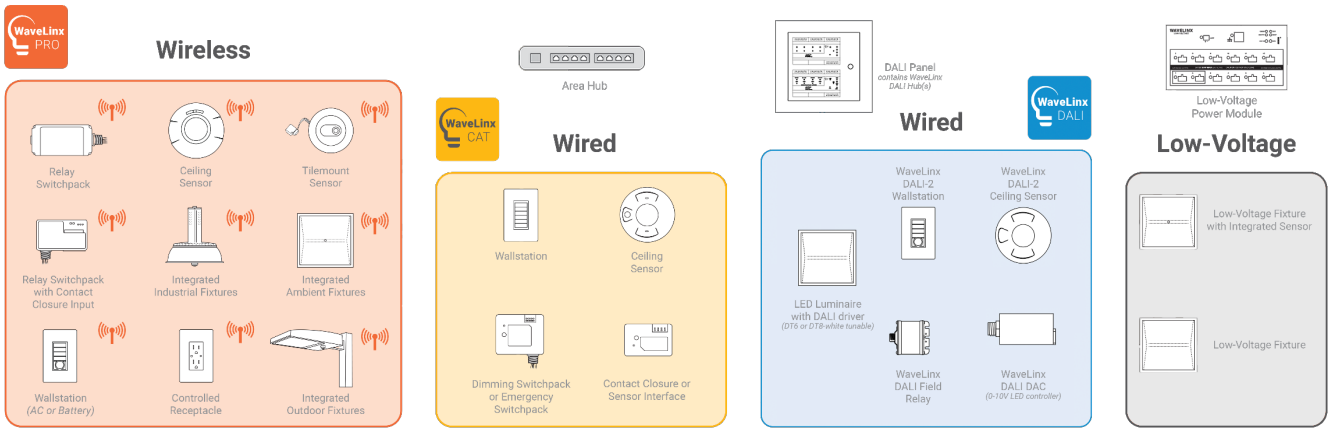
In a WaveLinx CORE implementation, the initial WaveLinx Area Controller configuration and device management can be performed using the WaveLinx Mobile App or the WaveLinx WAC Lighting App[3] discussed in this manual. The Area Controller(s) can also be added to WaveLinx CORE and administered through the CORE using the CORE's Lighting App. Device configuration is like what is shown in this user guide. Some specific CORE functions may be described in appendix sections in this user guide. Further use of WaveLinx CORE devices and Smart Space Apps is beyond the scope of this user guide. Refer to the specific materials for these products for information.

WaveLinx CORE Pro

WaveLinx CORE Enterprise

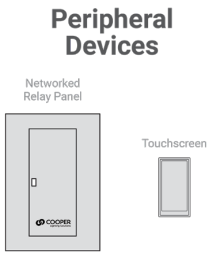
WaveLinx Virtual CORE Enterprise

WaveLinx System Devices



WaveLinx devices communicate to the WaveLinx Area Controller for control and to provide information.

- WaveLinx PRO devices that communicate with the WaveLinx Area Controller directly using IEEE 802.15.4 wireless communications.
- Wired WaveLinx CAT devices communicate through an Area Hub via Ethernet to the Area Controller.
- Wired WaveLinx DALI devices communicate through a DALI Panel's DALI Hub(s) via Ethernet to the Area Controller.
- WaveLinx LV devices communicate through a Low-Voltage Power Module via Ethernet to the Area Controller.
- WaveLinx Networked Relay Panels and Touchscreens communicate with the WaveLinx Area Controller using Ethernet communications.



WaveLinx devices will vary by facility. Refer to the WaveLinx Device Reference Sheets for specific device information.

[3] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

WaveLinx Device Reference Sheets

This section contains information about each device used in the WaveLinx system. Each device will have a reference sheet describing the device and its general functionality. Additional details include specific information that will be used for reference throughout the manual. Once familiar with the general programming steps, the reference sheets can act as a quick reference guide for specific device behavior or programming details.

Each device reference sheet may include:

- A general description
- Out-of-the-box behavior
- Paired/added device default behavior
- LED behavior
- How to place the device into pairing mode and pairing mode behavior
- Supported identification methods and **Blink to Identify** behavior
- Specific details for programming supported device functions including but not limited to daylight calibration recommendations, white tuning configuration, input configuration, wallstation button default operations, etc.
- Special operating modes supported by the device
- Loss of communications behavior
- Return of power operation or battery change operation
- Factory reset instructions (returning to out-of-the-box state)
- Required initial configuration steps

WaveLinx Area Controller Reference Sheets

WaveLinx Area Controller 2 Reference Sheet

WaveLinx Area Controller 2

Features

- Coordinates communication between WaveLinx Devices and WaveLinx App
  - Built-in Wi-Fi for connection to WaveLinx Applications
  - Built-in 802.15.4 for connection to WaveLinx PRO devices
  - Built-in Ethernet for PoE power and LAN connection
    - Communicate with up to 6 WaveLinx Area Hubs for control of WaveLinx CAT devices
    - Communicate with up to 10 WaveLinx DALI Hubs for control of WaveLinx DALI devices and DALI drivers/fixtures.
    - Communicate with WaveLinx Relay Panels
    - Communicate with WaveLinx Low-Voltage Power Modules for control of WaveLinx LV devices
- Optionally connects to WaveLinx CORE for use with:
  - CORE Smart Space Applications
  - BMS

Power:
- Powered from PoE or PoE Injector

Typical Applications

- Required for communication to WaveLinx Devices

Models:

- **WAC2:** WaveLinx Area Controller

  (the same model number is used for WAC2 and WAC2 R4)

WaveLinx App Details:

- Default Device Name:
  - CooperWAC-XX-XX

Icon Displayed in WaveLinx App:

An icon at the top of the mobile app menu will distinguish between the WAC2 and WAC2 R4

G2 R4 G2

The WaveLinx Area Controller 2 (WAC2) is a central communications coordinator for the WaveLinx system. The WaveLinx Area Controller 2 can operate as a stand-alone coordinator or may be connected to a building network with other WaveLinx Area Controllers to meet larger building requirements.

WAC2 Details

Feature	Details
WAC2 R4 Supported Devices G2 R4 *icon displayed at top of mobile app menu*	The WAC2 R4 supports up to 800 WaveLinx Devices . • All 800 devices (800 best practice) can be used with WaveLinx CAT and WaveLinx DALI devices or WaveLinx Relay Panel outputs (wired devices) • A maximum of 200 of the devices may be WaveLinx PRO devices (wireless) • Up to 50 of the devices may be actively using RTLS functionality • The combination of WaveLinx PRO, WaveLinx Relay Panel, WaveLinx CAT, WaveLinx DALI and RTLS support devices cannot exceed 800 devices • Example: 50 RTLS Devices + 150 WaveLinx PRO + 200 WaveLinx CAT + 400 WaveLinx DALI = 800 Devices
WAC2 Supported Devices G2 *icon displayed at top of mobile app menu*	The WAC2 supports up to 400 WaveLinx Devices . • All 400 devices can be used with WaveLinx CAT and WaveLinx DALI devices or WaveLinx Relay Panel outputs (wired devices) • A maximum of 150 of the devices may be WaveLinx PRO devices (wireless) per WAC2 • Up to 50 of the devices may be actively using RTLS functionality • The combination of WaveLinx PRO, WaveLinx Relay Panel, WaveLinx CAT, WaveLinx DALI and RTLS support devices cannot exceed 400 devices. • Example: 50 RTLS Devices + 150 WaveLinx PRO + 100 WaveLinx CAT + 100 WaveLinx DALI = 400 Devices
Areas (WAC2 & WAC2 R4)	The WAC2 supports up to 50 areas. • 49 user defined areas plus 1 default construction area.

Zones
(WAC2 & WAC2 R4)
	• The WAC2 creates one default dimmable zone per area.
	• The WAC2 supports up to 200 zones (including sub zones in partitioned areas) total.
	  • For a WAC2 being centrally managed by WaveLinx CORE, the maximum number of zones in an area should not exceed 30 zones.
	  • For a standalone WAC2 (not being centrally managed by WaveLinx CORE), areas are not limited to a certain quantity of zones.

Scenes (WAC2 & WAC2 R4)	The WAC2 supports up to 16 scenes per standard area and 32 scenes per partitioned area.
Occupancy Sets (WAC2 & WAC2 R4)	The WAC2 supports up to 100 occupancy sets amongst all defined areas (including occupancy sub sets in partitioned areas). Areas are not limited to a certain quantity of occupancy sets.
Closed Loop Daylighting (WAC2 & WAC2 R4)	The WAC2 will create a closed loop daylight set when an applicable device is paired. Closed loop daylighting must be manually enabled.
Open Loop Daylighting (WAC2 & WAC2 R4)	The WAC2 supports up to 6 open loop daylight sets per area using the following sensor types: WaveLinx Ceiling Sensor, WaveLinx Outdoor Lighting Control Module, Ambient, Industrial, and Outdoor Integrated Sensors[4], Tilemount Sensor[4] Open Loop Daylighting must be programmed.
Partitioning[5] (WAC2 & WAC2 R4)	The WAC2 supports up to 2 partitioned areas. Each partitioned area can contain up to 10 partition walls or 10 subareas.
Emergency Sets (WAC2 & WAC2 R4)	WaveLinx PRO: The WAC2 supports creation of up to 6 Emergency Sets for WaveLinx PRO devices. A maximum of 6 Normal Power Sense (NPS) WaveLinx PRO devices can be assigned amongst ALL defined Emergency Sets. WaveLinx CAT: Emergency Sets are automatically created through the Area Hub import based on the devices connected to the port. No more than 3 Normal Power Sense (NPS) WaveLinx CAT devices may be assigned to any WaveLinx CAT Emergency Set.

Out-of-the-Box

Once power is applied, after a 1-minute boot-up period (approximate), the Power/Health LED, the 802.15.4 LED, and the Wi-Fi LED should illuminate and remain ON.[6]

Loss of Communications Operation

Please refer to the device reference sheets for the expected behavior of a specific device upon loss of communications with the WaveLinx Outdoor Area Controller.

Operation upon Return of Power

Upon return of power, after a 1-minute power up period (approximate), the WaveLinx Area Controller will begin re-establishing connection with controlled devices. This process may take several minutes. Controlled devices will remain in their return of power state until the connection is re-established.

[4] WaveLinx Integrated Sensor and Tilemount Sensor assignment for open loop control is contingent on the use of WaveLinx Area Controller with minimum version 10.0.x.x and updated device firmware.

[5] Partitioning requires the use of a WaveLinx Area Controller with minimum version 14.1.x.x software.

[6] The green LAN LED may also illuminate if the controller is connected to a building LAN with a DHCP server. Other LEDs should remain OFF.

WaveLinx Area Controller 2 continued

How to Place in Pairing Mode:

Pairing mode is used for WaveLinx PRO and WaveLinx LV devices.

Method	Description
PAIR button	Press and release (1 second press) the PAIR button located on the side panel of the WaveLinx Area Controller.
WaveLinx App	• Login to the WaveLinx Area Controller. • From the menu, select **Devices**. • With the WaveLinx Area Controller selected, tap **ADD DEVICE** in the **INFORMATION** tab. • Select **Wireless (Device Pairing)**.

The blue 802.15.4 LED on the WaveLinx Area Controller and the green LAN LED will blink at a rate of one blink per second to indicate the WaveLinx Area Controller is in pairing mode. The WaveLinx Area Controller pairing mode automatically times-out after 60 minutes or can be manually exited by pressing and releasing (1 second press) the PAIR button or by selecting **DISABLE PAIRING** from the WaveLinx App.

LED Operations

After power is applied, wait approximately 1 minutes for the WaveLinx Area Controller to fully boot before reviewing the LED status.

LED	Color/Pattern	Description
Connection Port LEDs	Green LED ON/Flashing	The WaveLinx Area Controller is connected to the Ethernet and is connected to a 10/100Mb network.
	Orange LED ON/Flashing	The WaveLinx Area Controller is connected to the Ethernet and is connected to a Gigabyte network.
	OFF	There is no connection to the Ethernet
Power/Health LED	Solid BLUE	The WaveLinx Area Controller is powered and operational.
	OFF	There is no power on the PoE connection or the WaveLinx Area Controller is unable to boot due to a system error.
	Blinking BLUE	• Short single blink then OFF: This occurs approximately 10-15 seconds after initial powerup or reboot. • 50ms ON/50ms OFF repeated: This occurs while the WaveLinx Area Controller is rebooting. • Flash three times 50ms ON/50ms OFF followed by 2 seconds OFF and then repeated: The WaveLinx Area Controller has received a firmware file and a firmware upgrade to the WaveLinx Area Controller is in process. • 2 sec. ON/2 sec. OFF repeated: The WaveLinx Area Controller is performing firmware upgrades in devices.
WAN LED	OFF	Normal condition in stand-alone use. If used in a WaveLinx CORE system, the WaveLinx Area Controller has lost its connection to WaveLinx CORE.
	Solid GREEN	The WaveLinx Area Controller is connected to s WaveLinx CORE system.
	Blinking GREEN	The WaveLinx Area Controller is performing a data sync with the connected WaveLinx CORE system.
LAN LED	OFF	There is no connection from the building LAN, or the connection has been disabled or failed.
	Solid GREEN	The WaveLinx Area Controller is connected to the building LAN, has a static or dynamically assigned IP address, and is ready to communicate.
	Blinking GREEN	The LED will blink 1 second ON/ 1 second OFF repeated when the WaveLinx Area Controller is in pairing mode.
Wi-Fi LED	OFF	The Wi-Fi Access Point or Client have been disabled.
	Solid BLUE	The Wi-Fi Access Point has been enabled. The Wi-Fi Client is disabled.
	Blinking BLUE	• Slow blink (1 second ON/1 second OFF repeated): The Wi-Fi Client is enabled and has an IP address. The Wi-Fi Access Point is disabled. • Fast blink (250ms ON/250ms OFF repeated): Wi-Fi Access Point and Wi-Fi Client are both enabled and available.
PAN LED (BT)	OFF	LED should be OFF. This functionality is not currently in use.
802.15.4 LED	Solid BLUE	The 802.15.4 network communication is normal.
	OFF	The 802.15.4 network is not functional. The 802.15.4 LED should not be OFF. Verify unit is powered and has had time to fully power up (approx. 1 minute).
	Blinking BLUE	• Slow blink (1 second ON/1 second OFF repeated): The WaveLinx Area Controller is in pairing mode. • Fast blink (250ms ON/250ms OFF repeated): The WaveLinx Area Controller is in process of removing (unpairing) devices still in the construction area.

WaveLinx Area Controller 2 continued

WaveLinx Area Controller Pushbutton Functions

The WaveLinx Area Controller has two pushbuttons that allow for several administrative functions. These functions should be used with caution!

Function	Button	Press Length	WAC LED feedback	Device outcome
Enter Pairing Mode	Pair	Press and release (1 second)	802.15.4 and LAN LEDs flash	Paired devices will exhibit paired behavior described in the device reference sheets. Unpaired PRO and LV devices can pair with the WaveLinx Area Controller if they are in pairing mode.
Exit Pairing Mode (if pairing mode is still active)	Pair	Press and release (1 second)	802.15.4 LED ON steady LAN LED returns to OFF or ON dependent on connection to Ethernet and configuration.	Paired PRO and LV devices will start operation within the construction grouping. Lighting still in the default construction area will turn on to a 100% level or operate from paired wallstations and occupancy sensor controls.
Remove Unassigned Devices	Pair	Press and hold for 4 seconds recommended (>2 sec. to <=10 sec.)	802.15.4 LED flashes rapidly (.25 sec ON/.25 sec OFF) when the button is held for the allotted time and continues until the devices have been commanded to leave the network. 802.15.4 LED will turn ON steady once there are no devices remaining in the Construction Area.	Devices still in the default construction area will leave the WaveLinx network.
Reboot/Soft Reset	Reset (Inset Button)	Press and release (1 second)	All LEDs turn OFF after button release. As device reboots, LEDs may turn ON and OFF during reboot. Once reboot completes (approximately 1 minute), Power/Health LED and 802.15.4 LED should be ON steady. Other LEDs may also be ON dependent on WaveLinx Area Controller configuration.	Devices will remain in previously commanded state during reboot, rejoin the WaveLinx Area Controller upon reboot completion and continue their normal behavior. Programmed settings are retained during a reboot.
Authentication and Wi-Fi Configuration Reset	Reset (Inset Button)	Press and hold for 4 seconds recommended (>2 sec. to <= 5 sec.)	Wi-Fi LED flashes rapidly (.25 sec ON/.75 sec OFF) when the button is held for the allotted time. Wi-Fi LED turns OFF for 1 second when button is released and then blinks .5sec ON/ .5 sec OFF for 5 seconds while the WaveLinx Area Controller clears the settings. Wi-Fi LED turns ON steady when process is complete.	No effect on devices. The following data will be cleared and reset to factory defaults: • Wi-Fi Access Point settings • Wi-Fi Client settings • Admin password

Factory Reset	Reset (Inset Button)	Press and hold for 8 seconds recommended (>5 sec. to <=10 sec.)	The Wi-Fi LED starts flashing after 2 seconds.
			All the LEDs except for BT will flash (.5 seconds ON/ .5 seconds OFF) when the button is held for the allotted time.
			The Power/Health LED will turn OFF when the button is released, and other LEDs will stop flashing.
			After a short delay, additional LEDs may turn OFF and the WAC will reboot.
			Once reboot completes (approximately 1 minute), Power/Health LED and 802.15.4 LED, and the Wi-Fi LED should be ON steady. Other LEDs may also be ON dependent on connections.
				All programming will be cleared for the WaveLinx Area Controller and reset to factory defaults including:
				• Removing all 802.15.4 device pairing
				• All user accounts
				• Clearing user-uploaded custom certificates
				• Network configuration including:
				  • Wi-Fi client settings
				  • Wi-Fi access point settings
				  • Ethernet settings
				• Clearing all programming including area and zone designations
				• Resetting WAC name to default

WaveLinx Outdoor Area Controller Reference Sheet

WaveLinx Outdoor Area Controller

Features

- Coordinates communication between WaveLinx Devices and WaveLinx App
  - Built-in Wi-Fi for connection to WaveLinx Applications
  - Built-in 802.15.4 for connection to WaveLinx PRO devices
  - Built-in Ethernet for PoE power and LAN connection
    - Communicate to up to 6 WaveLinx Area Hubs for control of WaveLinx CAT devices
    - Communicate to WaveLinx DALI Hubs for control of WaveLinx DALI devices and DALI drivers/fixtures.
    - Communicate with WaveLinx Relay Panels.
    - Communicate to WaveLinx Low-Voltage Power Modules for control of WaveLinx LV devices
- Optionally connects to WaveLinx CORE for use with:
  - CORE Smart Space Applications
  - BMS

Power:
- Powered from PoE or 10ft AC (120VAC) power cord with Watertite NEMA 5-15 plug

Typical Applications

- Outdoor applications such as parking garages/parking lots and sports complexes.
- Industrial and manufacturing facilities where IP66 rating is needed
- A WaveLinx Area Controller is required for communication to WaveLinx Devices

Models:

- **WAC-MV-OD:** WaveLinx Outdoor Area Controller

WaveLinx App Details:

- Default Device Name:
  - CooperWAC-XX-XX

Icon Displayed in WaveLinx App:

The WaveLinx Outdoor Area Controller is a central communications coordinator for the WaveLinx system. The WaveLinx Outdoor Area Controller is IP66 rated for mounting in typical outdoor or industrial environments such as parking garages/parking lots, sports complexes, and industrial and manufacturing facilities. The WaveLinx Outdoor Area Controller can coordinate communication to up to 200 devices (150 best practice).

The WaveLinx Outdoor Area Controller can operate as a stand-alone coordinator or may be connected to a building network with other WaveLinx Area Controllers to meet larger building requirements.

WaveLinx Outdoor Area Controller Details

Feature	Details

Supported Devices	The Outdoor WAC supports up to 200 WaveLinx Devices (**150 best practice**).
	• All 200 devices may be WaveLinx PRO devices or WaveLinx CAT devices OR
	• Up to 140 of the devices may be WaveLinx LV devices
	  • Example: 140 WaveLinx LV + 60 WaveLinx PRO or CAT= 200 Devices
	• Up to 50 of the devices may be actively using RTLS functionality
	  • Example: 50 RTLS Devices + 150 WaveLinx PRO or CAT = 200 Devices
	  • Example: 50 RTLS Devices + 140 WaveLinx LV + 10 WaveLinx PRO or CAT = 200 Devices

Areas	The Outdoor WAC supports up to 50 areas. • 49 user defined areas plus 1 default construction area.

Zones	• The Outdoor WAC creates one default dimmable zone per area.
	• The Outdoor WAC supports up to 200 zones (including sub zones in partitioned areas) total.
	  • For an Outdoor WAC being centrally managed by WaveLinx CORE, the maximum number of zones in an area should not exceed 30 zones.
	  • For a standalone Outdoor WAC (not being centrally managed by WaveLinx CORE), areas are not limited to a certain quantity of zones.

Scenes	The Outdoor WAC supports up to 16 scenes per standard area and 32 scenes per partitioned area.
Occupancy Sets	The Outdoor WAC supports up to 100 occupancy sets amongst all defined areas (including occupancy sub sets in partitioned areas). Areas are not limited to a certain quantity of occupancy sets.
Closed Loop Daylighting	The Outdoor WAC will create a closed loop daylight set when an applicable device is paired. Closed loop daylighting must be manually enabled.
Open Loop Daylighting	The Outdoor WAC supports up to 6 open loop daylight sets per area using the following sensor types: WaveLinx Ceiling Sensor, WaveLinx Outdoor Lighting Control Module, Ambient, Industrial, and Outdoor Integrated Sensors, Tilemount Sensor. Open Loop Daylighting must be programmed.
Partitioning	The Outdoor WAC supports up to 2 partitioned areas. Each partitioned area can contain up to 10 partition walls or 10 subareas.
Emergency Sets	WaveLinx PRO: The Outdoor WAC supports creation of up to 6 Emergency Sets for WaveLinx PRO devices. A maximum of 6 Normal Power Sense (NPS) WaveLinx PRO devices can be assigned amongst ALL defined Emergency Sets. WaveLinx CAT: Emergency Sets are automatically created through the Area Hub import based on the devices connected to the port. No more than 3 Normal Power Sense (NPS) WaveLinx CAT devices may be assigned to any WaveLinx CAT Emergency Set.

Out-of-the-Box

Once power is applied, after a 1-minute boot-up period (approximate), the Power LED should illuminate green and the multi-function LED may illuminate or flash dependent on current connections/conditions.

Loss of Communications Operation

Please refer to the device reference sheets for the expected behavior of a specific device upon loss of communications with the WaveLinx Outdoor Area Controller.

Operation upon Return of Power

Upon return of power, after a 1-minute power up period (approximate), the WaveLinx Outdoor Area Controller will begin re-establishing connection with controlled devices. This process may take several minutes. Controlled devices will remain in their return of power state until the connection is re-established.

WaveLinx Outdoor Area Controller continued

How to Place in Pairing Mode:

Pairing mode is used for WaveLinx PRO and WaveLinx LV devices. The WaveLinx Outdoor Area Controller requires the use of the WaveLinx App to place the controller in pairing mode. There are no onboard buttons or serviceable parts beyond the exterior connection points.

Method	Description
WaveLinx App	• Login to the WaveLinx Area Controller. • From the menu, select **Devices**. • With the WaveLinx Area Controller selected, tap **ADD DEVICE** in the **INFORMATION** tab. • Select **Wireless (Device Pairing)**.

The WaveLinx Area Controller pairing mode automatically times-out after 60 minutes or can be manually exited by selecting **DISABLE PAIRING** from the WaveLinx App.

LED Operations

After power is applied, wait approximately 1 minutes for the WaveLinx Outdoor Area Controller to fully boot before reviewing the LED status. The WaveLinx Outdoor Area Controller has two status LEDs:

- Power/Health LED
- System Operation LED

Power/Health LED

Pattern	Description
Solid ON Green	The WaveLinx Outdoor Area Controller is powered and operational.
OFF	There is no power on the PoE or AC power connection or the WaveLinx Outdoor Area Controller is unable to boot due to a system error.
Slow Green Blink (2s ON/2s OFF)	The WaveLinx Outdoor Area Controller is performing firmware upgrades in connected devices
Fast Green Blink (500ms ON/500ms OFF 3 times then 2s OFF. Pattern repeated)	The WaveLinx Outdoor Area Controller has received a firmware file and a firmware upgrade to the WaveLinx Outdoor Area Controller is in process.

System Operation LED

The system operation LED displays the status of the WaveLinx Outdoor Area Controller's Wi-Fi, LAN, and 802.15.4 operations. This RGB LED will display different colors or blink patterns to indicate the conditions of the Wi-Fi, LAN, and/or 802.185.4 conditions.

Pattern	Color(s)	Wi-Fi Condition	LAN Condition	802.15.4 Condition
Solid	Magenta	The Wi-Fi Access Point has been enabled. The Wi-Fi Client is disabled.	There is no connection from the building LAN, or the connection has been disabled or failed.	The 802.15.4 network communication is normal.
Solid	White	The Wi-Fi Access Point has been enabled. The Wi-Fi Client is disabled.	The Area Controller is connected to the building LAN, has a static or dynamic IP address, and is ready to communicate.	The 802.15.4 network communication is normal.
Solid	Blue	The Wi-Fi Access Point and Client have been disabled.	There is no connection from the building LAN, or the connection has been disabled or failed.	The 802.15.4 network communication is normal.
Solid	Cyan	The Wi-Fi Access Point and Client have been disabled.	The Area Controller is connected to the building LAN, has a static or dynamic IP address, and is ready to communicate.	The 802.15.4 network communication is normal.
Solid	Red	The Wi-Fi Access Point has been enabled. The Wi-Fi Client is disabled.	There is no connection from the building LAN, or the connection has been disabled or failed.	The 802.15.4 network is not functional or the Area Controller cannot communicate with 802.15.4 devices.
Solid	Yellow	The Wi-Fi Access Point has been enabled. The Wi-Fi Client is disabled.	The Area Controller is connected to the building LAN, has a static or dynamic IP address, and is ready to communicate.	The 802.15.4 network is not functional or the Area Controller cannot communicate with 802.15.4 devices.
Solid	Green	The Wi-Fi Access Point and Client have been disabled.	The Area Controller is connected to the building LAN, has a static or dynamic IP address, and is ready to communicate.	The 802.15.4 network is not functional or the Area Controller cannot communicate with 802.15.4 devices.
Solid	OFF	The Wi-Fi Access Point and Client have been disabled.	There is no connection from the building LAN, or the connection has been disabled or failed.	The 802.15.4 network is not functional. Verify unit is powered and the Power/Health LED is solid green.

table continued next page

WaveLinx Outdoor Area Controller continued

System Operation LED (continued)

Pattern	Color(s)	Wi-Fi Condition	LAN Condition	802.15.4 Condition
Slow Blink (1s)	Magenta/Blue	The Wi-Fi Client is enabled and has an IP address. The Wi-Fi Access Point is disabled.	There is no connection from the building LAN, or the connection has been disabled or failed.	The 802.15.4 network communication is normal.
Slow Blink (1s)	White/Cyan	The Wi-Fi Client is enabled and has an IP address. The Wi-Fi Access Point is disabled.	The Area Controller is connected to the building LAN, has a static or dynamic IP address, and is ready to communicate.	The 802.15.4 network communication is normal.
Slow Blink (1s)	White/Red	The Wi-Fi Access Point has been enabled. The Wi-Fi Client is disabled.	The Area Controller is in pairing mode.	The Area Controller is in pairing mode.
Slow Blink (1s)	Cyan/OFF	The Wi-Fi Access Point and Client have been disabled.	The Area Controller is in pairing mode.	The Area Controller is in pairing mode.
Slow Blink (1s)	Red/Cyan **OR** White/OFF	The Wi-Fi Client is enabled and has an IP address. The Wi-Fi Access Point is disabled.	The Area Controller is in pairing mode.	The Area Controller is in pairing mode.
Slow Blink (1s)	Red/OFF	The Wi-Fi Client is enabled and has an IP address. The Wi-Fi Access Point is disabled.	There is no connection from the building LAN, or the connection has been disabled or failed.	The 802.15.4 network is not functional or the Area Controller cannot communicate with 802.15.4 devices.
Slow Blink (1s)	Yellow/Green	The Wi-Fi Client is enabled and has an IP address. The Wi-Fi Access Point is disabled.	The Area Controller is connected to the building LAN, has a static or dynamic IP address, and is ready to communicate.	The 802.15.4 network is not functional or the Area Controller cannot communicate with 802.15.4 devices.
Fast Blink (250ms)	Red/OFF/Red/ OFF/White/Cyan /White/Cyan	Wi-Fi Access Point and Wi-Fi Client are both enabled and available.	The Area Controller is in pairing mode.	The Area Controller is in pairing mode.
Fast Blink (250ms)	Magenta/Blue	Wi-Fi Access Point and Wi-Fi Client are both enabled and available.	There is no connection from the building LAN, or the connection has been disabled or failed.	The 802.15.4 network communication is normal.
Fast Blink (250ms)	White/Cyan	Wi-Fi Access Point and Wi-Fi Client are both enabled and available.	The Area Controller is connected to the building LAN, has a static or dynamic IP address, and is ready to communicate.	The 802.15.4 network communication is normal.
Fast Blink (250ms)	Red/OFF	Wi-Fi Access Point and Wi-Fi Client are both enabled and available.	There is no connection from the building LAN, or the connection has been disabled or failed.	The 802.15.4 network is not functional or the Area Controller cannot communicate with 802.15.4 devices.
Fast Blink (250ms)	Yellow/Green	Wi-Fi Access Point and Wi-Fi Client are both enabled and available.	The Area Controller is connected to the building LAN, has a static or dynamic IP address, and is ready to communicate.	The 802.15.4 network is not functional or the Area Controller cannot communicate with 802.15.4 devices.

WaveLinx Outdoor Area Controller Reset Functions

The WaveLinx Outdoor Area Controller **does not** contain onboard pushbuttons for reset functions. Follow the instructions for the functions described:

Function	Instructions
Enter or Exit Pairing Mode	In the WaveLinx App menu, select **Devices**. Select the Area Controller and then tap **ADD DEVICE** in the **INFORMATION** tab. Select **Wireless (Device Pairing)**. To exit pairing before the automatic 60 minute timeout, select **DISABLE PAIRING**.
Remove Unassigned Devices	Delete individual devices or follow the instructions in “Removing Devices in the Construction Area Using the Debug Page” on page 393 to remove all devices that are still in the Construction Area.
Reboot/Soft Reset	In the WaveLinx App menu, select **Devices**. Select the Area Controller and then tap **ACTIONS**. Select **Reboot Controller**.
Authentication and Wi-Fi Configuration Reset	Follow the instructions in “Resetting the WaveLinx Outdoor Area Controller Credentials/Passwords” on page 394 to reset the Wi-Fi Access Point, Wi-Fi Client, and Admin passwords on the WaveLinx Area Controller back to defaults.
Factory Reset	Factory reset is not a supported function.

Initial Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller

Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller

Initial Configuration Steps for the WaveLinx Area Controller or WaveLinx Outdoor Area Controller

The steps in this section should be completed before pairing devices to the WaveLinx Area Controller.

Use this section to:

- Connect to the Area Controller Webpage
- Set the Clock Parameters
- Set the IP address of the Area Controller

Step 1: Connect to the WaveLinx Area Controller Webpage

The steps in this section assume that the WaveLinx Area Controller/ WaveLinx Outdoor Area Controller has not been connected to a building network and is still in its factory default state for wireless name and username/password. If the Area Controller is connected to the building network, or the wireless name and password has been changed from the default, please refer to the network administrator for access information.

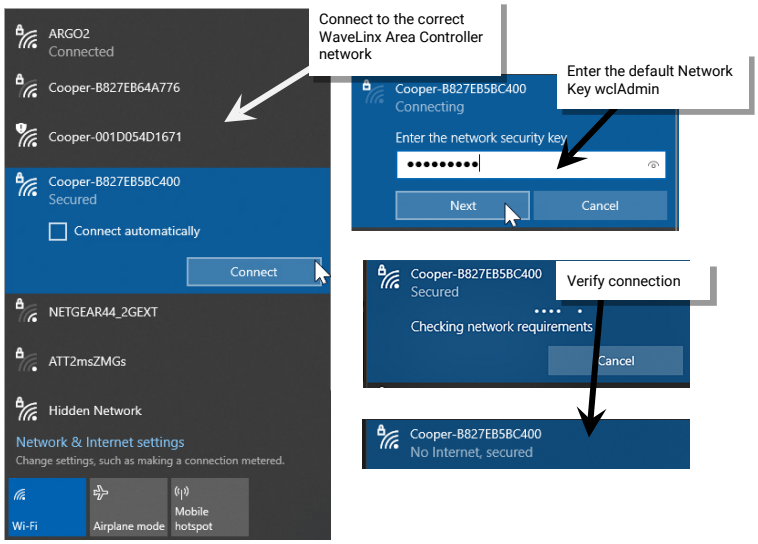
1: Make sure that the mobile device or computer being used has wireless connectivity and has a current version web browser installed. The WaveLinx internal webpage configuration is accessed using a web browser.

2: Go to the location of the WaveLinx Area Controller. Verify that the unit is powered and that the Power/Health LED is displaying the proper behavior (other LEDs may also be illuminated depending on connections).

On the front plate of the WaveLinx Area Controller locate the label with the MAC ID. Make note of the MAC ID shown.

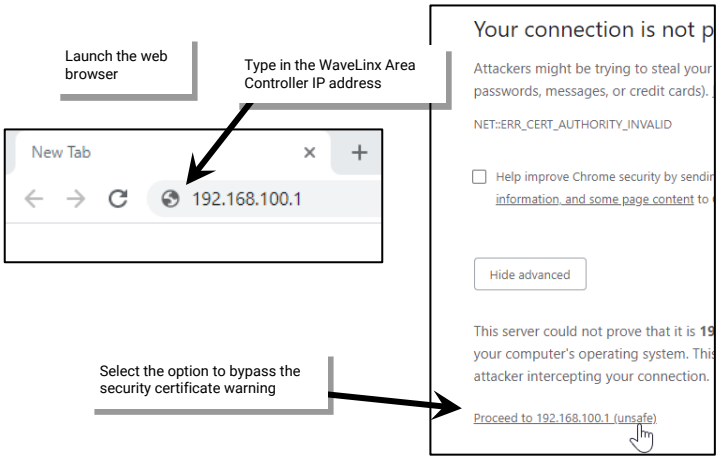
3: Turn on the mobile device or computer Wi-Fi and display the available Wi-Fi networks. Select the network, **Cooper-XXXXXXXXXXXX**, where X is the MAC address on the controller's label.

Enter the Network Key **wclAdmin** when prompted matching the case shown and join the network



4: Open the web browser and enter the IP address of the WaveLinx Area Controller in the address bar. (The default IP address is 192.168.100.1)

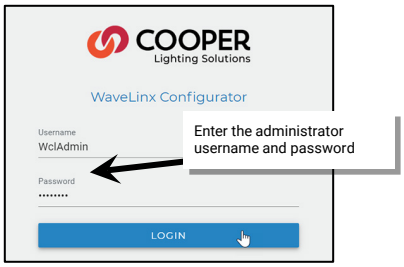
The first time the WaveLinx Area Controller is accessed, the browser may display message windows regarding the site security certificate. The display and wording of these messages may differ between web browsers. Locate the option to bypass the warning to proceed to the site.



Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller continued

5: In the log in screen, enter the username and password for the administrator user.[7]

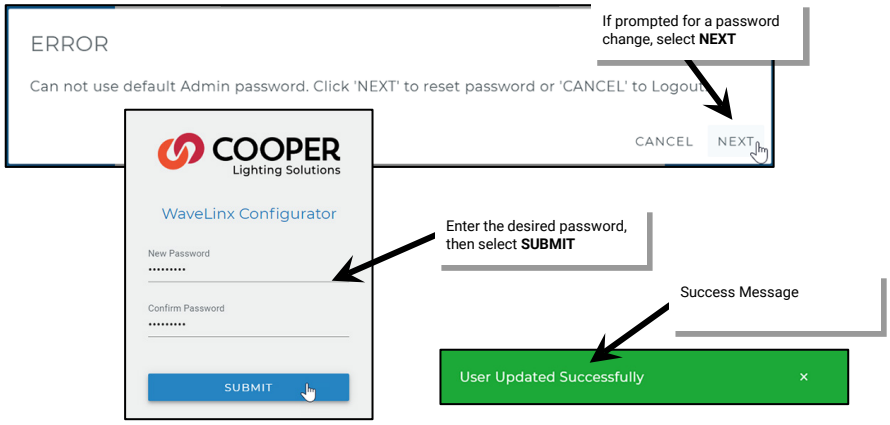
- Default Username: **WclAdmin**
- Default Password: **wclAdmin**



6: If this is the first login, the system will force a password change. When prompted, submit a new password for the administrative user.

Set a complex password when changing passwords, making sure it is something that can be remembered.

IMPORTANT! REMEMBER THE NEW PASSWORD AS IT WILL BE USED FOR ALL FUTURE ADMINISTRATOR LOGINS FOR THE INTERNAL WEBPAGE AND FOR THE MOBILE APPLICATION.

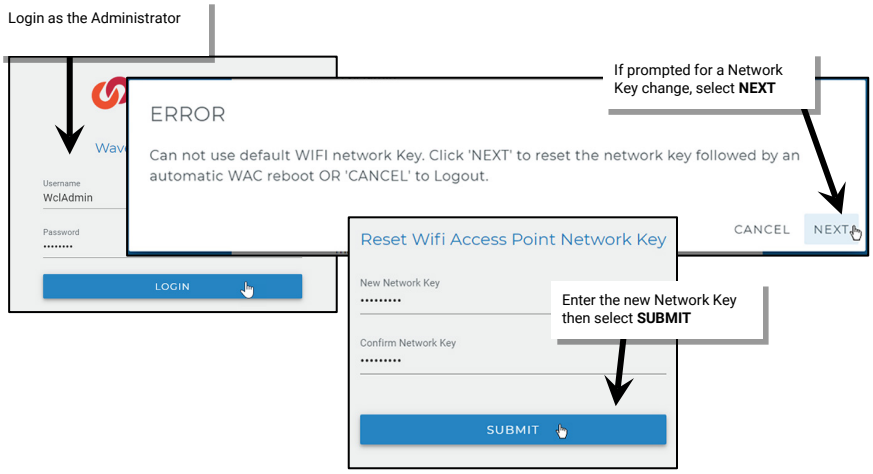


7: Next, login using the WclAdmin user with the newly assigned password.

The system will force a Wi-Fi Access Point Network Key (password) change.

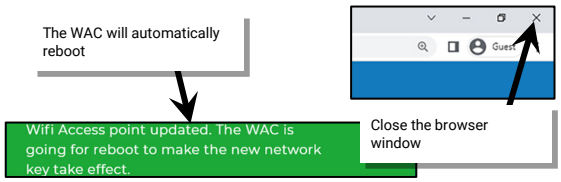
When prompted, submit a new Network Key. Set a complex Network Key when changing it, making sure it is something that can be remembered.

IMPORTANT! REMEMBER THE NEW NETWORK KEY AS IT WILL BE USED FOR ALL MOBILE DEVICE OR COMPUTER CONNECTIONS TO THE WI-FI ACCESS POINT ON THIS WAVELINX AREA CONTROLLER.



8: The WaveLinx Area Controller will automatically reboot. Close the web browser window.

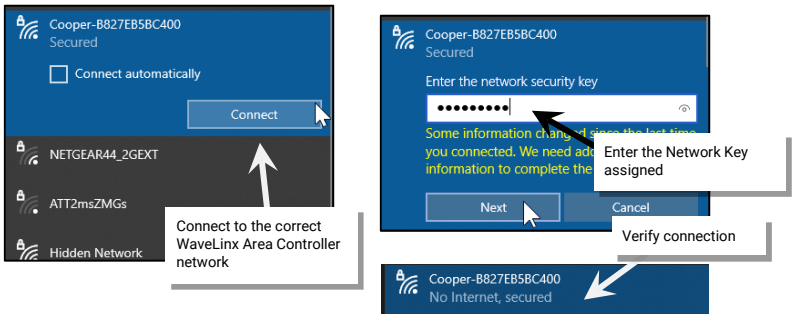
Wait a few minutes for the reboot to complete.



[7] If the username and password have been changed, use the updated username or password when logging in.

Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller continued

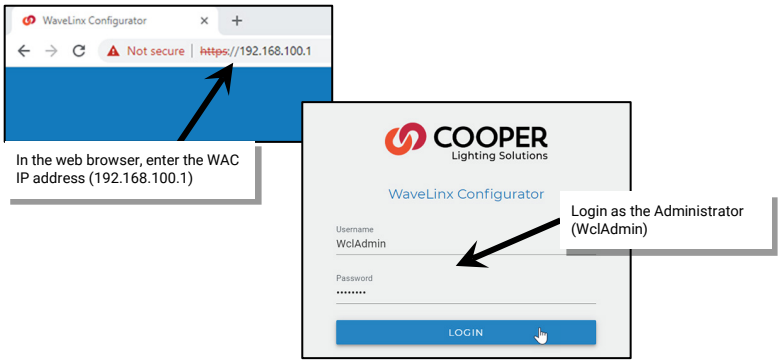
9: Re-connect to the WaveLinx Area Controller's Wi-Fi Access Point. When prompted, enter the new Network Key assigned.



10: Re-open the web browser and enter the IP address of the WaveLinx Area Controller in the address bar. (The default IP address is 192.168.100.1.)

Login using the **WclAdmin** administrator user, entering the newly assigned password.

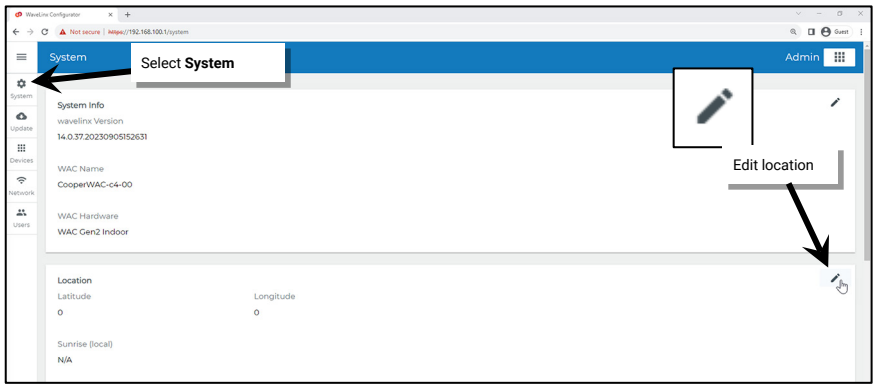
Proceed to the next step.



Step 2: Set the WaveLinx Area Controller Clock

The WaveLinx Area Controller clock settings need to be set for the site. This includes the location, time, date, and time zone settings. These settings are found within the system webpage. In the event of a power loss, the time and date will be retained for up to 48 hours. If power is lost for longer than a 48-hour period, the settings will need to be refreshed once power is restored.

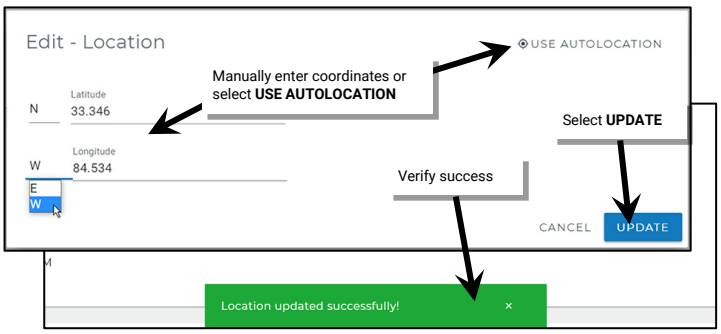
1: In the WaveLinx Area Controller's webpage, select the **System** page and then select the pencil icon in the location section to open it for editing.



2: Set the location using either the auto location feature or by manually entering the coordinates.

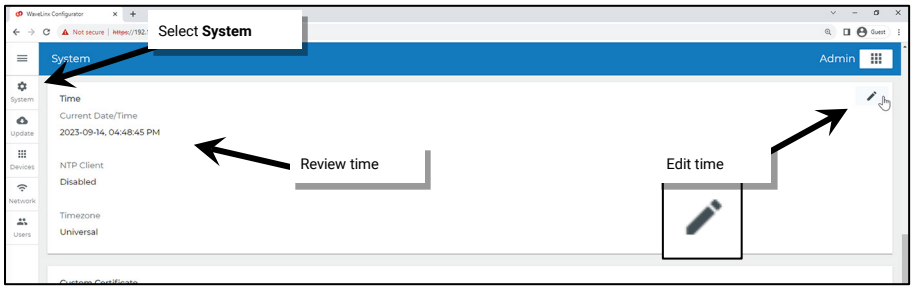
- Auto-Location: Can be used if the computer is connected to a network that allows for GPS location. Fields will automatically populate with the coordinates.
- Manually enter: Manually enter the coordinates after determining the latitude and longitude for the site.

Select **UPDATE** to save the coordinates. A success message will appear once completed.



Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller continued

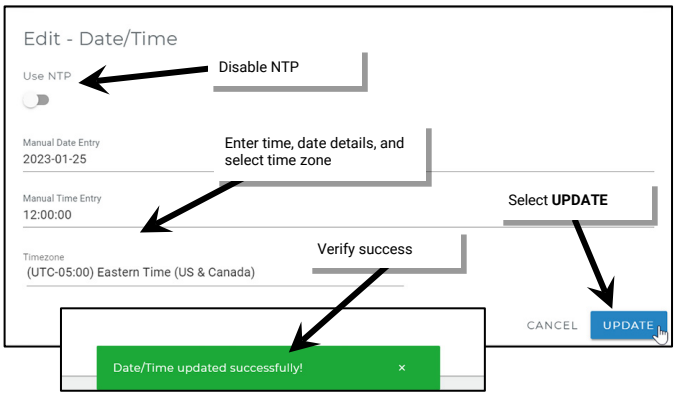
3: In the system page, review the current time, date, and time zone. If they are not correct, select the pencil icon to edit.

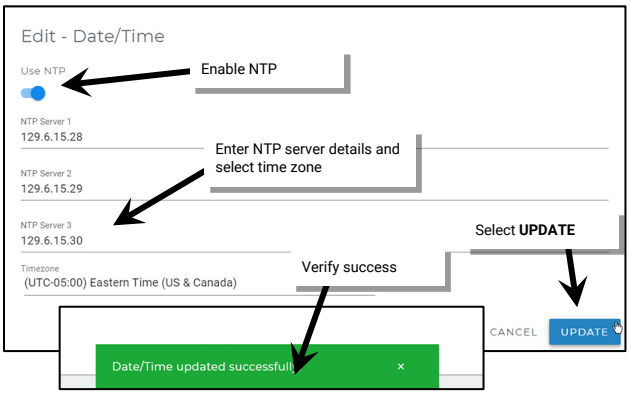


4: Update the time information by either entering the data manually or entering the NTP server details.

- **Enter manually**: Disable the **Use NTP** slider and enter the date (year-month-day YYYY-MM-DD format) and time fields (Use 24-hour military clock format to distinguish AM from PM). Click the time zone drop down and select the proper time zone.
- **Use NTP**: If the WaveLinx Area Controller is connected to a building network that uses a network time protocol (NTP) server, enable the **Use NTP** slider and fill in the NTP server address details. NTP servers do not set the time zone field. Manually set the time zone using the provided time zone drop down.

  Click **UPDATE** to save the coordinates to the WaveLinx Area Controller. A success message will appear once completed.





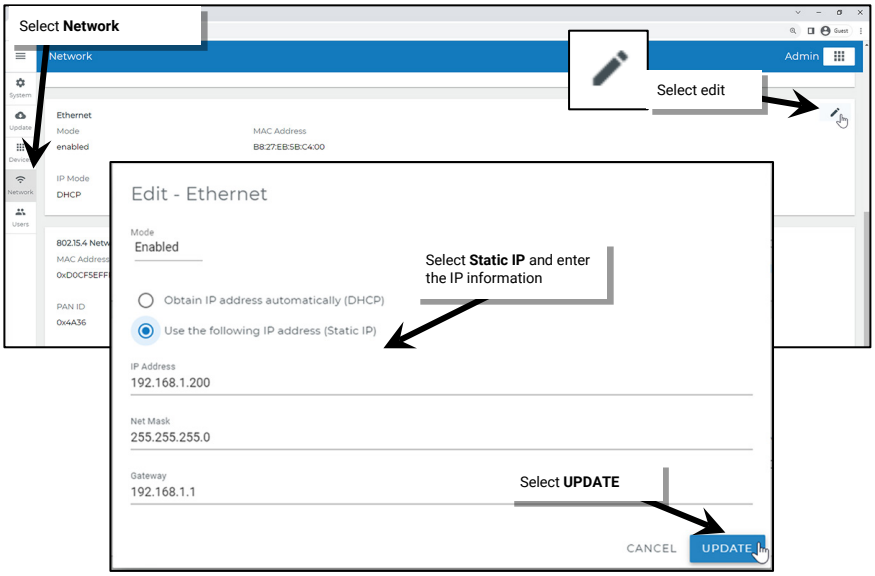
Step 3: Set the IP Address of the WaveLinx Area Controller

The WaveLinx Area Controller is set to DHCP by default. If using DHCP for IP addressing, skip this step. Follow the steps below only if assigning a static IP address.

1: Select the **Network** page and then click on the pencil icon in the **Ethernet** section to edit.

2: Disable **DHCP** and manually enter the desired IP address, subnet mask and default gateway. Select **UPDATE** to send the settings to the WaveLinx Area Controller.

Verify that the WaveLinx Area Controller is properly connected to the Building LAN.



The WaveLinx Area Controller initial setup is complete.

WaveLinx Area Hub Reference Sheet

WaveLinx Area Hub

Features

- Routes communication between the WaveLinx Area Controller and WaveLinx CAT Devices
  - Built-in Ethernet for PoE power and LAN connection
- Connects to up to 8 WaveLinx CAT buses

Power:
- Powered from PoE or PoE Injector

Typical Applications

- Required for communication to WaveLinx CAT Devices

Models:

- **WAH-C-POE:** WaveLinx Area Hub

WaveLinx App Details:

- Default Device Name:
  - AH-XXXX

Icon Displayed in WaveLinx App:

(only visible in the Devices menu)

The WaveLinx Area Hub is a communications coordinator between a WaveLinx Area Controller and WaveLinx CAT devices. When connected to an Area Hub, distributed WaveLinx CAT systems can be configured and controlled from the WaveLinx Mobile App.

The WaveLinx Area Hub communicates with the WaveLinx Area Controller over the Ethernet. The WaveLinx Mobile App communicates through Wi-Fi to the WaveLinx Area Controller to control and configure the WaveLinx CAT devices.

Area Hub Details

Feature	Details
Hardware Details	• The Area Hub supports up to 8 WaveLinx CAT buses through 8 RJ45 onboard connection ports • Max. 120 WaveLinx CAT Devices per Area Hub • Max 40 CAT devices per Area Hub port (20 best practice) • The Area Hub has one POE port for power and Ethernet

WaveLinx CAT Distributed and Network Modes

WaveLinx CAT buses can operate independently or may be connected to an Area Hub to operate as part of a system.
- **Distributed Mode**: The WaveLinx CAT devices connected to the same WaveLinx CAT bus operate together and control based on their factory default settings or settings programmed using a WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.
- **Networked Mode**: The WaveLinx CAT devices are connected to an Area Hub, are added to a WaveLinx Area Controller, and operate from the commands configured in the WaveLinx Area Controller. CAT devices can respond to or issue commands from/to other devices configured in the WaveLinx Area Controller.

Out-of-the-Box

The WaveLinx Area Hub has no out-of-the box functionality. Once power is applied, the Main Status LED should illuminate green and remain ON.

Connected CAT devices operate in **Distributed Mode** until the Area Hub and devices are discovered and added to a WaveLinx Area Controller during the configuration process.

Loss of Communications Operation

If the Area Hub loses communications with the WaveLinx Area Controller, or the WaveLinx CAT bus loses communication to the Area Hub, the connected WaveLinx CAT devices will revert to **Distributed Mode** operation within 15 seconds. The devices will remain at their current light level until they receive the next command from a motion sensor or wallstation on the same CAT bus.

The main Status LED will flash Green 300 ms/White 300 ms/OFF 2.4 s and repeat.

When communications to the WaveLinx Area Controller or Area Hub are restored, the WaveLinx CAT devices will return to **Networked Mode** operation.

Operation upon Return of Power

Upon return of power, the WaveLinx Area Controller will begin re-establishing connection with the Area Hub and with controlled devices. This process may take several minutes depending on the quantity of devices being controlled. Connected WaveLinx CAT devices will revert to **Distributed Mode** operation until the connection is re-established.

Area Hub Discovery

The Area Hub and WaveLinx CAT devices do not use pairing method. The process of adding the WaveLinx Area Hub to the WaveLinx Area Controller is called **Area Hub Discovery**. Once the Area Hub is discovered, the Area Hub and connected WaveLinx CAT devices can then be added to the WaveLinx Area Controller.

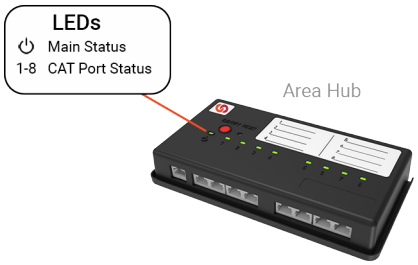
Area Hub Emergency Sets

Emergency Sets allow UL924 approved WaveLinx devices to operate as a normal device when normal power is present and go to Emergency Mode when normal power is not present.

If an Area Hub port has a CAT Emergency device connected, when the Area Hub is discovered and imported, an Emergency Set will be created for that port (up to 8 possible Emergency Sets per Area Hub). Up to three Normal Power Sense (NPS) CAT devices can be defined for each emergency set. NPS CAT devices must be on the same CAT network as the CAT Emergency device(s) in the Emergency Set.

WaveLinx Area Hub continued

LED Operations



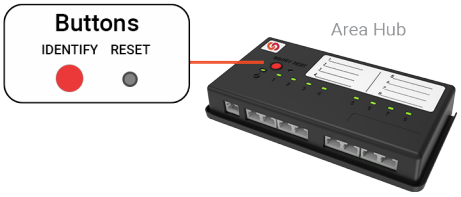
After power is applied, wait approximately 1 minute for the WaveLinx Area Hub to fully boot before reviewing the LED status.

LED	Color/Pattern	Description
Main Status LED	Flashes green for 1s, OFF for 1s. Repeats	The WaveLinx Area Hub is not connected with a WaveLinx Area Controller and does not have an IP Address (either DHCP or Static IP) assigned. 3 minutes after power is applied, if no DHCP server is found or statically assigned IP, the default IP address will be assigned, and the LED will stop flashing.
	ON solid green	The WaveLinx Area Hub is not connected to a WaveLinx Area Controller. An IP address has been assigned (from DHCP, static assignment, or default IP). Connected CAT devices will be in **Distributed Mode**.
	ON solid white	The WaveLinx Area Hub is connected to a WaveLinx Area Controller.
	Flashes green 300ms/white 300ms/OFF 2.4s. Repeats	The WaveLinx Area Hub has lost communications with the connected WaveLinx Area Controller. Connected CAT devices will be in **Distributed Mode**.
	Flashes magenta 1s/OFF 1s: Repeats for identity duration	The WaveLinx Area Hub has received a **Blink to Identify** command from the webpage interface or WaveLinx Mobile Application
	Flashes cyan 1s/OFF 1s Repeats for update duration.	The WaveLinx Area Hub firmware is being updated.
	Flashes cyan 500ms/OFF500ms. Repeats for update duration	The WaveLinx Area Hub's connected CAT device firmware is being updated.
	Flashes yellow for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 10 and 15 seconds and the Area Hub is the process of a factory reset.
	Flashes blue for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 3 and 5 seconds and the Area Hub is in the process of an authentication reset.
	ALL LEDs turn OFF with reset button press	The reset button has been pressed for 1 second and the Ara Hub is in the process of a soft reset/reboot.
	ON solid red	A fault is present.
CAT Port LEDs For Ports 1-8	Port LED OFF	No bus cable is plugged in/detected
	Port LED solid green	A bus cable is plugged in/detected. The Area Hub is not connected to a WaveLinx Area Controller. Connected CAT devices will be in **Distributed Mode**.
	Port LED solid white	A bus cable is plugged in/detected. The Area Hub is connected to a WaveLinx Area Controller. Connected CAT devices will be in **Networked Mode**.
	Port LED flashes green 300ms/white 300ms/OFF 2.4s. Repeats	A bus cable is plugged in/detected. The WaveLinx Area Hub has lost communications with the connected WaveLinx Area Controller. Connected CAT devices will be in **Distributed Mode**.
	Port LED(s) flashes magenta 1s/OFF 1s: Repeats for identity duration	The WaveLinx Area Hub port (or ports) have received a **Blink to Identify** from an onboard button press, from the webpage interface, or from the WaveLinx Mobile Application.
	Port LED ON solid red	A CAT bus fault is present.
	Other colors/patterns	Refer to the Color/Pattern details for the main status LED. Port LEDs will mimic the Area Hub blinking pattern for the states listed for the Main Status LED.

WaveLinx Area Hub continued

WaveLinx Area Hub Pushbutton Functions

The WaveLinx Area Hub has two pushbuttons that allow for several administrative functions. These functions should be used with caution!



Function	Button	Press Length	LED feedback	Device outcome
Soft Reset/Reboot	Reset (Inset Button)	Press and release (up to 1 second)	All LEDs will turn OFF as the Area Hub reboots	Devices will remain in previous commanded state during reboot, operate in **Distributed Mode** until the reboot completes and then resume their **Network Mode** behavior.
Authentication Reset	Reset (Inset Button)	Press and hold for 4 seconds recommended (>3 sec. to <=5 sec.)	Status LED will flash blue for 2 seconds	The area hub user and password will be reset to defaults.
Factory Reset	Reset (Inset Button)	Press and hold for 12 seconds recommended (>10 sec. to <=15 sec.)	Status LED will flash yellow for up to 5 seconds	All area hub settings will be reset to factory defaults. Connected devices will operate in **Distributed Mode** until the Area Hub is discovered and added to a WaveLinx Area Controller.
Identify Mode (ALL)	Identify	Press and hold for 2 seconds	All port LEDs start flashing magenta.	Devices on all connected ports are issued a **Blink to Identify** command. See device reference sheets for expected behavior. Identify mode will continue for 1 minute. To cancel identify mode prior to timer expiration, press and hold the Identify button for 2 seconds.
Identify Mode (single port)	Identify	Press and hold for 2 seconds. All port LEDs will start flashing. Press and release (up to 1 second) the identify button to cycle through and select the desired port. The LED on the selected port will flash. Each press/release of the identify button will advance by 1 port.	Initial press and hold will cause all port LEDs to start flashing magenta. Port selection press will cause only the selected port LED to flash magenta.	With the initial press and hold, devices on all connected ports are issued a **Blink to Identify** command. When the individual port is selected, the **Blink to Identify** command is isolated to the devices connected to the selected port. Individual port identify mode will expire after 1 minute and return to ALL port identify mode for 1 additional minute. During this time, another port selection can be made. Once the timer expires, the Area Hub will return to normal operation. To cancel identify mode prior to timer expiration, press and hold the Identify button for 2 seconds. See device reference sheets for expected behavior for **Blink to Identify** mode.

Initial Configuration Steps for the WaveLinx Area Hub

WaveLinx Area Hub continued

Initial Configuration Steps

The steps in this section must be done before adding the WaveLinx CAT Area Hub/Devices to the WaveLinx Area Controller.

Use this section to:

- Verify WaveLinx CAT Device Installation
- Prepare for Connection to Configure the Area Hub
- Determine the Area Hub IP Address
- Connect to the Area Hub Configurator
- Update the Area Hub Name
- Set an IP Address for the Area Hub

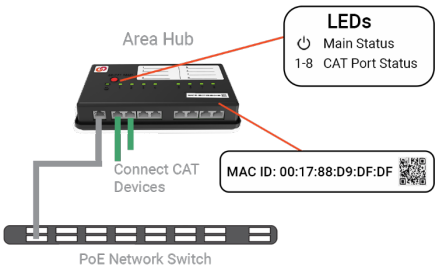
Step 1: Verify WaveLinx CAT Device Installation

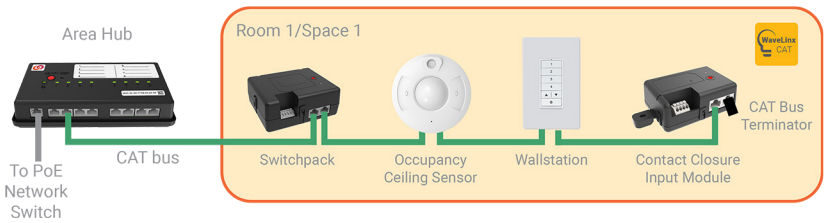
Before performing the WaveLinx CAT Area Hub configuration:

1: Connect the Area Hub's Ethernet port to the PoE network switch. After approximately 3 minutes, verify that the main status LED is ON solid green. This indicates that an IP address has been assigned to the port (either DHCP assigned or the default IP) and that the device is ready for configuration or WaveLinx Area Controller connection. Note: Other LEDs may also be illuminated depending on connections.

2: **Make note of the location and MAC address of each Area Hub that will be connected to the same network** (MAC address is located on label on the top of the device).

3. Confirm that the Area Hub is connected to the device CAT bus. Power switchpack and lighting circuits. Verify that device LEDs indicate a powered status.





Before the Area Hub is connected to the WaveLinx Area Controller:

WaveLinx CAT devices have a Blue LED that should be ON or flash to indicate the device is powered.

Motion devices will flash the LED when motion is detected.

Wallstations will flash the LED when a button is pressed.

IMPORTANT NOTE: The Area Hub is automatically set to allow DHCP configuration of the IP address. If the Area Hub has been connected to a building LAN with a DHCP server, it will automatically obtain an IP address. When no DHCP server is detected on the network, after 3 minutes, the Area Hub will self-assign an IP address in the range of 192.168.1.100 to 192.168.1.255 (randomized in this range to try to avoid IP conflict with other Area Hubs that may be on the same network)[8].

With either IP method, the status LED on the Area Hub will turn ON solid green indicating an IP address has been set.

If not setting a static IP address or changing the default Area Hub name, no further Area Hub configuration is necessary.

Follow the steps below to prepare to connect to and discover the Area Hub IP addresses, login to the Area Hub configurator, change the name of each WaveLinx Area Hub, and set a static IP address for each Area Hub Ethernet port.

Step 2: Prepare for Connection

The steps below assume that the Area Hub has not been connected to a network with a DHCP server. The WaveLinx Area Controller will be used during these steps.

If using DHCP, to change the Area Hub name or statically assign the IP address prepare the hardware for connection and then skip to step 3 on page 42.

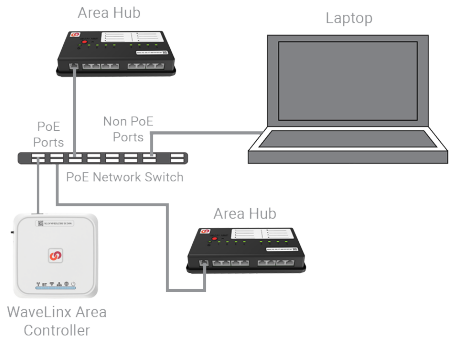
1: Prepare hardware for connection.

Make sure that the WaveLinx Area Controller initial configuration steps have been performed. See "Initial Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller" on page 24.

Make sure that the WaveLinx Area Hub is connected PoE Network Switch and that it is connected to the same Ethernet network as the WaveLinx Area Controller. (CAT buses can remain attached to the Area Hub). If the site has more than one WaveLinx Area Hub, all Area Hubs can remain connected and will be identified by their previously noted MAC address.

Once the Area Hub is connected, wait three minutes after power up for the Area Hub to self-assign an IP address. If visible, the Area Hub status LED will be ON solid green indicating that an IP address is assigned and ready for connection.

Connect the laptop's Ethernet port to a Network Switch's non-PoE port on the same Ethernet network.



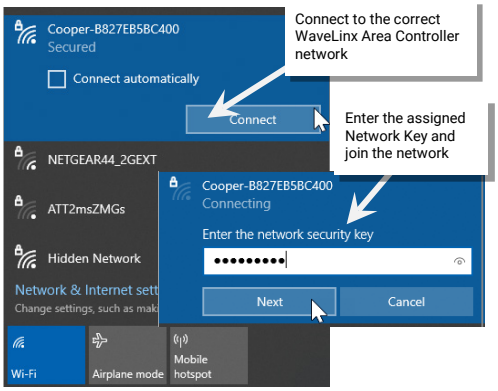
[8] Prior to release 14.1.x.x, all Area Hubs defaulted to the same IP address of 192.168.100.100. If connecting to a device with older firmware, isolate the Area Hub connection to the PoE switch and connect the laptop with a static IP address on this subnet to the network. Use the 192.168.100.100 IP address to open the Area Hub Configurator. Once configuration is complete, repeat with additional Area Hubs.

WaveLinx Area Hub continued

Step 2: (continued)

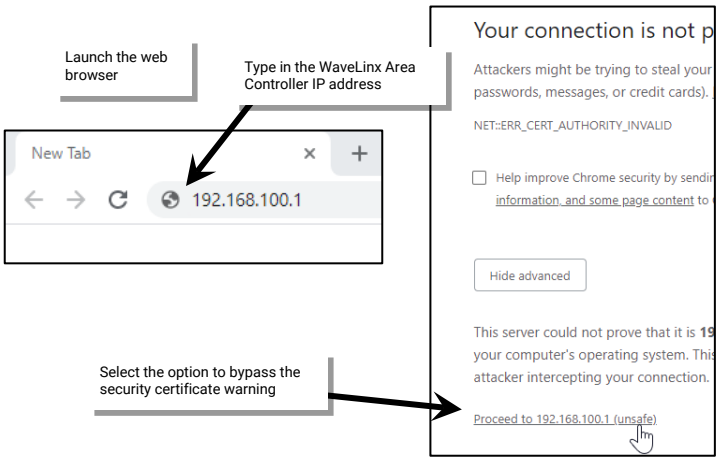
2: Turn on the laptop Wi-Fi and display the available Wi-Fi networks. Select the network, **Cooper-XXXXXXXXXXXX**, where X is the MAC address on the **WaveLinx Area Controller's** label.

If necessary, enter the Network Key assigned during the WaveLinx Area Controller's initial configuration and join the network



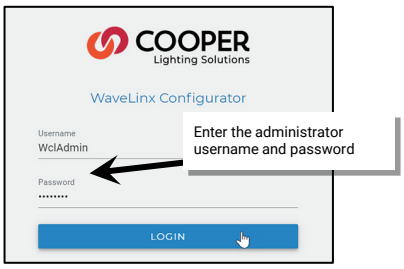
3: Open the web browser and enter the Wi-Fi IP address of the WaveLinx Area Controller in the address bar. (The default Wi-Fi IP address is 192.168.100.1)

If the browser displays a warning message, locate the option to bypass the warning to proceed to the site.

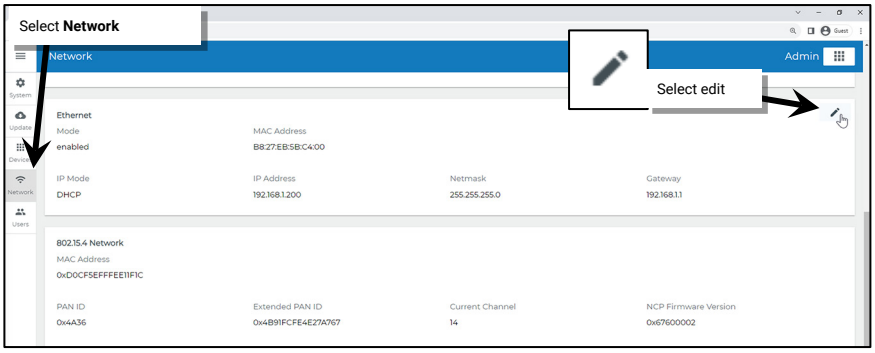


4: In the log in screen, enter the username and password for the administrator user.[9]

- Username: **WclAdmin**
- Password: enter password assigned during initial configuration



5: Select the **Network** page and then click on the pencil icon in the **Ethernet** section to edit.



[9] If the username and password have been changed, use the updated username or password when logging in.

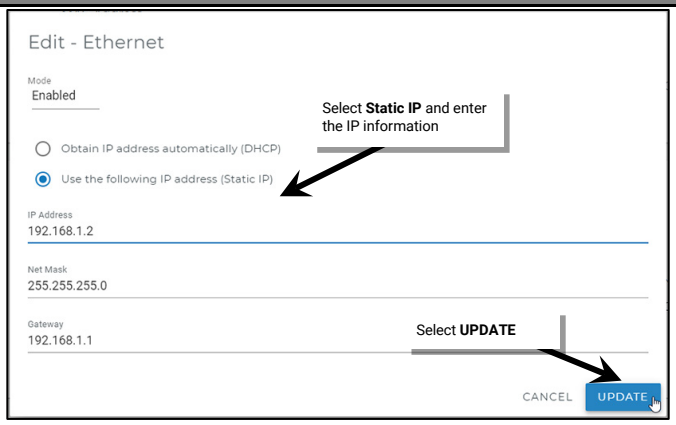
WaveLinx Area Hub continued

Step 2: (continued)

6: Select to use **Static IP** and manually enter the following:

- **IP address:** Enter an unused IP address in the range of **192.168.1.2 through 192.168.1.99**
- **Subnet mask**: **255.255.255.0**
- **Default gateway**: **192.168.1.1** (or other address not used in this subnet).

Select **UPDATE** to send the settings to the WaveLinx Area Controller.



Once the remaining steps of configuration are complete, if IP addresses of the Area Hub(s) have been changed to a different subnet, remember to change the WaveLinx Area Controller's IP address to a static IP on the new subnet.

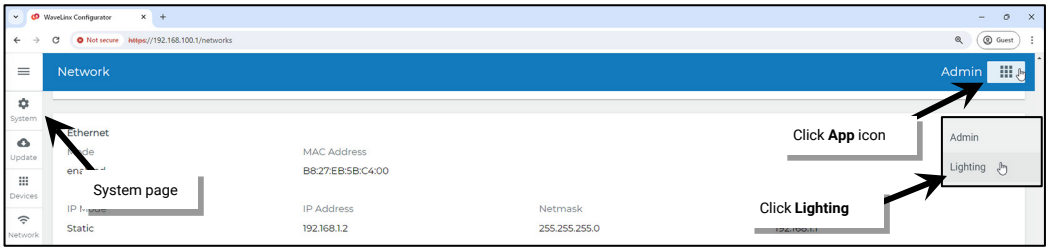
Step 3: Determine the Area Hub IP Addresses

In this step, the WaveLinx Area Controller's Lighting App will be used to discover the Area Hub IP addresses on the connected network. [10]

If the Area Hub has been connected to the building LAN and is using a DHCP address, contact the network administrator for the IP address and skip this step. If the network administrator does not have the Area Hub IP addresses but the WaveLinx Area Controller IP address is known, follow the steps described below to discover the Area Hubs to display the IP addresses in the WaveLinx Lighting App. The laptop being used for configuration must connect to the same network for access and the DHCP given IP address for the WaveLinx Area Controller used instead of the addresses discussed.

1: If not already logged in, login to the WaveLinx Area Controller web configurator as the administrator.

In the top right of the system page, click on the **App icon** ⠿ and then select **Lighting** from the drop down.



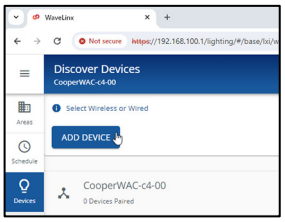
2: When prompted, enter the username and password for the WaveLinx Area Controller's administrator user and then select **LOGIN**.

- Username: **WclAdmin**
- Password: Enter the assigned password

3: Confirm that the **Discover Devices** view is displayed.

*If Discover Devices is not automatically displayed, select **menu** ☰ , and tap **Devices**.*

- *For tablet devices or devices being used in landscape view, tap on the WaveLinx Area Controller.*
- *For smaller devices using portrait view, the **Discovery** controls for the Area Controller will already be at the top of the screen.*



4: Tap **ADD DEVICE** and select **CAT Area Hub (Wired)** to begin the Area Hub search.

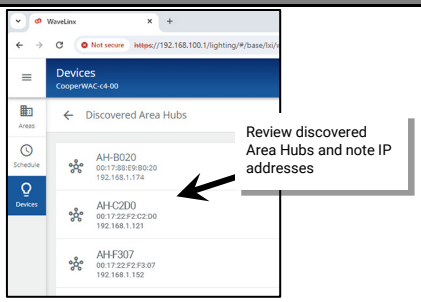
[10] Prior to release 14.1.x.x, all Area Hubs defaulted to the same IP address of 192.168.100.100. If connecting to a device with older firmware, isolate the Area Hub connection to the PoE switch and connect the laptop with a static IP address on this subnet to the network. Use the 192.168.100.100 IP address to open the Area Hub Configurator. Once configuration is complete, repeat with additional Area Hubs.

WaveLinx Area Hub continued

Step 3: (continued)

5: Wait for the search to be completed and then review the Area Hub list to determine the IP addresses.

Make note of the IP addresses, matching them to the MAC addresses noted earlier.

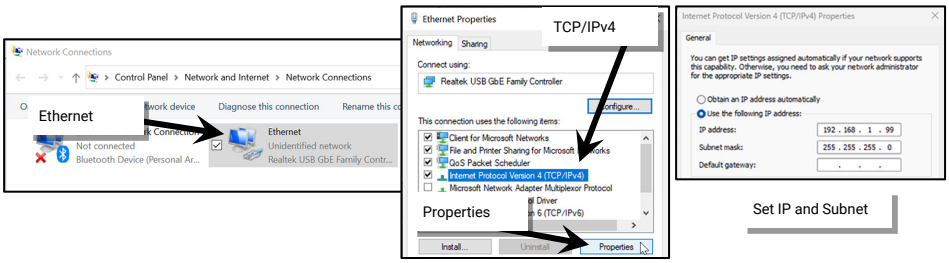


6: From the menu ☰ select **WAC Logout** and then close the browser window.

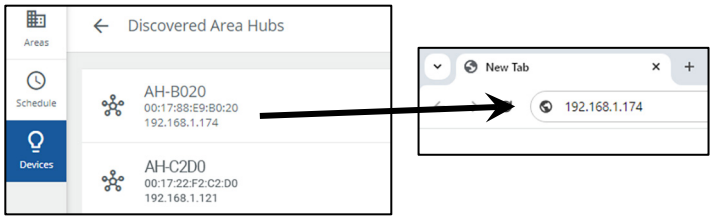
Step 4: Connect to the Area Hub Configurator

In this step, learn how to connect to the Area Hub Configurator tool using a web browser on the laptop. The Area Hub Configurator will be used to change the Name or the IP Address of the Area Hub(s).

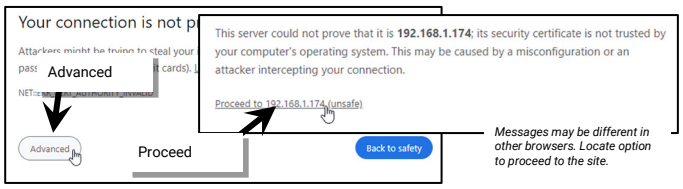
1: If not using DHCP, access the laptop's network adapter settings to statically **set the IP address of the laptop to be 192.168.1.99** (or another unused IP address on the 191.168.1.x subnet).



2: Open a current version web browser and enter the first Area Hub's assigned IP address in the address bar[11].



3: Bypass warnings and proceed to the site. This step is needed only for initial login or if browser cache is cleared.



[11] Prior to release 14.1.x.x, all Area Hubs defaulted to the same IP address of 192.168.100.100. If connecting to a device with older firmware, isolate the Area Hub connection to the PoE switch and connect the laptop with a static IP address on this subnet to the network. Use the 192.168.100.100 IP address to open the Area Hub Configurator. Once configuration is complete, repeat with additional Area Hubs.

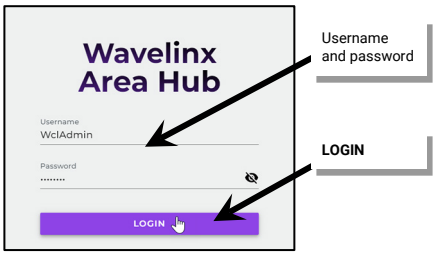
WaveLinx Area Hub continued

Step4: (continued)

4: Login to the WaveLinx Area Hub Configurator Webpage.

- Enter the admin username: **WclAdmin**,
- Enter the default password: **wclAdmin**

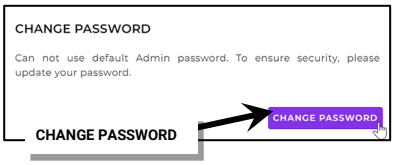
Select **LOGIN**



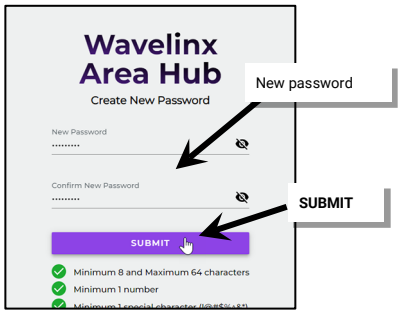
5: If this is the first login, the system will force a password change. When prompted, submit a new password for the administrative user.

Set a complex password when changing passwords, making sure it is something that can be remembered.

IMPORTANT! REMEMBER THE NEW PASSWORD AS IT WILL BE USED FOR ALL FUTURE ADMINISTRATOR LOGINS FOR THE AREA HUB WEBPAGE.

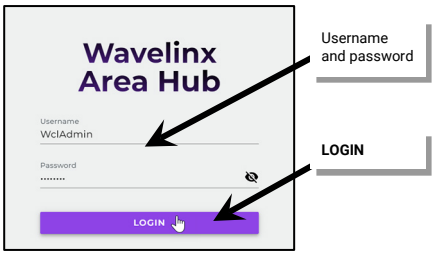


Any future login activity will require the use of the assigned password.



6: Login to the WaveLinx Area Hub Configurator webpage using the new password.

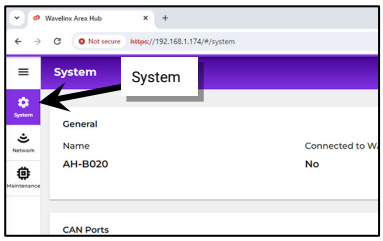
- Enter the admin username: **WclAdmin**,
- Enter the password: **assigned password**
- Select **LOGIN**



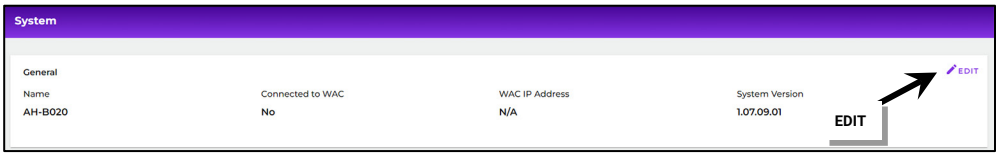
Step 5: Update the Area Hub Name (Optional)

a maximum 16 alphanumeric characters (hyphen character is allowed)

1: If needed, login to the WaveLinx Area Hub Configurator webpage and select **system**.

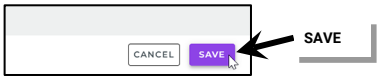


2: In the **General** section, select **EDIT** ✎.



3: Enter the new Area Hub name and select **SAVE**.

Repeat these steps for other Area Hubs on the network until all area hub names are assigned.



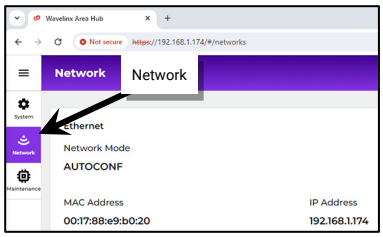
WaveLinx Area Hub continued

Step 6: Set a New Static IP Address for the Area Hub

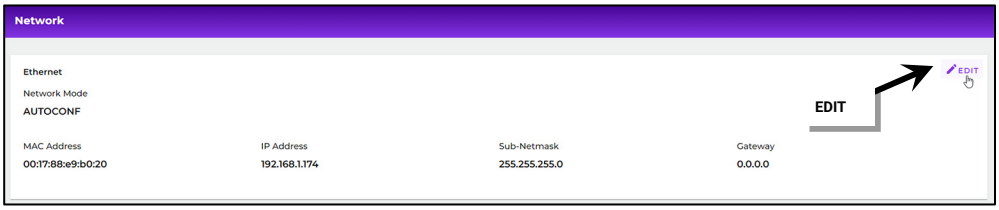
The WaveLinx CAT Area Hub is set to use DHCP by default. If using a DHCP server, no further IP address settings are needed.

If not using DHCP, the WaveLinx CAT Area Hub is set up to automatically configure an initial IP address in the range of 192.168.1.100 through 192.168.1.255 to allow for initial operation and configuration. Because both the 192.168.100.X and 192.168.1.X networks on the 255.255.255.0 subnet are used for default random IP address assignment, it is recommended that a different subnet be chosen for the final static IP to avoid conflict with any new devices connected to the system. [12]

1: If needed, login to the WaveLinx Area Hub Configurator webpage and select **network**.



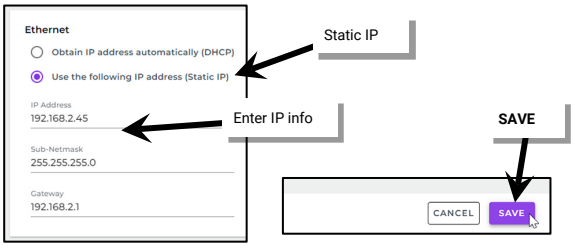
2: In the **Ethernet** section, select **EDIT** ✎.



3: Select **Use the following IP address (Static IP)** and then enter the desired **IP address**, **net mask**, and **gateway.** Select **SAVE**.

The WaveLinx Area Hub will reboot automatically and operate with the new settings.

Repeat these steps for other Area Hubs on the network until all area hub addresses are assigned.



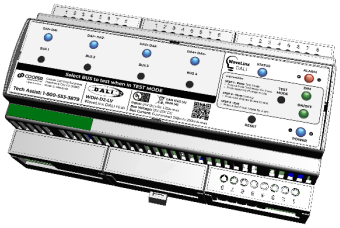
Once the remaining steps of configuration are complete, if IP addresses of the Area Hub(s) have been changed to a different subnet, remember to change the WaveLinx Area Controller's IP address to a static IP on the new subnet.

Disconnect the laptop from the PoE Network Switch. Remember to reset the laptop IP address settings back to using DHCP. Any future connections will require the use of the Area Hub's new IP address and subnet assigned.

[12] Prior to release 14.1.x.x, all Area Hubs defaulted to the same IP address of 192.168.100.100. If connecting to a device with older firmware, isolate the Area Hub connection to the PoE switch and connect the laptop with a static IP address on this subnet to the network. Use the 192.168.100.100 IP address to open the Area Hub Configurator. Once configuration is complete, repeat with additional Area Hubs.

WaveLinx DALI Hub Reference Sheet

WaveLinx DALI Hub



Features

- Routes communication between the WaveLinx Area Controller and WaveLinx DALI devices or other certified DALI/DALI-2 drivers
  - Built in Ethernet for IP communication to WAC
- Each hub connects to up to 4 DALI-2 buses
  - Maximum number of devices total per hub should not exceed 256
  - 238mA-250mA guaranteed per loop/bus, 16V (12V-20V DC, depending on bus load)
  - Each bus supports up to 128 addresses (depending on the bus load)
    - 64 driver (output) addresses
    - 64 digital device (input) addresses

Power:

- 24V DC: prewired within the WaveLinx DALI Panel. Externally connect 120-277VAC or 347VAC to the panel's main supply dependent on panel ordered.

Typical Applications

- Required for communication to WaveLinx DALI or certified DALI/DALI-2 Devices

Models:

- **WDH-D2-LV:** WaveLinx DALI Hub

WaveLinx DALI Panel models:

- WDP-D2-S1: 1 DALI Hub (4 buses)
- WPD-D2-S2: 2 DALI Hubs (8 buses)
- WPD-D2-M3: 3 DALI Hubs (12 buses)
- WPD-D2-M4: 4 DALI Hubs (16 buses)
- WPD-D2-L5: 5 DALI Hubs (20 buses)
- WPD-D2-L6: 6 DALI Hubs (24 buses)

WaveLinx App Details:

- Default Device Name:
  - DBH-XXXX

Icon Displayed in WaveLinx App:

The DALI Hub and Bus icons are only visible in the Devices menu.

DALI Hub

DALI Bus

The WaveLinx DALI Hub is a communications coordinator between a WaveLinx Area Controller and DALI-2 certified drivers and peripherals. Multiple DALI Hubs can be pre-mounted in a WaveLinx DALI Panel. Each DALI panel can be configured with 1 to 6 DALI Hubs for control of anywhere from 4 to 24 DALI buses.

When connected to a DALI Hub, WaveLinx DALI peripherals and DALI/DALI-2 certified drivers can be configured and controlled from the WaveLinx Mobile App.

Each WaveLinx DALI Panel contains a network switch for IP connection from the DALI Hubs to the WaveLinx Area Controller. The WaveLinx Mobile App communicates through Wi-Fi to the WaveLinx Area Controller to control and configure the WaveLinx DALI peripherals and DALI/DALI-2 certified devices.

DALI Hub Details

Feature	Details

Hardware Details	• The DALI Hub supports up to 4 DALI buses through onboard two-wire connection ports.
	  • Max. 256 WaveLinx DALI Devices per DALI Hub
	  • 238mA-250mA guaranteed per loop/bus.
	  • Bus power 16V (12V-20V DC, depending on bus load)
	• Max 128 devices per DALI bus (limited by bus load)
	  • Max 64 drivers/field relays/DACs (control gear) per bus
	  • Max 64 peripheral devices (sensors/wallstation buttons) per bus
	• Additional DALI Hub Features:
	  • Ethernet port for IP connection
	  • 24V DC power supply terminal
	  • Dry contact alarm input terminal

Supported DALI Devices	• The DALI Hub for WaveLinx version 17.0 supports the use of the following DALI devices
	  • WaveLinx DALI Field Relays
	  • WaveLinx DALI DACs
	  • WaveLinx DALI-2 WST-D2 Series Wallstations
	  • WaveLinx DALI-2 Occupancy Ceiling Sensor
	  • LED fixtures with one of the following driver types:
	  • DALI-2 device type DT6: Single color LEDs – 1 channel
	  • DALI-2 device type DT8: Tunable White LEDs (no current RGB/RGBW support)

Out-of-the-Box

The WaveLinx DALI Hub has no out-of-the box functionality. Once power is applied, the Main Status LED should illuminate green and remain ON.

WaveLinx DALI-2 and other DALI-2 devices will not operate until added to the WaveLinx Area Controller during the configuration process.

Loss of Communications Operation

If the WaveLinx DALI Hub loses communications with the WaveLinx Area Controller, or the DALI bus loses communication to the DALI Hub, the connected DALI devices will turn on to its defined system failure level.

The main Status LED will flash Green 300 ms/White 300 ms/OFF 2.4 s and repeat.

When communications to the WaveLinx Area Controller or DALI Hub are restored, the DALI devices will return to normal operation.

Operation upon Return of Power

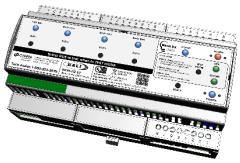
Upon return of power, the WaveLinx Area Controller will begin re-establishing connection with the DALI Hub and with controlled devices. This process may take several minutes depending on the quantity of devices being controlled. Connected DALI devices will remain at their defined system failure level until the connection is re-established.

WaveLinx DALI Hub Discovery

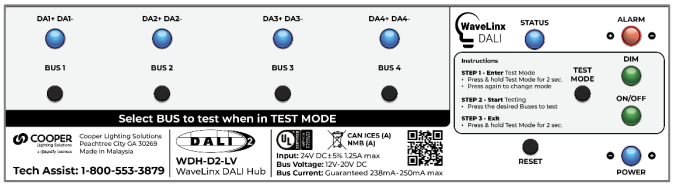
There is no need to pre-address DALI devices. Devices will be automatically addressed when the DALI Hub is added to the WaveLinx Area Controller.

The WaveLinx DALI Hub and connected DALI devices do not use pairing mode. Instead, the DALI Hub is added to the WaveLinx Area Controller using **DALI Hub Discovery**. Once the DALI Hub is discovered, the DALI Hub and connected DALI devices can then be added to the WaveLinx Area Controller.

WaveLinx DALI Hub continued



LED Operations



After power is applied, wait approximately 1 minutes for the WaveLinx DALI Hub to fully boot before reviewing the LED status. The WaveLinx DALI Hub has nine (9) LEDs:

- Power LED
- Main Status LED
- DALI Bus 1 through 4 LEDs (4 LEDs)
- Alarm LED
- Test Mode: DIM LED
- Test Mode: ON/OFF LED

Power LED

Pattern	Description
Solid ON Blue	The DALI Hub is powered.
OFF	There is no power to the DALI Hub power port. Ensure that 24V DC 4A supply is connected and that the feeding circuit breaker is energized.

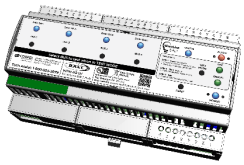
Main Status LED

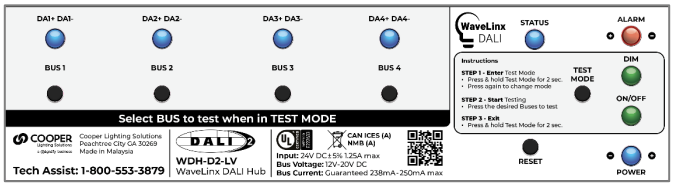
The main status LED displays the status of the WaveLinx DALI Hub's operations. This RGB LED will display different colors or blink patterns to indicate the operational conditions.

Color(s)/Pattern(s)	Description
ON solid green	The WaveLinx DALI Hub is not connected to a WaveLinx Area Controller. An IP address has been assigned (from DHCP, static assignment, or default IP).
Flashes green for 1s, OFF for 1s. Repeats	The WaveLinx DALI Hub is not connected with a WaveLinx Area Controller and does not have an IP Address (either DHCP or Static IP) assigned. 3 minutes after power is applied, if no DHCP server is found or statically assigned IP, the default IP address will be assigned, and the LED will stop flashing.
ON solid white	The WaveLinx DALI Hub is connected to a WaveLinx Area Controller.
Flashes green 300ms/white 300ms/OFF 2.4s. Repeats	The WaveLinx DALI Hub has lost communications with the connected WaveLinx Area Controller. Connected DALI devices will go to their System Failure Level.
ON solid red	The contact connected to the Alarm input is closed, issuing the device to Alarm state.
Flashes red for 1s, OFF for 1s. Repeats	There is a fault present on one the connected DALI buses. Check for a bus short or device overload.
Flashes magenta 1s/OFF 1s: Repeats for identity duration	The WaveLinx DALI Hub has received a **Blink to Identify** command from the webpage interface or WaveLinx Mobile Application.
Flashes cyan 1s/OFF 1s. Repeats for update duration.	The WaveLinx DALI Hub firmware is being updated.
Flashes yellow for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 10 and 15 seconds and the DALI Hub is the process of a factory reset.
Flashes blue for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 3 and 5 seconds and the DALI Hub is in the process of an authentication reset.
ALL LEDs turn OFF with reset button press	The reset button has been pressed for 1 second and the DALI Hub is in the process of a soft reset/reboot.
Solid OFF	Verify that the DALI Hub is powered (blue power LED is ON).

WaveLinx DALI Hub continued

LED Operations continued





After power is applied, wait approximately 1 minutes for the WaveLinx DALI Hub to fully boot before reviewing the LED status. The WaveLinx DALI Hub has nine (9) LEDs:

- Power LED
- Main Status LED
- DALI Bus 1 through 4 LEDs (4 LEDs)
- Alarm LED
- Test Mode: DIM LED
- Test Mode: ON/OFF LED

DALI Bus 1-4 Status LEDs

The DALI bus status LEDs displays the status of each of the connected DALI buses (1-4). Each DALI bus RGB LED will display different colors or blink patterns to indicate the operational conditions.

Color(s)/Pattern(s)	Description
Bus LED OFF	No DALI bus is connected/detected OR a DALI bus is attached but devices have not been configured in the DALI Hub database (done during the DALI hub discovery in the WaveLinx Area Controller).
Bus LED solid green	A DALI bus is connected/detected. The DALI Hub is not connected to a WaveLinx Area Controller.
Bus LED solid white	A DALI bus is connected/detected. The DALI Hub is connected to a WaveLinx Area Controller.
Bus LED Flashes green 300ms/white 300ms/OFF 2.4s. Repeats	A DALI bus is connected/detected. The WaveLinx DALI Hub has lost communications with the connected WaveLinx Area Controller. Connected DALI devices will go to their System Failure Level.
Bus LED Flashes magenta 1s/OFF 1s. Repeats for the mode duration.	The WaveLinx DALI Hub port (or ports) have received a command to go into the **Test Mode** from the onboard buttons or have received a **Blink to Identify** command from the webpage interface or from the WaveLinx Mobile Application. The pattern will repeat for the duration of the mode.
Bus LED is ON solid red	The contact connected to the Alarm input is closed, issuing the device to Alarm state.
Bus LED flashes red 1s/OFF 1s. Repeats	There is a fault present on the bus for that LED. Check for a bus short.
Bus LED flashes yellow 300ms/red 300ms/OFF 2.4s. Repeats	There is a fault present on the bus for that LED. Check the bus for overload/overcurrent.
Bus LED flashes white 300ms/red 300ms/ OFF 2.4s.	A DALI bus is connected/detected. The DALI Hub is connected to a WaveLinx Area Controller. The bus for that LED has exceeded the number of devices allowed.
Bus LED flashes green 300ms/red 300ms/ OFF 2.4s.	A DALI bus is connected/detected. The DALI Hub is not connected to a WaveLinx Area Controller. The bus for that LED has exceeded the number of devices allowed.
Bus LED flashes magenta 300ms/red 300ms/ OFF 2.4s.	A DALI bus is connected/detected and the bus is currently in **Test Mode** or **Blink to Identify**. The bus for that LED has exceeded the number of devices allowed.

Alarm LED

Each DALI Hub allows connection via a two-wire input terminal to an external dry contact closure. A closure on the input terminal will place the hub in Alarm Mode, forcing the connected devices to Full ON.

Pattern	Description
Flashes red 1s/OFF 1s. Repeats.	The contact wired to the Alarm input terminal is closed. The pattern will repeat as long as the contact remains closed.
OFF	The contact that is wired to the Alarm input termina is open, or there is no contact input wired to the alarm terminal.

Test Mode LEDs

The DALI Hub has an onboard pushbutton to allow for test of connected devices. When test mode is triggered, the pushbutton will be used to select between Test DIM or Test ON/OFF mode. An LED will illuminate to indicate which test mode is active. Test mode will remain active until it is manually cancelled or automatically time out after 60 minutes.

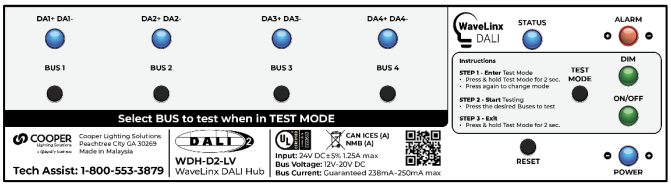
LED	Description
Test Mode DIM: ON solid green.	DIM test mode has been selected. When a DALI bus is selected, the bus LED will flash magenta. Wallstations and occupancy sensors connected to the DALI bus will flash their onboard LEDs continuously. All connected lighting loads will dim to a 10% light level and remain at this level for the duration of the test.
Test Mode ON/OFF: ON solid green.	ON/OFF test mode has been selected. When a DALI bus is selected, the bus LED will flash magenta. Wallstations and occupancy sensors connected to the DALI bus will flash their onboard LEDs continuously. All connected lighting loads will turn ON/100% for 20 seconds and then turn OFF for 5 seconds and repeat this pattern for the duration of the test.
Test Mode: DIM and ON/OFF LEDs OFF	The DALI Hub is not currently in test mode.

WaveLinx DALI Hub continued

WaveLinx DALI Hub Pushbutton Functions

The WaveLinx DALI Hub has six onboard pushbuttons that allow for several administrative functions. These functions should be used with caution!

- Reset pushbuttons
- Test Mode pushbutton
- DALI bus 1-4 pushbuttons



Reset Pushbutton

The reset pushbutton should be used with caution.

Function	Button	Press Length	LED feedback	Device outcome
Soft Reset/Reboot	Reset	Press and release (up to 1 second)	The status LED will blink red for 1 second and then will clash green and white until the DALI Hub re-establishes connection with the WaveLinx Area Controller.	Devices will remain in previous commanded state during reboot, until the reboot completes and then resume normal behavior.
Authentication Reset	Reset	Hold for 4 seconds and then release (>3 sec. to <=5 sec.)	Status LED will flash blue for up to 2 seconds	The DALI Hub username and password will be reset to defaults.
Factory Reset	Reset	Hold until the Status LED starts flashing yellow and then release (>10 sec. to <=15 sec.)	Status LED will flash yellow for up to 5 seconds	All DALI Hub settings will be reset to factory defaults. Connected devices will go to system failure levels until the DALI Hub is discovered and added to a WaveLinx Area Controller.

Test Mode and the DALI Bus Pushbuttons

The **Test Mode** and **DALI Bus pushbuttons** will be used together to place a specific bus or buses into the selected test mode.

To place a DALI bus or buses into to test mode:

1: Press the Test Mode pushbutton until the DIM mode LED illuminated green (approx. 2 seconds) and then release the Test Mode button.

2: If DIM mode is not the desired Test Mode, press and release (short press) the Test Mode button again to cycle to ON/OFF test mode (LED will illuminate).

3. Press and release (short press) the desired DALI bus pushbutton (or select additional bus pushbuttons if multiple buses are desired). The LEDs on the selected DALI bus(es) will flash magenta indicating they are in the desired test mode.

Test Mode Behavior:

Test Mode behavior will depend on the selected Test Mode.

- **ON/OFF test mode**: When a DALI bus is selected, the bus LED will flash magenta. Devices connected to the selected DALI bus will flash their onboard LEDs (magenta) and control devices will cycle lighting slowly ON and OFF for the duration of the test.

  NOTE: WaveLinx DALI Field Relays will operate with ON/OFF test mode for approximately 5 minutes after which they may exhibit inconsistent behavior and will not reliably follow the expected ON/OFF cycle. I this occurs, turn OFF test mode for approximately 1 minute to allow the device to fully recharge before starting test mode again.

- **DIM test mode**: When a DALI bus is selected, the bus LED will flash magenta. Devices connected to the selected DALI bus will flash their onboard LEDs (magenta) and control devices will cycle lighting slowly ON and OFF for the duration of the test.

To exit test mode:

Test mode will automatically time out after 60 minutes. To exit test mode manually before the automatic timeout expires:

1: Press the Test Mode pushbutton until both Test Mode LEDs are OFF (approx. 2 seconds)

2: Release the Test Mode button. Normal operation should resume

Initial Configuration Steps for the WaveLinx DALI Hub

WaveLinx DALI Hub continued

Initial Configuration Steps

The steps in this section must be done before adding the WaveLinx DALI Hub and attached DALI devices to the WaveLinx Area Controller.

Use this section to:

- Verify WaveLinx DALI Hub and DALI Device Installation
- Prepare for Connection to Configure the WaveLinx DALI Hub
- Determine the WaveLinx DALI Hub IP Address
- Connect to the WaveLinx DALI-2 Configurator
- Update the WaveLinx DALI Hub Name
- Set an IP Address for the WaveLinx DALI Hub

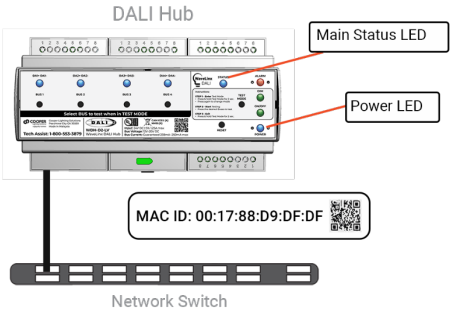
Step 1: WaveLinx DALI Hub and DALI Device Installation

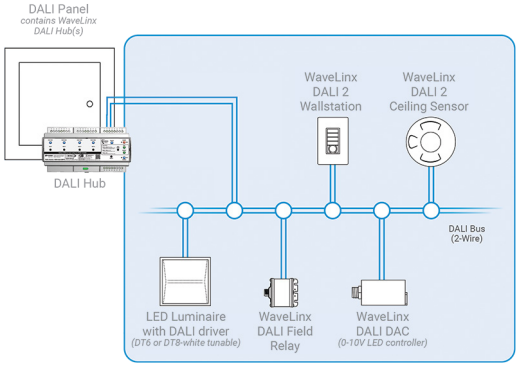
Before performing the WaveLinx DALI Hub configuration:

1: Ensure that there is a connection between the WaveLinx DALI Hub(s) and the network switch that is within the DALI Panel. Make a connection between the WaveLinx DALI Panel's network switch and the building network. Apply power to the DALI Panel and allow the DALI Hub(s) to power up. After approximately 3 minutes, verify that the DALI Hub(s) main status LED is ON solid green. This indicates that an IP address has been assigned (either DHCP assigned or the default IP) and that the device is ready for configuration or WaveLinx Area Controller connection. Note: Other LEDs may also be illuminated.

2: **Make note of the location and MAC address of each DALI Hub that will be connected to the same network** (MAC address is located on label on the device).

3. Confirm that the DALI device DALI bus(es) are connected to the DALI Hub DALI terminals. Power any lighting circuits.





IMPORTANT NOTE: The DALI Hub is automatically set to allow DHCP configuration of the IP address. If the DALI Hub has been connected to a building LAN with a DHCP server, it will automatically obtain an IP address. When no DHCP server is detected on the network, after 3 minutes, the DALI Hub will self-assign an IP address in the range of 192.168.1.100 to 192.168.1.255 (randomized in this range to try to avoid IP conflict with other DALI Hubs that may be on the same network).

With either IP method, the status LED on the DALI Hub will turn ON solid green indicating an IP address has been set.

If not setting a static IP address (addresses are being assigned by DHCP) or if no change is needed to the default DALI Hub name, no further DALI Hub configuration is necessary. The DALI Hub is ready for connection to the WaveLinx Area Controller.

If it is necessary to assign a static IP address or change the default DALI Hub name, follow the steps below to prepare to connect to and discover the DALI Hub default IP addresses, and login to the DALI Hub configurator to make the necessary changes.

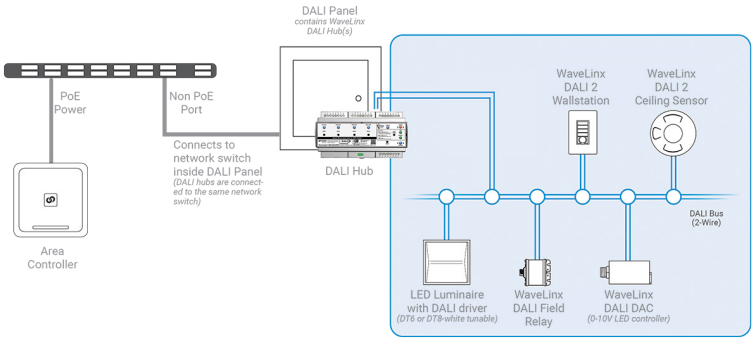
Step 2: Prepare the Hardware for Connection

Make sure that the WaveLinx Area Controller initial configuration steps have been performed. See "Initial Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller" on page 24.

Make sure that the WaveLinx DALI Hub is connected to the DALI Panel's network switch and that it is connected to the same Ethernet network as the WaveLinx Area Controller. (The DALI buses can remain attached to the DALI Hub). If the site has more than one WaveLinx DALI Hub, all DALI Hubs can remain connected and will be identified by their previously noted MAC address.

Once the DALI Hub is connected, wait three minutes after power up for the DALI Hub to self-assign an IP address. If visible, the DALI Hub status LED will be ON solid green indicating that an IP address is assigned and ready for connection.

Connect the laptop's Ethernet port to a network switch port on the same Ethernet network. (Note: both a Wi-Fi and Ethernet connections will be used in this procedure).



If using DHCP to assign IP addresses, skip to step 4 on page 42 to determine the DALI Hub IP addresses and proceed with any name configuration change.

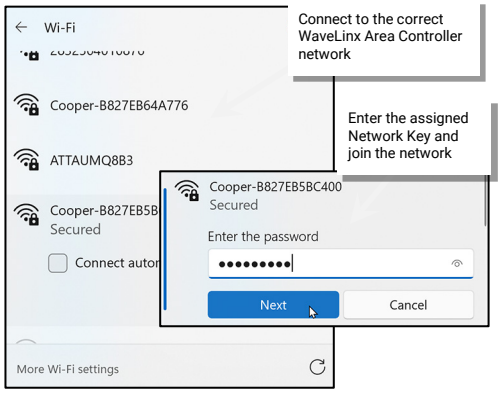
WaveLinx DALI Hub continued

Step 3: Prepare for Connection if Using Static IP Addresses (Non-DHCP)

The steps below assume that the DALI Hub has not been connected to a network with a DHCP server. The WaveLinx Area Controller will be used during these steps and must be assigned an IP address in the same subnet as the default address of the DALI Hub(s). This step will use the WaveLinx Area Controller's Wi-Fi Access Point for connection.

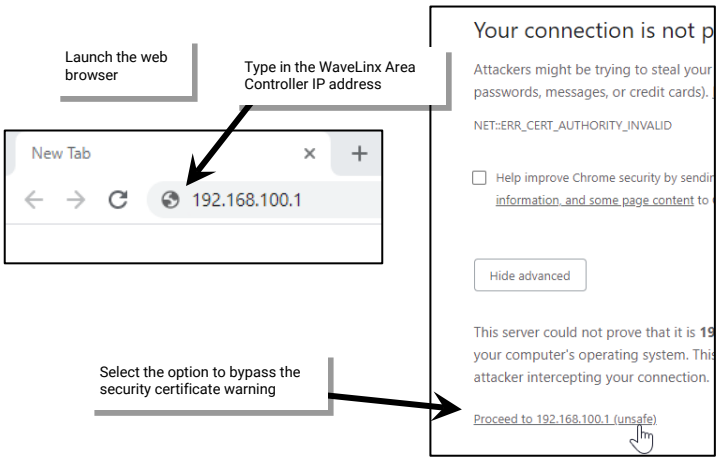
1: Turn on the laptop Wi-Fi and display the available Wi-Fi networks. Select the network, **Cooper-XXXXXXXXXXXX**, where X is the MAC address on the **WaveLinx Area Controller's** label.

If necessary, enter the Network Key assigned during the WaveLinx Area Controller's initial configuration and join the network



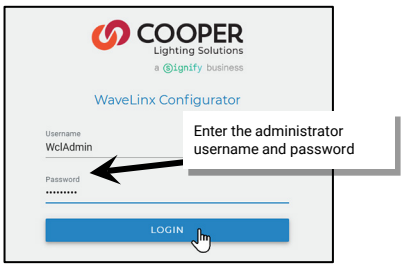
2: Open the web browser and enter the Wi-Fi IP address of the WaveLinx Area Controller in the address bar. (The default Wi-Fi IP address is 192.168.100.1)

If the browser displays a warning message, locate the option to bypass the warning to proceed to the site.

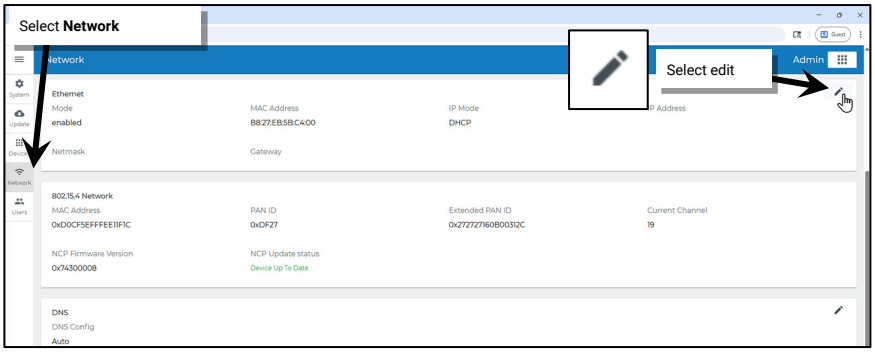


4: In the log in screen, enter the username and password for the administrator user.[13]

- Username: **WclAdmin**
- Password: enter password assigned during initial configuration

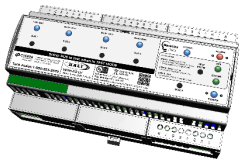


5: Select the **Network** page and then click on the pencil icon in the **Ethernet** section to edit.



[13] If the username and password have been changed, use the updated username or password when logging in.

WaveLinx DALI Hub continued

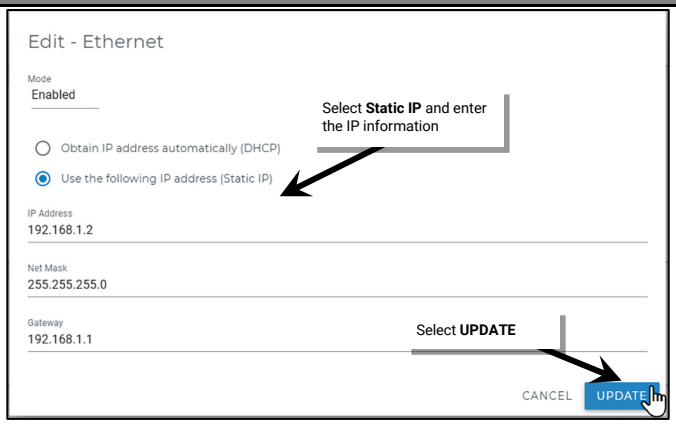


Step 3: (continued)

6: Select to use **Static IP** and manually enter the following:

- **IP address:** Enter an unused IP address in the range of **192.168.1.2 through 192.168.1.99**
- **Subnet mask**: **255.255.255.0**
- **Default gateway**: **192.168.1.1** (or other address not used in this subnet).

Select **UPDATE** to send the settings to the WaveLinx Area Controller.



Once the remaining steps of configuration are complete, if IP addresses of the DALI Hub(s) have been changed to a different subnet, remember to change the WaveLinx Area Controller's IP address to a static IP on the new subnet.

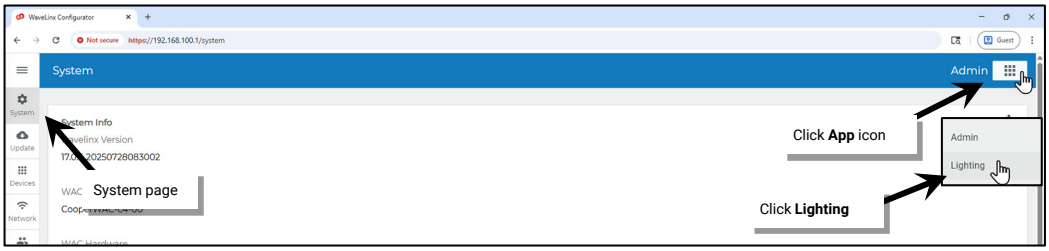
Step 4: Determine the DALI Hub IP Address(es)

In this step, the WaveLinx Area Controller's Lighting App will be used to discover the DALI Hub IP addresses on the connected network.

- If the WaveLinx Area Controller and DALI Hubs are connected to a DHCP network: Use a laptop or device connected to the same network for access. The WaveLinx Area Controller's Ethernet IP Address must be known. Enter this IP address when prompted in the steps below.
- If the WaveLinx Area Controller and DALI Hubs are connected via a static IP network: Use a laptop or device to wirelessly connect to the WaveLinx Area Controller using its onboard Wi-Fi Access Point as described in step 3 on page 42. Use the WaveLinx Area Controller's Wi-Fi Access Point IP address when prompted to enter the IP address (default 192.168.100.1).

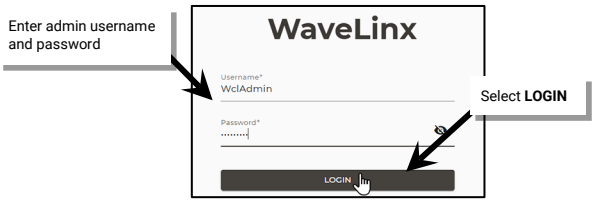
1: In a web browser, enter the IP address of the WaveLinx Area Controller and login to the WaveLinx Area Controller web configurator as the administrator.

In the top right of the system page, click on the **App icon** ⠿ and then select **Lighting** from the drop down.



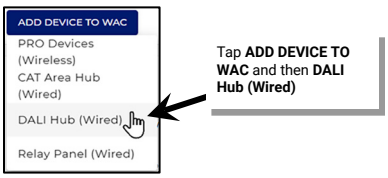
2: When prompted, enter the username and password for the WaveLinx Area Controller's administrator user and then select **LOGIN**.

- Username: **WclAdmin**
- Password: Enter the assigned password

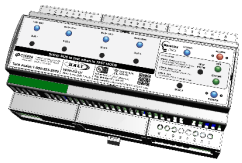


3: From the **menu** ☰ , tap **Devices**. Tap to select the **WaveLinx Area Controller** and verify the **INFORMATION** tab is displayed.

4: Tap **ADD DEVICE TO WAC** and select **DALI Hub (Wired)** to begin the DALI Hub search.



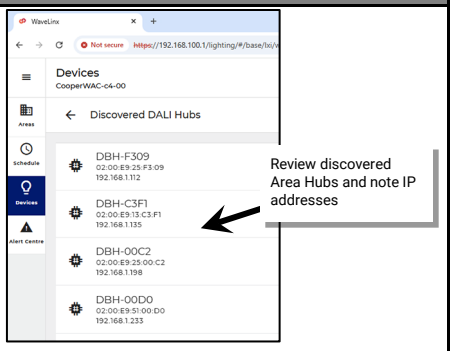
WaveLinx DALI Hub continued



Step 4: (continued)

5: Wait for the search to complete and then review the DALI Hub list to determine the IP addresses.

Make note of the IP addresses, matching them to the MAC addresses noted earlier.

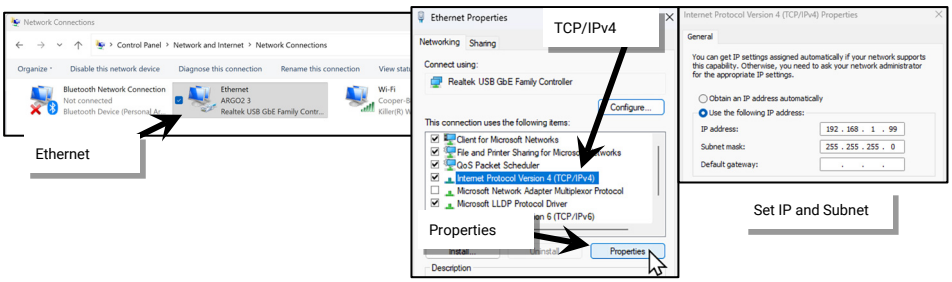


6: From the menu ☰ select **WAC Logout** and then close the browser window.

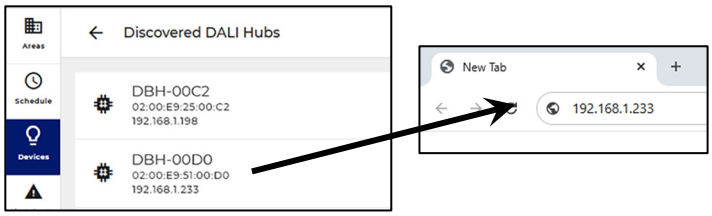
Step 5: Connect to the DALI Hub Configurator

In this step, learn how to connect to the DALI Hub Configurator tool using a web browser on the laptop. The DALI Hub Configurator will be used to change the Name or the IP Address of the DALI Hub(s). The laptop must be connected to the same network as the WaveLinx DALI Hub.

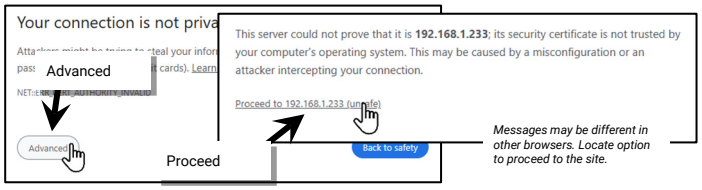
1: If not using DHCP, access the laptop's network adapter settings to statically **set the IP address of the laptop to be 192.168.1.99** (or another unused IP address on the 191.168.1.x subnet).



2: Open a current version web browser and enter the first DALI Hub's assigned IP address in the address bar.



3: Bypass warnings and proceed to the site. This step is needed only for initial login or if browser cache is cleared.



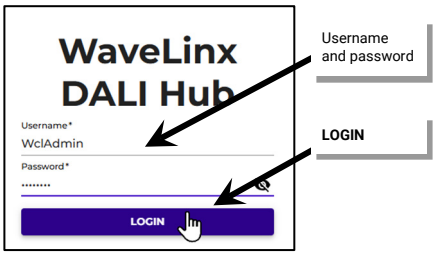
WaveLinx DALI Hub continued

Step 5: (continued)

4: Login to the WaveLinx DALI Hub Configurator Webpage.

- Enter the admin username: **WclAdmin**,
- Enter the default password: **wclAdmin**

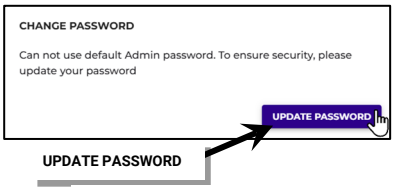
Select **LOGIN**



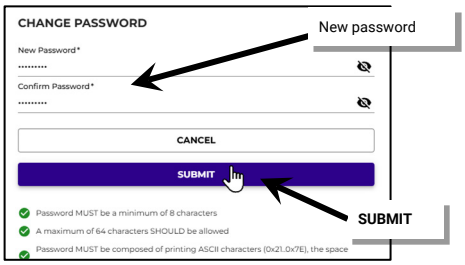
5: If this is the first login, the system will force a password update. When prompted, submit a new password for the administrative user.

Set a complex password when changing passwords, making sure it is something that can be remembered.

IMPORTANT! REMEMBER THE NEW PASSWORD AS IT WILL BE USED FOR ALL FUTURE ADMINISTRATOR LOGINS FOR THE DALI HUB WEBPAGE.

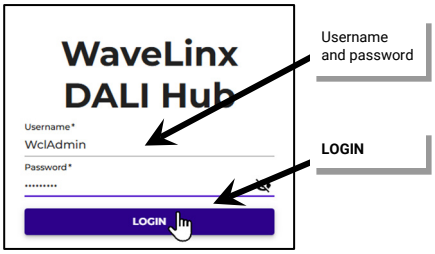


Any future login activity will require the use of the assigned password.



6: Login to the WaveLinx DALI Hub Configurator webpage using the new password.

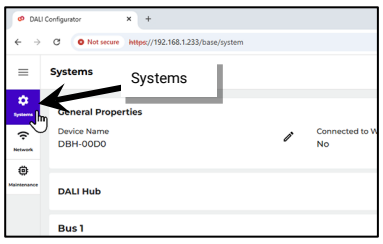
- Enter the admin username: **WclAdmin**,
- Enter the password: **assigned password**
- Select **LOGIN**



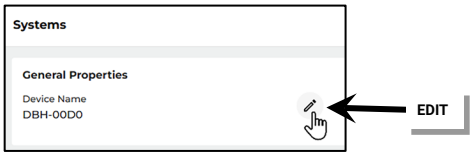
Step 6: Update the DALI Hub Name (Optional)

a maximum 16 alphanumeric characters (hyphen character is allowed)

1: Login to the WaveLinx DALI Hub Configurator webpage and select **systems**.

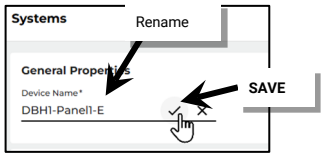


2: In the **General Properties** section, locate the **Device Name** and select **EDIT** ✎.

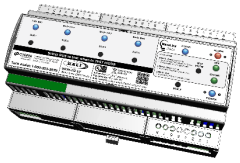


3: Enter the new DALI Hub name and select ✓ to **SAVE**.

Repeat these steps for other DALI Hubs on the network until all DALI hub names are assigned.



WaveLinx DALI Hub continued

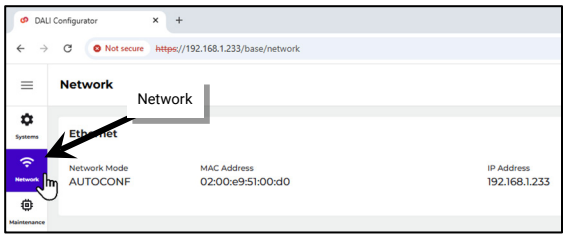


Step 7: Set a New Static IP Address for the DALI Hub

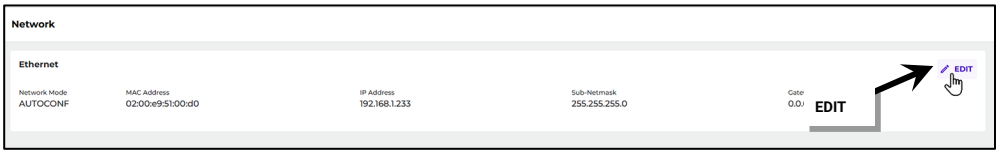
The WaveLinx CAT DALI Hub is set to use DHCP by default. If using a DHCP server, no further IP address settings are needed.

If not using DHCP, the WaveLinx DALI Hub is set up to automatically configure an initial IP address in the range of 192.168.1.100 through 192.168.1.255 to allow for initial operation and configuration. Because both the 192.168.100.X and 192.168.1.X networks on the 255.255.255.0 subnet are used for default random IP address assignment, it is recommended that a different subnet be chosen for the final static IP to avoid conflict with any new devices connected to the system.

1: Login to the WaveLinx DALI Hub Configurator webpage and select **network**.



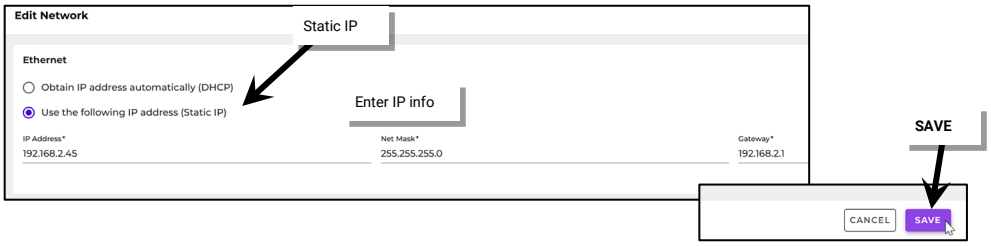
2: In the **Ethernet** section, select **EDIT** ✎.



3: Select **Use the following IP address (Static IP)** and then enter the desired **IP address**, **net mask**, and **gateway.** Select **SAVE**.

The WaveLinx DALI Hub will reboot automatically and operate with the new settings.

Repeat these steps for other DALI Hubs on the network until all DALI Hub addresses are assigned.



Once the remaining steps of configuration are complete, if IP addresses of the DALI Hub(s) have been changed to a different subnet, remember to change the WaveLinx Area Controller's IP address to a static IP on the new subnet.

Disconnect the laptop from the Network Switch. Remember to reset the laptop IP address settings back to using DHCP. Any future connections will require the use of the DALI Hub's new IP address and subnet assigned.

WaveLinx Networked Relay Panel Reference Sheet

WaveLinx Networked Relay Panel

Features

- Provides WaveLinx control for larger spaces and panel retrofits.
- Optional 0-10V dimming control with Dimming Module(s)
- Connects to WaveLinx Area Controller using IP based Ethernet
- UL924 approved Emergency (E) option

Power:

- Power from onboard transformer:
  - 120/277VAC model OR
  - 120/347 VAC model

Typical Applications

- Office, education, industrial, and other indoor applications. Parking, garage, or other outdoor locations

Models:

- **PLE-XX**: Normal Power Panel
  - (XX=04, 08, 16, 24, 32, 40, 48, 56, 64)
- **PLE-XXE**: Emergency Panel
  - (XX= 08, 14, 24, 30, 40, 46, 56, 62)
- **Relays:**
  - **R1**: 1 Pole Relay
  - **R2**: 2 Pole Relay
  - **R3**: 3 Pole Relay
- **0-10V Dimmers:**
  - **PDM-P** (panel mount)
  - **PDM-R** (remote mount)

WaveLinx App Details:

- Default Device Names:
  - **Panel***: Panel-#
  - **Relay:** *#-Panel Name*-Relay # (Relay # will be the number of the relay in the enclosure)
  - **Dimmer**: *#-Panel Name*-Dimmer##-# (Dimmer ## will include the module address and dimmer #)
- Unassigned Device Category:
  - Panel Relay
  - Panel Dimmer

Icon Displayed in WaveLinx App:

Relay Panel* | Relay | 0-10V Dimmer

*only visible in the Devices menu

The WaveLinx Networked Relay Panel is a relay panel available in multiple configurations that communicates to the WaveLinx Area Controller over the Ethernet. Enclosures are available in both a Normal Power and Emergency Power (UL924 approved) configuration in different capacities including 4 relay, 8-16 relay, 24-32 relay, 40-48 relay, and 56-64 size. Relays can be ordered in 1, 2 and 3 pole options.

In addition to relays, the WaveLinx Networked Relay Panel can be configured with 0-10V dimming modules. Each dimming module contains four 0-10V outputs. Dimming modules can be mounted in the enclosure or can remotely mounted, connecting for power and communication via a CAT5 cable to the relay panel.

Once the WaveLinx Networked Relay Panel is configured and added to the WaveLinx Area Controller, the relays and dimmers can be configured to operate from WaveLinx PRO and WaveLinx CAT devices including wallstations, occupancy sensors, and daylight harvesting. Scheduling can be assigned from the WaveLinx Area Controller.

Networked Relay Panel Details

Feature	Details
Enclosure Details	• Capacity: 4, 8-16, 24-32, 40-48, 56-64 relay capacity • Transformer Voltage: 120/277V or 120/347V @1A primary, 50/60Hz • Mode: Normal or Emergency (UL924 Approved)
Display Details	• Each relay panel will have a controller card and display for assignment of the panel's network settings, relay configuration settings, and relay status and manual override.

Relay Details	• 1 pole: 120-277V/347V heavy duty 40 Amp latching relay: uses 1 relay slot
	• 2 pole: 208/240/480 relays heavy duty 40 Amp latching relay: uses 2 relay slots
	• 3 pole: 208/240/480 relays heavy duty 40 Amp latching relay: uses 3 relay slots
	  • Plug load compatible
	  • 40 Amps HID, ballast loads, resistive loads
	  • 16 Amps electronic ballast loads (UL limit)
	  • 1.5 Hp @120VAC motor loads
	  • 18,000 Symmetrical Amp SCCR @347 VAC

Dimming Module Details	• Dimming Module Outputs: Four independent 0-10V dimming channels, 100mA per channel, sink only
	• Relay panel can support connection to dimming module(s)
	  • 4 relay panel: 1 dim module
	  • 8/8E relay panel: 2 dim modules
	  • 16/14E relay panel: 4 dim modules
	  • 24/24E relay panel: 6 dim modules
	  • 32/30E relay panel: 8 dim modules
	  • 40/40E relay panel: 10 dim modules
	  • 48/46E relay panel: 12 dim modules
	  • 56/56E relay panel: 14 dim modules
	  • 64/62E relay panel: 16 dim modules
	• Dimming modules can be mounted in the enclosure (-P) or may be ordered in a remote mount enclosure (-R) to be connected to the relay panel via CAT5 cabling

Out-of-the-Box

The WaveLinx Networked Relay Panel has no out-of-the box functionality. Once power is applied, the relay control buttons and display allow manual operation of the relays and dimmers until a connection can be made to the WaveLinx Area Controller.

Adding to the WaveLinx Area Controller

The WaveLinx Networked Relay Panel does not use the WaveLinx Area Controller pairing method. Instead, the WaveLinx Networked Relay Panel is added to the WaveLinx Area Controller manually by the IP address given to the relay panel. When the panel is added, all configured relays and dimmers will be available in the WaveLinx Area Controller.

Construction Area Default Operation

Relays	Dimmers
All relays will turn ON and remain ON until assigned to a user defined area and zone unless manually controlled through the onboard display or relay control buttons.	All dimmers will be assigned to the Construction Area's dimmable zone and will respond per the default operation of occupancy sensors or wallstations that are in the Construction Area.

Assigned to a User Defined Area Default Operation

Relays	Dimmers

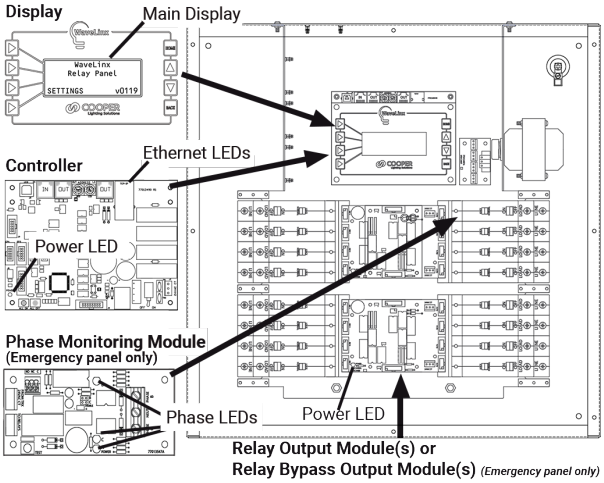
Once assigned to a created area:
• Relays will respond to the sensors in the area's occupancy set.
  • If occupied, the relays will turn ON.
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the relay will turn OFF.
	Once assigned to a created area:
	• Dimmers will respond to the sensors in the area's occupancy set.
	  • If occupied, the dimmer will go to 50% (Scene 3).
	  • The occupancy set default hold time is 20 minutes.
	  • If the space remains unoccupied for 20 minutes, the dimmer will go to 0% (Scene 0).

• It will respond to any wallstations added to the area per the default wallstation programming.	

WaveLinx Networked Relay Panel continued

LED Operation

There are some status LED indicators in the Networked Relay Panel.



- **LCD Display**: The LCD display should turn ON and display the main screen. If an option is accessed, the LED backlight will illuminate to aid in display viewing.
- **Controller Power LED**: Should turn ON and remain ON

  Note: The controller card is behind the display.
- **Ethernet Port LEDs**: Amber and Green LEDs may illuminate if the Ethernet is CONNECTED and the WAC is communicating
- **Relay Output Module LED**: Each relay output module power LED should turn ON and remain ON

  Note: Dimming modules may be mounted on top of the relay output module
- **Relay Bypass Output Module** (RBOM): Emergency Panels Only- Each relay bypass output module power LED should turn ON and remain ON

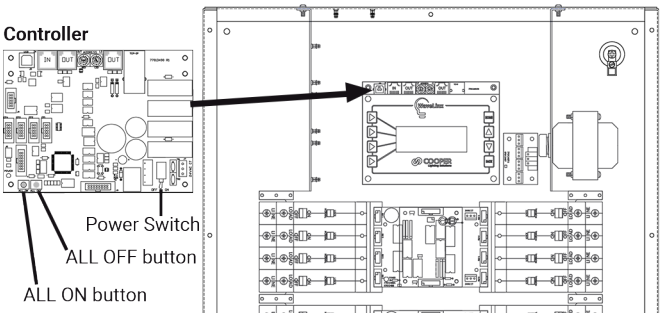
  Note: Dimming modules may be mounted on top of the relay output module
- **Phase Monitoring Module LEDs**: Emergency Panels Only- This module may be mounted in relay 2 and 4 positions unless there is space elsewhere. This Phase Monitoring Module has an LED to indicate there is power present on phase A, B, and C.

Power Switch

The main controller module is under the display and contains an onboard ON/OFF power switch to allow power to be switched off to the main controller, display, relay and dimming modules without powering down the circuit for the transformer. Flip the switch to the left to turn OFF power or to the right to turn ON power.

Relay ALL ON/ALL OFF Override Buttons

The main controller is under the display and contains two onboard buttons in the lower left corner of the controller board (under the display) that allow manual control of all relays in the panel. Press the left button to turn ON all relays in the cabinet. Press the right button to turn OFF all relays in the cabinet. Relays will remain in the commanded state until the next command is received from the onboard controls or from the WaveLinx system if the relay panel is communicating with a WaveLinx Area Controller.



Blink to Identify

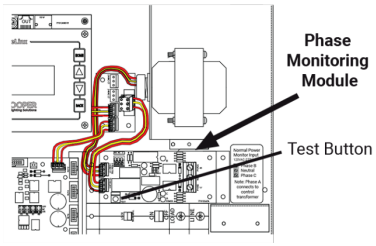
Blink to Identify is <u>not available for relays</u> within the relay panel. Tap on the relay in the WaveLinx App and use the App's ON/OFF switch to manually toggle the relay state to aid in the identification of relays or use **Blink to Identify** with the load's dimmer instead. **Blink to Identify** is available for relay panel dimmer channels. Select in a device row to place the dimmer in **Blink to Identify** mode. The icon will appear to pulse and a load matching the dimmer should respond. In **Blink to Identify** mode, the dimmer will go to 100% for 1 second/ for 0% for 1 second and repeat for 15 seconds.

Loss of Communications Operation

If the Networked Relay Panel loses communication with the WaveLinx Area Controller, the relays and dimmers will remain at their last state/level. Once communication is re-established, the relays/dimmers will change state/level when they receive the next command. When communication is lost, the onboard display will display the word DISCONNECTED for both the STATE and LINK when the Network Status is queried.

Operation on Power Loss

On power loss, Normal power panel relays will remain in their latched position. Emergency panels contain additional components to detect power loss through connection and special relay output modules which are configured by onboard jumpers to allow FORCE ON, FORCE OFF, or NO CHANGE behavior when power loss is detected. When a power loss occurs on any of the up to three monitored normal power phases, the selected FORCE ON relays will turn ON and remain ON until power returns. This solution is UL924 approved for emergency operation.



Power Loss Test Button (Emergency Panels Only)

For Emergency Panels only, the Power Loss TEST button can be used to simulate loss of power to the panel. When the button is pressed, the relays will go to their Emergency configured states (based on Relay Output Module relay jumper positions [FORCE ON, FORCE OFF, NO CHANGE]). Release the button to revert to normal operation.

Operation upon Return of Power

Upon return of power, the Relay Panel will begin re-establishing connection with the WaveLinx Area Controller. By default, the relays will remain in their last state and dimmers will go to 100%. The default state and level of relays and dimmers on power-up can be modified through the onboard relay panel display. See "Configuring Relay Power-On State" on page 422 or "Configuring Dimmer Power-On Level" on page 425 for details on using this feature.

Factory Reset Instructions

CAUTION: The factory reset will set the relay panel settings for relay configuration and power on level, dimmer power on level, and network settings back to factory default (out-of-the-box behavior). Unless the relay panel is also deleted in the WaveLinx App, the WaveLinx programming for the panel relays and dimmers will remain but will not be operational.

To factory reset the relay panel, use the onboard display. Press ▷**SETTINGS**, ▷**NETWORK**, ▷**FACTORY RESET**, ▷**CONTINUE**, and then wait for the reset to complete. Relay state is not affected by a factory reset as relays will remain in their last state.

Initial Configuration Steps for the WaveLinx Networked Relay Panel

WaveLinx Networked Relay Panel continued

Initial Configuration Steps

Perform these steps before adding the WaveLinx Networked Relay Panel to the WaveLinx Area Controller.

Use this section to:

- Step 1: Verify Relay Panel Installation
- Step 2: Configure Emergency Operation Jumpers (Emergency Panels Only)
- Step 3: Address Dimming Modules
- Step 4: Factory Reset the Panel
- Step 5: Configure Relay Poles
- Step 6: Configure Network Settings
- Step 7: Review the Networked Settings/Note the IP Address

Step 1: Verify Relay Panel Installation

Before performing the WaveLinx Networked Relay Panel configuration:

1: Clear all circuits prior to connection to the panel transformer and relays. Once connected to the relay, ensure that all high voltage wires are terminated without stray wires and that all high voltage fish paper barriers are installed.

2: If 0-10V dimming modules are used, ensure that 0-10V wiring is checked for line voltage. Prior to connection to the dimmer channels test the load response. If purple and pink 0-10V wiring is shorted together, the attached load should fully dim. When wiring is separated the load should go full bright.

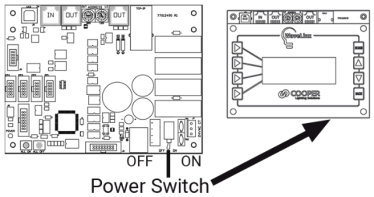
3. Verify that there is power to the controller and output boards from the transformer secondary. Between red wires, the voltage should read 24-28VAC. Between yellow wires, the voltage should read 12-16VAC.

4.Verify that all connectors and ribbon cables between boards and relays are well seated.

Step 2: Configure Emergency Operation Jumpers (Emergency Panels Only)

If the panel has been ordered in an Emergency configuration, set the jumpers on the Phase Monitoring Module and Relay Output Module for proper operation for Emergency Lighting.

Make sure that the power switch on the Controller Card is in the OFF position before moving jumpers.



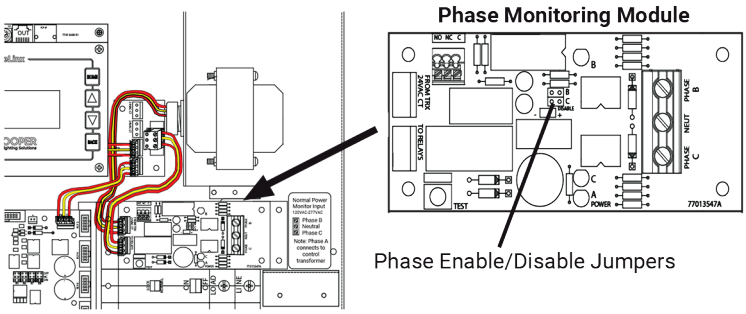
The transformer of the panel must be fed from a normal power circuit (phase A) for proper operation. Two additional normal power circuits can be connected to the phase monitoring module to allow for monitoring of phase B and phase C for power loss. When more than one phase is being monitored, any loss of power to one of the monitored circuits will cause the panel to go into Emergency mode.

The Phase Monitoring Module is shipped with the bypass phase jumpers installed.

To set jumpers for proper operation:

1: Locate the Phase Monitoring Module bypass jumpers. If only 1 phase has been connected to the transformer and no other phases are connected, make sure the jumpers are in place over the pins for disabling phase B and phase C.

2: If Phase B or Phase C have been wired to the Phase Monitoring Module, remove the disable jumpers for the phase B or phase C location to allow for proper operation.



Panels ordered in an Emergency configuration will have special Relay Bypass Output Modules installed. This special output module allows selection of emergency operation of each relay output attached to that output module. The selection of operation is done using two rows of four jumpers. The jumpers ship in the default state to have all relays FORCE ON when the panel loses normal power. This allows any relays fed from emergency circuits to close allowing emergency loads to respond.

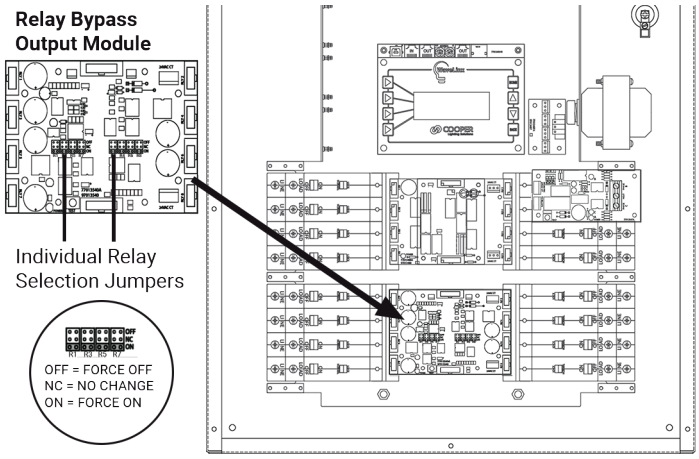
To verify or change jumpers for relay operation in Emergency mode:

1: Locate the two sets of four jumpers on the Relay Bypass Output Module(s).

2: Verify that the jumpers in in the FORCE ON position. If this is the desired setting, move on to the next step.

3: To change Emergency operation, move the jumper for the associated relay to NC for No Change (stays in last known position) or to OFF to force the relay OFF in emergency mode. Repeat for additional relay jumpers and modules as needed.

Note: If dimming modules are installed in the cabinet the relay output modules may be under the dimming modules.



WaveLinx Networked Relay Panel continued

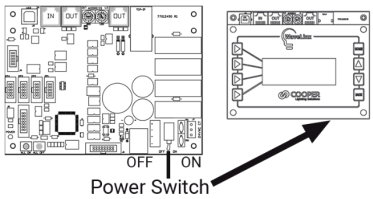
Step 3: Address Dimming Modules

If the panel does not have any Dimming Modules, skip to the next step.

If the WaveLinx Networked Relay Panels have panel mounted or remote mounted Dimming Modules, each Dimming Module attached to the same panel must have a **unique address**.

The maximum number of dimming modules that can be attached to a panel (64 size) is 16 dimming modules. (64 dimming channels). There are 16 available addresses for the dimming modules. Please use the addresses shown in the steps below when addressing dimming modules.

Make sure that the power switch on the Controller Card is in the OFF position before addressing Dimming Modules.

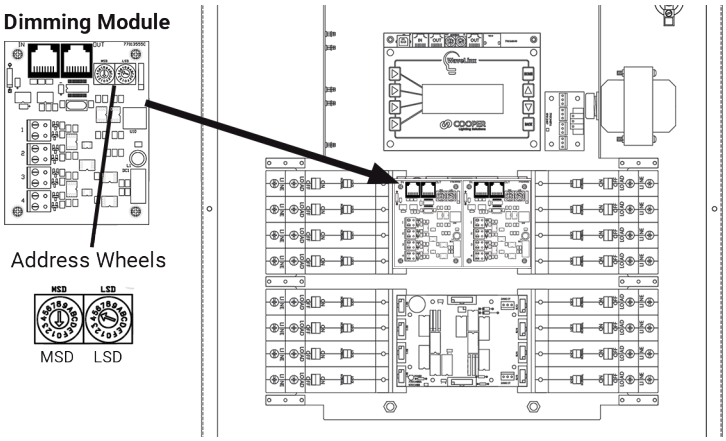


1: Locate the Dimming Module(s) in the panel or in the remote mount enclosure(s).

2: Using a small, flat-blade screwdriver, rotate the Dimming Module MSD and LSD address wheels to one of the addresses shown in the table below.

Device	MSD	LSD
1	0	1
2	0	2
3	0	3
4	0	4
5	0	5
6	0	6
7	0	7
8	0	8

Device	MSD	LSD
9	0	9
10	0	A
11	0	B
12	0	C
13	0	D
14	0	E
15	0	F
16	1	0



Step 4: Factory Reset the Panel

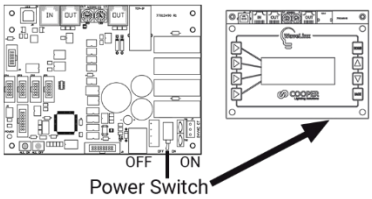
Before any further configuration, perform a **Factory Reset** to ensure that the panel is operating from a clean configuration.

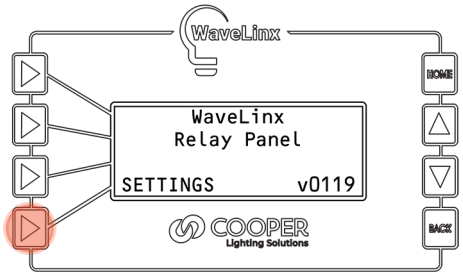
To Factory Reset:

1: Turn on power to the relay panel and flip the Controller Card power switch is in the ON position.

2: Wait for the display to load and show the **HOME** screen.

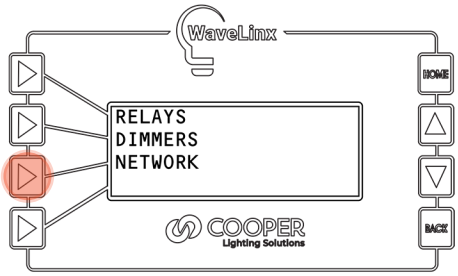
3: From the **HOME** screen, press ▷**SETTINGS**.

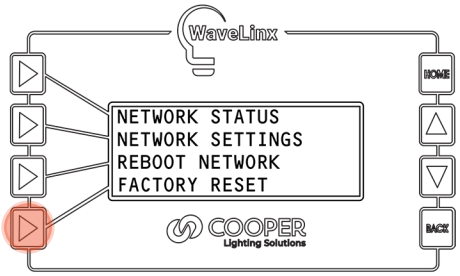




4: From the **MENU** press ▷**NETWORK**.

5: Press ▷**FACTORY RESET**.



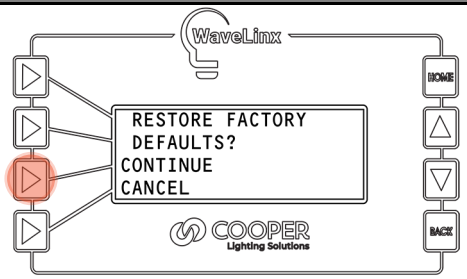


WaveLinx Networked Relay Panel continued

Step 4: (continued)

6: When prompted, press ▷**CONTINUE**.

Wait for the factory reset to complete. When prompted, tap **EXIT**.



Step 5: Configure Relay Poles

Relays are set for single pole relay configuration by default. If two or three pole relays are being used, they must be configured using the onboard display.

Single pole relays take up 1 relay position. Two pole relays take up 2 relay positions. Three pole relays take up 3 relay positions. Two and three pole relays will always operate from their top relay number once the relay is configured.

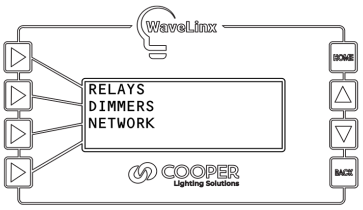
Do not attach single pole relays to two or three pole loads. Improper use of single pole relays to directly connect to two or three pole loads violates NEC, may be hazardous, and may void the warranty.

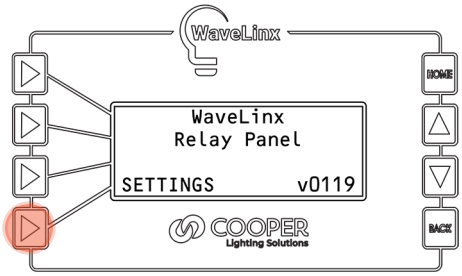
To configure relay poles:

1: If not powered , turn on power to the relay panel and flip the Controller Card power switch is in the ON position.

2: Wait for the display to load and show the **HOME** screen.

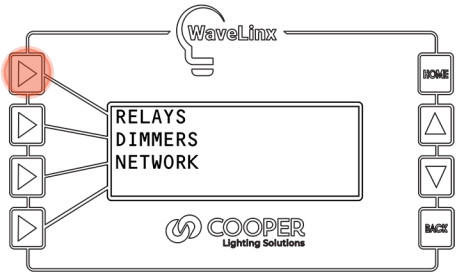
3: From the **HOME** screen, press ▷**SETTINGS**.

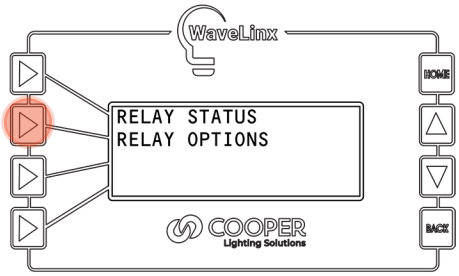




4: From the **MENU** press ▷**RELAYS**.

5: Press ▷**RELAY OPTIONS**.

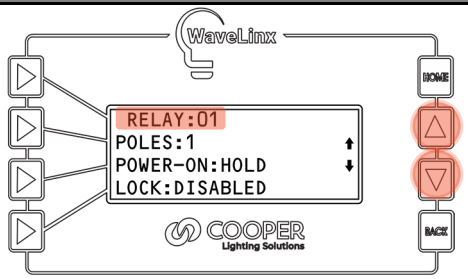




WaveLinx Networked Relay Panel continued

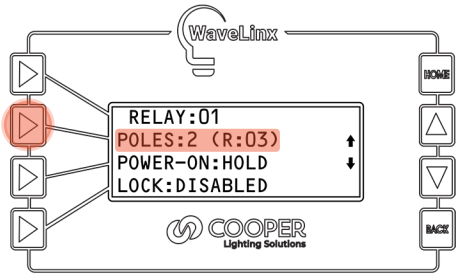
Step 5: (continued)

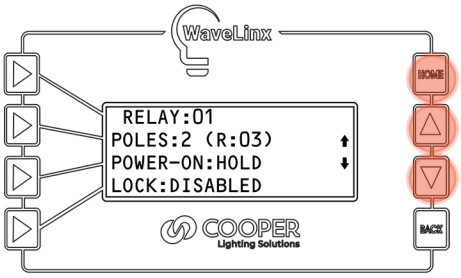
6: Use △▽ to scroll up or down until the top relay number of the two or three pole relay is displayed.



7: Press ▷**POLES** to toggle between **1**, **2** or **3** poles. If 2 or 3 poles are selected, the associated relay numbers will be displayed in brackets.

8: Repeat for additional relays using △▽ to scroll up or down between relays or press **HOME** to return to the main display.





Step 6: Configure Network Settings

The WaveLinx Networked Relay Panel communicates with the WaveLinx Area Controller over the building LAN. Before the relay panel can be added to the WaveLinx Area Controller, it must be configured with a unique IP address within the same network range as the WaveLinx Area Controller. By default, the Ethernet port on the relay panel is disabled. The Ethernet port must be set to use either DHCP or a static IP address.

IMPORTANT NOTE: If using DHCP to assign the IP address, reserve the IP for the relay panel on the DHCP server. If the IP addresses of the WaveLinx Area Controller or WaveLinx Networked Relay Panel changes after the devices are linked, they will lose communication and the relay panel will be offline until the connection is repaired (see "Reconnecting after an IP Address Change" on page 430).

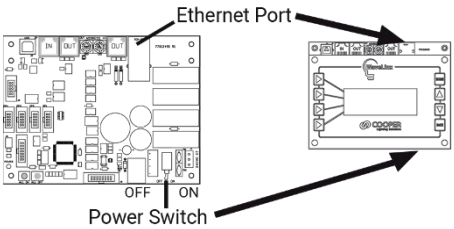
To configure the Network Settings

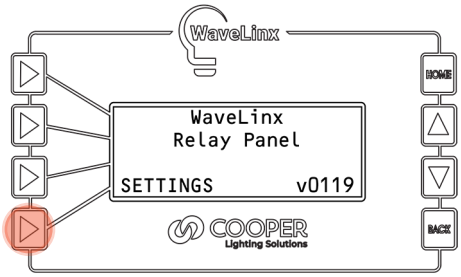
1: Make sure that the relay panel Ethernet port is connected to the Building LAN.

2: If not powered , turn on power to the relay panel and flip the Controller Card power switch is in the ON position.

3: Wait for the display to load and show the **HOME** screen.

4: Press ▷**SETTINGS**

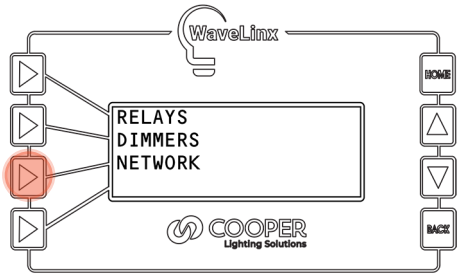




WaveLinx Networked Relay Panel continued

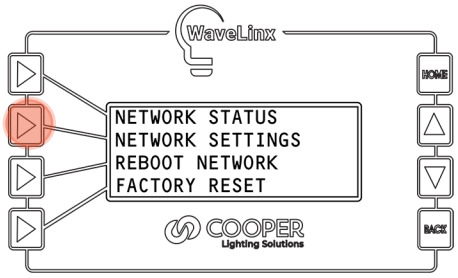
Step 6: (continued)

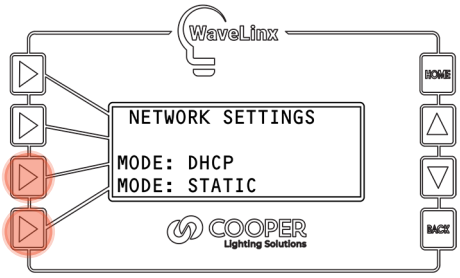
5: From the **MENU** press ▷**NETWORK**.



6: Press ▷**NETWORK SETTINGS.**

7: Select either **DHCP** or **STATIC** mode.

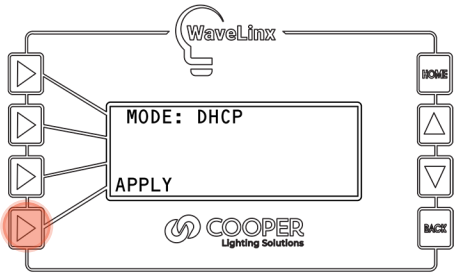


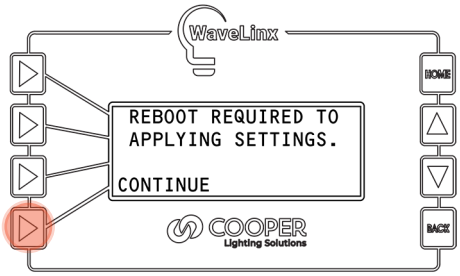


To use DHCP:

8: After selecting **DHCP MODE**, press ▷**APPLY**.

9: When prompted to reboot, press ▷**CONTINUE** and wait for the automatic reboot to complete.



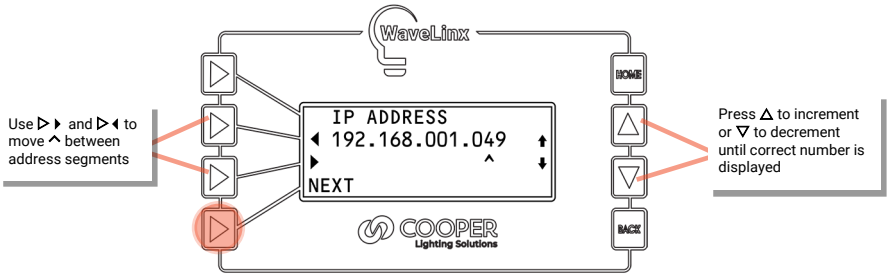


To use a Static IP:

8: After selecting **STATIC MODE**, assign the IP Address.

- Press ▷ ▸ or ▷ ◂ to move the cursor point ^ beneath the desired address segment.
- Press and release △ to increment or ▽ to decrement one digit at a time.
- Press and hold △ to increment or ▽ to decrement more quickly.

Repeat for each segment until the IP address is correct and then press **NEXT**



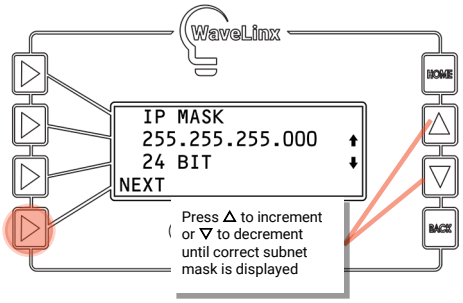
WaveLinx Networked Relay Panel continued

Step 6: (continued)

9: Assign the **IP MASK**.

- Press and release △ to increment or ▽ to decrement the number of subnet bits one number at a time.

Once the correct subnet mask is showing, press **NEXT**.



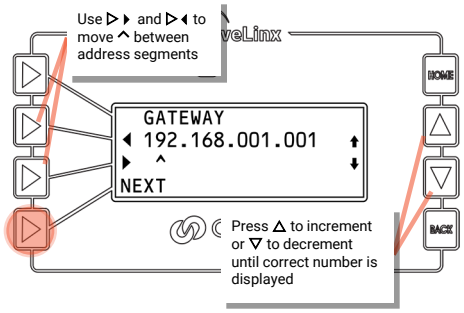
BITS	SUBNET MASK
01	128.000.000.000
02	192.000.000.000
03	224.000.000.000
04	240.000.000.000
05	248.000.000.000
06	252.000.000.000
07	254.000.000.000
08	255.000.000.000
09	255.128.000.000
10	255.192.000.000
11	255.224.000.000
12	255.240.000.000
13	255.248.000.000
14	255.252.000.000
15	255.254.000.000
16	255.255.000.000

BITS	SUBNET MASK
17	255.255.128.000
18	255.255.192.000
19	255.255.224.000
20	255.255.240.000
21	255.255.248.000
22	255.255.252.000
23	255.255.254.000
24	255.255.255.000
25	255.255.255.128
26	255.255.255.192
27	255.255.255.224
28	255.255.255.240
29	255.255.255.248
30	255.255.255.252
31	255.255.255.254

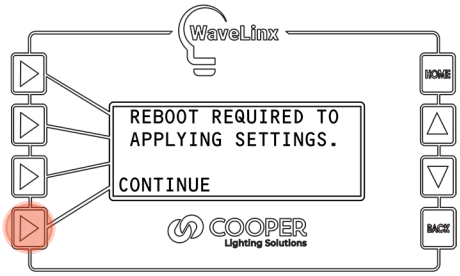
10: Assign the Default **GATEWAY** IP Address:

- Press ▷ ▸ or ▷ ◂ to move the cursor point ^ beneath the desired address segment.
- Press and release △ to increment or ▽ to decrement one digit at a time.
- Press and hold △ to increment or ▽ to decrement more quickly.

Repeat for each segment until the Gateway IP address is correct and then press **NEXT**



11: When prompted to reboot, press ▷**CONTINUE** and wait for the automatic reboot to complete.

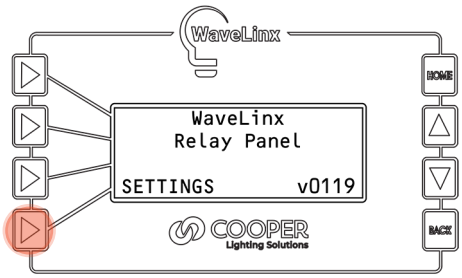


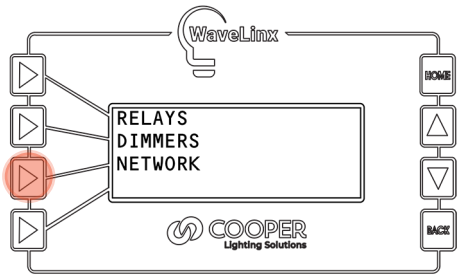
Step 7: Review the Networked Status/Note the IP Address

To connect the WaveLinx Networked Relay Panel to the WaveLinx Area Controller, note the IP address of the panel. If DHCP was used, review the network status to see the assigned IP address.

1: From the **HOME** screen, press ▷**SETTINGS.**

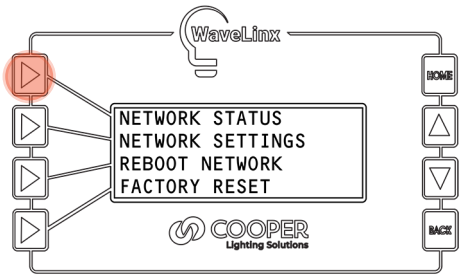
2: From the **MENU** press ▷**NETWORK**.

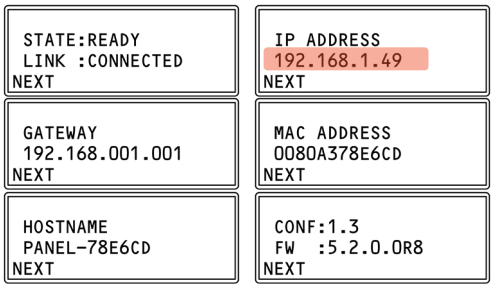




3: Press ▷**NETWORK STATUS.**

4: Review the displayed information, noting the panel's assigned IP address.





WaveLinx Low-Voltage Power Module Reference Sheet

Low-Voltage Power Module

Features

- 12 Class 2 low-voltage DC circuit connection ports
- Supports up to 64 WaveLinx LV Fixtures
- Two low-voltage ports can optionally wire to operate from an emergency circuit for UL924 operation.
- Communicates to the WaveLinx Area Controller via Ethernet connection
  - Up to 5 Low-Voltage Power Modules may be paired with 1 WaveLinx Area Controller.[14]

Power:

- Input Voltage 120VAC-277VAC, 50/60Hz
- Output: 12 Class 2 Outputs (90W MAX)
- Hot swapping/plugging not supported. Power down before connecting Low-Voltage Fixtures.

Typical Applications

- Education, office, and other interior spaces

Models:

LVPM-12-100-64-2E: WaveLinx 1200W Low-Voltage Power Module

WaveLinx App Details:

- Power Module (Only visible in the Devices menu)

Icon Displayed in WaveLinx App:

(only visible in the Devices menu)

The WaveLinx Low-Voltage Power Module communicates between connected WaveLinx LV Low-Voltage Fixtures and the WaveLinx Area Controller, allowing WaveLinx control of WaveLinx LV device controlled lighting loads. The Low-Voltage Power Module converts line voltage alternating current to Class 2 low-voltage DC circuits. Twelve onboard low-voltage connection ports allow for easy, daisy-chain connection to up to sixty-four Low-Voltage Fixtures. If needed, two low-voltage output ports can be wired for operation from an emergency circuit for UL924. The WaveLinx Low-Voltage Power Module communicates via Ethernet to the WaveLinx Area Controller.

Out-of-the-Box Operation

- Not applicable for this device. Refer to the WaveLinx LV device Reference Sheets for load operation details.
- Once power is applied, status LED should flash orange, the output channel LEDs should illuminate green,[15] the alert LED and diagnostic LEDs should remain OFF, and the LAN LED may flash green if connected to a DHCP server.

Pairing Information:

Before pairing the Low-Voltage Power Module to the WaveLinx Area Controller, the Low-Voltage Power Module must be configured with an IP address in the same subnet. See the initial configuration steps beginning on page 57 for these details. Once on the same subnet, when the WaveLinx Area Controller is placed in pairing mode, the Low-Voltage Power Module should pair with it. **When the Low-Voltage Power Module pairs, all connected Low-Voltage Fixtures will automatically be paired with the WaveLinx Area Controller**.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

- The Status LED illuminates solid green.
- Connected fixtures dim to 10% and display paired behavior. See the Low-Voltage Fixture reference sheets for further details.

Supported Identification Methods:

If there is more than one Low-Voltage Power Module paired with the WaveLinx Area Controller, the Low-Voltage Power Modules can be identified.

- **Identify Button:** Press the onboard **Identify** button. For a Low-Voltage Power Module that has been paired with a WaveLinx Area Controller, this will trigger identification mode, causing the device icon to flash in the WaveLinx App's **Device** menu. The Status LED on the Low-Voltage Power Module will flash blue for 15 seconds.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the Low-Voltage Power Module. In the **Device** menu, select in the Low-Voltage Power Module's row to start **Blink to Identify** mode. When placed in **Blink to Identify** mode **ALL** Low-Voltage Fixtures connected to this Low-Voltage Power Module will cycle ON for 1 second, turn OFF for 1 second and repeat this cycle for 15 seconds, and the Status LED on the Low-Voltage Power Module will flash blue for 15 seconds.

Alert Mode Operation

If an external dry contact closure is connected to the ALERT terminal and the contact closes, the Low-Voltage Power Module will enter Alert Mode. The Alert is locally processed and is not reported to the WaveLinx Area Controller.

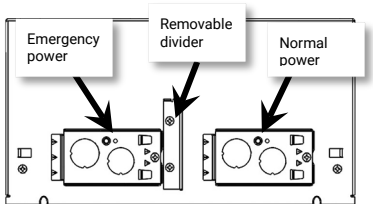
In alert mode:

- All Low-Voltage Fixtures connected to this Low-Voltage Power Module will turn FULL ON, bypassing control.
- The Alert status LED will illuminate RED.

Once the contact closure opens, the Low-Voltage Power Module resumes normal operation, and all lighting will revert to the commanded lighting level.

Emergency Mode Operation

The WaveLinx Low-Voltage Power Module comes with a normal power and an emergency power connection. If emergency power is not connected, normal power may be wired to both the normal and emergency connections by removing the separator between the two wiring compartments.



When wired to an emergency power source and normal power is lost, output channels 1 and 2 will remain powered by the connected Emergency circuit.

Lighting connected to these two channels will be forced FULL ON, until normal power is restored.

This UL924 approved solution allows Low-Voltage lighting to provide minimum illumination levels for egress and safety as required by NFPA 101 Life Safety Code or other local building codes and standards.

[14] For best results, do not pair more than 140 low-voltage devices to a WaveLinx Area Controller. Low-Voltage Fixture with Integrated Sensor: fixture + sensor = 1 device.

[15] If output channel LED is blinking, the power is out of spec. Resolve before continuing.

Low-Voltage Power Module continued

Operation upon Return of Power

Upon return of power, the connected fixture(s) will return to the last known light level until the Low-Voltage Power Module reboots and communications are re-established with the WaveLinx Area Controller. If not able to communicate with the WaveLinx Area Controller for more than approx. 15 minutes, loss of communications operation will begin.[16]

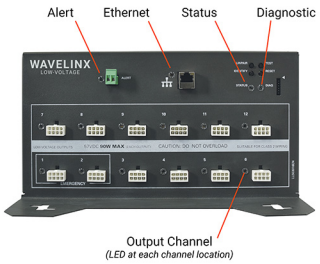
Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- Press the Low-Voltage Power Module **RESET** button for **more than 10 seconds**.

This removes IP address settings and pairing for ALL Low-Voltage Fixtures and devices connected to the Low-Voltage Power Module. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.

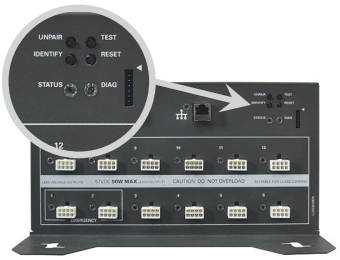
LED Operation



LED	Color/Pattern	Description
Output Channel LEDs (1-12)	Solid GREEN	Output is operating normally
	Blinking GREEN	Output voltage is out of specification (too low or too high)
Status LED	Solid GREEN	The Low-Voltage Power Module is operating and paired with a WaveLinx Area Controller.
	Solid RED	Error condition
	Blinking GREEN	The Low-Voltage Power Module is in test mode from the onboard test button or from the web portal. Connected lights and the LED will flash for 15 seconds.
	Blinking BLUE	The Low-Voltage Power Module is in 15 second identify mode, triggered from the onboard pushbutton or from the WaveLinx App. If triggered from the WaveLinx App, connected lighting will flash for 15 seconds.
	Blinking ORANGE	The Low-Voltage Power Module is not yet paired with a WaveLinx Area Controller.
Diagnostic LED	OFF	Normal condition (Not currently used. For future options)
Ethernet LED	Blinking GREEN	Blinks with Ethernet network activity.
Alert LED	OFF	The unit is in normal operation.
	Solid RED	The unit is in ALERT mode from an external dry contact closure signal into the alert terminal.

Low-Voltage Power Module Pushbuttons

The WaveLinx Low-Voltage Power Module has several onboard pushbuttons that perform specific functions.



Pushbutton	Function
Unpair	Push and hold for greater than (>) 10 seconds to unpair the Low-Voltage Power Module from the WaveLinx Area Controller.
Identify	If pressed, the status LED will flash blue for 15 seconds. In the WaveLinx App's **Device** menu, the icon for the Low-Voltage Power Module will appear to pulse, identifying the device in the WaveLinx App.
Test	Press and release to place the Low-Voltage Power Module into test mode. All lights connected to the Low-Voltage Power Module will cycle between OFF and ON for 15 seconds.
Reset	Soft Reset: Press and release to issue a soft reset (reboot) the Low-Voltage Power Module. A soft reset takes approximately 1 ½ minutes to complete.
	Factory Reset: Push and hold for more than 10 seconds to issue a factory reset. **Use it with extreme caution.** All settings to be removed, resetting the unit to factory defaults. Pairing information will also be removed.

[16] Devices with older firmware may take up to 1 hour to enter loss of communications operation.

Initial Configuration Steps for the Low-Voltage Power Module

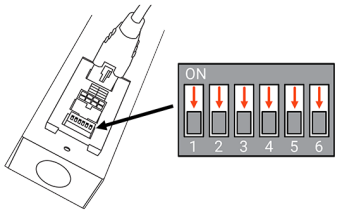
Low-Voltage Power Module continued

Initial Configuration Steps

The steps in this section must be done before pairing the Low-Voltage Power Module to the WaveLinx Area Controller.

Use this section to:

- Confirm Device Installation
- Prepare the Low-Voltage Power Module for Pairing



Step 1: Confirm Device Installation

IMPORTANT. Low-Voltage Fixtures have onboard selector switches. When used in a WaveLinx system, all fixture selector switches must be in the OFF or down position (default).

1: Connect Low-Voltage fixtures to the Low-Voltage Power Module before power is applied.[17]

2. If connected, disconnect the Ethernet port cable.

3. Apply power and ensure that the Low-Voltage Power Module is ready by verifying the LED operation. The status LED should flash orange, the output channel LEDs should illuminate green, the alert LED, diagnostic LED, and LAN LED should remain OFF.

4: Next, run a connection test for the Low-Voltage Fixtures. Press and release the Low-Voltage Power Module's **Test** button.

The status LED will flash green (1 second ON, 1 second OFF) when the 15 second test mode is active.

All lighting connected to the Low-Voltage Power Module should respond, cycling between 100% light output and OFF during the 15 second test period. Verify that all connected lighting responds properly.

5: Next, verify the Low-Voltage Fixtures display the correct default Out-of-the-Box functionality. Refer to the Low-Voltage Fixture with Integrated Sensor or Low-Voltage Fixture Reference Sheets for the expected behavior.

Step 2: Prepare the Low-Voltage Power Module for Pairing

The WaveLinx Low-Voltage Power Module communicates to the WaveLinx Area Controller over the building LAN. Before the Low-Voltage Power Module can be paired with the WaveLinx Area Controller, it must be configured with a unique IP address within the same network range as the WaveLinx Area Controller. By default, the WaveLinx Low-Voltage Power Module is set to obtain an IP address automatically using DHCP. Alternatively, the IP address can be statically assigned.

IMPORTANT NOTE: If using DHCP to assign the IP address, reserve the IP on the DHCP server. If the IP addresses of the WaveLinx Area Controller or WaveLinx Low-Voltage Power Module changes after the devices are paired, they will lose communication and the Low-Voltage Lighting will be offline until the connection is repaired (see "Reconnecting after IP Address Changes" on page 439).

Access the Low-Voltage Power Module's internal webpages to administer the IP Address by using a current web browser.

The steps in this section assume that the WaveLinx Low-Voltage Power Module is still in its factory default state for the administrator user and password and has not been connected to a DHCP server for IP address assignment. If these items have been changed, please refer to the network administrator for access information.

Use the steps in this section to:

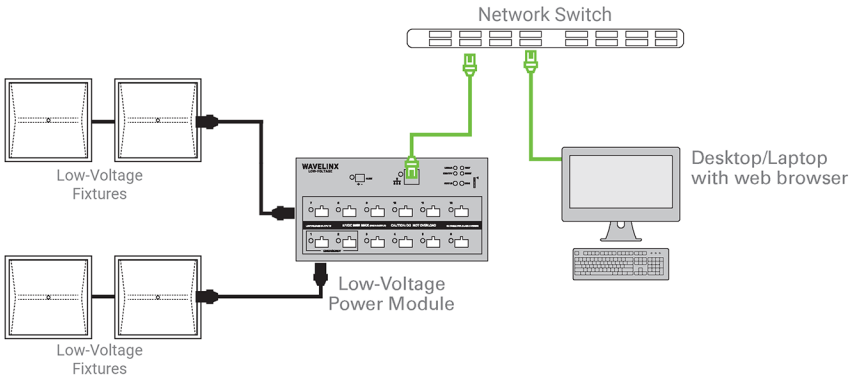
- Verify the Ethernet settings of the WaveLinx Low-Voltage Power Module, including setting a static IP address if needed
- Enter the WaveLinx Area Controller IP that should connect to this WaveLinx Low-Voltage Power Module (recommended)

Before performing these steps, determine the IP address of the WaveLinx Area Controller that will connect to this Low-Voltage Power Module.

1: **If a DHCP Server is not being used**, the default IP address of a Low-Voltage Power Module that has not been configured is 192.168.1.254 on the 255.255.255.0 subnet.

Connect a laptop that is configured with an IP address on the same subnet directly to the Low-Voltage Power Module or to the router or switch connected to the Low-Voltage Power Module.

If a DHCP Server is being used, Connect the Building LAN to the Low-Voltage Power Module's Ethernet port and verify the Ethernet LED is ON or flashing. Refer to the network administrator to obtain the IP address that has been assigned to the Low-Voltage Power Module. Ensure that the laptop being used is connected to and given an IP address on the same network.

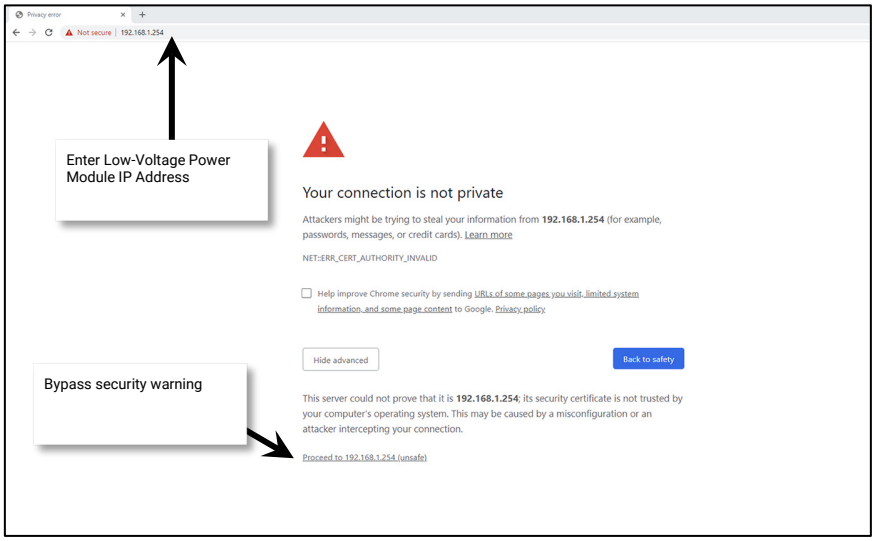


[17]Always power down the WaveLinx Low-Voltage Power Module before connecting Low-Voltage Fixtures. The WaveLinx Low-Voltage Power Module does not support hot-swapping/plugging.

Low-Voltage Power Module continued

Initial Configuration Steps (continued)

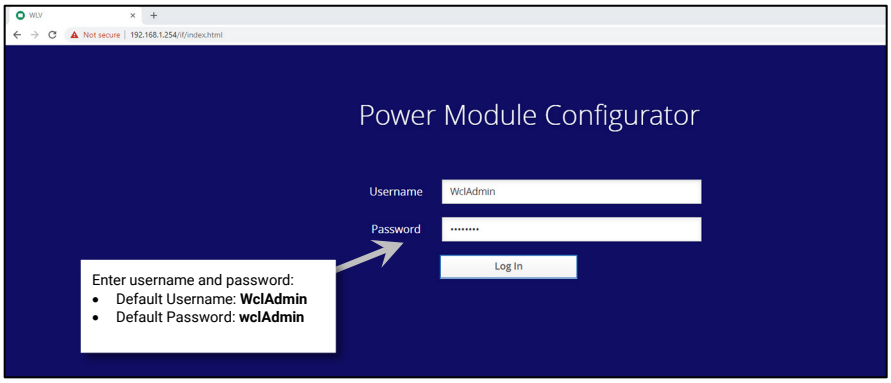
2: Open a web browser. In the address bar, enter the IP address of the WaveLinx Low-Voltage Power Module (default 192.168.1.254). The browser may display a warning regarding site security. The display and wording of this message may differ. Locate the option to bypass the warning and proceed to the site.



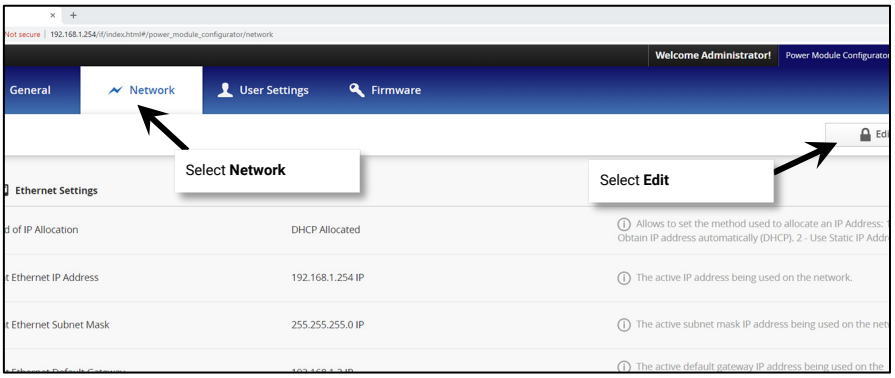
3: In the log in screen, enter the username and password for the administrator user.

- Default Username: **WclAdmin**
- Default Password: **wclAdmin**[18]

The internal webpage will open to the **General** tab after a reminder to change the default password.



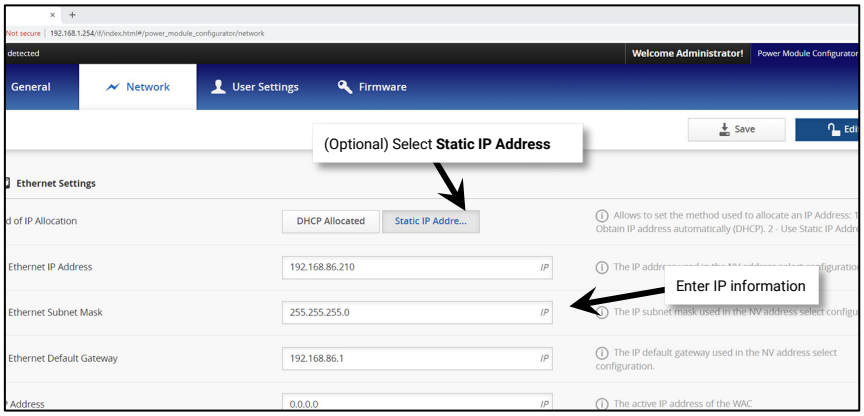
4: Select the **Network** tab and then choose **Edit**.



[18] For security purposes, after the initial configuration is complete, change the default password. Users should set a complex password when changing passwords. See "User Settings Administration" on page 437 for this procedure.

Low-Voltage Power Module continued

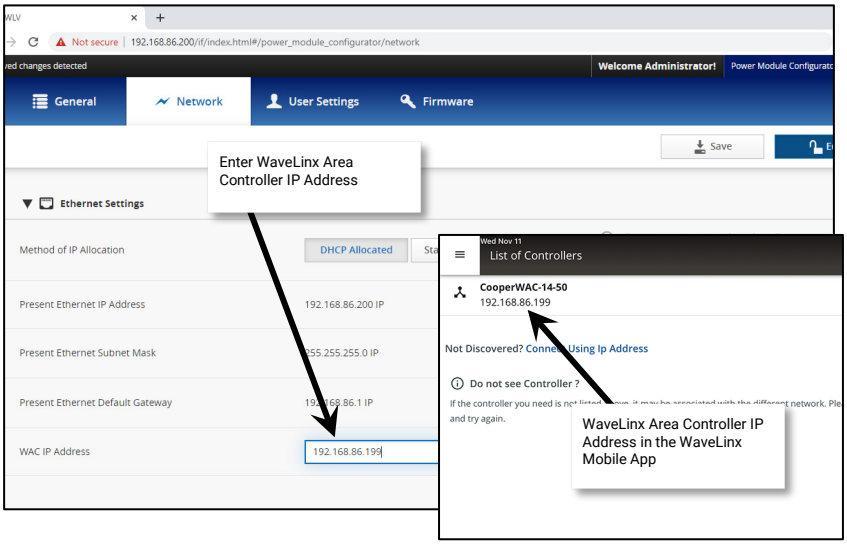
Initial Configuration Steps (continued)



5: **If assigning a static IP address**, select **Static IP Address** and then type in the desired IP address, the appropriate subnet mask, and the default Gateway IP.

6: In the appropriate tab (either DHCP or Static IP depending on which the site is using) **enter the IP address of the WaveLinx Area Controller that should be paired with this Low-Voltage Power Module in the WAC IP Address field. This ensures that the Low-Voltage Power Module will pair with the correct WaveLinx Area Controller.**

To find the WaveLinx Area Controller's IP address, open the WaveLinx App. The WaveLinx Area Controller's IP address will show under the device name in the WaveLinx Area Controllers list.



7: Click on **Save**. The WaveLinx Low-Voltage Power Module will automatically reboot if the IP address settings other than the **WAC IP Address** have been changed. If the web browser has been left open, it will be disconnected. A Low-Voltage Power Module reboot takes approximately 1 ½ minutes to complete.

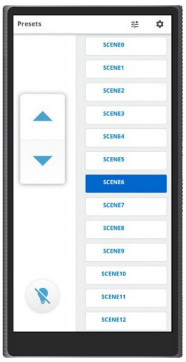
If just the **WAC IP Address** has been entered, the Low-Voltage Power Module will not reboot. Click on **Welcome Administrator** and then select **Log Out** before closing the web browser.

8. Connect the Building LAN cable to the Low-Voltage Power Module Ethernet port.

The Low-Voltage Power Module is now ready for pairing with the WaveLinx Area Controller.

WaveLinx Touchscreen Reference Sheet

WaveLinx Touchscreen



Features

- Multi-area scene selection, raise/lower, toggle ON/OFF control, and individual zone controls
- Low profile, single gang mounting
- Communicates via Ethernet connection

Power:
- PoE powered (IEEE802.3af)

Typical Applications

- Education, office, and other interior spaces

Models:

TSE57-WLX: 5.7" Touchscreen for WaveLinx

WaveLinx App Details:

- Not Applicable: Device is configured through the touchscreen, and does not use the WaveLinx App.

Icon Displayed in WaveLinx App:

- Not Applicable: Device is configured through the touchscreen, and does not use the WaveLinx App.

Programmable options:

- Specify area(s) for control
- Specify available scenes

The WaveLinx Touchscreen can be used to manually operate WaveLinx Area Controller controlled loads including WaveLinx PRO, WaveLinx CAT WaveLinx DALI, and WaveLinx LV devices. Easily issue commands to scenes, raise/lower lighting levels and/or individual zone levels from the touchscreen display. The touchscreen automatically populates the screens based on the programming in the WaveLinx Area Controller. Partitioned area control is limited to the scenes and zones of the combined area. Sub area and sub zone control is not currently available.[19]

Operation Details

- Once PoE connection is made, the touchscreen will illuminate to a configuration screen.
- The touchscreen will have no control functionality out-of-the-box and is not configured using the WaveLinx App.
- The touchscreen is configured for operation using the touchscreen display. See “Configuring the WaveLinx Touchscreen” on page 356 for configuration details.
- The touchscreen communicates with the WaveLinx Area Controller through an Ethernet connection.

Loss of Communications Operation

If communication is lost with WaveLinx Area Controller, the touchscreen will display a communications error that communications are down. The touchscreen will continue to try to re-establish communications until a successful connection is made.

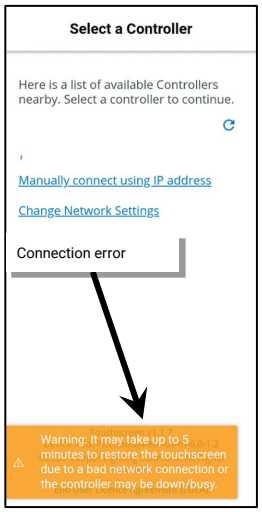
Operation upon Return of Power

Once power is restored, the touchscreen will boot and attempt to reconnect to the previously connected WaveLinx Area Controller. Once the connection is made, the touchscreen will login with the previously defined user credentials and then will display either the areas list or the preset page of the favorite area if a favorite area has been defined.

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings removing Ethernet network configuration and all touchscreen settings.

- Navigate to the touchscreen’s **Settings** screen, entering the passcode when prompted.
- Tap the **Factory Reset** option.
- Tap the **Factory Reset** link.
- Tap **Reset** when prompted to confirm.



Configuration Details

This Device is not programmed through the WaveLinx App. Please see “Configuring the WaveLinx Touchscreen” on page 356 for instructions on configuring the Touchscreen for operation.

[19] Partitioning features require WaveLinx Area Controller firmware version 14.1.x.x and higher.

WaveLinx PRO Ambient Integrated Sensor Reference Sheet

WaveLinx PRO Ambient Integrated Sensor

The WaveLinx PRO Ambient Integrated Sensor provides wireless control within the light fixture to reduce wiring, design, and installation time. The sensor provides both occupancy and daylight control that can be easily configured using the WaveLinx App. The WPA advanced model, WPA IS Pro CCT, offers additional capability combining both dimming and white tuning control within the same integrated sensor device.

Features

- Integrated photocell for closed loop or open loop daylighting[20]
- Integrated Passive Infrared (PIR) motion sensor for occupancy or vacancy sensing
- IEEE 802.15.4, (router and end point)
- Bluetooth beacon, RTLS capabilities[21,22]
- Combined white tuning and dimming in the advanced model (WPA IS Pro CCT).

Typical Applications

- Education, office, and other interior spaces

Models:

- **WPS-R3:** Ambient Integrated Sensor (standard)
- **WPA:** Ambient Integrated Sensor (advanced)
- **WAA:** Ambient Integrated Sensor (standard)

Available option on many Cooper Lighting luminaires.

WaveLinx App Details:

- Default Device Name (standard models):
  - Luminaire Sensor R3 NPS
  - Integrated Sensor PRO
  - Integrated Sensor Economy
  - BLE Integrated Sensor
  - Integrated Sensor
- Default Device Name (advanced model):
  - IS Pro CCT
- Unassigned Device Category:
  - Integrated Sensor (most models)
  - Wireless Node (WPA IS Pro & Pro CCT)

Icon Displayed in WaveLinx App:

- Standard models

- Advanced model (WPA IS Pro CCT)

- unassigned
- in dimmable zone
- in white tuning zone

Out-of-the-Box Operation

- Once power is applied, the attached fixture operates via the motion sensor.
  - The occupancy sensor is set for low sensitivity.
  - If occupied, the fixture will turn ON to 100%[23]
  - Advanced model only (WPA IS Pro CCT): White tuning will be at 3500K whenever fixture is ON.
  - The fixture will dim to OFF (0%) after 20 minutes when the space is unoccupied.
- The daylight sensor is disabled.
- Sensor LED flashes green for 100ms once every 3 seconds when motion is detected.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction Area. • The daylight sensor remains disabled. • The sensor LED flashes yellow 1 sec./OFF 1 sec. repeatedly.[24]	Once assigned to a created area, the device operates as part of the area. • The daylight sensor is disabled. • The sensor LED flashes white for 100ms once every 3 seconds when motion is detected.

• All occupancy sensors report to the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
• Advanced models only: White tuning will go to 3500K whenever lighting is ON unless scene response is modified.	

LED Operation (The LED is located beneath the sensor lens)

LED conditions	Meaning
Flashes green for 100ms, once every 3 sec. with motion.	The device is unpaired (out-of-the-box) and is detecting motion.[23]
Flashes yellow for 1 sec./ OFF for 1 sec. Repeats indefinitely.	The device is paired with a WaveLinx Area Controller and is in the Construction Area.[24,25]
Flashes white for 100ms, once every 3 sec. with motion	The device is paired to a WaveLinx Area Controller, is assigned to a user created area and is detecting motion.
Flashes green 300ms/ white for 300ms, once every 3 sec. with motion[23]	The device has lost communication with the WaveLinx Area Controller for longer than 15 minutes and is detecting motion.
Flashes white 700ms/ yellow for 300ms, once every 3 sec. with motion.	The device is enabled for daylight dim to OFF and is detecting motion but lighting remains OFF due to the daylight sensor exceeding 150% of the calibrated light level for 30 minutes.[26]
LED flashes white for 1 sec. / OFF for 1 sec. Repeats indefinitely.	The mobile app or a timed schedule event has been used to disable the occupancy set or the individual occupancy sensor. The sensor will not respond to motion activity in disabled mode.
Flashes magenta 1 sec. / OFF for 1 sec. Repeats for 15 sec.	The device has been placed into **Blink to Identify** mode from the WaveLinx App, by using one of the supported identification methods, or the **ID Test** button has been used on the WaveLinx PRO IR Remote.
Flashes cyan 1 sec/OFF 1 sec. Repeats for a period.	The device firmware is being updated. The cyan flashing pattern will end once the update is complete.[24]
LED flashes blue one time	The ISHH-01 or the ACC-P-RT IR remote has been used to identify the device.
LED is OFF	The device is not detecting motion. If motion is occurring, ensure device is powered and that the LED has not been disabled through the WaveLinx App.[27]

[20] Selecting an integrated sensor to assign to an Open Loop Daylight Set requires min. sensor firmware: IS 1.9.4.0, BLE IS 2.6.3.0, IS PRO 1.3.2.0, IS Economy 1.2.4.0.

[21] Some WAA models and the WPS-R3 will not have Bluetooth beacon capabilities.

[22] RTLS capability may require additional license or firmware purchase.

[23] Older firmware devices may go to 75% output when occupied out-of-the-box, take up to 1 hour and flash the LED green 100ms, once every 3 seconds to indicate entering loss of communication operation.

[24] Devices must be at minimum firmware versions noted to show this behavior: IS 1.10.15.00, BLE IS 1.11.15.00, IS Pro 1.04.13.00, and IS Economy 1.03.14.00.

[25] Devices in user defined areas may exhibit this LED behavior if manually placed in commissioning mode through the advanced user WAC Webpage (advanced technicians only).

[26] The LED will return to normal motion operation if the light level drops but stays between 50% and 100% of the calibrated light level for 10 minutes OR if the light level falls below 50% of the calibrated light level for 30 seconds.

[27] The LED may be difficult to see in very bright areas.

WaveLinx PRO Ambient Integrated Sensor continued

How to Place in Pairing Mode:

Method	Description
Power Cycle Method[28]	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds, and then turn ON power and leave ON
ACC-P-RT Remote Method[29] P Pair **or** ISHH-01 Remote Method[30]	Standing beneath the sensor, point the remote at the sensor, and then press and release the designated button. If the sensor has not been paired, this will trigger pairing mode. The sensor LED will briefly flash blue.

The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode with these methods.

Successful Paired Device Behavior: (While WAC is still in or is placed in pairing mode)

Fixture dims to 10%. The sensor LED should blink yellow.[31]

Supported Identification Methods:

Method	Description
Laser pointer or focused flashlight beam	For fixtures mounted at reasonable mounting heights, use a laser pointer or bright, focused beam flashlight to trigger identification mode. Standing beneath the sensor, shine the light directly into the sensor lens for 3-4 seconds. The timing needs to be precise for the identification mode to respond. The sensor LED will flash magenta for 15 seconds as the device will appear to flash on the WaveLinx Mobile App screen.
ACC-P-RT Remote[29] Rev ID **or** ISHH-01 Remote[30]	Standing beneath the sensor, point the remote at the sensor, and then press and release the designated button. If the sensor has been paired with a WaveLinx Area Controller, this will trigger identification mode for that device. The sensor LED will briefly flash blue and then will flash magenta for 15 seconds as the device will appear to flash on the WaveLinx Mobile App screen.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond. In **Blink to Identify** mode, the fixture will turn ON for 1 second/OFF for 1 second and repeat for 15 seconds. Advanced model (WPA IS Pro CCT): White tuning will cycle between cool and warm when placed in **Blink to Identify** mode from the Area or from the defined White Tuning Zone.

Daylighting Information

Closed Loop Daylight Operation	Open Loop Daylight Operations[32]
Once assigned to an area and enabled, the sensor will begin closed loop daylight dimming operation to a reasonable light level. If a specific light level (target) is expected at the surface, then calibration is required. Dim to OFF is automatically disabled.[33,34] Lighting will remain at the defined minimum dim level if measured light exceeds the calibrated level. If Dim to OFF is enabled, when the measured light exceeds the calibrated level, the fixture will dim lighting.[33] When the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will turn the lighting OFF. Lighting will turn back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated light level for longer than 30 seconds.	Daylighting will not operate until an open loop daylight set is configured. Once the open loop daylight set is configured the controlled zone(s) will dim in response to entering daylight. If a specific light level is expected at the surface, the zone(s) response to daylight may need adjustment. Dim to OFF is automatically disabled.[33] Lighting will remain at the defined minimum dim level if measured light exceeds the calibrated level. If Dim to OFF is enabled, when the measured light exceeds 150% of the adjusted gain for more than 30 minutes, the sensor will turn lighting OFF.[33] Lighting will turn back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the adjusted gain for longer than 10 minutes. Condition 2: The measured light level falls below 50% of the adjusted gain for longer than 30 seconds.

Closed Loop Daylight Calibration Details	Open Loop Response to Daylight Adjustment
It is best to calibrate indoor applications when there is a moderate to low level of daylight. If the daylight level is too high, it may be difficult to obtain the desired level of light at the task surface, even if the fixtures are completely OFF. If daylight level is too high and shading is available, use shading to decrease incoming daylight. If it is still too bright, postpone calibration until the amount of incoming daylight has decreased. During calibration, use the **Calibrate All** feature and adjust slider bars to the desired light level for each controlled fixture. Once all fixtures are adjusted, use a light meter to ensure the reading is in the desired range and then send the **Calibrate** command. The ACC-P-RT Remote may also be used to adjust the sensor calibration.[29]	Perform adjustment during daylight hours when electric lighting should be reduced but not fully dimmed. For best results, with electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if 500 lux is the desired work surface level, the reading should be between 250 to 375 lux with lighting OFF.) To adjust the zone response, in the daylight set **Calibrate** screen, adjust the slider bar until the lighting is at the desired light level. The ACC-P-RT Remote may also be used to adjust the daylight response.[29]

[28] Devices with older firmware (prior to IS 1.07.13.00, BLE IS 2.04.19.00, IS Pro 1.01.04.00 and older IS Economy devices) may only require a single power cycle to place in pairing mode (30 seconds OFF and then turn back ON).

[29] Devices must be minimum firmware versions noted to operate with the ACC-P-RT IR Remote: IS 1.10.15.00, BLE IS 1.11.15.00, IS Pro 1.04.13.00, and IS Economy 1.03.14.00.

[30] Devices must be minimum firmware versions noted to operate with the ISHH-01 Remote: IS 1.07.13.00, BLE IS 2.04.19.00, IS Pro 1.01.04.00 and older IS Economy devices.

[31] Devices must be at minimum firmware versions noted to show this behavior: IS 1.10.15.00, BLE IS 1.11.15.00, IS Pro 1.04.13.00, and IS Economy 1.03.14.00.

[32] Selecting an integrated sensor to assign to an Open Loop Daylight Set requires min. sensor firmware: IS 1.9.4.0, BLE IS 2.6.3.0, IS PRO 1.3.2.0, IS Economy 1.2.4.0.

[33] WAC versions prior to version 12.x.x.x will not have the ability of disabling the **DIM to OFF** feature. **DIM to OFF** is automatic when daylighting is enabled.

[34] Ambient Integrated Sensor model SWPD1 (IS) will automatically have **DIM to OFF** enabled and will not offer the ability to disable this feature.

WaveLinx PRO Ambient Integrated Sensor continued

White Tuning Configuration Details (advanced model WPA IS Pro CCT only)

For proper white tuning control, the device must be configured for white tuning control and assigned to a white tuning zone.

- Create the dimming zone(s) needed for the area. (p. 187)
- Create the white tuning zone(s) needed for the area. (p. 187)
- Identify the WPA IS Pro CCT to be added to the area. Once identified, add the device to the dimming zone and when prompted, select the white tuning zone for the white tuning channel. (p. 203)
- Add other devices to the area as needed and proceed with programming.

Normal Power Sense Operation (NPS)

Normal Power Sense or NPS allows a device powered from normal power to be used to trigger an UL924 approved WaveLinx Emergency device to Emergency Mode when the NPS device loses power. A device that is assigned to act as an NPS device will repetitively send a beacon signal when it has power. When the beacon signal disappears (from power loss), the Emergency devices will respond to Emergency Mode.

The following Ambient Integrated Sensor models can be used as an NPS device:

- WPS-R3: Luminaire Sensor R3 NPS
- IS-BLE: BLE Integrated Sensor

Loss of Communications Operation

If the device has not communicated with the WaveLinx Area Controller for longer than approx.15 minutes, it will revert to its out-of-the-box behavior and display loss of communications LED operation until communications are re-established.[35]

Operation upon Return of Power

Upon return of power, the fixture will resume its last known light level. If not able to communicate with the WaveLinx Area Controller for more than approx. 15 minutes, loss of communications operation will begin.[35]

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- Cycle power to the device's circuit **six times** (switch **OFF 30 seconds | ON 5 seconds – 6th time leave ON**).

This removes pairing for ALL devices of this type on the circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.[36]

The ACC-P-RT IR Remote may also be used to factory reset devices. Please refer to the WaveLinx PRO IR Remote User Guide for details on using the IR factory reset command.[37]

[35] Older firmware devices may go to 75% output when occupied out-of-the-box, take up to 1 hour and flash the LED green 100ms, once every 3 seconds to indicate entering loss of communication operation.

[36] The device may flash the light to indicate the reset was successful. If the light was ON prior to the reset, the light will flash twice then remain ON. If OFF prior to reset, the flash behavior may not be observed, but lighting will turn ON.

[37] Devices must be minimum firmware versions noted to operate with the ACC-P-RT IR Remote: IS 1.10.15.00, BLE IS 1.11.15.00, IS Pro 1.04.13.00, and IS Economy 1.03.14.00.

WaveLinx PRO Emergency Ambient Integrated Sensor Reference Sheet

WaveLinx PRO Emergency Ambient Integrated Sensor

Features

- Integrated photocell for closed loop or open loop daylighting
- Integrated Passive Infrared (PIR) motion sensor for occupancy or vacancy sensing
- IEEE 802.15.4, (router and end point)
- UL924 approved control of Emergency Lighting

Typical Applications

- Emergency fixture control
- Education, office, and other interior spaces

Models:

- **WEM-WPS-R3:** Emergency Ambient Integrated Sensor

Available option on many Cooper Lighting luminaires.

WaveLinx App Details:

- Default Device Name:
  - Luminaire Sensor R3 EM
- Unassigned Device Category:
  - Integrated Sensor

Icon Displayed in WaveLinx App:

The WaveLinx PRO Emergency Ambient Integrated Sensor controls an Emergency luminaire. This UL924 approved Emergency control solution operates with signals detected from up to three normal powered Normal Power Sense (NPS) capable WaveLinx PRO devices. **Emergency Mode** will turn lighting full ON within 10 seconds of the system detecting power loss from any of the three NPS devices. Normal operation will return when the NPS device signals are detected again. The sensor provides both occupancy and daylight control that can be easily configured using the WaveLinx App.

Out-of-the-Box Operation

- Once power is applied, the attached fixture will turn ON to100% light output and will remain in **Emergency Mode**[38]

Construction Area Default Operation

Once paired, the device will be placed in the Construction Area. The WaveLinx PRO Emergency Ambient Integrated Sensor's fixture will remain ON at 100% in Emergency Mode and not respond to commands until Normal Power Sense (NPS) devices are assigned to the device's Emergency Set using the Mobile App.

Assigned to an Area Default Operation	Once Emergency Set is Defined Default Operation

Once assigned to a created area:
• The WaveLinx PRO Emergency Ambient Integrated Sensor's fixture will remain ON at 100% **Emergency Mode** and not respond to commands until Normal Power Sense (NPS) devices are assigned to the device's Emergency Set using the Mobile App.
	Once assigned to a created area and assigned to an Emergency Set with NPS devices:
	• **If normal power is present** the device operates as part of the area.
	  • The daylight sensor is disabled.
	  • The sensor LED flashes white for 100ms once every 3 seconds when motion is detected.
	  • All occupancy sensors report to the area's occupancy set.
	  • If occupied, the fixtures will turn ON to 50% (Scene 3).
	  • The occupancy set default hold time is 20 minutes.
	  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
	  • It will respond to any wallstations in the area per the default wallstation programming.
	• **If normal power is not present**, the Emergency Ambient Integrated Sensor's fixture will switch ON to 100% **Emergency Mode** and not respond to commands until the Normal Power Sense (NPS) signal is received from all assigned NPS devices.

LED Operation (The LED is located beneath the sensor lens)

LED conditions	Meaning
Flashes green for 300ms/ red for 300ms/ OFF for 2.4 sec. Repeats indefinitely.	The device is unpaired (out-of-the-box) and is in Emergency Mode until it is configured.
Flashes yellow for 300ms/ red for 300ms/ OFF for 2.4 sec. Repeats indefinitely.	The device is paired with a WaveLinx Area Controller, is in the Construction Area, and is currently in Emergency Mode[39] until it is configured.
LED is solid red.	The device is paired, is configured, and is in Emergency Mode due to loss of signal from one of its Normal Power Sense devices.
Flashes white for 300ms, once every 3 sec. with motion.	The device is paired to a WaveLinx Area Controller, is assigned to a user created area, is in normal power mode, and is detecting motion.
Flashes green 300ms/ white for 300ms, once every 3 sec. with motion	The device is in normal power mode, has lost communication with the WaveLinx Area Controller for more than 15 minutes, and is detecting motion.
Flashes white 700ms/ yellow for 300ms, once every 3 sec. with motion.	The device is in normal power mode, is enabled for daylight dim to OFF, and is detecting motion but lighting remains OFF due to the daylight sensor exceeding 150% of the calibrated light level for 30 minutes.[40]
LED flashes white for 1 sec. / OFF for 1 sec. Repeats indefinitely.	The device is in normal power mode. The mobile app or a timed schedule event has been used to disable the occupancy set or the individual occupancy sensor. The sensor will not respond to motion activity in disabled mode.
Flashes magenta 1 sec. / OFF for 1 sec. Repeats for 15 sec.	The device has been placed into **Blink to Identify** mode from the WaveLinx App, by using one of the supported identification methods, or the **ID Test** button has been used on the WaveLinx PRO IR Remote.
Flashes cyan 1 sec/OFF 1 sec. Repeats for a period.	The device firmware is being updated. The cyan flashing pattern will end once the update is complete.
LED flashes blue one time.	The ISHH-01 or the ACC-P-RT IR remote has been used to communicate with any device.
LED is OFF	The device is not detecting motion. If motion is occurring, ensure device is powered and that the LED has not been disabled through the WaveLinx App.

[38] Blink-to-Identify commands will be allowed during Emergency Mode only while the device is in the Construction Area for purposes of device identification. Once the device is assigned to a user defined area, Blink-to-Identify commands will not work if the device is in Emergency Mode.

[39] Devices in user defined areas may exhibit this LED behavior if manually placed in commissioning mode through the advanced user WAC Webpage (advanced technicians only).

[40] The LED will return to normal motion operation if the light level drops but stays between 50% and 100% of the calibrated light level for 10 minutes OR if the light level falls below 50% of the calibrated light level for 30 seconds.

WaveLinx PRO Emergency Ambient Integrated Sensor continued

How to Place in Pairing Mode:

Method	Description
Power Cycle Method	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds, and then turn ON power and leave ON
ACC-P-RT Remote Method (P) **or** ISHH-01 Remote Method (⏻)	Standing beneath the sensor, point the remote at the sensor, and then press and release the designated button. If the sensor has not been paired, this will trigger pairing mode. The sensor LED will briefly flash blue.

The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode with these methods.

Successful Paired Device Behavior: (While WAC is still in or is placed in pairing mode)

Fixture remains ON/100% in **Emergency Mode**. The sensor LED should flash yellow/red/OFF and repeat.

Supported Identification Methods:

Method	Description
Laser pointer or focused flashlight beam	For fixtures mounted at reasonable mounting heights, use a laser pointer or bright, focused beam flashlight to trigger identification mode. Standing beneath the sensor, shine the light directly into the sensor lens for 3-4 seconds. The timing needs to be precise for the identification mode to respond. The sensor LED will flash magenta for 15 seconds as the device will appear to flash on the WaveLinx Mobile App screen.
ACC-P-RT Remote (Rev ID) **or** ISHH-01 Remote (⏻)	Standing beneath the sensor, point the remote at the sensor, and then press and release the designated button. If the sensor has been paired with a WaveLinx Area Controller, this will trigger identification mode for that device. The sensor LED will briefly flash blue and then will flash magenta for 15 seconds as the device will appear to flash on the WaveLinx Mobile App screen.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device[41]. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond. In **Blink to Identify** mode, the fixture will turn ON for 1 second/OFF for 1 second and repeat for 15 seconds.

Daylighting Information

Closed Loop Daylight Operation	Open Loop Daylight Operations
Once assigned to an area and enabled, the sensor will begin closed loop daylight dimming operation to a reasonable light level. If a specific light level (target) is expected at the surface, then calibration is required. Dim to OFF is automatically disabled. Lighting will remain at the defined minimum dim level if measured light exceeds the calibrated level. If Dim to OFF is enabled, when the measured light exceeds the calibrated level, the fixture will dim lighting. When the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will turn the lighting OFF. Lighting will turn back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated light level for longer than 30 seconds.	Daylighting will not operate until an open loop daylight set is configured. Once the open loop daylight set is configured the controlled zone(s) will dim in response to entering daylight. If a specific light level is expected at the surface, the zone(s) response to daylight may need adjustment. Dim to OFF is automatically disabled. Lighting will remain at the defined minimum dim level if measured light exceeds the calibrated level. If Dim to OFF is enabled, when the measured light exceeds 150% of the adjusted gain for more than 30 minutes, the sensor will turn lighting OFF. Lighting will turn back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the adjusted gain for longer than 10 minutes. Condition 2: The measured light level falls below 50% of the adjusted gain for longer than 30 seconds.

Closed Loop Daylight Calibration Details	Open Loop Response to Daylight Adjustment
It is best to calibrate indoor applications when there is a moderate to low level of daylight. If the daylight level is too high, it may be difficult to obtain the desired level of light at the task surface, even if the fixtures are completely OFF. If daylight level is too high and shading is available, use shading to decrease incoming daylight. If it is still too bright, postpone calibration until the amount of incoming daylight has decreased. During calibration, use the **Calibrate All** feature and adjust slider bars to the desired light level for each controlled fixture. Once all fixtures are adjusted, use a light meter to ensure the reading is in the desired range and then send the **Calibrate** command. The ACC-P-RT Remote may also be used to adjust the sensor calibration.	Perform adjustment during daylight hours when electric lighting should be reduced but not fully dimmed. For best results, with electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if 500 lux is the desired work surface level, the reading should be between 250 to 375 lux with lighting OFF.) To adjust the zone response, in the daylight set **Calibrate** screen, adjust the slider bar until the lighting is at the desired light level. The ACC-P-RT Remote may also be used to adjust the daylight response.

[41] Blink-to-Identify commands will be allowed during Emergency Mode only while the device is in the Construction Area for purposes of device identification. Once the device is assigned to a user defined area, Blink-to-Identify commands will not function if the device is in Emergency Mode.

WaveLinx PRO Emergency Ambient Integrated Sensor continued

Emergency Mode Operation

NOTE: For proper operation, use the WaveLinx App to configure an Emergency Set that has at least one Normal Power Sense device (NPS device) assigned to generate the beacon signal that the WaveLinx PRO Emergency Ambient Integrated Sensor(s) requires. Up to three WaveLinx PRO devices can be assigned as NPS devices to generate the beacon signal to the defined Emergency Set. If not assigned to an Emergency Set, the WaveLinx PRO Emergency Ambient Integrated Sensor will remain in Emergency Mode indefinitely.

If the NPS device(s) lose power or communications with the WaveLinx PRO Emergency Ambient Integrated Sensor, the device will activate Emergency Mode. During Emergency Mode, the Emergency Ambient Integrated Sensor will turn the connected load ON to 100%. Upon return of normal power, the NPS devices will send the beacon signal allowing the Emergency Ambient Integrated Sensor to revert to normal operation.

For information on creating and configuring the Emergency Sets for NPS and Emergency devices, see “Creating and Organizing Emergency Sets for Emergency Devices” on page 215.

To ensure proper operation for Emergency Mode:

- The WaveLinx PRO Emergency Ambient Integrated Sensor’s fixture **MUST** be wired to an emergency circuit
- The NPS devices **MUST** be wired to normal power circuits. If monitoring more than one normal power phase, in the Emergency Set select NPS devices that are connected to different normal power phases (up to three).

Loss of Communications Operation with the WaveLinx Area Controller

NPS device signals are not processed by the WAC and are processed directly between the NPS devices and the Emergency devices.

- If the NPS device signals are still being received and the device has lost communication with the WaveLinx Area Controller for longer than approx.15 minutes, it will operate via its onboard motion sensor (if occupied, lighting will turn ON/100%, unoccupied for 20 minutes the fixture will dim to OFF/0%) until communication is restored.
- If any of the assigned NPS device signals is disrupted during a loss of communication with the WaveLinx Area Controller, the device will go to Emergency Mode (Full ON).

Operation upon Return of Power

If the WaveLinx PRO Ambient Integrated Sensor loses power, once power returns the fixture will turn ON/100% in Emergency Mode until it receives its assigned NPS device signals to revert to normal operation.

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- Cycle power to the device’s circuit **six times** (switch **OFF 30 seconds | ON 5 seconds – 6th time leave ON**).

This removes pairing for ALL devices of this type on the circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.[42]

The ACC-P-RT IR Remote may also be used to factory reset devices. Please refer to the WaveLinx PRO IR Remote User Guide for details on using the IR factory reset command.

[42] The device may flash the light to indicate the reset was successful. If the light was ON prior to the reset, the light will flash twice then remain ON. If OFF prior to reset, the flash behavior may not be observed, but lighting will turn ON.

WaveLinx PRO Industrial Integrated Sensor Reference Sheet

WaveLinx PRO Industrial Integrated Sensor

Features

- Integrated photocell for closed loop or open loop daylighting[43]
- Integrated Passive Infrared (PIR) motion sensor for occupancy or vacancy sensing
- IEEE 802.15.4, (router and end point)
- Bluetooth beacon, RTLS capabilities[44,45]

Typical Applications

- Industrial and Manufacturing facilities

Models:

- **SWPD2:** Low mount: 7-15ft (2.1-4.5m)
- **WIJ:** BLE Low mount: 7-15ft (2.1-4.5m)[46]
- **SWPD3**: High mount: 15-40ft (4.5-12.2m)
- **WIL:** BLE High mount: 15-40ft (4.5-12.2m)[46]

Available option on many Cooper Lighting luminaires.

WaveLinx App Details:

- Default Device Name:
  - Industrial Low Mount Integrated Sensor (SWPD2)
  - Industrial High Mount Integrated Sensor (SWPD3)
  - WaveLinx Industrial Pro Low Bay (WIJ)[46]
  - WaveLinx Industrial Pro High Bay (WIL)[46]
- Unassigned Device Category:
  - SWPD2 & WIJ[46] Lowbay Sensor
  - SWPD3 & WIL[46] Highbay Sensor

Icon Displayed in WaveLinx App:

High Bay

Low Bay

The WaveLinx PRO Industrial High/Low Bay Mount Integrated Sensor uses a simple tool-less twist lock method to connect to a Cooper Lighting fixture with WaveLinx compatible 4-pin Zhaga Book 18 socket. The sensor has an IP66 rating for warehouse and manufacturing environments and provides both occupancy and daylight control that can be easily configured using the WaveLinx App.

Out-of-the-Box Operation

- Once power is applied, the attached fixture operates via the motion sensor.
  - The occupancy sensor is set for low sensitivity.
  - If occupied, the fixture will turn ON to 100%[47]
  - The fixture will dim to 10% after 20 minutes when the space is unoccupied.
- The daylight sensor is disabled.
- LED flashes green (in sensor window) for 100ms once every 3 seconds when motion is detected.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction Area. • The daylight sensor remains disabled. • The sensor LED flashes yellow 1 sec./OFF 1 sec. repeatedly.[48]	Once assigned to a created area, the device operates as part of the area. • The daylight sensor is disabled. • The sensor LED flashes white for 100ms once every 3 seconds when motion is detected.
• All occupancy sensors report to the area's occupancy set. • If occupied, the fixtures will turn ON to 50% (Scene 3). • The occupancy set default hold time is 20 minutes. • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).	

LED Operation (The LED is located beneath the sensor lens.)

LED conditions	Meaning
Flashes green for 100ms, once every 3 sec. with motion	The device is unpaired (out-of-the-box) and is detecting motion.[47]
Flashes yellow for 1 sec./ OFF for 1 sec. Repeats indefinitely.	The device is paired with a WaveLinx Area Controller and is in the Construction Area.[48,49]
Flashes white for 100ms, once every 3 sec. with motion	The device is paired to a WaveLinx Area Controller, is assigned to a user created area and is detecting motion.
Flashes green 300ms/ white for 300ms, once every 3 sec. with motion[47]	The device has lost communication with the WaveLinx Area Controller for longer than 15 minutes and is detecting motion.
Flashes white 700ms/ yellow for 300ms, once every 3 sec. with motion.	The device is enabled for daylight dim to OFF and is detecting motion but lighting remains OFF due to the daylight sensor exceeding 150% of the calibrated light level for 30 minutes.[50]
LED flashes white for 1 sec. / OFF for 1 sec. Repeats indefinitely.	The mobile app or a timed schedule event has been used to disable the occupancy set or the individual occupancy sensor. The sensor will not respond to motion activity in disabled mode.
Flashes magenta 1 sec. / OFF for 1 sec. Repeats for 15 sec.	The device has been placed into **Blink to Identify** mode from the WaveLinx App, by using one of the supported identification methods, or the **ID Test** button has been used on the WaveLinx PRO IR Remote.
Flashes cyan 1 sec/OFF 1 sec. Repeats for a period.	The device firmware is being updated. The cyan flashing pattern will end once the update is complete.[48]
LED flashes blue one time	The ISHH-01 or the ACC-P-RT IR remote has been used to identify the device.
LED is OFF	The device is not detecting motion. If motion is occurring, ensure device is powered and that the LED has not been disabled through the WaveLinx App.[51]

[43] Selecting an integrated sensor to assign to an Open Loop Daylight Set requires min. sensor firmware: SWPD2/SWPD3 1.10.03.00 , WIJ/WIL 1.03.06.01.

[44] SWPD2 and SWPD3 models do not have Bluetooth beacon capability.

[45] RTLS capability may require additional license or firmware purchase.

[46] WIK & WIM WaveLinx Lite sensor models may be updated through firmware to allow operate with a standard WaveLinx PRO system.

[47] Older firmware devices may go to 75% output when occupied out-of-the-box, take up to 1 hour and flash the LED green 100ms, once every 3 seconds to indicate entering loss of communication operation.

[48] Devices must be at minimum firmware versions noted to show this behavior: SWPD2/SWPD3 1.10.15.00, WIJ/WIL 1.04.12.00.

[49] Devices in user defined areas may exhibit this LED behavior if manually placed in commissioning mode through the advanced user WAC Webpage (advanced technicians only).

[50] The LED will return to normal motion operation if the light level drops but stays between 50% and 100% of the calibrated light level for 10 minutes OR if the light level falls below 50% of the calibrated light level for 30 seconds.

[51] The LED may be difficult to see in very bright areas.

WaveLinx PRO Industrial Integrated Sensor continued

How to Place in Pairing Mode:

Method	Description
Power Cycle Method[52]	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds, and then turn ON power and leave ON
ACC-P-RT Remote Method[53] P **or** ISHH-01 Remote Method[54]	Standing beneath the sensor, point the remote at the sensor, and then press and release the designated button. If the sensor has not been paired, this will trigger pairing mode. The LED in the sensor window will briefly flash blue.

The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode with these methods.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

Fixture dims to 10%. The LED in sensor window should blink yellow.[55]

Supported Identification Methods:

Method	Description
Laser pointer or focused flashlight beam	For fixtures mounted at reasonable mounting heights, use a laser pointer or bright, focused beam flashlight to trigger identification mode. Standing beneath the sensor, shine the light directly into the sensor lens for 3-4 seconds. The timing needs to be precise for the identification mode to respond. The LED in the sensor window will flash magenta for 15 seconds as the device will appear to flash on the WaveLinx Mobile App screen.
ACC-P-RT Remote[29] **or** ISHH-01 Remote[30]	Standing beneath the sensor, point the remote at the sensor, and then press and release the designated button. If the sensor has been paired with a WaveLinx Area Controller, this will trigger identification mode for that device. The LED in the sensor window will briefly flash blue and then will flash magenta for 15 seconds as the device will appear to flash on the WaveLinx Mobile App screen.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond. In **Blink to Identify** mode, the fixture will turn ON for 1 second/OFF for 1 second and repeat for 15 seconds.

Daylighting Information

Closed Loop Daylight Operation	Open Loop Daylight Operations[56]
Once assigned to an area and enabled, the sensor will begin closed loop daylight dimming operation to a reasonable light level. If a specific light level (target) is expected at the surface, then calibration is required. Dim to OFF is automatically disabled.[57] Lighting will remain at the defined minimum dim level if measured light exceeds the calibrated level. If Dim to OFF is enabled, when the measured light exceeds the calibrated level, the fixture will dim lighting.[57] When the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will turn the lighting OFF. Lighting will turn back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated light level for longer than 30 seconds.	Daylighting will not operate until an open loop daylight set is configured. Once the open loop daylight set is configured the controlled zone(s) will dim in response to entering daylight. If a specific light level is expected at the surface, the zone(s) response to daylight may need adjustment. Dim to OFF is automatically disabled[57]. Lighting will remain at the defined minimum dim level if measured light exceeds the calibrated level. If Dim to OFF is enabled[57], when the measured light exceeds 150% of the adjusted gain for more than 30 minutes, the sensor will turn lighting OFF. Lighting will turn back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the adjusted gain for longer than 10 minutes. Condition 2: The measured light level falls below 50% of the adjusted gain for longer than 30 seconds.

Closed Loop Daylight Calibration Details	Open Loop Response to Daylight Adjustment
It is best to calibrate indoor applications when there is a moderate to low level of daylight. If the daylight level is too high, it may be difficult to obtain the desired level of light at the task surface, even if the fixtures are completely OFF. If daylight level is too high and shading is available, use shading to decrease incoming daylight. If it is still too bright, postpone calibration until the amount of incoming daylight has decreased. During calibration, use the **Calibrate All** feature and adjust slider bars to the desired light level for each controlled fixture. Once all fixtures are adjusted, use a light meter to ensure the reading is in the desired range and then send the **Calibrate** command. The ACC-P-RT Remote may also be used to adjust the sensor calibration.[53]	Perform adjustment during daylight hours when electric lighting should be reduced but not fully dimmed. For best results, with electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if 500 lux is the desired work surface level, the reading should be between 250 to 375 lux with lighting OFF.) To adjust the zone response, in the daylight set **Calibrate** screen, adjust the slider bar until the lighting is at the desired light level. The ACC-P-RT Remote may also be used to adjust the daylight response.[53]

[52] Older firmware devices (prior to SWPD2/SWPD3 1.08.17.00 and WIJ/WIL 1.01.05.00) may only require a single power cycle to place in pairing mode (30 seconds OFF and then turn back ON).
[53] Devices must be minimum firmware versions noted to operate with the ACC-P-RT IR Remote: SWPD2/SWPD3 1.10.15.00, WIJ/WIL 1.04.12.00.
[54] Older firmware devices (prior to SWPD2/SWPD3 1.08.17.00 and WIJ/WIL 1.01.05.00) do not support this method. Use the power cycle method to invoke pairing mode.
[55] Devices must be at minimum firmware versions noted to show this behavior: SWPD2/SWPD3 1.10.15.00, WIJ/WIL 1.04.12.00.
[56] Selecting an integrated sensor to assign to an Open Loop Daylight Set requires min. sensor firmware: SWPD2/SWPD3 1.10.03.00 , WIJ/WIL 1.03.06.01.
[57] WAC versions prior to version 12.x.x.x will not have the ability of disabling the **DIM to OFF** feature. **DIM to OFF** is automatic when daylighting is enabled.

WaveLinx PRO Industrial Integrated Sensor continued

Normal Power Sense Operation (NPS)

Normal Power Sense or NPS allows a device powered from normal power to be used to trigger an UL924 approved WaveLinx Emergency device to Emergency Mode when the NPS device loses power. A device that is assigned to act as an NPS device will repetitively send a beacon signal when it has power. When the beacon signal disappears (from power loss), the Emergency devices will respond to Emergency Mode.

The following Industrial Integrated Sensor models can be used as an NPS device:

- WIJ: BLE Low mount
- WIL: BLE High mount:

Loss of Communications Operation

If the device has not communicated with the WaveLinx Area Controller for longer than approx. 15 minutes, it will revert to its out-of-the-box behavior and display loss of communications LED operation until communications are re-established.[58]

Operation upon Return of Power

Upon return of power, the fixture will resume its last known light level. If not able to communicate with the WaveLinx Area Controller for more than approx. 15 minutes, loss of communications operation will begin.[58]

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

Industrial Low & High Mount Integrated Sensor (SWPD2 or SWPD3)	WaveLinx Industrial Pro Low & High Bay Sensors (WIJ or WIL)
Cycle power the device's circuit **six times** to (switch **OFF 4 seconds** | **ON 4 seconds – 6th time leave ON**).	Cycle power to the device's circuit **six times** (switch **OFF 30 seconds** | **ON 5 seconds – 6th time leave ON**).

This removes pairing for ALL devices of this type on the circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.[59]

The ACC-P-RT IR Remote may also be used to factory reset devices. Please refer to the WaveLinx PRO IR Remote User Guide for details on using the IR factory reset command.[60]

[58] Older firmware devices may go to 75% output when occupied out-of-the-box, take up to 1 hour and flash the LED green 100ms, once every 3 seconds to indicate entering loss of communication operation.

[59] The device may flash the light to indicate the reset was successful. If the light was ON prior to the reset, the light will flash twice then remain ON. If OFF prior to reset, the flash behavior may not be observed, but lighting will turn ON.

[60] Devices must be minimum firmware versions noted to operate with the ACC-P-RT IR Remote: SWPD2/SWPD3 1.10.15.00, WIJ/WIL 1.04.12.00.

WaveLinx PRO Outdoor Integrated Sensor Reference Sheet

WaveLinx PRO Outdoor Integrated Sensor

Features

- Integrated photocell for closed loop or open loop daylighting[61]
- Integrated Passive Infrared (PIR) motion sensor for occupancy sensing
- IEEE 802.15.4, (router and end point)
- Bluetooth beacon, RTLS capabilities[62,63]

Typical Applications

- Outdoor, parking areas, and pathways

Models:

- **SWPD4:** Low mount: 7-15ft (2.1-4.5m)
- **WOA:** BLE Low mount: 7-15ft (2.1-4.5m)[64]
- **SWPD5**: High mount: 15-40ft (4.5-12.2m)
- **WOE:** BLE High mount: 15-40ft (4.5-12.2m)[64]

Available option on many Cooper Lighting luminaires.

WaveLinx App Details:

- Default Device Name:
  - Outdoor Low Mount Integrated Sensor (SWPD4)
  - Outdoor High Mount Integrated Sensor (SWPD5)
  - Outdoor Low Mount Integrated Sensor BLE (WOA)[64]
  - Outdoor High Mount Integrated Sensor BLE (WOE)[64]
- Unassigned Device Category:
  - SWPD4 & WOA[64] Lowbay Sensor
  - SWPD5 & WOE[64] Highbay Sensor

Icon Displayed in WaveLinx App:

High Mount

Low Mount

The WaveLinx Pro Outdoor High/Low Mount Integrated Sensor uses a simple tool-less twist lock method to connect to a Cooper Lighting fixture with WaveLinx compatible 4-pin Zhaga Book 18 socket. The sensor has an IP66 rating and provides both easily configurable occupancy and daylight control.

Out-of-the-Box Operation

- Once power is applied, the attached fixture operates via the daylight and motion sensors.
  - ON at dusk / OFF at dawn via daylight sensor.
  - If the fixture is ON at dusk, the occupancy sensor determines the light level.
    - If occupied, the fixture will go to 100%.
    - The fixture will dim to 50% within 15 minutes when the space is unoccupied.
- The occupancy sensor is set for low sensitivity.
- LED flashes green (in sensor window) for 100ms once every 3 seconds when motion is detected.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction Area. • The daylight sensor remains disabled. • The sensor LED flashes yellow 1 sec./OFF 1 sec. repeatedly.[66]	Once assigned to a created area, the device operates as part of the area. • The daylight sensor is disabled. • The sensor LED flashes white for 100ms once every 3 seconds when motion is detected.

• All occupancy sensors report to the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).	

LED Operation (The LED is located beneath the sensor lens.)

LED conditions	Meaning
Flashes green for 100ms, once every 3 sec. with motion	The device is unpaired (out-of-the-box) and is detecting motion.[65]
Flashes yellow for 1 sec./ OFF for 1 sec. Repeats indefinitely.	The device is paired with a WaveLinx Area Controller and is in the Construction Area.[66,67]
Flashes white for 100ms, once every 3 sec. with motion	The device is paired to a WaveLinx Area Controller, is assigned to a user created area and is detecting motion.
Flashes green 300ms/ white for 300ms, once every 3 sec. with motion[65]	The device has lost communication with the WaveLinx Area Controller for longer than 15 minutes and is detecting motion.
Flashes white 700ms/ yellow for 300ms, once every 3 sec. with motion.	The device is enabled for daylight dim to OFF and is detecting motion but lighting remains OFF due to the daylight sensor exceeding 150% of the calibrated light level for 30 minutes.[68]
LED flashes white for 1 sec. / OFF for 1 sec. Repeats indefinitely.	The mobile app or a timed schedule event has been used to disable the occupancy set or the individual occupancy sensor. The sensor will not respond to motion activity in disabled mode.
Flashes magenta 1 sec. / OFF for 1 sec. Repeats for 15 sec.	The device has been placed into **Blink to Identify** mode from the WaveLinx App, by using one of the supported identification methods, or the **ID Test** button has been used on the WaveLinx PRO IR Remote.
Flashes cyan 1 sec/OFF 1 sec. Repeats for a period.	The device firmware is being updated. The cyan flashing pattern will end once the update is complete.[66]
LED flashes blue one time	The ISHH-01 or the ACC-P-RT IR remote has been used to identify the device.
LED is OFF	The device is not detecting motion. If motion is occurring, ensure device is powered and that the LED has not been disabled through the WaveLinx App.[69]

[61] Selecting an integrated sensor to assign to an Open Loop Daylight Set requires min. sensor firmware: SWPD4/SWPD5 1.10.03.00 , WOA/WOE 1.03.06.01.

[62] SWPD4 and SWPD5 models do not have Bluetooth beacon capability.

[63] RTLS capability may require additional license or firmware purchase.

[64] WOB & WOF WaveLinx Lite sensor models may be updated through firmware to allow operate with a standard WaveLinx PRO system.

[65] Older firmware devices may go to 75% output when occupied out-of-the-box, take up to 1 hour and flash the LED green 100ms, once every 3 seconds to indicate entering loss of communication operation.

[66] Devices must be at minimum firmware versions noted to show this behavior: SWPD4/SWPD5 1.10.15.00, WOA/WOE 1.04.12.00.

[67] Devices in user defined areas may exhibit this LED behavior if manually placed in commissioning mode through the advanced user WAC Webpage (advanced technicians only).

[68] The LED will return to normal motion operation if the light level drops but stays between 50% and 100% of the calibrated light level for 10 minutes OR if the light level falls below 50% of the calibrated light level for 30 seconds.

[69] The LED may be difficult to see in very bright areas.

WaveLinx PRO Outdoor Integrated Sensor continued

How to Place in Pairing Mode:

Method	Description
Power Cycle Method[70]	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds, and then turn ON power and leave ON
ACC-P-RT Remote Method[71] **or** ISHH-01 Remote Method[72]	Standing beneath the sensor, point the remote at the sensor, and then press and release the designated button. If the sensor has not been paired, this will trigger pairing mode. The LED in the sensor window will briefly flash blue.

The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode with these methods.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

Fixture dims to 10%. The LED in sensor window should blink yellow.[73]

Supported Identification Methods:

Method	Description
Laser pointer or focused flashlight beam	For fixtures mounted at reasonable mounting heights, use a laser pointer or bright, focused beam flashlight to trigger identification mode. Standing beneath the sensor, shine the light directly into the sensor lens for 3-4 seconds. The timing needs to be precise for the identification mode to respond. The LED in the sensor window will flash magenta for 15 seconds as the device will appear to flash on the WaveLinx Mobile App screen.
ACC-P-RT Remote[29] **or** ISHH-01 Remote[30]	Standing beneath the sensor, point the remote at the sensor, and then press and release the designated button. If the sensor has been paired with a WaveLinx Area Controller, this will trigger identification mode for that device. The LED in the sensor window will briefly flash blue and then will flash magenta for 15 seconds as the device will appear to flash on the WaveLinx Mobile App screen.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond. In **Blink to Identify** mode, the fixture will turn ON for 1 second/OFF for 1 second and repeat for 15 seconds.

Daylighting Information

Closed Loop Daylight Operation	Open Loop Daylight Operations[74]
Once assigned to an area and enabled, the sensor will begin closed loop daylight dimming operation to a reasonable light level. If a specific light level (target) is expected at the surface, then calibration is required. Dim to OFF is automatically disabled.[75] Lighting will remain at the defined minimum dim level if measured light exceeds the calibrated level. If Dim to OFF is enabled, when the measured light exceeds the calibrated level, the fixture will dim lighting.[75] When the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will turn the lighting OFF. Lighting will turn back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated light level for longer than 30 seconds.	Daylighting will not operate until an open loop daylight set is configured. Once the open loop daylight set is configured the controlled zone(s) will dim in response to entering daylight. If a specific light level is expected at the surface, the zone(s) response to daylight may need adjustment. Dim to OFF is automatically disabled.[75] Lighting will remain at the defined minimum dim level if measured light exceeds the calibrated level. If Dim to OFF is enabled, when the measured light exceeds 150% of the adjusted gain for more than 30 minutes, the sensor will turn lighting OFF.[75] Lighting will turn back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the adjusted gain for longer than 10 minutes. Condition 2: The measured light level falls below 50% of the adjusted gain for longer than 30 seconds.

Closed Loop Daylight Calibration Details	Open Loop Response to Daylight Adjustment
It is recommended that the daylight sensor be calibrated at night. During the day, there is too much daylight to accurately calibrate. At night (full dark), use the **Calibrate All** feature and adjust slider bars to 100% to turn lighting full ON. Once all fixtures are adjusted send the **Calibrate** command. The ACC-P-RT Remote may also be used to adjust the sensor calibration.[71]	In standard parking garage scenarios, adjust during daylight hours when electric lighting should be reduced but not fully dimmed. The use of a light meter is recommended. With electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if 500 lux is the desired work surface level, the reading should be between 250 to 375 lux with lighting OFF.) To adjust the zone response, in the daylight set **Calibrate** screen, adjust the slider bar until the lighting is at the desired light level. The ACC-P-RT Remote may also be used to adjust the daylight response.[71]

[70] Older firmware devices (prior to SWPD4/SWPD5 1.08.17.00 and WOA/WOE 1.01.05.00) may only require a single power cycle to place in pairing mode (30 seconds OFF and then turn back ON).
[71] Devices must be minimum firmware versions noted to operate with the ACC-P-RT IR Remote: SWPD4/SWPD5 1.10.15.00, WOA/WOE 1.04.12.00.
[72] Older firmware devices (prior to SWPD4/SWPD5 1.08.17.00 and WOA/WOE 1.01.05.00) do not support this method. Use the power cycle method to invoke pairing mode.
[73] Devices must be at minimum firmware versions noted to show this behavior: SWPD4/SWPD5 1.10.15.00, WOA/WOE 1.04.12.00.
[74] Selecting an integrated sensor to assign to an Open Loop Daylight Set requires min. sensor firmware: SWPD4/SWPD5 1.10.03.00 , WOA/WOE 1.03.06.01.
[75] WAC versions prior to version 12.x.x.x will not have the ability of disabling the **DIM to OFF** feature. **DIM to OFF** is automatic when daylighting is enabled.

WaveLinx PRO Outdoor Integrated Sensor continued

Normal Power Sense Operation (NPS)

Normal Power Sense or NPS allows a device powered from normal power to be used to trigger an UL924 approved WaveLinx Emergency device to Emergency Mode when the NPS device loses power. A device that is assigned to act as an NPS device will repetitively send a beacon signal when it has power. When the beacon signal disappears (from power loss), the Emergency devices will respond to Emergency Mode.

The following Outdoor Integrated Sensor models can be used as an NPS device:

- WOA: BLE Low mount
- WOE: BLE High mount:

Loss of Communications Operation

If the device has not communicated with the WaveLinx Area Controller for longer than approx. 15 minutes, it will revert to its out-of-the-box behavior and display loss of communications LED operation until communications are re-established.[76]

Operation upon Return of Power

Upon return of power, the fixture will resume its last known light level. If not able to communicate with the WaveLinx Area Controller for more than approx. 15 minutes, loss of communications operation will begin.[76]

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

Outdoor Low/High Mount Integrated Sensor (SWPD4/SWPD5)	Outdoor High/Low Mount Integrated Sensor BLE (WOA/WOE)
Cycle power the device's circuit **six times** to (switch **OFF 4 seconds** | **ON 4 seconds – 6th time leave ON**).	Cycle power to the device's circuit **six times** (switch **OFF 30 seconds** | **ON 5 seconds – 6th time leave ON**).

This removes pairing for ALL devices of this type on the circuit. After a short period, the device should exhibit out-of-the-box behavior and may be paired as a new device.[77]

The ACC-P-RT IR Remote may also be used to factory reset devices. Please refer to the WaveLinx PRO IR Remote User Guide for details on using the IR factory reset command.[78]

[76] Older firmware devices may go to 75% output when occupied out-of-the-box, take up to 1 hour and flash the LED green 100ms, once every 3 seconds to indicate entering loss of communication operation.

[77] The device may flash the light to indicate the reset was successful. If the light was ON prior to the reset, the light will flash twice then remain ON. If OFF prior to reset, the flash behavior may not be observed, but lighting will turn ON.

[78] Devices must be minimum firmware versions noted to operate with the ACC-P-RT IR Remote: SWPD4/SWPD5 1.10.15.00, WOA/WOE 1.04.12.00.

WaveLinx PRO Outdoor Sensor Extender/Multiplier Reference Sheet

WaveLinx PRO Outdoor Sensor Extender/Multiplier

Features

- Integrated photocell for closed loop daylight switching
- Integrated Passive Infrared (PIR) motion sensor for occupancy sensing
- IEEE 802.15.4, (router and end point)

Typical Applications

- Outdoor, parking areas, and pathways

Models:

WaveLinx Remote Wireless Extender:

- **RSWPD4-WE:** (low mount only)
  - **-U**: 120VAC-277VAC
  - **-9**: 347VAC
  - **-8**: 480VAC

WaveLinx Control Multiplier:

- **RSWPD4-CM:** Low mount: 7-15ft (2.1-4.5m)
- **RSWPD5-CM:** High mount: 15-40ft (4.5-12.2m)
  - **-1**: 120VAC (16A, 1800W)
  - **-3**: 240VAC (8A, 1800W)
  - **-4**: 277VAC (8A, 2100W)

WaveLinx App Details:

- Default Device Name:
  - Outdoor Low Mount Integrated Sensor (RSWPD4 models)
  - Outdoor High Mount Integrated Sensor (RSWPD5 models)
- Unassigned Device Category:
  - RSWPD4: Lowbay Sensor
  - RSWPD5: Highbay Sensor

Icon Displayed in WaveLinx App:

High Mount

Low Mount

Additional Details

- RSWPD4 models use the SWPD4 sensor
- RSWPD5 models use the SWPD5 sensor

The WaveLinx PRO Outdoor Sensor Extender/Multiplier can be used to extend WaveLinx wireless signal outdoors or to add WaveLinx control from motion and daylight switching to non-WaveLinx luminaires. The device mounts to a pole or wall mounted junction box, allowing it to be located wherever it is necessary.

Out-of-the-Box Operation

Used as a Control Multiplier: Once power is applied, the attached fixture(s) operates via the daylight sensor.

- ON at dusk / OFF at dawn via daylight sensor.
- The occupancy sensor will not switch lighting ON or OFF until the device is paired.
- Occupancy sensor is set for low sensitivity.
- LED flashes green (in sensor window) for 100ms once every 3 seconds when motion is detected.

Used as a Wireless Extender: Once power is applied, the LED flashes green (in sensor window) for 100ms once every 3 seconds if motion is detected.

Construction Area Default Operation	Assigned to an Area Default Operation
Control Multiplier: Once paired, the device operates as part of the Construction Area. • The daylight sensor remains disabled. • The sensor LED flashes yellow 1 sec./OFF 1 sec. repeatedly.[80]	**Control Multiplier**: Once assigned to a created area, the device operates as part of the area. • The daylight sensor is disabled. • The sensor LED flashes white for 100ms once every 3 seconds when motion is detected.
• All occupancy sensors report to the area's occupancy set. • If occupied, the fixtures will turn ON (Scene 3). • The occupancy set default hold time is 20 minutes. • If the space remains unoccupied for 20 minutes, the fixture will turn OFF (Scene 0).	

Connected as a Wireless Extender: Once paired, even though it is not being utilized for control, the onboard occupancy sensor will operate in the Construction Area until the device is configured.

LED Operation (The LED is located beneath the sensor lens.)

LED conditions	Meaning
Flashes green for 100ms, once every 3 sec. with motion	The device is unpaired (out-of-the-box) and is detecting motion.[79]
Flashes yellow for 1 sec./ OFF for 1 sec. Repeats indefinitely.	The device is paired with a WaveLinx Area Controller and is in the Construction Area.[80,81]
Flashes white for 100ms, once every 3 sec. with motion	The device is paired to a WaveLinx Area Controller, is assigned to a user created area and is detecting motion.
Flashes green 300ms/ white for 300ms, once every 3 sec. with motion[79]	The device has lost communication with the WaveLinx Area Controller for longer than 15 minutes and is detecting motion.
Flashes white 700ms/ yellow for 300ms, once every 3 sec. with motion.	The device is enabled for daylight dim to OFF and is detecting motion but lighting remains OFF due to the daylight sensor exceeding 150% of the calibrated light level for 30 minutes.[82]
LED flashes white for 1 sec. / OFF for 1 sec. Repeats indefinitely.	The mobile app or a timed schedule event has been used to disable the occupancy set or the individual occupancy sensor. The sensor will not respond to motion activity in disabled mode.
Flashes magenta 1 sec. / OFF for 1 sec. Repeats for 15 sec.	The device has been placed into **Blink to Identify** mode from the WaveLinx App, by using one of the supported identification methods, or the **ID Test** button has been used on the WaveLinx PRO IR Remote.
Flashes cyan 1 sec/OFF 1 sec. Repeats for a period.	The device firmware is being updated. The cyan flashing pattern will end once the update is complete.[80]
LED flashes blue one time	The ISHH-01 or the ACC-P-RT IR remote has been used to identify the device.
LED is OFF	The device is not detecting motion. If motion is occurring, ensure device is powered and that the LED has not been disabled through the WaveLinx App.[83]

[79] Older firmware devices may go to 75% output when occupied out-of-the-box, take up to 1 hour and flash the LED green 100ms, once every 3 seconds to indicate entering loss of communication operation.

[80] Devices must be at minimum firmware versions noted to show this behavior: SWPD4/SWPD5 1.10.15.00.

[81] Devices in user defined areas may exhibit this LED behavior if manually placed in commissioning mode through the advanced user WAC Webpage (advanced technicians only).

[82] The LED will return to normal motion operation if the light level drops but stays between 50% and 100% of the calibrated light level for 10 minutes OR if the light level falls below 50% of the calibrated light level for 30 seconds.

[83] The LED may be difficult to see in very bright areas.

WaveLinx PRO Outdoor Sensor Extender/Multiplier continued

How to Place in Pairing Mode:

Method	Description
Power Cycle Method[84]	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds, and then turn ON power and leave ON
ACC-P-RT Remote Method[85] **or** ISHH-01 Remote Method[86]	Standing beneath the sensor, point the remote at the sensor, and then press and release the designated button. If the sensor has not been paired, this will trigger pairing mode. The LED in the sensor window will briefly flash blue.

The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode with these methods.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

LED in sensor window should blink yellow.[87] If controlling lighting, the light should turn ON.

Supported Identification Methods:

Method	Description
Laser pointer or focused flashlight beam	For fixtures mounted at reasonable mounting heights, use a laser pointer or bright, focused beam flashlight to trigger identification mode. Standing beneath the sensor, shine the light directly into the sensor lens for 3-4 seconds. The timing needs to be precise for the identification mode to respond. The LED in the sensor window will flash magenta for 15 seconds as the device will appear to flash on the WaveLinx Mobile App screen.
ACC-P-RT Remote[29] **or** ISHH-01 Remote[30]	Standing beneath the sensor, point the remote at the sensor, and then press and release the designated button. If the sensor has been paired with a WaveLinx Area Controller, this will trigger identification mode for that device. The LED in the sensor window will briefly flash blue and then will flash magenta for 15 seconds as the device will appear to flash on the WaveLinx Mobile App screen.

Blink to Identify (Control Multiplier only)

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond. In **Blink to Identify** mode, the fixture will turn ON for 1 second/OFF for 1 second and repeat for 15 seconds.

Configuring the Device as a Wireless Extender:

It is recommended to add the device to an area it is located near/in. Assign it to the chosen area but do not assign it to a zone.[88] Give the device a name to identify it as an extender so that it can be easily recognized. No further configuration is necessary.

Configuring the Device as a Control Multiplier

The Control Multiplier switches the load it is connected to and does not dim the lighting. It is recommended that the Control Multiplier be assigned to a zone that is set with a non-dimmable zone type.

Daylighting Information (Control Multiplier only)

Closed Loop Daylight Operation	Open Loop Daylight Operations[89]
Once assigned to an area and enabled, the sensor will begin closed loop daylight operation to a reasonable light level. If a specific light level (target) is expected at the surface, then calibration is required. Dim to OFF is automatically disabled.[90] Lighting will remain at the defined minimum dim level if measured light exceeds the calibrated level. If Dim to OFF is enabled, when the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will turn OFF connected lighting.[90] Lighting will be turned back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated light level for longer than 30 seconds.	Daylighting will not operate until an open loop daylight set is configured. Once the open loop daylight set is configured the controlled zone(s) will dim in response to entering daylight. If a specific light level is expected at the surface, the zone(s) response to daylight may need adjustment. Dim to OFF is automatically disabled.[90] Lighting will remain at the defined minimum dim level if measured light exceeds the calibrated level. If Dim to OFF is enabled, when the measured light exceeds 150% of the adjusted gain for more than 30 minutes, the sensor will turn lighting OFF.[90] Lighting will turn back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the adjusted gain for longer than 10 minutes. Condition 2: The measured light level falls below 50% of the adjusted gain for longer than 30 seconds.

Closed Loop Daylight Calibration Details	Open Loop Response to Daylight Adjustment
It is recommended that the daylight sensor be calibrated at night. During the day, there is too much daylight to accurately calibrate. At night (full dark), use the **Calibrate All** feature and adjust slider bars to 100% to turn lighting ON. Once all fixtures are adjusted send the **Calibrate** command. The ACC-P-RT Remote may also be used to adjust the sensor calibration.[85]	In standard parking garage scenarios, adjust during daylight hours when electric lighting should be reduced but not fully dimmed. The use of a light meter is recommended. With electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. To adjust the zone response, in the daylight set **Calibrate** screen, adjust the slider bar until the lighting is at the desired light level. The ACC-P-RT Remote may also be used to adjust the daylight response.[85]

[84] Older firmware devices (prior to SWPD4/SWPD5 1.08.17.00) may only require a single power cycle to place in pairing mode (30 seconds OFF and then turn back ON).
[85] Devices must be minimum firmware versions noted to operate with the ACC-P-RT IR Remote: SWPD4/SWPD5 1.10.15.00.
[86] Older firmware devices (prior to SWPD4/SWPD5 1.08.17.00) do not support this method. Use the power cycle method to invoke pairing mode.
[87] Devices must be at minimum firmware versions noted to show this behavior: SWPD4/SWPD5 1.10.15.00.
[88] Assigning it to an area, not a zone prevents the occupancy sensor from being assigned to the area's occupancy set. This prevents the extender from issuing occupancy signals to the area it is assigned to.
[89] Selecting an integrated sensor to assign to an Open Loop Daylight Set requires min. sensor firmware: SWPD4/SWPD5 1.10.03.00.
[90] WAC versions prior to version 12.x.x.x will not have the ability of disabling the **DIM to OFF** feature. **DIM to OFF** is automatic when daylighting is enabled.

WaveLinx PRO Outdoor Sensor Extender/Multiplier continued

Loss of Communications Operation

If the device has not communicated with the WaveLinx Area Controller for longer than approx.15 minutes, it will revert to its out-of-the-box behavior and display loss of communications LED operation until communications are re-established.[91]

Operation upon Return of Power

Upon return of power, connected fixtures will resume the last known light level. If not able to communicate with the WaveLinx Area Controller for more than 15 minutes, loss of communications operation will begin.[91]

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- Cycle power the device's circuit **six times** to (switch **OFF 4 seconds** | **ON 4 seconds – 6th time leave ON**).

This removes pairing for ALL devices of this type on the circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.[92]

The ACC-P-RT IR Remote may also be used to factory reset devices. Please refer to the WaveLinx PRO IR Remote User Guide for details on using the IR factory reset command.[93]

[91] Older firmware devices may go to 75% output when occupied out-of-the-box, take up to 1 hour and flash the LED green 100ms, once every 3 seconds to indicate entering loss of communication operation.

[92] The device may flash the light to indicate the reset was successful. If the light was ON prior to the reset, the light will flash twice then remain ON. If OFF prior to reset, the flash behavior may not be observed, but lighting will turn ON.

[93] Devices must be minimum firmware versions noted to operate with the ACC-P-RT IR Remote: SWPD4/SWPD5 1.10.15.00.

WaveLinx PRO Tilemount Sensor Reference Sheet

WaveLinx PRO Tilemount Sensor

Features

Tilemount Sensor:
- Integrated photocell for closed loop daylighting or open loop daylighting[94]
- Integrated Passive Infrared (PIR) motion sensor for occupancy or vacancy sensing
- IEEE 802.15.4, (router and end point)
- Bluetooth beacon, RTLS capabilities[95, 96]

Control Module:
- Universal voltage input (120V-277V)
- Output control (120V-277V):
  - Electronic ballast/driver 3 amps
- 0-10V dimming output
  - Sinks up to 20mA (approximately 10 ballasts/drivers [2mA each])

Typical Applications

- Education, office, and other interior spaces

Models:

- **WTA**: WaveLinx Tilemount Sensor Kit

WaveLinx App Details:

- Default Device Name:
  - BLE Integrated Sensor
  - Integrated Sensor
- Unassigned Device Category:
  - Integrated Sensor

Icon Displayed in WaveLinx App:

When connected to a WaveLinx PRO Tilemount Sensor Control Module the WaveLinx PRO Tilemount Sensor provides occupancy sensing, daylight dimming and wireless control for connected 0-10V luminaires that do not support WaveLinx Integrated Sensors.

Out-of-the-Box Operation

- Once power is applied, the attached fixture(s) operates via the motion sensor.
  - The occupancy sensor is set for low sensitivity.
  - If occupied, the fixture will turn ON to 100%[97]
  - The fixture will dim to OFF (0%) after 20 minutes when the space is unoccupied.
- The daylight sensor is disabled.
- LED flashes green (in sensor window) for 100ms once every 3 seconds when motion is detected.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction Area. • The daylight sensor remains disabled. • The sensor LED flashes yellow 1 sec./OFF 1 sec. repeatedly.[98]	Once assigned to a created area, the device operates as part of the area. • The daylight sensor is disabled. • The sensor LED flashes white for 100ms once every 3 seconds when motion is detected.

• All occupancy sensors report to the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).	

LED Operation (The LED is located beneath the sensor lens)

LED conditions	Meaning
Flashes green for 100ms, once every 3 sec. with motion	The device is unpaired (out-of-the-box) and is detecting motion.[97]
Flashes yellow for 1 sec./ OFF for 1 sec. Repeats indefinitely.	The device is paired with a WaveLinx Area Controller and is in the Construction Area.[98,99]
Flashes white for 100ms, once every 3 sec. with motion	The device is paired to a WaveLinx Area Controller, is assigned to a user created area and is detecting motion.
Flashes green 300ms/ white for 300ms, once every 3 sec. with motion[97]	The device has lost communication with the WaveLinx Area Controller for longer than 15 minutes and is detecting motion.
Flashes white 700ms/ yellow for 300ms, once every 3 sec. with motion.	The device is enabled for daylight dim to OFF and is detecting motion but lighting remains OFF due to the daylight sensor exceeding 150% of the calibrated light level for 30 minutes.[100]
LED flashes white for 1 sec. / OFF for 1 sec. Repeats indefinitely.	The mobile app or a timed schedule event has been used to disable the occupancy set or the individual occupancy sensor. The sensor will not respond to motion activity in disabled mode.
Flashes magenta 1 sec. / OFF for 1 sec. Repeats for 15 sec.	The device has been placed into **Blink to Identify** mode from the WaveLinx App, by using one of the supported identification methods, or the **ID Test** button has been used on the WaveLinx PRO IR Remote.
Flashes cyan 1 sec/OFF 1 sec. Repeats for a period.	The device firmware is being updated. The cyan flashing pattern will end once the update is complete.[98]
LED flashes blue one time	The ISHH-01 or the ACC-P-RT IR remote has been used to identify the device.
LED is OFF	The device is not detecting motion. If motion is occurring, ensure device is powered and that the LED has not been disabled through the WaveLinx App.[101]

[94] Selecting an integrated sensor to assign to an Open Loop Daylight Set requires a WaveLinx Area Controller min. version 10.0.x.x and min. sensor firmware: IS 1.09.04.00 and BLE IS 2.06.03.00.

[95] Older models may not have Bluetooth beacon capabilities.

[96] RTLS capability may require additional license or firmware purchase.

[97] Older firmware devices may go to 75% output when occupied out-of-the-box, take up to 1 hour and flash the LED green 100ms, once every 3 seconds to indicate entering loss of communication operation.

[98] Devices must be at minimum firmware versions noted to show this behavior: IS 1.10.15.00 and BLE IS 1.11.15.00.

[99] Devices in user defined areas may exhibit this LED behavior if manually placed in commissioning mode through the advanced user WAC Webpage (advanced technicians only).

[100] The LED will return to normal motion operation if the light level drops but stays between 50% and 100% of the calibrated light level for 10 minutes OR if the light level falls below 50% of the calibrated light level for 30 seconds.

[101] The LED may be difficult to see in very bright areas.

WaveLinx PRO Tilemount Sensor continued

How to Place in Pairing Mode:

Method	Description
Power Cycle Method[102]	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds, and then turn ON power and leave ON
ACC-P-RT Remote Method[103] **or** ISHH-01 Remote Method[104]	Standing beneath the sensor, point the remote at the sensor, and then press and release the designated button. If the sensor has not been paired, this will trigger pairing mode. The LED in the sensor window will briefly flash blue.

The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode with these methods.

Successful Paired Device Behavior: (While WAC is still in or is placed in pairing mode)

Connected fixture(s) dims to 10%. The LED in sensor window should blink yellow.[105]

Supported Identification Methods:

Method	Description
Laser pointer or focused flashlight beam	For fixtures mounted at reasonable mounting heights, use a laser pointer or bright, focused beam flashlight to trigger identification mode. Standing beneath the sensor, shine the light directly into the sensor lens for 3-4 seconds. The timing needs to be precise for the identification mode to respond. The LED in the sensor window will flash magenta for 15 seconds as the device will appear to flash on the WaveLinx Mobile App screen.
ACC-P-RT Remote[29] **or** ISHH-01 Remote[30]	Standing beneath the sensor, point the remote at the sensor, and then press and release the designated button. If the sensor has been paired with a WaveLinx Area Controller, this will trigger identification mode for that device. The LED in the sensor window will briefly flash blue and then will flash magenta for 15 seconds as the device will appear to flash on the WaveLinx Mobile App screen.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond. In **Blink to Identify** mode, the connected fixture(s) will turn ON for 1 second/OFF for 1 second and repeat for 15 seconds.

Daylighting Information

Closed Loop Daylight Operation	Open Loop Daylight Operations[106]
Once assigned to an area and enabled, the sensor will begin closed loop daylight dimming operation to a reasonable light level. If a specific light level (target) is expected at the surface, then calibration is required. Dim to OFF is automatically disabled.[107,108] Lighting will remain at the defined minimum dim level if measured light exceeds the calibrated level. If Dim to OFF is enabled, when the measured light exceeds the calibrated level, the fixture will dim lighting.[107] When the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will turn the lighting OFF. Lighting will turn back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated light level for longer than 30 seconds.	Daylighting will not operate until an open loop daylight set is configured. Once the open loop daylight set is configured the controlled zone(s) will dim in response to entering daylight. If a specific light level is expected at the surface, the zone(s) response to daylight may need adjustment. Dim to OFF is automatically disabled.[107] Lighting will remain at the defined minimum dim level if measured light exceeds the calibrated level. If Dim to OFF is enabled[107], when the measured light exceeds 150% of the adjusted gain for more than 30 minutes, the sensor will turn lighting OFF. Lighting will turn back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the adjusted gain for longer than 10 minutes. Condition 2: The measured light level falls below 50% of the adjusted gain for longer than 30 seconds.

Closed Loop Daylight Calibration Details	Open Loop Response to Daylight Adjustment
It is best to calibrate indoor applications when there is a moderate to low level of daylight. If the daylight level is too high, it may be difficult to obtain the desired level of light at the task surface, even if the fixtures are completely OFF. If daylight level is too high and shading is available, use shading to decrease incoming daylight. If it is still too bright, postpone calibration until the amount of incoming daylight has decreased. During calibration, use the **Calibrate All** feature and adjust slider bars to change the light level for each controlled fixture. Once all fixtures are adjusted, use a light meter to ensure the reading is in the desired range and then send the **Calibrate** command. The ACC-P-RT Remote may also be used to adjust the sensor calibration.[103]	Perform adjustment during daylight hours when electric lighting should be reduced but not fully dimmed. For best results, with electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if 500 lux is the desired work surface level, the reading should be between 250 to 375 lux with lighting OFF.) To adjust the zone response, in the daylight set **Calibrate** screen, adjust the slider bar until the lighting is at the desired light level. The ACC-P-RT Remote may also be used to adjust the daylight response.[103]

[102] Devices with older firmware (prior to IS 1.07.13.00 and BLE IS 2.04.19.00) may only require a single power cycle to place in pairing mode (30 seconds OFF and then turn back ON).
[103] Devices must be minimum firmware versions noted to operate with the ACC-P-RT IR Remote: IS 1.10.15.00 and BLE IS 1.11.15.00.
[104] Devices must be minimum firmware versions noted to operate with the ISHH-01 Remote: IS 1.07.13.00 and BLE IS 2.04.19.00.
[105] Devices must be at minimum firmware versions noted to show this behavior: IS 1.10.15.00 and BLE IS 1.11.15.00.
[106] Selecting an integrated sensor to assign to an Open Loop Daylight Set requires min. sensor firmware: IS 1.09.04.00 and BLE IS 2.06.03.00.
[107] WAC versions prior to version 12.x.x.x will not have the ability of disabling the **DIM to OFF** feature. **DIM to OFF** is automatic when daylighting is enabled.
[108] Tilemount Sensor model SWPD1 (IS) will automatically have **DIM to OFF** enabled and will not offer the ability to disable this feature.

WaveLinx PRO Tilemount Sensor continued

Loss of Communications Operation

If the device has not communicated with the WaveLinx Area Controller for longer than approx.15 minutes, it will revert to its out-of-the-box behavior and display loss of communications LED operation until communications are re-established.[109]

Operation upon Return of Power

Upon return of power, if connected to a WaveLinx Control Module, the connected fixtures will resume the last known light level. If not able to communicate with the WaveLinx Area Controller for more than approx. 15 minutes, loss of communications operation will begin.[109]

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- Cycle power the device's circuit **six times** to (switch **OFF 30 seconds** | **ON 5 seconds – 6th time leave ON**).

This removes pairing for ALL devices of this type on the circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.[110]

The ACC-P-RT IR Remote may also be used to factory reset devices. Please refer to the WaveLinx PRO IR Remote User Guide for details on using the IR factory reset command.[111]

[109] Older firmware devices may go to 75% output when occupied out-of-the-box, take up to 1 hour and flash the LED green 100ms, once every 3 seconds to indicate entering loss of communication operation.

[110] The device may flash the light to indicate the reset was successful. If the light was ON prior to the reset, the light will flash twice then remain ON. If OFF prior to reset, the flash behavior may not be observed, but lighting will turn ON.

[111] Devices must be minimum firmware versions noted to operate with the ACC-P-RT IR Remote: IS 1.10.15.00 and BLE IS 1.11.15.00.

WaveLinx PRO Outdoor Lighting Control Module Reference Sheet

WaveLinx PRO Outdoor Lighting Control Module (WOLC)

Features

- Integrated photocell for open loop daylight switching
- IEEE 802.15.4, (router and end point)

Typical Applications

- Outdoor, parking areas, and pathways

Models:

- **WOLC:** WaveLinx Outdoor Lighting Control Module

Available option on many Cooper Lighting luminaires.

WaveLinx App Details:

- Default Device Name:
  - Outdoor Control Module
- Unassigned Device Category:
  - Outdoor Switchpack

Icon Displayed in WaveLinx App:

The WaveLinx PRO Outdoor Lighting Control Module (WOLC) offers control of outdoor luminaires from the WaveLinx system or to add basic open loop daylight switching capability to outdoor applications.

Out-of-the-Box Operation

- Once power is applied:
  - The attached fixture will turn ON to 100% and then re-evaluate the ON/OFF status based on the available light per the photosensor.
  - From then on, the fixture will turn ON at dusk / OFF at dawn via daylight sensor.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction Area.	Once assigned to a created area, the device operates as part of the area.

• The daylight sensor remains disabled. It must be assigned to an area and be configured to operate.
• It will respond to the sensors in the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
• It will respond to any wallstations added to the area per the default wallstation programming.	

LED Operation

Not applicable. The WaveLinx Outdoor Lighting Control Module has no onboard LED indicator.

How to Place in Pairing Mode:

Method	Description
Automatic	Once powered, an unpaired Outdoor Lighting Control Module will automatically be in pairing mode. It will reinitiate a pairing search command every 20 minutes until a WaveLinx Area Controller is found. A power cycle (switch OFF and then ON) will cause the search to start again approximately 20 seconds after the power up.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

- When initially paired, the fixture will dim briefly and then turn full ON and remain ON (this can make it difficult to review paired devices. See next recommendation).
- To verify pairing, make sure to EXIT the WaveLinx Area Controller pairing mode. Then, place the WaveLinx Area Controller back in pairing mode. All Outdoor Lighting Control Modules paired with the WaveLinx Area Controller will dim to 10%.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond. When placed in **Blink to Identify** mode, the fixture will turn ON for 1 second, turn OFF for 1 second and repeat this cycle for 15 seconds.

Daylight Operation (open loop)

Once the Outdoor Lighting Control Module open loop daylight set is created and enabled, lighting will turn ON at dusk and turn OFF at dawn.

If the controlled area contains more than one Outdoor Lighting Control Module, one module may be assigned to control daylighting for the connected fixture or may be assigned to control daylighting for a group of fixtures if it is desired to have them respond to daylighting in the exact same manner.

If fixtures in the zones that are assigned to the open loop daylight set contain Integrated Sensors, closed loop daylighting will automatically be disabled for these sensors.

Open Loop Daylight Set Configuration

- Create the open loop daylight set.
- Assign the zones that should be controlled by the daylight set.[112]
- Assign the sensor to the daylight set.

Daylight Calibration Details

Once the open loop daylight set is configured, the WaveLinx Outdoor Lighting Control Module does not require calibration. The WaveLinx Outdoor Lighting Control Module is hardcoded for ON at dusk / OFF at dawn operation based on optimal performance factors for outdoor application. These settings cannot be modified. The lighting will turn OFF if the light level has exceeded 65 lux for a period of 180 seconds (3 minutes). Lighting will turn ON if the light level falls below 16 lux for a period of 30 seconds.

[112] If fixtures in the zones that are assigned to open loop daylight sets contain integrated or Tilemount Sensors, closed loop daylighting will automatically be disabled for these sensors.

WaveLinx PRO Outdoor Lighting Control Module continued

Loss of Communications Operation

If the device has not communicated with the WaveLinx Area Controller for longer than approx.15 minutes, it will revert to its out-of-the-box behavior until communications are re-established.[113]

Operation upon Return of Power

Upon return of power, the fixture will turn ON to 100% until communications are re-established with the WaveLinx Area Controller after which the lighting state is re-evaluated. If not able to communicate with the WaveLinx Area Controller for longer than approx. 15 minutes, the device will begin loss of communications operation.[113]

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- **Preferred method:** Cycle the power to the device's circuit **six times** (switch **OFF for 5-9 seconds** and then **ON 5-9 seconds – last time leave ON**). After approximately 10 seconds, the device should factory reset.[114]
- **Alternate method:** Cycle the power to the device's circuit **at least sixteen and not more than twenty times** (switch **OFF 4 seconds** and then **ON 4 seconds – last time leave ON**). The device should reset after approximately 10 seconds.

This removes pairing for ALL devices of this type on the affected circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.

[113] Devices with older firmware may take up to 1 hour to enter loss of communications operation.

[114] Outdoor Lighting Control Modules prior to firmware version 0x2050560 (v2.05.05.60) will not respond to the 6-power cycle method. Use the alternate 20-cycle method for these devices.

WaveLinx PRO Node Reference Sheet

WaveLinx PRO Node

Features

- IEEE 802.15.4, (router and end point)

Special Features

- White Tuning Control for Cooper Lighting Solutions VividTune or BioUp tunable fixtures (dual channel model recommended)

Typical Applications

- Interior spaces where individual fixture sensor controls are not needed
- White tuning control

Models:

- WaveLinx Pro Node, single channel
- WaveLinx Pro Node, dual channel

WaveLinx App Details:

- Default Device Name:
  - Wireless Pro Node-1C
  - Wireless Pro Node-2C
- Unassigned Device Category:
  - WL Pro Adapter-1C
  - WL Pro Adapter-2C

Icon Displayed in WaveLinx App:

- WaveLinx PRO Node, single channel[115]

- WaveLinx PRO Node, dual channel
  (icon is dependent on configuration)

- 2 dimming

- 1 dimming
- 1 white tuning

The WaveLinx PRO Node comes installed within the selected fixture. It is preconfigured with a wireless radio without an Integrated Sensor providing wireless control while reducing wiring, design, and installation time. The WaveLinx PRO Node can provide either a single dimming channel for intensity control[115] or a dual channel control. The dual channel model can be used either for independent intensity control of downlights/uplights within the same fixture, or for combined intensity control and white tuning control when used with a VividTune or BioUp tunable white fixture. The WaveLinx PRO Node can be easily configured for operation and control using the WaveLinx App.

Out-of-the-Box Operation

Channel 1	Channel 2 (dual channel only)
Defaults to a dimmable load. Once power is applied: • Connected loads will turn ON to 100% and remain ON.	Defaults to white tuning. Once power is applied: • Connected load goes to 3500K within the default range of 3000K-5000K.[116,117]

Construction Area Default Operation

Channel 1	Channel 2 (dual channel only)
Once paired, the device/channel will be assigned to the Construction Area's **Dimmable Zone** and will respond per the default operation of occupancy sensors or wallstations that are in the Construction area.	Once paired, the channel will be assigned to the Construction Area's **Devices in Area** level as a white tuning device type. When the associated dimming channel is ON, the white tuning channel will remain at 3500K assuming a default range of 3000K-5000K.[116,117]

Assigned to an Area Default Operation

Channel 1	Channel 2 (dual channel only)

Once assigned to a created area, the device/channel operates as part of the area.
• It will respond to the sensors in the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
• It will respond to any wallstations added to the area per the default wallstation programming.
	Once the device is assigned to a created area and white tuning default range is adjusted (if necessary), the White Tuning Response defaults to 3500K for all programmed scenes until scenes are modified.
	
	If channel 2 is connected to a dimmable load, the control type can be changed to **Dimmable**. See "Changing Dual Channel WaveLinx PRO Node Configuration" on page 205 for further information.

LED Operation

Not applicable. The WaveLinx PRO Node has no onboard LED indicator.

How to Place in Pairing Mode:

Method	Description
Power Cycle Method	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds, and then turn ON power and leave ON

The Device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode on the power cycle.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

- Dimmable device/channel dims to 10%.
- White tuning channel remains at 3500K.

[115] The WaveLinx PRO Node Single Channel device can be changed from dimming to white tuning control. In this rare application, the single channel adapter will show a CCT icon instead of the dimmable load icon shown and will display white tuning configuration screens.

[116] The actual color temperature may differ if attached load has a different white tuning range than the default 3000K-5000K range.

[117] If channel 2 on the dual channel is connected to a dimmable load, the load may remain ON at a dimmed level until the channel is configured for a dimmable load.

WaveLinx PRO Node continued

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond with the following behavior:

Dimmable Device/Channel	White Tuning Channel
• When placed in **Blink to Identify** mode, the connected fixture(s) will turn ON for 1 second, turn OFF for 1 second and repeat this cycle for 15 seconds.	• When placed in **Blink to Identify** mode, the connected tunable white fixture(s) will cycle between cool and warm color temperatures for 15 seconds.

White Tuning Configuration Details

For proper white tuning control, the device must be configured for white tuning control and assigned to a white tuning zone.

- Create the dimming zone(s) needed for the area. (p. 187)
- Create the white tuning zone(s) needed for the area. (p. 187)
- Identify each dual channel WaveLinx PRO Node and when adding them, select the dimming zone for the intensity channel and the white tuning zone for the white tuning channel. (p. 202)
- Add other devices to the area as needed and proceed with programming.

Loss of Communications Operation

If the device has not communicated with the WaveLinx Area Controller for longer than approx.15 minutes, it will revert to its out-of-the-box behavior until communications are re-established.

Operation upon Return of Power

Upon return of power, the device will resume its last known light level/white tuning level. If not able to communicate with the WaveLinx Area Controller for more than approx. 15 minutes, loss of communications operation will begin.

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.[118]

- Cycle power to the device's circuit **six times** (switch **OFF 30 seconds | ON 5 seconds – 6th time leave ON**).

This removes pairing for ALL devices of this type on the affected circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.[118,119]

[118] If the device has been paired with the WAC prior and the device is still showing in the WAC database, the device will resume operation with the previously programmed settings if paired with the same WAC again. To completely remove the device and pair as a new device with the factory defaults, delete the device from the database and perform the factory reset cycle before pairing the device with the WAC.

[119] The device may flash the light to indicate the reset was successful. If the light was ON prior to the reset, the light will flash twice then remain ON. If OFF prior to reset, the flash behavior may not be observed, but lighting will turn ON.

WaveLinx PRO Universal Voltage Dimming Switchpack Reference Sheet

WaveLinx PRO Universal Voltage Dimming Switchpack

General Features

- Universal voltage
  - **RSP-P-010-347:** (120V-347V)
  - **WSP-MV-010:** (120V-277V)
  - **WSP-UV-010:** (120V-347V)
- Output control
  - Electronic ballast/driver 16A
  - General purpose (receptacle) 20A
  - Motor loads up to 1.5 HP (120VAC)
- Class 2, 0-10V dimming output
  - Sinks up to 120mA *(approximately 60 ballasts/drivers [2mA each])*
- IEEE 802.15.4, (router and end point)

Special Features

- White Tuning Control for Cooper Lighting Solutions VividTune or BioUp tunable fixtures

Typical Applications

- Office, education, and other indoor applications
- White tuning control

Models:

- **RSP-P-010-347**: WaveLinx Pro Switchpack
- **WSP-MV-010:** Relay Switchpack with 0-10V
- **WSP-UV-010:** Universal Voltage Dimming Switchpack

WaveLinx App Details:

- Default Device Name:
  - Relay Switchpack
- Unassigned Device Category:
  - Relay Switchpack

Icon Displayed in WaveLinx App:

Use the WaveLinx PRO Universal Voltage Dimming Switchpack to wirelessly control a zone of switched loads, 0-10V dimmable lighting loads, or for 0-10V control of tunable white lighting.

Out-of-the-Box Operation

Connected for Lighting Control	Connected for White Tuning Control
Once power is applied: • Connected loads will turn ON and 0-10V dimmable loads will go to 100%.[120] • The onboard commissioning button can be pressed (less than 4 seconds) to turn load OFF and ON. • White LED on switchpack indicates load state.	Once power is applied: • If controlling white tuning, the color temperature of the attached load will default to the cool white side of the color temperature spectrum. (Actual color temperature is dependent on the color temperature range of attached load).

Construction Area Default Operation

Connected for Lighting Control	Connected for White Tuning Control
Once paired, the device will respond per the default operation of occupancy sensors or wallstations that are in the Construction area.	White tuning operation may have unexpected operation until configured for White Tuning in the WaveLinx App due to operation of occupancy sensors and wallstations in the Construction area.

Assigned to an Area Default Operation

Connected for Lighting Control	Connected for White Tuning Control

Once assigned to a created area, the device operates as part of the area.
• It will respond to the sensors in the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
• It will respond to any wallstations added to the area per the default wallstation programming.
	Once the device is assigned to a created area, configured for White Tuning, and assigned to a White Tuning Zone:
	The White Tuning Response defaults to 3500K for all programmed scenes.

LED Operation

LED conditions	Meaning
ON (white)	The device relay is closed
OFF	The device relay is opened
Flashes ON and OFF approximately 1 time per second for 10 seconds	Onboard commissioning button has been pressed for longer than 4 seconds, placing the device in pairing mode.

How to Place in Pairing Mode:

Method	Description
Power Cycle Method[121]	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds, and then turn ON power and leave ON
Onboard Commissioning Button	Press the onboard commissioning button for more than 4 seconds. The onboard LED will blink for 10 seconds to indicate the device has entered pairing mode.

The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode with these methods.

[120] Devices with older firmware may go to 75% light output in out-of-the-box operation and may take up to 1 hour to enter loss of communication operation.

[121] Devices with older firmware (prior to WSP-MV 1.08.12.00 and WSP-UV 1.01.05.00) may only require a single power cycle to place in pairing mode (30 seconds OFF and then turn back ON).

WaveLinx PRO Universal Voltage Dimming Switchpack continued

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

Connected for Lighting Control	Connected for White Tuning Control
Connected loads will turn ON and 0-10V dimmable loads will go to 10%.	Connected tunable white fixtures will assume a warm white color temperature. (Actual color temperature is dependent on the color temperature range of attached load).

Using the Onboard Manual Override Button

The WaveLinx PRO Universal Voltage Dimming Switchpack contains a manual override button on the bottom side of the device. This is labeled as the Commissioning Button. The override can be pressed for less than 4 seconds to switch the device between ON or OFF. The manual command will remain until the next command is received.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond with the following behavior:

Connected for Lighting Control	Connected for White Tuning Control
• When placed in **Blink to Identify** mode, the connected fixture(s) will turn ON for 1 second, turn OFF for 1 second and repeat this cycle for 15 seconds.	• When placed in **Blink to Identify** mode, the connected tunable white fixture(s) will cycle between cool and warm color temperatures for 15 seconds.

White Tuning Configuration Details

For proper white tuning control, the device must be configured for white tuning control and assigned to a white tuning zone.

- Create the dimming zone(s) needed for the area. (p. 187)
- Create the white tuning zone(s) needed for the area. (p. 187)
- Identify all fixture integrated sensors in the room and assign them to the dimming zone(s). (p. 200)
- Configure the WaveLinx Universal Voltage Dimming Switchpack (p. 207):
  - Identify the switchpack controlling the color temperature and assign it to the **AREA**.
  - Edit the switchpack in the area, changing the type to white tuning and defining the color temperature range for the fixture.
  - Assign the white tuning switchpack to the white tuning zone.
- Add other devices to the area as needed and proceed with programming.

Normal Power Sense Operation (NPS)

Normal Power Sense or NPS allows a device powered from normal power to be used to trigger an UL924 approved WaveLinx Emergency device to Emergency Mode when the NPS device loses power. A device that is assigned to act as an NPS device will repetitively send a beacon signal when it has power. When the beacon signal disappears (from power loss), the Emergency devices will respond to Emergency Mode.

The following Switchpack models can be used as an NPS device:

- RSP-P-010-347[122]: WaveLinx Pro Switchpack

Loss of Communications Operation

If the device has not communicated with the WaveLinx Area Controller for longer than approx.15 minutes, it will revert to its out-of-the-box behavior until communications are re-established.[123]

Operation upon Return of Power

Upon return of power, the device will resume its last known light level. If not able to communicate with the WaveLinx Area Controller for more than approx. 15 minutes, loss of communications operation will begin.[123]

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- Cycle power the device's circuit **six times** to (switch **OFF 4 seconds** | **ON 4 seconds – 6th time leave ON**).

This removes pairing for ALL devices of this type on the affected circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.[124]

[122] RSP may require updated hardware to allow NPS assignment. If the device does not appear in the NPS assignment list, it is not compatible with NPS assignment.

[123] Devices with older firmware may go to 75% light output in out-of-the-box operation and may take up to 1 hour to enter loss of communication operation.

[124] The device may flash the light to indicate the reset was successful. If the light was ON prior to the reset, the light will flash twice then remain ON. If OFF prior to reset, the flash behavior may not be observed, but lighting will turn ON.

WaveLinx PRO Emergency Dimming Switchpack Reference Sheet

WaveLinx PRO Emergency Dimming Switchpack Reference Sheet

General Features

- Universal voltage (120V-347V)
- Output control
  - Electronic ballast/driver 16A
  - General purpose (receptacle) 20A
  - Motor loads up to 1.5 HP (120VAC)
- Class 2, 0-10V dimming output
  - Sinks up to 120mA *(approximately 60 ballasts/drivers [2mA each])*
- IEEE 802.15.4, (router and end point)

Special Features

- UL924 approved control of Emergency Lighting

Typical Applications

- Emergency fixture control
- Office, education, and other indoor applications

Models:

- **ESP-P-010-347**: WaveLinx PRO Emergency Switchpack

WaveLinx App Details:

- Default Device Name:
  - EM Relay Switchpack
- Unassigned Device Category:
  - Relay Switchpack

Icon Displayed in WaveLinx App:

The WaveLinx PRO Emergency Dimming Switchpack controls Emergency lighting, including switched or 0-10V dimmable emergency lighting loads. This UL924 approved Emergency control solution operates with signals detected from up to three normal powered Normal Power Sense (NPS) capable WaveLinx PRO devices. **Emergency Mode** will turn lighting full ON within 10 seconds when the Emergency Switchpack detects that the signal is lost from any of the three NPS devices. Normal operation will return when the NPS device signals are detected again.

Out-of-the-Box Operation

Once power is applied:

- The Emergency Switchpack output will go to ON/100% and remain in **Emergency Mode**.[125]
- The Emergency Switchpack LED turns ON when the output is ON.

Construction Area Default Operation

Once paired, the device will be placed in the Construction Area.

- The Emergency Switchpack will remain ON at 100% Emergency Mode and not respond to commands until Normal Power Sense (NPS) devices are assigned to the device's Emergency Set using the Mobile App.

Assigned to an Area Default Operation	Emergency Set is Defined Default Operation

Once assigned to a created area:
• The Emergency Switchpack will remain ON at 100% **Emergency Mode** and not respond to commands until Normal Power Sense (NPS) devices are assigned to the device's Emergency Set using the Mobile App.
	Once assigned to a created area and assigned to an Emergency Set with NPS devices:
	• **If normal power is present** the device operates as part of the area.
	  • It will respond to the sensors in the area's occupancy set.
	  • If occupied, the fixtures will turn ON to 50% (Scene 3).
	  • The occupancy set default hold time is 20 minutes.
	  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
	  • It will respond to any wallstations in the area per the default wallstation programming.
	• **If normal power is not present**, the Emergency Switchpack will switch ON at 100% **Emergency Mode** and not respond to commands until the Normal Power Sense (NPS) signal is received from all assigned NPS devices.

LED Operation

LED conditions	Meaning
ON (white)	The device relay is closed
OFF	The device relay is opened
Flashes ON and OFF approximately 1 time per second for 10 seconds	Onboard commissioning button has been pressed for longer than 4 seconds, placing the device in pairing mode.

How to Place in Pairing Mode:

Method	Description
Power Cycle Method	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds, and then turn ON power and leave ON
Onboard Commissioning Button	Press the onboard commissioning button for more than 4 seconds. The onboard LED will blink for 10 seconds to indicate the device has entered pairing mode.

The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode with these methods.

[125] Blink-to-Identify commands will be allowed during Emergency Mode only while the device is in the Construction Area for purposes of device identification. Once the device is assigned to a user defined area, Blink-to-Identify commands will not work if the device is in Emergency Mode.

WaveLinx PRO Emergency Dimming Switchpack continued

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

The device will give no indication that it has successfully paired with the WaveLinx Area Controller as the device will remain in Emergency Mode until it is programmed as part of an Emergency Set.

Using the Onboard Manual Override Button

The WaveLinx PRO Emergency Dimming Switchpack contains a manual override button on the bottom side of the device. This is labeled as the Commissioning Button. **The override will not operate if the device is in Emergency Mode**. If the device is in normal operation, the override can be pressed for less than 4 seconds to switch the device between ON or OFF. The manual command will remain until the next command is received.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device.[126] Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and the connected fixture(s) will turn ON for 1 second, turn OFF for 1 second and repeat this cycle for 15 seconds.

Emergency Mode Operation

NOTE: For proper operation, use the WaveLinx App to configure an Emergency Set that has at least one Normal Power Sense device (NPS device) assigned to generate the beacon signal that the WaveLinx PRO Emergency Dimming Switchpack(s) requires. Up to three WaveLinx PRO devices can be assigned as NPS devices to generate the beacon signal to the defined Emergency Set. If not assigned to an Emergency Set, the WaveLinx PRO Emergency Dimming Switchpack will remain in Emergency Mode indefinitely.

If the NPS device(s) lose power or communications with the WaveLinx PRO Emergency Dimming Switchpack, the Emergency Switchpack will activate Emergency Mode. During Emergency Mode, the Emergency Dimming Switchpack will turn the connected load ON to 100%. Upon return of normal power, the NPS devices will send the beacon signal allowing the Emergency Dimming Switchpack to revert to normal operation.

For information on creating and configuring the Emergency Sets for NPS and Emergency devices, see "Creating and Organizing Emergency Sets for Emergency Devices" on page 215.

To ensure proper operation for Emergency Mode:

- The Emergency Relay Switchpack **MUST** be wired to an emergency circuit
- The NPS devices **MUST** be wired to normal power circuits. If monitoring more than one normal power phase, in the Emergency Set select NPS devices that are connected to different normal power phases (up to three).

Loss of Communications Operation with the WaveLinx Area Controller

If the device has not communicated with the WaveLinx Area Controller for longer than approx.15 minutes, it will remain in its current state until communication is restored OR it detects a loss of signal from one of its assigned NPS devices at which point the Emergency Switchpack will go to Emergency Mode. NPS device signals are not processed by the WAC and are processed directly between the NPS devices and the Emergency devices.

Operation upon Return of Power

If the WaveLinx PRO Emergency Dimming Switchpack loses power, once power returns it will turn ON/100% in Emergency Mode until it receives its assigned NPS device signals to revert to normal operation.

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- Cycle power the device's circuit **six times** to (switch **OFF 4 seconds** | **ON 4 seconds – 6th time leave ON**).

This removes pairing for ALL devices of this type on the affected circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.[127]

[126] Blink-to-Identify commands will be allowed during Emergency Mode only while the device is in the Construction Area for purposes of device identification. Once the device is assigned to a user defined area, Blink-to-Identify commands will not function if the device is in Emergency Mode.

[127] The device may flash the light to indicate the reset was successful. If the light was ON prior to the reset, the light will flash twice then remain ON. If OFF prior to reset, the flash behavior may not be observed, but lighting will turn ON.

WaveLinx PRO Universal Voltage Dimming Switchpack with Dry Contact Input Reference Sheet

WaveLinx PRO Universal Voltage Dimming Switchpack with Dry Contact Input

General Features

- Universal voltage input (120V-347V)
- Output control (120V-347V):
  - Electronic ballast/driver 16A
  - General purpose (receptacle) 20A
- Class 2, 0-10V dimming output
  - Sinks up to 30mA *(approximately 15 ballasts/drivers [2mA each])*
- IEEE 802.15.4, (router and end point)

Special Features

- One input terminal can connect to an external maintained contact closure (dry) or Greengate occupancy sensor(s) (max. 40mA).

Typical Applications

- Office, education, or other indoor applications
- Where interface to Greengate occupancy sensors or external input is required

Models:

- **WSP-CA-010:** Universal Voltage Dimming Switchpack with Dry Contact Input

WaveLinx App Details:

- Default Device Name:
  - Relay Switchpack CCI
- Unassigned Device Category:
  - Relay Switchpack-CCI

Icon Displayed in WaveLinx App:

Dimmable Output

Input (dependent on configuration)

Not Used

Contact Closure

Occupancy Sensor

Use the WaveLinx PRO Universal Voltage Dimming Switchpack with Dry Contact Input to wirelessly control a zone of switched loads or 0-10V dimmable lighting loads. It can also be used to connect an external maintained dry-contact closure or to Greengate low-voltage occupancy sensor(s) (max. 40mA) to the WaveLinx system. See sensor specification sheets for model specific power requirements.

Out-of-the-Box Operation

Connected for Lighting Control	Connected Contact Input
Once power is applied: • Connected loads will turn ON and 0-10V dimmable loads will go to 100%[128]	If the optional contact closure is connected, the contact closure will not function until configured through the WaveLinx App.

Construction Area Default Operation

Connected for Lighting Control	Connected Contact Input
Once paired, the device will respond per the default operation of any occupancy sensors or wallstations that are in the Construction area.	If the optional contact closure is connected, the contact closure will not function until configured through the WaveLinx App.

Assigned to an Area Default Operation

Connected for Lighting Control	Connected Contact Input

Once assigned to a created area, the device operates as part of the area.
• It will respond to the sensors in the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixtures will dim to 0% (Scene 0).
• It will respond to any wallstations added to the area per the default wallstation programming.
	If the optional contact closure is connected, the contact closure will not function until configured through the WaveLinx App.

LED Operation

Not applicable. The WSP-CA-010 Universal Dimming Switchpack has no onboard LED indicator.

How to Place in Pairing Mode:

Method	Description
Automatic	Once powered, an unpaired Universal Dimming Switchpack will automatically be in pairing mode. It will reinitiate a pairing search command every 20 minutes until a WaveLinx Area Controller is found. A power cycle (switch OFF and then ON) will cause the search to start again approximately 20 seconds after the power up.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

Connected for Lighting Control	Connected Contact Input
• When initially paired, the connected fixture(s) will dim briefly and then turn full ON and remain ON (this can make it difficult to review paired devices. See next recommendation). • To verify pairing, make sure to EXIT the WaveLinx Area Controller pairing mode. Then, place the WaveLinx Area Controller back in pairing mode. All fixtures connected to Universal Dimming Switchpacks that are paired with the WaveLinx Area Controller will dim to 10%.	If used only for a contact input device, there is no visual feedback that pairing is successful.

[128] Devices with older firmware may go to 75% light output in out-of-the-box operation and may take up to 1 hour to enter loss of communication operation.

WaveLinx PRO Universal Dimming Switchpack with Dry Contact Input continued

Supported Identification Methods:

Connected for Lighting Control	Connected Contact Input Greengate Occupancy Sensor	Connected Contact Input Maintained Closure
Blink to Identify: • Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in the device row or from the device's dimmable screen to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond.	**Requires configuration as an Occupancy Sensor through the WaveLinx App:** • Once configured, in the device's **occupancy** screen, use the **Blink to Identify** option by tapping . The **Blink to Identify** mode cannot be manually cancelled and will time out on its own after a 1-minute period.	**Requires configuration as a Contact Closure Input through the WaveLinx App:** • If the device is in the construction area, manually open or close the contact to reverse identify the device on the WaveLinx App. • If the device is assigned to an area, navigate to the device's **Maintained CCI** screen. Manually open or close the contact while watching the **Current Status** field to see if it reflects the activity. If it does, the device has been identified. Repeat as needed.

Blink to Identify Behavior

Connected for Lighting Control	Connected Contact Input Greengate Occupancy Sensor	Connected Contact Input Maintained Closure
• When placed in **Blink to Identify** mode, the connected fixture(s) will turn ON for 1 second, turn OFF for 1 second and repeat this cycle for 15 seconds.	• The Universal Dimming Switchpack will cycle power to the Greengate sensor, causing the sensor to flash its LEDs and to issue an occupied command.[129] The **Blink to Identify** mode cannot be manually cancelled and will time out on its own after a 1-minute period.	• Not applicable for contact closure input devices.

Contact Input Configuration Details

For operation from the onboard contact input, the device must be configured for contact input control. The output of the device can be used to control a dimmable load while the input is used for contact closure devices.

- If connected to a lighting load, identify, and assign the Universal Dimming Switchpack to the zone and area it should operate with. (Skip this if the device is not connected to a lighting load and is only being used for a contact input connection).
- Open the device and in the **Optional Input** screen, select the device behavior.
- Identify the device by using the supported identification methods described in this section based on the type of input being used.
- If not already in the area, assign the device to the area.
- Occupancy sensors will automatically be assigned to the default occupancy set of the area.
- Contact inputs will need to be defined with the desired behavior for the open and closed commands.

Programmable Contact Closure Input Actions:

When set for a contact closure input type, the following actions are available

- Wall Status Toggle[130]
- Scene Select ,Scene Toggle
- Zone Level, Zone Toggle

Loss of Communications Operation

If the device has not communicated with the WaveLinx Area Controller for longer than approx.15 minutes, it will revert to its out-of-the-box behavior until communications are re-established.[131]

Operation upon Return of Power

Upon return of power, the connected lighting will turn ON to 100% until communications are re-established with the WaveLinx Area Controller after which the lighting state is re-evaluated. If not able to communicate with the WaveLinx Area Controller for longer than approx. 15 minutes, the device will begin loss of communications operation.[131]

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- **Preferred method:** Cycle the power to the device's circuit **six times** (switch **OFF for 5-9 seconds** and then **ON 5-9 seconds – last time leave ON**). After approximately 10 seconds, the device should factory reset.[132]
- **Alternate method:** Cycle the power to the device's circuit **at least sixteen and not more than twenty times** (switch **OFF 4 seconds** and then **ON 4 seconds – last time leave ON**). The device should reset after approximately 10 seconds.

This removes pairing for ALL devices of this type on the affected circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.

[129] Greengate sensors not approved for use with WaveLinx or not directly connected for power from the WaveLinx Universal Voltage Dimming Switchpack may not exhibit the described behavior.

[130] **Wall Status Toggle** will only show in WaveLinx Area Controller version 14.1.x.x firmware and higher. This option is for use with Partitioned Areas.

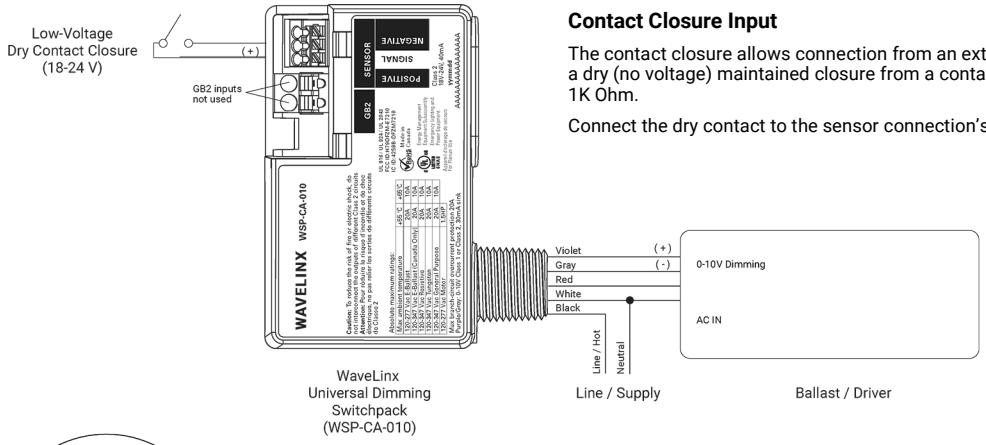
[131] Devices with older firmware may go to 75% light output in out-of-the-box operation and may take up to 1 hour to enter loss of communication operation.

[132] Universal Voltage Dimming Switchpacks prior to firmware version 0x2180560 (v2.18.05.60) will not respond to the 6-power cycle method. Use the alternate 20-cycle method for these devices.

WaveLinx PRO Universal Dimming Switchpack with Dry Contact Input continued

Contact Closure Details

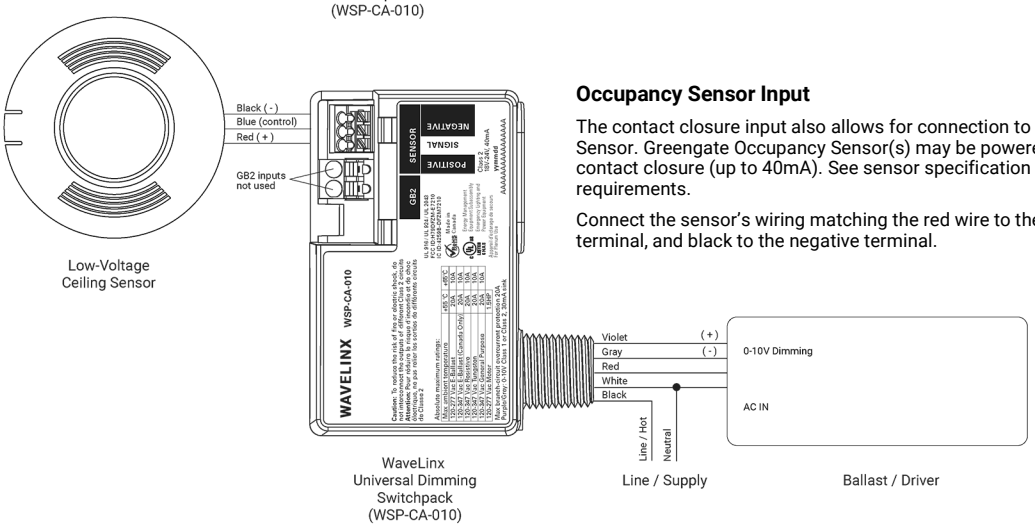
The WSP-CA-010 model WaveLinx Universal Voltage Dimming Switchpacks supports connection to an external contact closure or a Greengate Occupancy Sensor.



Contact Closure Input

The contact closure allows connection from an external system or device that can provided a dry (no voltage) maintained closure from a contact with a contact resistance of less than 1K Ohm.

Connect the dry contact to the sensor connection's positive and signal terminals.



Occupancy Sensor Input

The contact closure input also allows for connection to a supported Greengate Occupancy Sensor. Greengate Occupancy Sensor(s) may be powered directly from the switchpack contact closure (up to 40mA). See sensor specification sheets for model specific power requirements.

Connect the sensor's wiring matching the red wire to the positive terminal, blue to the signal terminal, and black to the negative terminal.

Greengate Sensor Onboard Selection Switch Settings

Greengate Occupancy Sensors have onboard configuration switches for configuration in a non-WaveLinx application. **For best operation with the WaveLinx system, set the configuration switches for the settings shown.** Refer to the installation instructions for the sensor being used to identify the switch locations. If sensors have additional option switches, leave them at the defaults described in the sensor installation instructions

Setting	Default	Recommended Setting
Time Delay	Auto	**5 minutes**
Activation Mode[133]	Auto	**Auto**
Override Mode	Disabled	**Disabled**
Daylight Options	Disabled	**Disabled**

[133] Not all supported Greengate sensor types will have this option.

WaveLinx PRO Receptacle Reference Sheet

WaveLinx PRO Receptacle

WR-15

WR-20

Features

- Top outlet is wirelessly controlled through WaveLinx while bottom outlet remains constantly powered
- IEEE 802.15.4, (router and end point)
- Input/Output 120VAC
  - WR-15: 15A
  - WR-20: 20A

Typical Applications

- Education, office, and other interior spaces

Models:

- **WR-15:** WaveLinx Receptacle 15A
- **WR-20**: WaveLinx Receptacle 20A

WaveLinx App Details:

- Default Device Name:
  - Receptacle
- Unassigned Device Category:
  - Receptacle

Icon Displayed in WaveLinx App:

The WaveLinx PRO Receptacle enables energy savings by turning OFF the top outlet when the area is unoccupied or with other programmed actions, simplifying plug load control requirements. The bottom outlet remains constantly powered.

Out-of-the-Box Operation

- Once power is applied, the wirelessly controlled outlet will turn ON.
- LED will illuminate green to indicate that the controlled outlet is ON.
- The manual pushbutton can be pressed (short press) to toggle the controlled outlet ON and OFF. (The LED will follow the state of the controlled outlet.)

Construction Area Default Operation	Assigned to an Area Default Operation

The controlled outlet will remain in current state (ON/OFF) unless the onboard pushbutton is pressed.	If assigned to Area: The controlled outlet will remain in current state (ON/OFF) unless the onboard pushbutton is pressed.
	If assigned to a Receptacle Zone in the Area:
	• It will respond to the sensors in the area's occupancy set.
	  • If occupied, controlled WaveLinx Receptacles will turn ON (Scene 3).
	  • The occupancy set default hold time is 20 minutes.
	  • If the space remains unoccupied for 20 minutes, controlled WaveLinx Receptacles will turn OFF (Scene 0).
	• All paired wallstations will operate the area devices per their default programming (WaveLinx Receptacles turn OFF with Scene 0 and ON with other scenes).

LED Operation

LED conditions	Meaning
Solid green	The controlled outlet is currently ON
OFF	The controlled outlet is currently OFF, or the device is not powered.
Flashing for 15 sec. • Green/Amber: controlled outlet is ON • Red/OFF: controlled outlet is OFF	This can occur in the following situations: • The onboard pushbutton is used to place the WaveLinx Receptacle in pairing mode. • The onboard pushbutton is used to Factory Reset the WaveLinx Receptacle. • The onboard pushbutton is pressed and released when the WaveLinx Receptacle is paired but still in the Construction Area. • The WaveLinx App is used to place the WaveLinx Receptacle in **Blink to Identify** mode.

WaveLinx PRO Receptacle continued

WR-15

WR-20

How to Place in Pairing Mode:

Method	Description
Onboard Pushbutton	Press and hold the manual push button for 5 seconds. Release the push button when the LED starts flashing.[134]

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

- **During pairing:** the outlet LED may flash red/OFF or green/amber. The outlet may turn OFF for a period and then turn back ON. The duration of the OFF period should not last longer than 5 minutes.
- **If previously paired and the WaveLinx Area Controller is placed back in pairing mode:** All paired WaveLinx Receptacles still in the default construction area will turn OFF for 5 minutes. After 5 minutes, the WaveLinx Receptacles will turn back ON.

If previously paired and the WaveLinx Area Controller is NOT in pairing mode: Press the manual push button to toggle the controlled outlet. A paired WaveLinx Receptacle still in the default construction area will flash its LED between red/OFF or green/amber for 15 seconds.

Supported Identification Methods:

- **Onboard Pushbutton**: Press and release (1 second press) the manual push button on the front of the controlled outlet. The WaveLinx Receptacle may toggle state when the push button is pressed, and the LED may flash red/OFF or green/amber.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond. When placed in **Blink to Identify** mode:

- The outlet LED will flash for a period of 15 seconds.
  - If the outlet is OFF, the LED will flash between red and OFF.
  - If the outlet is ON, the LED will flash between green and amber.

Loss of Communications Operation

If communication is lost with WaveLinx Area Controller, the controlled outlet will remain in the last commanded state. The manual pushbutton may be used to toggle the controlled outlet ON and OFF until communications are re-established.

Operation upon Return of Power

Upon return of power, the controlled outlet will remain in the last known state until a command is received.

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- Press and hold the manual push button for **5 seconds**. Release the push button when the LED starts flashing.

The device should exhibit out-of-the-box behavior and may be paired as a new device.

[134] The LED may flash red or cycle between green and amber during the pairing process.

WaveLinx PRO Ceiling Sensor Reference Sheet

WaveLinx PRO Ceiling Sensor

The WaveLinx PRO Ceiling Sensor provides motion sensing and/or open loop daylight dimming to the WaveLinx system. In open loop daylighting applications, the sensor can control multiple zones in the same space. The WaveLinx Ceiling Sensor is battery powered, mounting easily where needed without the need for wiring.

Out-of-the-Box Operation

- Once the batteries are installed:
  - The LED may flash red once approximately every 10 seconds to indicate the unit is powered.
  - The daylight sensor and occupancy sensor will have no control functionality out-of-the-box.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction Area.	Once assigned to a created area, the device operates as part of the area.

• The daylight sensor remains disabled. It must be assigned to an area and be configured to operate.
• All occupancy sensors report to the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
• Sensor LED flashes red approximately once every 10 seconds to indicate the sensor is powered.	

LED Operation (The LED is located between the two sensor pushbuttons)

LED conditions	Meaning
Flashes red approximately once every 10 seconds	The device is powered.
Flashes red one time when the wireless PAIR button ⦿ is pressed	The device is paired with a WaveLinx Area Controller
Flashes red approximately 10 times	Will occur when the wireless PAIR button ⦿ is pressed OR if a flashlight shines into the sensor lens and the device is not paired with a WaveLinx Area Controller yet. This flash sequence indicates that the device has entered pairing mode.[135]

How to Place in Pairing Mode:

Pair line powered devices first as they support communications to the battery powered devices. If no line powered devices are paired, the WaveLinx Area Controller will only allow six battery powered devices to pair.

Method	Description
PAIR button (Preferred Method)	Press the wireless PAIR button (identified with ⦿ symbol) onboard the sensor to initiate pairing mode.
Flashlight Method	Shine a bright flashlight into the lens of the battery powered sensor.[136]

The LED in the sensor window may flash ON and OFF for 10 seconds (approximately 10 times) to indicate that the sensor is in pairing mode before returning to its normal blink pattern.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

There is no immediate feedback that the device paired successfully.[135] If paired, the device will be visible in the WaveLinx App.

Features

- Integrated photocell for open loop daylighting
- Integrated Passive Infrared (PIR) motion sensor for occupancy or vacancy sensing
- IEEE 802.15.4, (end point)

Power:
- 2-replaceable AA Alkaline batteries
  - 7-year life (occupancy only)
  - 6-year life (occupancy + daylighting)

Typical Applications

- Education, office, and other interior spaces

Models:

- **CWPD-1500:** WaveLinx Ceiling Sensor

WaveLinx App Details:

- Default Device Name:
  - Ceiling Sensor xxxx (MAC ID)
- Unassigned Device Category:
  - Ceiling Sensor

Icon Displayed in WaveLinx App:

[135] The LED may flash slowly two times (3 seconds ON, 3 seconds OFF) as the device pairs with the WaveLinx Area Controller.
[136] Motion activity may also trigger PAIR mode although this method is not reliable.

WaveLinx PRO Ceiling Sensor continued

Supported Identification Methods:

- **Laser pointer or focused flashlight beam**: For sensors mounted at reasonable mounting heights, use a laser pointer or bright, focused beam flashlight to trigger identification mode. Standing beneath the sensor, shine the light directly into the sensor lens for 3-4 seconds to identify the device in the Construction Area.

Battery powered devices do not support **Blink to Identify** mode.

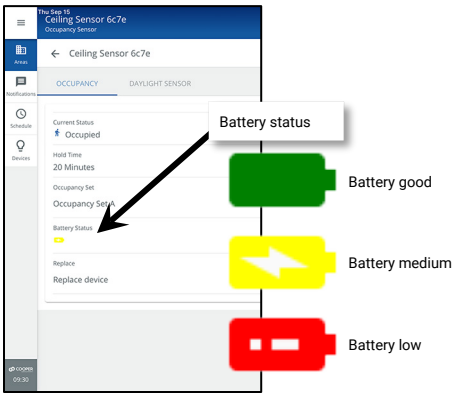
Battery Charge Indicator

The WaveLinx App will give indication of the current charge of the batteries in the sensor within the Ceiling Sensor page.

- Battery good: >2.6V
- Battery medium: <= 2.6V – 2.4V
- Battery low: <2.4V

Operation upon Battery Change

- Upon battery change, after the device automatically reconnects to the WaveLinx Area Controller, the device will operate with the last programmed settings. (device retains programming in unpowered state).



Open Loop Daylight Operation

Daylighting will not operate until an open loop daylight set is created and configured.

- Once configured and calibrated, the controlled zones will dim in response to entering daylight.
  - When the measured daylight contribution increases or decreases, the controlled zones will dim or raise lighting to reduce or increase the light level.
  - When the measured light level exceeds 150% of the calibrated gain for more than 30 minutes, the sensor will dim to OFF.
- If lighting has dimmed to OFF and the area is still occupied, lighting will be turned back ON when one of the two conditions occurs:
  - The measured light level falls between 100% and 50% of the calibrated gain for more than 10 minutes
  - The measured light level falls below 50% of the calibrated gain for longer than 30 seconds

Open Loop Daylight Set Configuration

- Create the open loop daylight set.
- Assign the zones that should be controlled by the daylight set.[137]
- Assign the sensor to the daylight set
- Calibrate the sensor

Important Mounting Considerations

- Open loop daylight sensors should be mounted so that the sensor lens views mainly daylight, not the electric light being controlled in the area.
- The optimal mounting location for occupancy sensing may not be optimal for open loop daylighting. Separate sensors may be necessary.

Open Loop Daylight Adjustment Details

Perform adjustment during daylight hours when electric lighting should be reduced but not fully dimmed. The use of a light meter is recommended. With electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if the desired light level at the work surface is 500 lux, the reading with electric lighting OFF should be between 250 to 375 lux for best results.)

In the daylight set's **Calibrate** screen, adjust the slider bar to change the light level to the desired light level, then tap the back button to save the change.

Loss of Communications Operation

Not applicable for this device type. If communication is lost with WaveLinx Area Controller, the sensor will not control the assigned loads until communications are re-established.

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- Remove the battery for exactly 5 seconds then replace.
- Wait for the LED to illuminate on power up and then turn OFF.
- Immediately press the radio button (📶) ten times at 1 second intervals.
- Wait a few seconds and then press the radio button (📶) one time. After the button is released, the LED should remain OFF for about 3 seconds, flash slowly 2 times and then quickly 1 time (3 flashes total) to indicate that the reset was successful.

The device may be paired as a new device.

[137] If fixtures in the zones that are assigned to open loop daylight sets contain Integrated Sensors or Tilemount Sensors, closed loop daylighting will automatically be disabled for these devices.

WaveLinx PRO W-Series Wallstation Reference Sheet

WaveLinx PRO W-Series Wallstation

Features

- Multi-scene selection, raise/lower, and toggle ON/OFF control
- Single or multi-gang mounting
- Faceplate and buttons changeable
- IEEE 802.15.4, (router and end point)

Power:
- Line voltage powered 120-277VAC (neutral required)

Typical Applications

- Education, office, and other interior spaces

Models:

- Large Button Configurations:
  - W1L, W1L-RL, W2L, W2L-RL, W3L
- Small Button Configurations:
  - W2S, W2S-RL, W4S, W4S-RL, W5S, W6S

WaveLinx App Details:

- Default Device Name:
  - Wall Station
- Unassigned Device Category:
  - Wallstation

Icon Displayed in WaveLinx App:

Programmable options:

- Scene Selection
- Scene Toggle
- Save Scene
- Zone Toggle
- Zone Level
- Raise
- Lower
- Hold/Release Occupied
- Wall Status Toggle[138]
- No Action
- Network Action from WaveLinx CORE[139]

Use the WaveLinx PRO W-Series Wallstations to manually operate connected loads and provide customized light levels for each controlled space.

Out-of-the-Box Operation

- Once power is applied, if a button is pressed, the button's LED will flash slowly for 10 seconds.
- The WaveLinx W-Series Wallstation will have no control functionality out-of-the-box.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction area.	Once assigned to a created area, the device operates as part of the area.
• All WaveLinx wallstations will operate all lighting devices and WaveLinx receptacles in the area per the default scenes and programming (see chart next page). • The button LED indicator will illuminate to indicate the currently active scene.	

Button LED Operation

LED conditions	Meaning
Button LED flashes ON 500ms/OFF 1 sec. Repeats for 10 sec. when pressed	The wallstation has not yet been paired. The wallstation has been placed in pairing mode and is searching for a WaveLinx Area Controller. The wallstation will remain in pairing mode for 60 minutes.
Button LED ON	The button's command is currently active.
Button LED OFF	The button's command is not active or not programmed. If button LEDs are OFF, and buttons are not responsive, verify the station is powered.
Button LED flashes ON 1 sec./OFF 1 sec. and repeats for 10 sec. when pressed.	The wallstation has been disabled by a timed event or has been manually disabled using the WaveLinx App.
Button LED flashes quickly for 5 sec. when pressed	The wallstation was paired with a WaveLinx Area Controller but is no longer communicating with it.
All LEDs flash in a cycle pattern for 15 sec.	The wallstation is in **Blink to Identify** mode.
All LEDs flash in a cycle pattern, continuously	The wallstation has successfully paired, is in the Construction Area, and the WaveLinx Area Controller is in pairing mode.

How to Place in Pairing Mode:

Method	Description
Press button (Preferred Method)	Press any button on the wallstation to initiate a pairing request from an unpaired wallstation. The LED on the button should flash slowly for approximately 10 seconds.
Power Cycle Method[140]	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds and then turn ON power and leave ON.

The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode with these methods.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

Once successfully paired, all button LEDs will flash in a top to bottom and then bottom to top pattern until pairing mode is exited.

Supported Identification Methods:

- **Button Press**: Press any button on the wallstation. If the wallstation is in the Construction Area, the LED will flash for 15 seconds.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse, and the wallstation LEDs should respond. When placed in **Blink to Identify** mode the wallstation with flash all button LEDs in a cycle pattern for a period of 15 seconds.

[138] **Wall Status Toggle** will only show in WaveLinx Area Controller version 14.1.x.x firmware and higher. This option is for use with Partitioned Areas.

[139] **Network Action** will only show in WaveLinx Area Controller version 10.0.x.x firmware and higher. WAC must be a configured part of a WaveLinx CORE platform to perform supported network actions. When programmed for this action type, the button LED will not change when the button is used.

[140] W-Series Wallstations with older firmware (prior to 01.07.10.00) may only require a single power cycle to place in pairing mode (30 seconds OFF and then turn back ON).

WaveLinx PRO W-Series Wallstation continued

Loss of Communications Operation

If communication is lost with WaveLinx Area Controller, the wallstation will not control the assigned loads until communications are re-established. If a button with an LED indicator is pressed, the LED will flash quickly for 5 seconds to indicate its offline status.

Operation upon Return of Power

Upon return of power and connection to the WaveLinx Area Controller, the wallstation will wait for a button press before issuing commands.

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

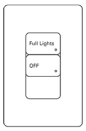
- Cycle the power to (switch **OFF 4 seconds** and then **ON 4 seconds**) the device's circuit **six times**.

This removes pairing for ALL devices of this type on the affected circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.

Default WaveLinx W-Series Wallstation Operation

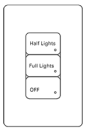
W1L-*
(* = W,V,G,B)

W1L-x
- Button #1: Toggle Scene (Scene 0/Scene1)



W2L-*
(* = W,V,G,B)

W2L-x
- Button #1: Scene 1
- Button #2: Scene 0



W3L-*
(* = W,V,G,B)

W3L-x
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 0

W2S-RL-*
(* = W,V,G,B)

W2S-RL-x
- Button #1: Scene 3
- Button #2: Scene 1
- ON/OFF: Toggle Scene (Scene 0/Scene 1)
- Raise/Lower: Raise/Lower All Zones in Current Area[141]

W4S-RL-*
(* = W,V,G,B)

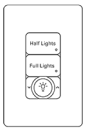
W4S-RL-x
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 2
- Button #4: Scene 4
- ON/OFF: Toggle Scene (Scene 0/Scene 1)
- Raise/Lower: Raise/Lower All Zones in Current Area[141]

W6S-*
(* = W,V,G,B)

W6S-x
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 2
- Button #4: Scene 4
- Button #5: Scene 5
- Button #6: Scene 0

W1L-RL-*
(* = W,V,G,B)

W1L-RL-x
- Button # 1: Scene 3
- ON/OFF: Toggle Scene (Scene 0/Scene 1)
- Raise/Lower: Raise/Lower All Zones in Current Area[141]



W2L-RL-*
(* = W,V,G,B)

W2L-RL-x
- Button #1: Scene 3
- Button #2: Scene 1
- ON/OFF: Toggle Scene (Scene 0/Scene 1)
- Raise/Lower: Raise/Lower All Zones in Current Area[141]

W2S-*
(* = W,V,G,B)

W2S-x
- Button #1: Scene 1
- Button #2: Scene 0

W4S-*
(* = W,V,G,B)

W4S-x
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 4
- Button #4: Scene 0

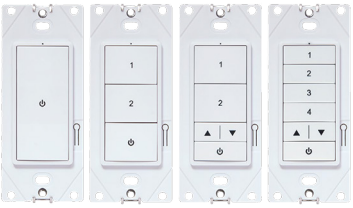
W5S-*
(* = W,V,G,B)

W5S-x
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 2
- Button #4: Scene 4
- Button #5: Scene 0

[141] White tuning zones are automatically exempted from raise/lower **ALL** zones to prevent inadvertent adjustment of the color temperature when adjusting light levels.

WaveLinx PRO WW-Series Wallstation Reference Sheet

WaveLinx PRO WW-Series Wallstation



Features

- Multi-scene selection, raise/lower, and toggle ON/OFF control
- Single or multi-gang mounting
- IEEE 802.15.4, (router and end point)

Power:
- Line voltage powered 120-277VAC (neutral required)

Typical Applications

- Education, office, and other interior spaces

Models:

- **WW1**: 1 Button
- **WW3**: 3 Button
- **WW3-RL**: 3 Button with Raise/Lower
- **WW5-RL**: 5 Button with Raise/Lower

WaveLinx App Details:

- Default Device Name:
  - WaveLinx Pro-1 Btn Wallstation (WW1)
  - WaveLinx Pro-3 Btn Wallstation (WW3)
  - WaveLinx Pro-3 Btn R/L Wallstation (WW3-RL)
  - WaveLinx Pro-5 Btn R/L Wallstation (WW5-RL)
- Unassigned Device Category:
  - Wallstation

Icon Displayed in WaveLinx App:

Programmable options:

- Scene Selection
- Scene Toggle
- Save Scene
- Zone Toggle
- Zone Level
- Raise
- Lower
- Hold/Release Occupied
- Wall Status Toggle[142]
- No Action
- Network Action from WaveLinx CORE[143]

Use the WaveLinx PRO WW-Series Wallstations to manually operate connected loads and provide customized light levels for each controlled space.

Out-of-the-Box Operation

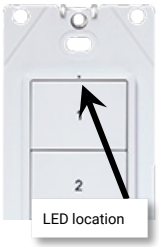
- Once power is applied, if a button is pressed, the wallstation LED will flash green slowly for 10 seconds.
- The WaveLinx WW-Series Wallstation will have no control functionality out-of-the-box.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction area. • The wallstation LED will flash yellow for 1 sec and then OFF for 1 sec repeatedly. • If a button is pressed, the wallstation LED will flash magenta slowly for 15 seconds and then go back to flashing yellow.	Once assigned to a created area, the device operates as part of the area. • The wallstation LED will be OFF. • If a button is pressed, the wallstation LED will flash white slowly for 10 seconds.
• All WaveLinx wallstations will operate all lighting devices and WaveLinx receptacles in the area per the default scenes and programming (see chart next page).	

LED Behavior

The LED is located above the top button of the wallstation.

LED conditions	Meaning
Flashes green for 300ms/OFF for 1.7 sec. Repeats for 10 sec.	One of the wallstation buttons was pressed. This pattern means that the wallstation is not yet paired with a WaveLinx Area Controller.
Flashes slow yellow for 1 sec./off for 1 sec. Repeats indefinitely.	The wallstation is paired with a WaveLinx Area Controller and is in the Construction Area.[144]
Flashes white for 300ms/OFF for 1.7 sec. Repeats for 10 sec.	One of the wallstation buttons was pressed. This pattern means that the wallstation is paired with a WaveLinx Area Controller and is assigned to a user created area.
Flashes white for 1sec./OFF for 1 sec. Repeats for 10 sec.	The wallstation has been disabled by a timed event or has been manually disabled using the WaveLinx App.
Flashes magenta for 1 sec./OFF for 1 sec. Repeats for 15 sec. and then resumes previous LED state.	The wallstation is paired and in the Construction Area. One of the wallstation buttons was pressed. The wallstation has triggered an identify command to allow for identification in the WaveLinx App. **OR** The wallstation (in any area) has been placed in **Blink to Identify** mode from the WaveLinx App.
Flashes magenta for 1 sec./OFF for 1 sec. Repeats for up to 60 minutes.	The wallstation has previously been paired, is in the Construction Area, and the WaveLinx Area Controller it is paired with has been placed into pairing mode. The LED will resume its previous state when the WaveLinx Area Controller exits pairing mode.
Flashes green for 300ms/white for 300ms/ OFF for 1.4 sec. Repeats for 10 sec.	One of the wallstation buttons was pressed. This pattern means that the wallstation was paired with a WaveLinx Area Controller but is no longer communicating with it.
Flashes cyan for 1 sec./OFF for 1 sec. Repeats for a period.	The wallstation firmware is being updated. The cyan flashing pattern will end once the update is complete.
Flashes fast yellow 500ms/OFF 500ms (factory reset used)	The factory reset button on the wallstation has been pressed for 5-10 seconds. The LED will stop flashing when the button is released OR at the 10 second mark if the button is held longer.



How to Place in Pairing Mode:

Method	Description
Press button (Preferred Method)	Press any button on the wallstation to initiate a pairing request from an unpaired wallstation. The LED on the wallstation should flash green for approximately 10 seconds.
Power Cycle Method	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds and then turn ON power and leave ON.

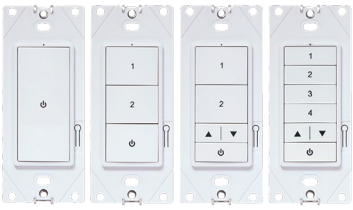
The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode with these methods.

[142] **Wall Status Toggle** will only show in WaveLinx Area Controller version 14.1.x.x firmware and higher. This option is for use with Partitioned Areas.

[143] **Network Action** will only show in WaveLinx Area Controller version 10.0.x.x firmware and higher. WAC must be a configured part of a WaveLinx CORE platform to perform supported network actions.

[144] Devices in user defined areas may also exhibit this LED behavior if manually placed in commissioning mode through the advanced user WAC Webpage (advanced technicians only).

WaveLinx PRO WW-Series Wallstation continued



Successful Paired Device Behavior:

Once successfully paired, the LED will flash yellow indicating that the wallstation has been added to the Construction Area and is in commissioning mode. The LED will continue to flash yellow until the wallstation is assigned to an area other than the Construction Area.

After the initial pairing is completed, if the wallstation is in the Construction Area and the WAC is placed in pairing mode, the LED will flash magenta until the WAC exits pairing mode.

Supported Identification Methods:

- **Button Press**: If the wallstation is in the Construction Area, press any button on the wallstation. The LED will flash magenta for 1 second and OFF for 1 second, repeating for 15 seconds. This will allow identification in the WaveLinx App.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse, and a wallstation's LED should respond. When placed in **Blink to Identify** mode the wallstation LED will flash magenta for 1 second and then OFF for 1 second, repeating the pattern for a period of 15 seconds.

Loss of Communications Operation

If communication is lost with WaveLinx Area Controller, the wallstation will not control the assigned loads until communications are re-established. If a button with is pressed, the wallstation LED will flash Green for 300ms/White for 300ms/OFF for 1.4 seconds and repeat this pattern for 10 seconds to indicate its offline status.

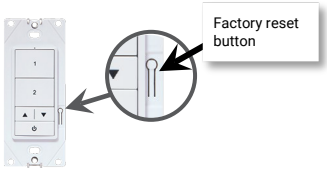
Operation upon Return of Power

Upon return of power and connection to the WaveLinx Area Controller, the wallstation will wait for a button press before issuing commands. The LED behavior will resume its normal operation based on the wallstation's paired or unpaired state, and, if paired, the area it has been assigned to (Construction Area or a created area).

Factory Reset Instructions

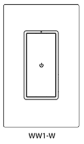
CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

Method	Description
Factory reset button (Preferred Method)	• Remove the wallplate to expose the factory reset button. • Press and hold the factory reset button for at least 5 and not more than 10 seconds and then release it. (The wallstation LED will begin to flash yellow after 5 seconds and stop at 10 seconds.[145]
Power Cycle Method	• Cycle the power to (switch **OFF 4 seconds** and then **ON 4 seconds**) the device's circuit **six times**. This removes pairing for ALL devices of this type on the affected circuit.

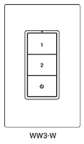


After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.

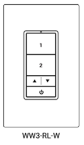
Default WaveLinx WW-Series Wallstation Operation



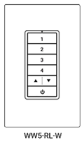
WW1-x
- Button ⏻: Toggle Scene (Scene 0/Scene1)



WW3-x
- Button #1: Scene 3
- Button #2: Scene 1
- Button ⏻: Scene 0 (OFF)



WW3-RL-x
- Button #1: Scene 3
- Button #2: Scene 1
- Raise/Lower: Raise/Lower All Zones in Current Area[146]
- Button ⏻: Toggle Scene (Scene 0/Scene 1)



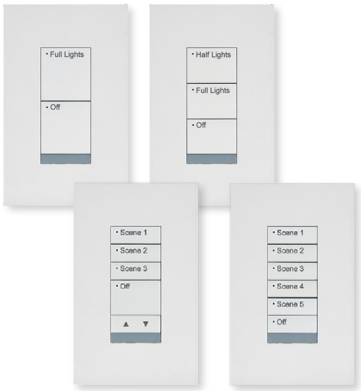
WW5-RL-x
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 2
- Button #4: Scene 4
- Raise/Lower: Raise/Lower All Zones in Current Area[146]
- Button ⏻: Toggle Scene (Scene 0/Scene 1)

[145] If the factory reset button is held for less than 5 seconds or more than 10 seconds, the wallstation will not perform the factory reset and will retain its programmed settings.

[146] White tuning zones are automatically exempted from raise/lower **ALL** zones to prevent inadvertent adjustment of the color temperature when adjusting light levels.

WaveLinx PRO WB-Series Battery Powered Wallstation Reference Sheet

WaveLinx PRO WB-Series Battery Powered Wallstation



Features

- Multi-scene selection, raise/lower, and toggle ON/OFF control
- Single or multi-gang mounting
- IEEE 802.15.4, (router and end point)

Power:
- 4-AAA Alkaline replaceable batteries
  - 10-year life expectancy

Typical Applications

- Education, office, and other interior spaces

Models:

- Large Button Configurations:
  - WB2L, WB3L
- Mixed Button Configuration:
  - WB5
- Small Button Configuration:
  - WB6

WaveLinx App Details:

- Default Device Name:
  - Battery Powered Wall Station
- Unassigned Device Category:
  - Wallstation

Icon Displayed in WaveLinx App:

Programmable options:

- Scene Selection
- Scene Toggle
- Save Scene
- Zone Toggle
- Zone Level
- Raise
- Lower
- Hold/Release Occupied
- Wall Status Toggle[147]
- No Action
- Network Action from WaveLinx CORE[148]

Use the WaveLinx PRO WB-Series Battery Powered Wallstations to manually operate connected loads and provide customized light levels for each controlled space. WB-Series Battery Powered Wallstations simplify new and retrofit installations.

Out-of-the-Box Operation

- Once power is applied, All LEDs will be OFF as the station is in **sleep mode** to conserve battery life. A red LED below the bottom button may flash if a finger is within 2 inches (5 cm) of the buttons or a button is pressed, triggering the proximity sensor to **wake** the station and request an updated LED status. The button LEDs should remain OFF until the station is paired with the WaveLinx Area Controller.
- The wallstation will have no control functionality out-of-the-box.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction area.	Once assigned to a created area, the device operates as part of the area.
• All WaveLinx wallstations will operate all lighting devices and WaveLinx receptacles in the area per the default scenes and programming (see chart next page). • The button LED will illuminate briefly to indicate the active scene when woken from **sleep mode**.	

Button LED Operation

LED conditions	Meaning
Button LED ON when hand is near wallstation	The button's command is currently active.
Button LED OFF	Battery wallstations automatically enter **sleep mode** turning LEDs OFF. If the red LED below the bottom button flashes but the LEDs remain OFF when a hand is near, the button's command is not active or is not programmed. If there are no button LEDs and the red LED below the bottom button does not flash when a hand is near, verify the batteries are charged.
Red LED below the bottom button flashes once (when hand is near wallstation)	The proximity sensor has **woken** the station from **sleep mode** and requested button LED status from its paired WaveLinx Area Controller. • If the button command is not currently active, the red LED will flash but no button LEDs will illuminate. • If button command is currently active, the red LED may not flash but the button LED(s) will illuminate.
Red LED below the bottom button flashes twice (when hand is near wallstation)	The proximity sensor has **woken** the station from **sleep mode** and requested button LED status, but the station is not paired with a WaveLinx Area Controller.
Red LED below bottom button: • flashes twice • then flashes 10 times	A button has been pressed on a station that has not yet been paired with a WaveLinx Area Controller and the WaveLinx Area Controller is not in pairing mode. This sequence also occurs if the device has just been Factory Reset.
Red LED below bottom button • flashes twice • then flashes several times (up to 10) • followed by two slow flashes.	A button has been pressed on a station that has not yet been paired with a WaveLinx Area Controller and the WaveLinx Area Controller is in pairing mode. The button press places the station in pairing mode. The two slow flashes at the end indicate that communication with the WaveLinx Area Controller as the device makes the pairing connection.

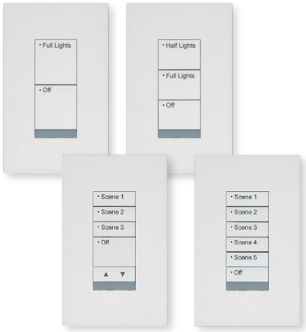
How to Place in Pairing Mode:

Pair line powered devices first as they support communications to the battery powered devices. If no line powered devices are paired, the WaveLinx Area Controller will only allow six battery powered devices to pair.

Method	Description
Press button	Press any button on the wallstation to initiate a pairing request from an unpaired wallstation. The red LED below the bottom button may flash when the proximity sensor detects a hand near the device and may flash intermittently during the pairing process.

[147] **Wall Status Toggle** will only show in WaveLinx Area Controller version 14.1.x.x firmware and higher. This option is for use with Partitioned Areas.
[148] **Network Action** will only show in WaveLinx Area Controller version 10.0.x.x firmware and higher. WAC must be a configured part of a WaveLinx CORE platform to perform supported network actions.

WaveLinx PRO WB-Series Battery Powered Wallstation continued



Successful Paired Device Behavior:

There may not be immediate feedback that the device paired successfully.[149] If paired, the device will be visible in the WaveLinx App. To verify that the device paired successfully, **make sure the WaveLinx Area Controller is not in pairing mode.** Press one of the wallstation buttons and verify that the paired lights and WaveLinx receptacles still in the Construction Area respond to the commands.

Supported Identification Methods:

- **Button Press**: Press any button on the wallstation to identify the device in the Construction Area. The red LED below the bottom button will illuminate for approximately 3 seconds.

Battery powered devices do not support **Blink to Identify** mode.

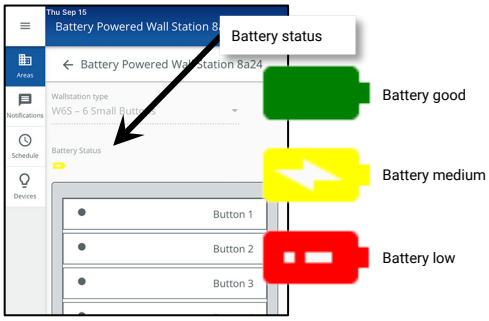
Battery Charge Indicator

The WaveLinx App will give an indication of the current charge of the batteries in the wallstation within the wallstation page.

- Battery good: >2.6V
- Battery medium: <= 2.6V – 2.4V
- Battery low: <2.4V

Operation upon Battery Change

Upon battery change, after the device automatically reconnects to the WaveLinx Area Controller, the device will operate with the last programmed settings when a button is pressed (device retains programming in unpowered state).



Loss of Communications Operation

If communication is lost with WaveLinx Area Controller, the wallstation will not control the assigned loads until communications are re-established. The red LED below the bottom button may illuminate for about 3 seconds if a button is pressed as the station tries to communicate with the WaveLinx Area Controller.

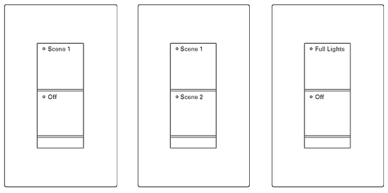
Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- Remove the battery assembly for exactly 5 seconds then replace.
- Once the red LED below the bottom button illuminates, immediately press any button ten times at 1 second intervals (the red LED may flash when button is pressed).
- Wait a few seconds and then press any button one time. The red LED below the bottom button should flash slowly 2 times and then flash an additional 10 times to indicate that the reset was successful.

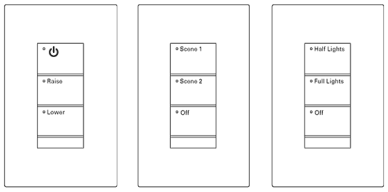
The device may be paired as a new device.

Default WB-Series Battery Powered Wallstation Operation



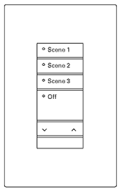
WB2L-S1-W WB2L-S2-W WB2L-W

WB2L-x
- Button #1: Scene 1
- Button #2: Scene 0



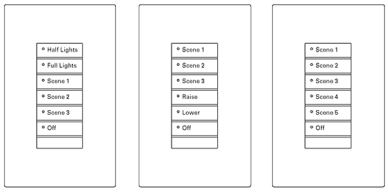
WB3L-D-W WB3L-S2-W WB3L-W

WB3L-x
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 0



WB5-S3-W

WB5-S3-W
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 2
- Button #4: Toggle Scene (Scene 0/Scene 1)
- Raise/Lower: Raise/Lower All Zones in Current Area[150]



WB6S-S3-W WB6S-S3D-W WB6S-S5-W

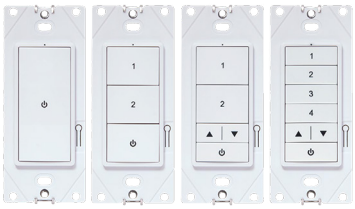
WB6S-x
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 2
- Button #4: Scene 4
- Button #5: Scene 5
- Button #6: Scene 0

[149] The LED may flash slowly two times (3 seconds ON, 3 seconds OFF) as the device pairs with the WaveLinx Area Controller.

[150] White tuning zones are automatically exempted from raise/lower **ALL** zones to prevent inadvertent adjustment of the color temperature when adjusting light levels.

WaveLinx PRO WWB-Series Battery Powered Wallstation Reference Sheet

WaveLinx PRO WWB-Series Battery Powered Wallstation



Features

- Multi-scene selection, raise/lower, and toggle ON/OFF control
- Single or multi-gang mounting
- IEEE 802.15.4, (router and end point)

Power:
- 2-CR123A Alkaline replaceable batteries

Typical Applications

- Education, office, and other interior spaces

Models:

- **WWB1**: 1 Button
- **WWB3**: 3 Button
- **WWB3-RL**: 3 Button with Raise/Lower
- **WWB5-RL**: 5 Button with Raise/Lower

WaveLinx App Details:

- Default Device Name:
  - BP Pro WS 1 Btn (WWB1)
  - BP Pro WS 3 Btn (WWB3)
  - BP Pro WS 3 Btn RL (WWB3-RL)
  - BP Pro WS 5Btn RL (WWB5-RL)
- Unassigned Device Category:
  - Wallstation

Icon Displayed in WaveLinx App:

Programmable options:

- Scene Selection
- Scene Toggle
- Save Scene
- Zone Toggle
- Zone Level
- Raise
- Lower
- Hold/Release Occupied
- Wall Status Toggle[151]
- No Action
- Network Action from WaveLinx CORE[152]

Use WaveLinx PRO WWB-Series Battery Powered Wallstations to manually operate connected loads and provide customized light levels for each controlled space. WWB-Series Battery Powered Wallstations simplify new and retrofit installations.

Out-of-the-Box Operation

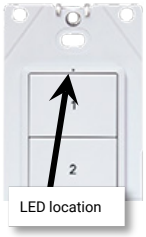
- Once power is applied, if a button is pressed, the wallstation LED will flash green slowly for 10 seconds.
- The WaveLinx WWB-Series Battery Powered Wallstation will have no control functionality out-of-the-box.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction area. • If a button is pressed, the wallstation LED will flash white once, then flash magenta slowly for 15 seconds, and then turn OFF.	Once assigned to a created area, the device operates as part of the area. • If a button is pressed, the wallstation LED will flash white. The flash may occur once or repeat up to 5 times.
• All WaveLinx wallstations will operate all lighting devices and WaveLinx receptacles in the area per the default scenes and programming (see chart next page).	

LED Behavior

The LED is located above the top button of the wallstation.

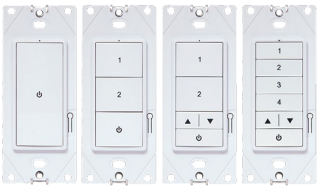
LED conditions	Meaning
Flashes: • green for 300ms • *[COLOR2]* for 300ms • OFF for 1.4 sec. Repeats for 10 sec.	One of the wallstation buttons was pressed. This pattern means that the wallstation is not yet paired with a WaveLinx Area Controller. • *[COLOR2]* OFF/No secondary color: Battery OK (>2.7V) • *[COLOR2]* Yellow = Battery Low (2.5V-2.7V) • *[COLOR2]* Red = Battery Very Low (<2.5V)
Turns white and then flashes: • magenta for 700ms • *[COLOR2]* for 300ms • OFF for 1 sec. Repeats for 15 sec.	The wallstation is paired and in the Construction Area. One of the wallstation buttons was pressed. The wallstation has triggered an identify command to allow for identification in the WaveLinx App. • *[COLOR2]* OFF/No secondary color: Battery OK (>2.7V) • *[COLOR2]* Yellow = Battery Low (2.5V-2.7V) • *[COLOR2]* Red = Battery Very Low (<2.5V)
Flashes: • white for 300ms • *[COLOR2]* for 300ms • OFF for 1.4 sec. The pattern may occur once or repeat up to 5 times.	One of the wallstation buttons was pressed. This pattern means that the wallstation is paired with a WaveLinx Area Controller and is assigned to a user created area. • *[COLOR2]* OFF/No secondary color: Battery OK (>2.7V) • *[COLOR2]* Yellow = Battery Low (2.5V-2.7V) • *[COLOR2]* Red = Battery Very Low (<2.5V)
Flashes: • white for 1 sec. • [COLOR2] for 300ms • OFF for 700ms. Repeats for 10 sec.	One of the wallstation buttons was pressed but the wallstation has been disabled by a timed event or manually using the WaveLinx App. • [COLOR2] OFF/No secondary color: Battery OK (>2.7V) • [COLOR2] Yellow = Battery Low (2.5V-2.7V) • [COLOR2] Red = Battery Very Low (<2.5V)
Flashes: • green for 300ms • *[COLOR2]* for 300ms • OFF for 1.4 sec. Repeats for 10 sec.	One of the wallstation buttons was pressed. This pattern means that the wallstation was paired with a WaveLinx Area Controller but is no longer communicating with it. • *[COLOR2]* White: Battery OK (>2.7V) • *[COLOR2]* Yellow = Battery Low (2.5V-2.7V) • *[COLOR2]* Red = Battery Very Low (<2.5V)
Flashes: • cyan for 700ms • *[COLOR2]* for 300ms • OFF for 1 sec. Repeats for a period.	The wallstation firmware is being updated. The cyan flashing pattern will end once the update is complete. • *[COLOR2]* OFF/No secondary color: Battery OK (>2.7V) • *[COLOR2]* Yellow = Battery Low (2.5V-2.7V) • *[COLOR2]* Red = Battery Very Low (<2.5V)
Flashes fast yellow 500ms/OFF 500ms (factory reset used)	The factory reset button on the wallstation has been pressed for 5-10 seconds. The LED will stop flashing when the button is released OR at the 10 second mark if the button is held longer.



[151] **Wall Status Toggle** will only show in WaveLinx Area Controller version 14.1.x.x firmware and higher. This option is for use with Partitioned Areas.

[152] **Network Action** will only show in WaveLinx Area Controller version 10.0.x.x firmware and higher. WAC must be a configured part of a WaveLinx CORE platform to perform supported network actions.

WaveLinx PRO WWB-Series Battery Powered Wallstation continued



How to Place in Pairing Mode:

Pair line powered devices first as they support communications to the battery powered devices. If no line powered devices are paired, the WaveLinx Area Controller will only allow six battery powered devices to pair.

Method	Description
Press button (Preferred Method)	Press any button on the wallstation to initiate a pairing request from an unpaired wallstation. The LED on the wallstation should flash green for approximately 10 seconds.

Successful Paired Device Behavior:

Press any button on the wallstation to verify pairing. If the wallstation is paired, the wallstation LED should blink white and then flash magenta for approximately 15 seconds to indicate that the wallstation is paired and is assigned to the Construction Area. Any WaveLinx lighting devices or receptacles paired and in the Construction Area will respond to the button command.

Supported Identification Methods:

- **Button Press**: If the wallstation is in the Construction Area, press any button on the wallstation. The LED will flash white briefly and then flash magenta for 1 second and OFF for 1 second, repeating for 15 seconds. This will allow identification in the WaveLinx App.

Battery powered devices do not support Blink to Identify mode

Battery Charge Indicator

The wallstation LED as well as the WaveLinx App will give indication of the current charge of the wallstation's batteries.

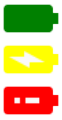
Wallstation LED Battery Indicator

When a button on the wallstation is pressed, the LED will flash an initial color dependent on whether it is paired with a WaveLinx Area Controller and if it is still assigned to the Construction Area. If the initial color is followed by a 2nd color, the 2nd color indicates the battery status

- OFF (No 2nd color): Battery OK (>2.7V)
- Yellow = Battery Low (2.5V-2.7V)
- Red = Battery Very Low (<2.5V).

WaveLinx App Battery Indicator

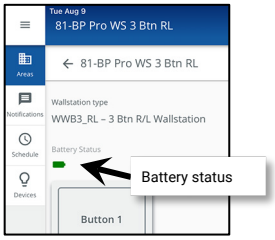
The WaveLinx App's wallstation page will show the status of the battery through a colored battery icon.



Green =Battery good: >2.7V

Yellow = Battery medium: 2.5V–2.7V

Red = Battery low: <2.5V



Operation upon Battery Change

After battery change, once the device automatically reconnects to the WaveLinx Area Controller, the device will operate with the last programmed settings when a button is pressed (device retains programming in unpowered state).

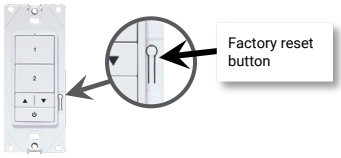
Loss of Communications Operation

If communication is lost with WaveLinx Area Controller, the wallstation will not control the assigned loads until communications are re-established. If a button is pressed, the wallstation LED will flash Green for 300ms/White for 300ms/OFF for 1.4 seconds and repeat this pattern for 10 seconds to indicate its offline status.

Factory Reset Instructions

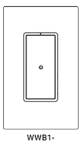
CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

Method	Description
Factory reset button	• Remove the wallplate to expose the factory reset button. • Press and hold the factory reset button for at least 5 and not more than 10 seconds and then release it. (The wallstation LED will begin to flash yellow after 5 seconds and stop at 10 seconds.[153]



After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.

Default WaveLinx WWB-Series Wallstation Operation



WWB1-x
- Button ⏻: Toggle Scene (Scene 0/Scene1)

WWB3-x
- Button #1: Scene 3
- Button #2: Scene 1
- Button ⏻: Scene 0 (OFF)

WWB3-RL-x
- Button #1: Scene 3
- Button #2: Scene 1
- Raise/Lower: Raise/Lower All Zones in Current Area[154]
- Button ⏻: Toggle Scene (Scene 0/Scene 1)

WWB5-RL-x
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 2
- Button #4: Scene 4
- Raise/Lower: Raise/Lower All Zones in Current Area[154]
- Button ⏻: Toggle Scene (Scene 0/Scene 1)

[153] If the factory reset button is held for less than 5 seconds or more than 10 seconds, the wallstation will not perform the factory reset and will retain its programmed settings.

[154] White tuning zones are automatically exempted from raise/lower **ALL** zones to prevent inadvertent adjustment of the color temperature when adjusting light levels.

WaveLinx PRO Contact Closure Input Module Reference Sheet

WaveLinx PRO Contact Closure Input Module

Features

The WaveLinx PRO Contact Closure Input Module can be used in one of two user selectable modes:

- Contact Closure Mode:
  - Supports four dry contact inputs
  - Connect to maintained or momentary switches
  - User defined response
- Sensor Interface Mode:
  - Supports input signal from one occupancy sensor
  - Connects to the sensor through the sensor or switchpack's Form C relay

Power: Line voltage powered 120-277VAC

Typical Applications

- Office, education, and other indoor applications
- Where interface to Greengate or WaveLinx LITE occupancy sensors or external input is required

Models:

- **CCI-P-V-:** WaveLinx PRO Contact Closure Input Module

WaveLinx App Details:

- Default Device Name:
  - PRO Contact Closure Input
- Unassigned Device Category (depends on selected mode):
  - Contact Closure Inputs
  - Sensor Interface Module

Icon Displayed in WaveLinx App:

Contact Closure Mode

Sensor Interface Mode

Programmable options:

- Contact Closure Mode
  - Alert Mode[155]
  - Demand Response[155]
  - After Hours Occupancy Mode[155]
  - Wall Status Toggle[155]
  - Scene Select , Zone Level
  - Scene Toggle , Zone Toggle[156]
- Sensor Interface Mode
  - Occupancy/Vacancy modes supported through associated Occupancy Set

Use the WaveLinx PRO Contact Closure Input Module as an interface for a variety of devices outside the WaveLinx network. Select one of two operation modes for maximum flexibility.

- **Contact Input Mode**: Use this mode to detect up to four separate dry contact closures. Maintained contact closures support most functions and can be user defined for operation when closure or open is received from the connected contact. Momentary contact closures can be used for limited scene and zone function commands.
- **Sensor Input Mode:** Use this mode to allow one external occupancy sensor to be used in a WaveLinx Occupancy Set. The sensor or sensor's switchpack must connect using the sensor or switchpack's Form C relay (BAS signal contact).

Out-of-the-Box Operation

- Once powered:
  - The LED may flash red once when unit is initially powered.
  - The WaveLinx PRO Contact Closure Input Module will have no control functionality out-of-the-box.

Construction Area Default Operation

- The WaveLinx PRO Contact Closure Input Module will have no control functionality until configured.

Assigned to an Area Default Operation

- The WaveLinx PRO Contact Closure Input Module will have no control functionality until configured.

LED Operation

LED conditions	Meaning
Flashes green for 300ms, once every 3 sec. Repeats indefinitely.	The device is unpaired (out-of-the-box).
Flashes yellow for 1 sec./ OFF for 1 sec. Repeats indefinitely.	The device is paired with a WaveLinx Area Controller and is in the Construction Area.[157]
Flashes white for 300ms, once every 3 sec. Repeats indefinitely.	The device is paired to a WaveLinx Area Controller and is assigned to a user created area.
Flashes green 300ms/ white for 300ms, once every 3 sec. Repeats indefinitely.	The device has lost communication with the WaveLinx Area Controller for longer than 15 minutes.
Flashes magenta 1 sec. / OFF for 1 sec. Repeats for 15 sec.	The device has been placed into **Blink to Identify** mode from the WaveLinx App, by using one of the supported identification methods.
Flashes cyan 1 sec/OFF 1 sec. Repeats for a period.	The device firmware is being updated. The cyan flashing pattern will end once the update is complete.
Flashes yellow for 500ms/OFF for 500ms with reset button press.	The reset button has been pressed between 5 and 10 seconds and the device is in the process of a factory reset.

How to Place in Pairing Mode:

Method	Description
Power Cycle Method	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds, and then turn ON power and leave ON

The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode with these methods.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

The onboard LED should blink yellow.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and the onboard LED will flash magenta/OFF for 15 seconds.

Loss of Communications Operation

If communication to the WaveLinx Area Controller is lost, the LED will flash green then white and then off, repeating the pattern every 3 seconds until communication is restored.

Operation upon Return of Power

Upon return of power, once communicating with the WaveLinx Area Controller, the device will begin normal operation, ready to send the next command.

[155] This function available for maintained input type only.

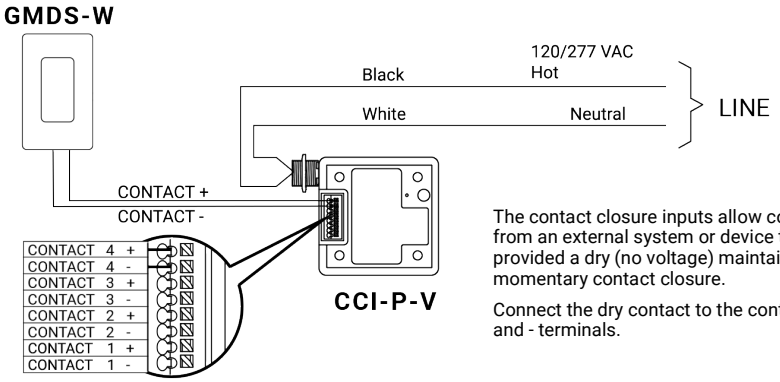
[156] Scene and Zone Toggle functions will only be available for momentary device types.

[157] Devices in user defined areas may exhibit this LED behavior if manually placed in commissioning mode through the advanced user WAC Webpage (advanced technicians only).

WaveLinx PRO Contact Closure Input Module continued

Contact Closure Mode

The WaveLinx Contact Closure Input Module supports connection to up to four external contact closures. When in Contact Closure Mode, each input can be defined separately for the desired command.



The contact closure inputs allow connection from an external system or device that can provided a dry (no voltage) maintained or momentary contact closure.

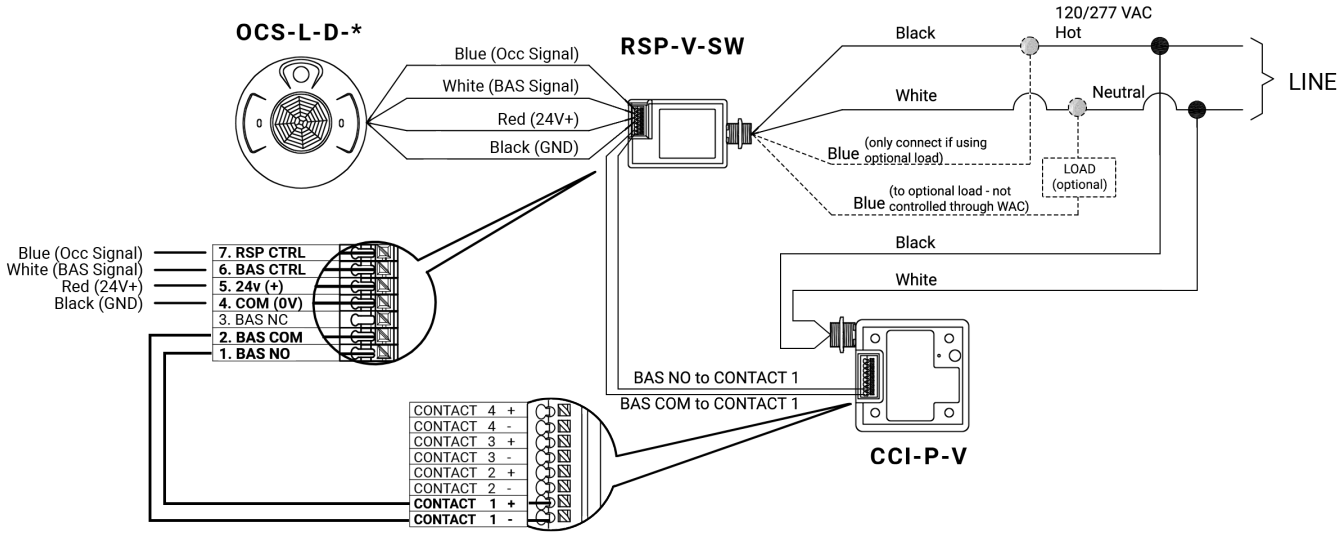
Connect the dry contact to the contact input + and - terminals.

Contact Closure Terminology

- **Alert Mode**: Alert Mode is a high priority command that triggers all dimmable, non-dimmable, and receptacle zones in the WaveLinx Area Controller to go to 100% and prevents operation of lighting from other devices until Alert Mode is deactivated. Once the Alert Mode contact is cancelled, lighting will blink one time to warn that lighting is being released to normal operation in 5 minutes. (manual wallstation actions can operate and adjust light level after this point).[158] If no manual action is used to after the initial warning blink, the lighting will blink two times when 1 minute is left to warn that lighting will be released to normal operation.[158] Normal operation will begin once the timer expires. Note: If occupancy sensors are in the area, the occupancy set will be evaluated for status upon deactivation of Alert Mode.
- **Demand Response**: An input programmed to send a Demand Response action will cause all Areas in the WaveLinx Area Controller to assume Demand Response mode. All zones that are programmed for Demand Response reduction will reduce their light level by the defined reduction level and operate within the reduced range. When the Demand Response input is deactivated, the system will return to normal operation. Lighting will remain at the last light level until the next command is received.
- **After Hours Occupancy Mode**: An input programmed to send an After Hours Occupancy action[159] will only affect Areas programmed for After Hours Occupancy mode. When the mode is activated, the areas will change the occupancy set unoccupied command to the After Hours Occupancy mode programmed level. When the mode is deactivated, the unoccupied command will return to normally programmed behavior. This is typically used to allow for external time clock control.

Sensor Interface Mode

The WaveLinx Contact Closure Input Module supports connection to up to one sensor when placed in Sensor Interface Mode. The sensor must be powered separately and **must be connected to CONTACT 1** through the sensor or switchpack's Form C relay (dry contact closure).



Occupancy Sensor Setting Considerations

When using a standard occupancy sensor connected through a Form C relay, configure the occupancy sensor with settings that optimize it for WaveLinx system use.

- Set the sensor time delay for no more than 5 minutes.
- Disable override mode.
- Disable any daylight sensor options.
- If equipped with Activation Mode[160], ensure activation mode is set to Auto.
- Set the sensor for occupancy mode (not vacancy mode).

[158] WaveLinx Networked Relay Panels: Relays will not blink when released from Alert Mode.

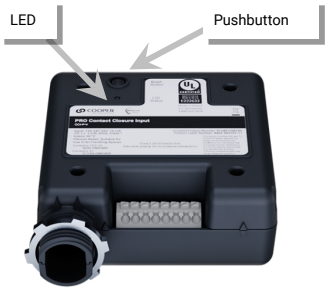
[159] **After Hours Occupancy Mode** will only show in WaveLinx Area Controller version 14.1.x.x firmware and higher.

[160] Not all sensors will have this option.

WaveLinx PRO Contact Closure Input Module continued

Contact Closure Input Module Pushbutton Functions

The WaveLinx PRO Contact Closure Input Module has a pushbutton that allows for device reset.



Function	Press Length	LED feedback	Device outcome
Soft Reset/Reboot	Press and hold for 2 seconds recommended (>=1 sec. to <5 sec.)	No LED feedback	Soft reset begins. Device restarts without interruption
Factory Reset	Press and hold for 6 seconds recommended until LED flashes yellow (>=5 sec. to <10 sec.)	LED will flash yellow 500ms/ OFF 500ms and repeats for a short period	After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

Method	Description
Factory reset button (Preferred Method)	• Press and hold the factory reset button for at least 5 and not more than 10 seconds and then release it. (The LED will begin to flash yellow after 5 seconds and stop at 10 seconds.[161]
Power Cycle Method	• Cycle power to the device's circuit **six times** (switch **OFF 30 seconds** | **ON 5 seconds – 6th time leave ON**). This removes pairing for ALL devices of this type on the affected circuit.

After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.

[161] If the factory reset button is held for less than 5 seconds or more than 10 seconds, the device will not perform the factory reset and will retain its programmed settings.

WaveLinx PRO IR Remote Reference Sheet

WaveLinx PRO IR Remote ACC-P-RT

Typical Applications

- Use to simplify setup when pairing and identifying devices in the system.
- Use to quickly adjust sensors for:
  - Occupancy sensor sensitivity
  - Daylight response adjustment
- Use to quickly test:
  - Individual occupancy sensor function
  - Daylight response
  - Fixture functionality
- Use to factory reset devices in certain circumstances
- Use to set specific devices as Point Guards in a zone containing large quantities of devices

Models:

ACC-P-RT: WaveLinx PRO IR Remote

WaveLinx App Details:

- Not Applicable. Device is not displayed in the WaveLinx App.

Icon Displayed in WaveLinx App:

- Not Applicable: Device is not displayed in the WaveLinx App.

The WaveLinx PRO IR Remote streamlines the processes that installers or set-up technicians use to test device functionality, test daylight or occupancy sensor function, enable or disable pairing mode, reverse identify devices to find them in the WaveLinx App, enable or disable closed loop daylighting, adjust daylight light levels and occupancy sensor sensitivity, factory reset specific devices, and perform the advanced functionality of assigning point guards for larger zone applications.

Refer to the device reference sheet to determine if the device supports the use of the ACC-P-RT IR Remote.

WaveLinx PRO IR Remote Overview

For further details, please refer to the WaveLinx PRO IR Remote User Guide for a list of supported devices and specific instructions on using the remote.

ACC-P-RT

Button	Description
P Pair; Disable Pair	If a device is not currently paired with a WaveLinx Area Controller, **Pair** places the device into pairing mode to search for a WaveLinx Area Controller. If a device is in pairing mode, **Disable Pair** deactivates pairing mode and prevents the device from continuing to search for a WaveLinx Area Controller.
Rev ID	If a device is already paired with a WaveLinx Area Controller, **Rev ID** will cause the device to identify itself in the WaveLinx App.
PG	For advanced set-up technicians programming zones with many devices, **PG** will allow up to 5 devices to be set as Point Guards to streamline communications.
LO HI	Adjust the occupancy sensor sensitivity at the press of a button. • **LO** places the selected occupancy sensor into low sensitivity mode to assist with preventing false triggers from activity outside the desired area. • **HI** places the selected occupancy sensor into high sensitivity mode to assist with capturing motion activity further from the sensor.
Occ Test	**Occ Test** places the selected sensor into test mode to allow for validation of individual sensor occupancy detection.
OLDL Test	If the sensor is assigned to perform open loop daylighting, **OLDL Test** will trigger the WaveLinx Area Controller to enter test mode during with, daylight transitions are accelerated to allow for daylight function verification.
CLDL On/Off	For sensors not associated with an open loop daylight set, **CLDL On/Off** will enable or disable the sensor's closed loop daylight function.
DL Raise; DL Lower	Adjust the daylight dimming response of the selected open loop or closed loop daylight sensor. • Closed loop daylight sensors: Raise or lower the desired light level in 5% increments. • Open loop daylight sensors: Raise the light level (lower the sensitivity of the dimming response to the incoming daylight) or lower the light level (raise the sensitivity of the dimming response to the incoming daylight) in 5% increments.
ID TEST	• **ID TEST** allows for a quick visual check of functionality from the sensor to the fixture's LED array by causing the light to cycle ON/OFF for 15 seconds regardless of paired state and programming. • **ID TEST** can be used to reset a sensor back to factory defaults without the need to power cycle.

WaveLinx CAT Dimming Switchpack Reference Sheet

WaveLinx CAT Dimming Switchpack

General Features

- Input Voltage:
  - RSP-C-010: 120V-277V
  - RSP-C-347: 120V-347V
- Output:
  - Switched, latching relay:
    - 20A, 277V General Purpose
    - 16A, 347V General Purpose, Standard or Electronic Ballast
  - 0-10VDC dimming sink current, 30mA
  - Provides power to the CAT bus:
    - Class 2, 24VDC, 350mA up to approx. 40 CAT devices

Special Features

- Isolated Form C relay
  - 1A, 30V AC/DC
- White Tuning Control for Cooper Lighting Solutions VividTune or BioUp tunable fixtures

Typical Applications

- Office, education, and other indoor applications

Models:

- **RSP-C-010-Z***: WaveLinx CAT RSP-C Relay Switchpack (*specify zone factory configuration for Z1, Z2, Z3, Z4 or ZR [receptacle zone])
- **RSP-C-347-Z1**: WaveLinx CAT RSP-C 347V Switchpack – Zone 1 factory configuration)

WaveLinx App Details:

Connection to a WaveLinx Area Hub required to communicate with the WaveLinx Area Controller/WaveLinx Mobile App

- Default Device Name:
  - Relay SwitchPack C
- Unassigned Device Category:
  - Relay Switchpack

Icon Displayed in WaveLinx App:

Use the WaveLinx CAT Dimming Switchpack to switch (on/off) loads via an internal latching relay and dim loads using continuous 0-10V dimming control. The WaveLinx CAT Dimming Switchpack also provides Class 2 24VDC power to the CAT devices on the connected CAT bus.

WaveLinx CAT Distributed and Network Modes

WaveLinx CAT devices connect to CAT buses that can operate independently or may be connected to an Area Hub to operate as part of a system.

- **Distributed Mode**: The WaveLinx CAT devices connected to the same WaveLinx CAT bus operate together and control based on their out-of-the-box default settings or settings programmed using a WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.
- **Networked Mode**: The WaveLinx CAT devices are connected to an Area Hub, are added to a WaveLinx Area Controller, and operate from the commands configured in the WaveLinx Area Controller. CAT devices can respond to or issue commands from/to other devices configured in the WaveLinx Area Controller.

Out-of-the-Box Operation

Out-of-the-box when power is first applied, the WaveLinx CAT Dimming Switchpack will be ON (closed) and the 0-10V level set to 100% light output. After the first occupancy cycle, lighting will turn on to 50% output with occupancy. After this point, the WaveLinx CAT Dimming Switchpack will operate in **Distributed Mode** until the connected Area Hub is discovered and the CAT devices are added to the WaveLinx Area Controller.

In **Distributed Mode,** all CAT devices connected to the same CAT bus work together as an Area with the following programming[162]:

- The CAT Dimming Switchpack will function in its factory programmed zone (Z1, Z2, Z3, Z4 or ZR [receptacle zone])
- CAT Ceiling Sensors and Sensors connected to CAT Sensor Interface Modules will turn ON all lighting Zones at 50% upon occupancy and turn ON all receptacle zones (ZR). A 20-minute total hold time will be applied. After 10 minutes of vacancy, lighting will go to 25%. After 10 additional minutes of vacancy, controlled zones will turn OFF.
- Wallstation buttons will issue commands per their default configuration
- Contact Closure Module inputs have the following configuration: *1. Alert mode, 2. Demand Response (DR) reduction to 20%, 3. Not configured, 4. Not Configured*

NOTE: If being used for white tuning, white tuning output may have unexpected operation in **Distributed Mode**.

Distributed Mode default configuration for the CAT Contact Closure Module and CAT Sensor Input Module will be overwritten by the Networked Mode programmed settings.

Discovery/Added to WaveLinx Area Controller

Once the WaveLinx Area Hub has been discovered and added along with its connected devices to a WaveLinx Area Controller, the WaveLinx CAT Dimming Switchpack will be added to an area along with all the devices attached to the same CAT bus. The initial programming will be imported from the devices during the discovery/add process. From this point, the devices will then operate in **Networked Mode** with programming maintained for the device in the WaveLinx Area Controller.

LED Operation

LED conditions	Meaning
ON Blue	The device is operating in **Distributed Mode** and the Relay is ON.
ON White	The device is operating in **Networked Mode** and the Relay is ON.
OFF	The device relay is OFF (opened) or not powered.
Flashes magenta 1s/OFF 1s. Repeats for identify duration.	The device has been placed in **Blink to Identify** mode from the Area Hub Identify button, the Area Hub web interface, or from the WaveLinx Mobile App.
Flashes cyan 1s/OFF 1s. Repeats for update duration.	The device firmware is being updated.
Solid green	The device is in bootloader mode (image is being swapped). The LED will return to normal operation once the image swap is complete.
Flashes yellow for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 5 and 10 seconds and the device is in the process of a factory reset.
Flashes blue for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 1 and 5 seconds and the device is in the process of a soft reset.
ALL LEDs turn OFF with reset button press	The reset button has been pressed for less than 1 second or greater than 10 seconds. No reset occurs.

[162] While in Distributed Mode, device programming can be changed from defaults to other behavior using the WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.

WaveLinx CAT Dimming Switchpack continued

Dimming Switchpack Pushbutton Functions

The Dimming Switchpack has a pushbutton that allows for device reset.

Function	Press Length	LED feedback	Device outcome
Soft Reset/Reboot	Press and hold for 2 seconds recommended until LED flashes blue (>=1 sec. to <5 sec.)	LED will flash blue 500ms/ OFF 500ms and repeats for a short period	Soft reset begins. Device restarts without interruption
Factory Reset	Press and hold for 6 seconds recommended until LED flashes yellow (>=5 sec. to <10 sec.)	LED will flash yellow 500ms/ OFF 500ms and repeats for a short period	Factory reset begins for the **Distributed Mode** device settings. If the device is still programmed and communicating to a WaveLinx Area Controller, after the reset completes, it will continue to operate in **Networked Mode** with the settings programmed in the WaveLinx Area Controller (no change in operation).

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select the icon in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a device matching that type should respond for 15 seconds with the described behavior.

Use the Area Hub onboard buttons or web interface to place the Area Hub or a specific CAT bus port in **Blink to Identify** mode. The devices on the CAT bus(es) selected will respond with the described behavior for 1 minute.

Connected for Lighting Control	Connected for White Tuning Control
• When placed in **Blink to Identify** mode, the connected fixture(s) will turn ON for 1 second, turn OFF for 1 second and repeat for the identify duration. • The device LED will flash magenta for the identify duration.	• When placed in **Blink to Identify** mode, the connected tunable white fixture(s) will cycle between cool and warm color temperatures and repeat for the identify duration. • The device LED will flash magenta for the identify duration.

White Tuning Configuration Details

For proper white tuning control, the device must be configured for white tuning control and assigned to a white tuning zone.

- Create the dimming zone(s) needed for the area. (p. 187)
- Create the white tuning zone(s) needed for the area. (p. 187)
- Identify all devices controlling the ON/OFF and Intensity of the lighting in the room and assign them to the dimming zone(s). (p. 200)
- Configure the WaveLinx CAT Dimming Switchpack (p. 207):
  - Identify the switchpack controlling the color temperature and assign it to the **AREA**.
  - Edit the switchpack in the area, changing the type to white tuning and defining the color temperature range for the fixture.
  - Assign the white tuning switchpack to the white tuning zone.
- Add other devices to the area as needed and proceed with programming.

Normal Power Sense Operation (NPS)

Normal Power Sense or NPS allows a device powered from normal power to be used to trigger an UL924 approved WaveLinx Emergency device to Emergency Mode when the NPS device loses power. A device that is assigned to act as an NPS device will repetitively send a beacon signal when it has power. When the beacon signal disappears (from power loss), the Emergency devices will respond to Emergency Mode.

The following WaveLinx CAT device models can be used as an NPS device:

- RSP-C-010 & RSP-C-347

Loss of Communications Operation

If the connected Area Hub has not communicated with the WaveLinx Area Controller the devices connected to the CAT bus will begin **Distributed Mode** operation. The light level will remain until a command from an occupancy sensor or wallstation occurs. The devices will operate in **Distributed Mode** until communications are re-established after which **Networked Mode** operation will begin.

Operation upon Return of Power

Upon return of power, the device will resume its last known light level and operate in **Distributed Mode** until the Area Hub communications with the WaveLinx Area Controller are restored. Once communicating with the WaveLinx Area Controller, the device will begin normal operation in **Networked Mode**.

Factory Reset Instructions

Although the device contains an onboard button for factory reset, if the device is connected to a WaveLinx Area Hub/WaveLinx Area Controller, the device will continue to operate with the programming in the WaveLinx Area Controller after the factory reset is performed.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx Area Hub to add the device as a new device.

WaveLinx CAT Emergency Dimming Switchpack Reference Sheet

WaveLinx CAT Emergency Dimming Switchpack

General Features

- Input voltage:
  - ESP-C-010: 120V-277V
  - ESP-C-347: 120V-347V
  - CAT bus power: 9.5 - 22.5 VDC supplied by communication bus connected to an RSP-C switchpack
- Output:
  - Switched, latching relay:
    - 20A, 277V General Purpose
    - 16A, 347V General Purpose, Standard or Electronic Ballast
  - 0-10VDC dimming sink current, 30mA

Special Features

- UL924 Compliant
- Isolated Form C relay
  - 1A, 30V AC/DC

Typical Applications

- Office, education, and other indoor applications

Models:

- **ESP-C-010-Z1**: ESP-C Emergency Relay Switchpack - Zone 1
- **ESP-C-347-Z1**: ESP-C 347V Emergency Relay Switchpack – Zone 1

WaveLinx App Details:

Connection to a WaveLinx Area Hub required to communicate with the WaveLinx Area Controller/WaveLinx Mobile App

- Default Device Name:
  - EM Relay SwitchPack C
- Unassigned Device Category:
  - Relay Switchpack

Icon Displayed in WaveLinx App:

Use the WaveLinx CAT Emergency Dimming Switchpack to control luminaires powered from an emergency circuit. Switch (on/off) loads via an internal 20 amp latching relay and dim loads using continuous 0-10V dimming control. The WaveLinx CAT Emergency Dimming Switchpack is installed on a CAT bus along with standard WaveLinx CAT Dimming Switchpacks that control the normal powered lighting. The CAT Emergency Dimming Switchpack automatically overrides emergency fixtures to ON upon loss of normal power and communication with WaveLinx CAT Dimming Switchpacks that are defined as Normal Power Sense devices.

WaveLinx CAT Distributed and Network Modes

WaveLinx CAT devices connect to CAT buses that can operate independently or may be connected to an Area Hub to operate as part of a system.

- **Distributed Mode**: The WaveLinx CAT devices connected to the same WaveLinx CAT bus operate together and control based on their out-of-the-box default settings or settings programmed using a WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.
- **Networked Mode**: The WaveLinx CAT devices are connected to an Area Hub, are added to a WaveLinx Area Controller, and operate from the commands configured in the WaveLinx Area Controller. CAT devices can respond to or issue commands from/to other devices configured in the WaveLinx Area Controller.

Out-of-the-Box Operation

Out-of-the-box when power is first applied, the WaveLinx CAT Emergency Dimming Switchpack will be ON (closed) and the 0-10V level set to 100% light output. After this point, the WaveLinx CAT Emergency Dimming Switchpack will operate in **Distributed Mode** until the connected Area Hub is discovered.[163].

In **Distributed Mode:** The Emergency Dimming Switchpack will be in **Emergency Mode** with the load ON to 100%. The load will not respond to CAT device commands.

Discovery/Added to WaveLinx Area Controller

Once the WaveLinx Area Hub has been discovered and added along with its connected devices to a WaveLinx Area Controller, the WaveLinx CAT Emergency Dimming Switchpack will be added to an area along with all the devices attached to the same CAT bus. The initial programming will be imported from the devices during the discovery/add process. From this point, the devices will then operate in **Networked Mode** with programming maintained for the device in the WaveLinx Area Controller. The Emergency Switchpack will remain ON at 100% Emergency Mode and will not respond to commands until the device is assigned to an Emergency Set along with a Normal Power Sense (NPS) device(s).

LED Operation

LED conditions	Meaning
ON Blue	The device is operating in **Distributed Mode** and the Relay is ON.
ON White	The device is operating in **Networked Mode** and the Relay is ON.
OFF	The device relay is OFF (opened) or not powered.
Flashes red 1s/OFF 1s. Repeats for emergency duration.	The device is in **Emergency Mode** operation.
Flashes magenta 1s/OFF 1s. Repeats for identify duration.	The device has been placed in **Blink to Identify** mode from the Area Hub Identify button, the Area Hub web interface, or from the WaveLinx Mobile App.
Flashes cyan 1s/OFF 1s. Repeats for update duration.	The device firmware is being updated.
Solid green	The device is in bootloader mode (image is being swapped). The LED will return to normal operation once the image swap is complete.
Flashes yellow for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 5 and 10 seconds and the device is in the process of a factory reset.
Flashes blue for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 1 and 5 seconds and the device is in the process of a soft reset.
ALL LEDs turn OFF with reset button press	The reset button has been pressed for less than 1 second or greater than 10 seconds. No reset occurs.

[163] While in Distributed Mode, device programming can be changed from defaults to other behavior using the WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.

WaveLinx CAT Emergency Dimming Switchpack continued

Emergency Dimming Switchpack Pushbutton Functions

The Emergency Dimming Switchpack has a pushbutton that allows for device reset.

Function	Press Length	LED feedback	Device outcome
Soft Reset/Reboot	Press and hold for 2 seconds recommended until LED flashes blue (>=1 sec. to <5 sec.)	LED will flash blue 500ms/ OFF 500ms and repeats for a short period	Soft reset begins. Device restarts without interruption
Factory Reset	Press and hold for 6 seconds recommended until LED flashes yellow (>=5 sec. to <10 sec.)	LED will flash yellow 500ms/ OFF 500ms and repeats for a short period	Factory reset begins for the **Distributed Mode** device settings. If the device is still programmed and communicating to a WaveLinx Area Controller, after the reset completes, it will continue to operate in **Networked Mode** with the settings programmed in the WaveLinx Area Controller (no change in operation).

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select the icon in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a device matching that type should respond for 15 seconds with the described behavior.

Use the Area Hub onboard buttons or web interface to place the Area Hub or a specific CAT bus port in **Blink to Identify** mode. The devices on the CAT bus(es) selected will respond with the described behavior for 1 minute.

Behavior:

- When placed in **Blink to Identify** mode, the connected fixture(s) will turn ON for 1 second, turn OFF for 1 second and repeat for the identify duration.
- The device LED will flash magenta for the identify duration.

Emergency Mode Operation

NOTE: For proper operation, use the WaveLinx App to configure an Emergency Set that has at least one WaveLinx CAT Dimming Switchpack (non-emergency model) on the same CAT bus set to be a Normal Power Sense device (NPS device) to generate the beacon signal that the WaveLinx CAT Emergency Dimming Switchpack(s) requires. Up to three WaveLinx CAT Dimming Switchpacks on the same CAT bus can be assigned as NPS devices to generate the beacon signal to the defined Emergency Set. If not assigned to an Emergency Set, the WaveLinx CAT Emergency Dimming Switchpack will remain in Emergency Mode indefinitely.

If the NPS device(s) lose power or communications with the WaveLinx CAT Emergency Dimming Switchpack, the Emergency Switchpack will activate Emergency Mode. During Emergency Mode, the Emergency Dimming Switchpack will turn the connected load ON to 100%. Upon return of normal power, the NPS devices will send the beacon signal allowing the Emergency Dimming Switchpack will revert to normal operation.

For information on creating and configuring the Emergency Sets for NPS and Emergency devices, see "Creating and Organizing Emergency Sets for Emergency Devices" on page 215.

To ensure proper operation for Emergency Mode:

- The Emergency Relay Switchpack **MUST** be wired to an emergency circuit
- The NPS devices **MUST** be wired to normal power circuits. If monitoring more than one normal power phase, in the Emergency Set, select NPS devices that are connected to different normal power phases (up to three).

Loss of Communications Operation

If the connected Area Hub has not communicated with the WaveLinx Area Controller the devices connected to the CAT bus will begin **Distributed Mode** operation. The devices will operate in **Distributed Mode** until communications are re-established after which **Networked Mode** operation will begin.

Operation upon Return of Power

If the WaveLinx CAT Emergency Dimming Switchpack loses power, once power returns it will turn ON/100% in Emergency Mode until it receives its assigned NPS device signal to revert to normal operation. It will also look to the restoration of the Area Hub communications with the WaveLinx Area Controller to begin normal operation in **Networked Mode**.

Factory Reset Instructions

Although the device contains an onboard button for factory reset, if the device is connected to a WaveLinx Area Hub/WaveLinx Area Controller, the device will continue to operate with the programming in the WaveLinx Area Controller after the factory reset is performed.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx Area Hub to add the device as a new device.

WaveLinx CAT PIR Occupancy Ceiling Sensor Reference Sheet

WaveLinx CAT PIR Occupancy Ceiling Sensor

General Features

- Integrated photocell for open loop daylighting
- Integrated Passive Infrared (PIR) motion sensor for occupancy or vacancy sensing

Power
- CAT bus power: 9.5 - 22.5 VDC supplied by communication bus

Typical Applications

- Office, education, and other indoor applications

Models:

- **OCS-C-P12**: OCS-C Occupancy Ceiling Sensor, 1200 sq. ft.
- **OCS-C-P06**: PCS-C Occupancy Ceiling Sensor, 600 sq. ft.

WaveLinx App Details:

Connection to a WaveLinx Area Hub required to communicate with the WaveLinx Area Controller/WaveLinx Mobile App

- Default Device Name:
  - Ceiling Sensor C
- Unassigned Device Category:
  - Ceiling Sensor

Icon Displayed in WaveLinx App:

The WaveLinx CAT PIR Ceiling Sensor provides motion sensing and/or open loop daylight dimming to the WaveLinx system. In open loop daylighting applications, the sensor can control multiple zones in the same space.

WaveLinx CAT Distributed and Network Modes

WaveLinx CAT devices connect to CAT buses that can operate independently or may be connected to an Area Hub to operate as part of a system.

- **Distributed Mode**: The WaveLinx CAT devices connected to the same WaveLinx CAT bus operate together and control based on their out-of-the-box default settings or settings programmed using a WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.
- **Networked Mode**: The WaveLinx CAT devices are connected to an Area Hub, are added to a WaveLinx Area Controller, and operate from the commands configured in the WaveLinx Area Controller. CAT devices can respond to or issue commands from/to other devices configured in the WaveLinx Area Controller.

Out-of-the-Box Operation

The WaveLinx CAT Occupancy Ceiling Sensor will operate in **Distributed Mode** until the connected Area Hub is discovered and the CAT devices are added to the WaveLinx Area Controller.

In **Distributed Mode,** all CAT devices connected to the same CAT bus work together as an Area with the following programming[164]:

- The CAT Dimming Switchpack will function in its factory programmed zone (Z1, Z2, Z3, Z4 or ZR [receptacle zone])
- CAT Ceiling Sensors and Sensors connected to CAT Sensor Interface Modules will turn ON all lighting Zones at 50% upon occupancy and turn ON all receptacle zones (ZR). A 20-minute total hold time will be applied. After 10 minutes of vacancy, lighting will go to 25%. After 10 additional minutes of vacancy, controlled zones will turn OFF.
- Wallstation buttons will issue commands per their default configuration
- Contact Closure Module inputs have the following configuration: *1. Alert mode, 2. Demand Response (DR) reduction to 20%, 3. Not configured, 4. Not Configured*

Distributed Mode default configuration for the CAT Contact Closure Module and CAT Sensor Input Module will be overwritten by the Networked Mode programmed settings.

Discovery/Added to WaveLinx Area Controller

Once the WaveLinx Area Hub has been discovered and added along with its connected devices to a WaveLinx Area Controller, the WaveLinx CAT Occupancy Ceiling Sensor will be added to an area along with all the devices attached to the same CAT bus. The initial programming will be imported from the devices during the discovery/add process. From this point, the devices will then operate in **Networked Mode** with programming maintained for the device in the WaveLinx Area Controller.

LED Operation

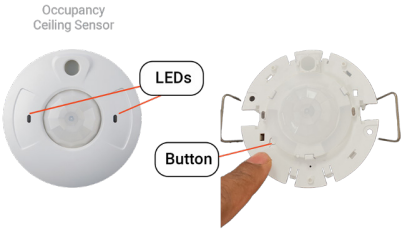
LED conditions	Meaning
Flashes Blue 300ms/OFF 2.7s with motion	The device is operating in **Distributed Mode** and is detecting motion.
LED flashes blue for 1 sec. / OFF for 1 sec. Repeats indefinitely independent of motion.	The device is operating in **Distributed Mode** but has been disabled by a WaveLinx CAT Mobile App command. The sensor will not respond to motion activity in disabled mode.
Flashes White 300ms/OFF 2.7s with motion	The device is operating in **Networked Mode** and is detecting motion.
LED flashes white for 1 sec. / OFF for 1 sec. Repeats indefinitely independent of motion.	The device is operating in **Networked Mode** but has been disabled by a timed schedule event or WaveLinx Mobile App command. The sensor will not respond to motion activity in disabled mode.
Flashes magenta 1s/OFF 1s. Repeats for identify duration.	The device has been placed in **Blink to Identify** mode from the Area Hub Identify button, the Area Hub web interface, or from the WaveLinx Mobile App.
Flashes cyan 1s/OFF 1s. Repeats for update duration.	The device firmware is being updated.
Solid green	The device is in bootloader mode (image is being swapped). The LED will return to normal operation once the image swap is complete.
Flashes yellow for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 5 and 10 seconds and the device is in the process of a factory reset.
Flashes blue for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 1 and 5 seconds and the device is in the process of a soft reset.
ALL LEDs turn OFF with reset button press	The reset button has been pressed for less than 1 second or greater than 10 seconds. No reset occurs.

[164] While in Distributed Mode, device programming can be changed from defaults to other behavior using the WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.

WaveLinx CAT PIR Occupancy Ceiling Sensor continued

PIR Occupancy Ceiling Sensor Pushbutton Functions

The Occupancy Ceiling Sensor has a pushbutton that allows for device reset. The pushbutton is located under the front sensor casing which can be easily removed for access.



Function	Press Length	LED feedback	Device outcome
Soft Reset/Reboot	Press and hold for 2 seconds recommended until LED flashes blue (>=1 sec. to <5 sec.)	LED will flash blue 500ms/ OFF 500ms and repeats for a short period	Soft reset begins. Device restarts without interruption
Factory Reset	Press and hold for 6 seconds recommended until LED flashes yellow (>=5 sec. to <10 sec.)	LED will flash yellow 500ms/ OFF 500ms and repeats for a short period	Factory reset begins for the **Distributed Mode** device settings. If the device is still programmed and communicating to a WaveLinx Area Controller, after the reset completes, it will continue to operate in **Networked Mode** with the settings programmed in the WaveLinx Area Controller (no change in operation).

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select the icon in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a device matching that type should respond for 15 seconds with the described behavior.

Use the Area Hub onboard buttons or web interface to place the Area Hub or a specific CAT bus port in **Blink to Identify** mode. The devices on the CAT bus(es) selected will respond with the described behavior for 1 minute.

Behavior:
- The device LED will flash magenta for the identify duration.

Open Loop Daylight Operation

Daylighting will not operate until an open loop daylight set is created and configured.

- Once configured and calibrated, the controlled zones will dim in response to entering daylight.
  - When the measured daylight contribution increases or decreases, the controlled zones will dim or raise lighting to reduce or increase the light level.
  - When the measured light level exceeds 150% of the calibrated gain for more than 30 minutes, the sensor will dim to OFF.
- If lighting has dimmed to OFF and the area is still occupied, lighting will be turned back ON when one of the two conditions occurs:
  - The measured light level falls between 100% and 50% of the calibrated gain for more than 10 minutes
  - The measured light level falls below 50% of the calibrated gain for longer than 30 seconds

Open Loop Daylight Set Configuration

- Create the open loop daylight set.
- Assign the zones that should be controlled by the daylight set.[165]
- Assign the sensor to the daylight set
- Calibrate the sensor

Important Mounting Considerations

- Open loop daylight sensors should be mounted so that the sensor lens views mainly daylight, not the electric light being controlled in the area.
- The optimal mounting location for occupancy sensing may not be optimal for open loop daylighting. Separate sensors may be necessary.

Open Loop Daylight Adjustment Details

Perform adjustment during daylight hours when electric lighting should be reduced but not fully dimmed. The use of a light meter is recommended. With electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if the desired light level at the work surface is 500 lux, the reading with electric lighting OFF should be between 250 to 375 lux for best results.)

In the daylight set's **Calibrate** screen, adjust the slider bar to change the light level to the desired light level, then tap the back button to save the change.

Loss of Communications Operation

If the connected Area Hub has not communicated with the WaveLinx Area Controller the devices connected to the CAT bus will begin **Distributed Mode** operation. The light level will remain until a command from an occupancy sensor or wallstation occurs. The devices will operate in **Distributed Mode** until communications are re-established after which **Networked Mode** operation will begin.

Operation upon Return of Power

Upon return of power, the device will resume operation in **Distributed Mode** until the Area Hub communications with the WaveLinx Area Controller are restored. Once communicating with the WaveLinx Area Controller, the device will begin normal operation in **Networked Mode**.

Factory Reset Instructions

Although the device contains an onboard button for factory reset, if the device is connected to a WaveLinx Area Hub/WaveLinx Area Controller, the device will continue to operate with the programming in the WaveLinx Area Controller after the factory reset is performed.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx Area Hub to add the device as a new device.

[165] If fixtures in the zones that are assigned to open loop daylight sets contain Integrated Sensors or Tilemount Sensors, closed loop daylighting will automatically be disabled for these devices.

WaveLinx CAT Dual Tech Occupancy Ceiling Sensor Reference Sheet

WaveLinx CAT Dual Tech Occupancy Ceiling Sensor

General Features

- Integrated photocell for open loop daylighting
- Integrated Passive Infrared (PIR) motion sensor and Acoustics sensor for dual tech occupancy or vacancy sensing

Power

- CAT bus power: 9.5 - 22.5 VDC supplied by communication bus

Typical Applications

- Office, education, and other indoor applications

Models:

- **OCS-C-D20**: WaveLinx CAT Dual Tech Ceiling Sensor, 2000 sq. ft.
- **OCS-C-D12**: WaveLinx CAT Dual Tech Ceiling Sensor, 1200 sq. ft.
- **OCS-C-D06**: WaveLinx CAT Dual Tech Ceiling Sensor, 600 sq. ft.

WaveLinx App Details:

Connection to a WaveLinx Area Hub required to communicate with the WaveLinx Area Controller/WaveLinx Mobile App

- Default Device Name:
  - DT Ceiling Sensor C
- Unassigned Device Category:
  - Ceiling Sensor

Icon Displayed in WaveLinx App:

The WaveLinx CAT Dual Tech Ceiling Sensor provides motion sensing and/or open loop daylight dimming to the WaveLinx system. Passive infrared detects the heat from people moving in the area while acoustic detection operates along with the passive infrared to keep lighting on as long as there are people still in the space. In open loop daylighting applications, the sensor can control multiple zones in the same space.

WaveLinx CAT Distributed and Network Modes

WaveLinx CAT devices connect to CAT buses that can operate independently or may be connected to an Area Hub to operate as part of a system.

- **Distributed Mode**: The WaveLinx CAT devices connected to the same WaveLinx CAT bus operate together and control based on their out-of-the-box default settings or settings programmed using a WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.
- **Networked Mode**: The WaveLinx CAT devices are connected to an Area Hub, are added to a WaveLinx Area Controller, and operate from the commands configured in the WaveLinx Area Controller. CAT devices can respond to or issue commands from/to other devices configured in the WaveLinx Area Controller.

Out-of-the-Box Operation

The WaveLinx CAT Dual Tech Occupancy Ceiling Sensor will operate in **Distributed Mode** until the connected Area Hub is discovered and the CAT devices are added to the WaveLinx Area Controller.

In **Distributed Mode,** CAT devices connected to the same bus operate an Area with the following programming[166]:

- The CAT Dimming Switchpack will function in its factory programmed zone (Z1, Z2, Z3, Z4 or ZR [receptacle zone])
- CAT Ceiling Sensors and Sensors connected to CAT Sensor Interface Modules will turn ON all lighting Zones at 50% upon occupancy and turn ON all receptacle zones (ZR). A 20-minute total hold time will be applied. After 10 minutes of vacancy, lighting will go to 25%. After 10 additional minutes of vacancy, controlled zones will turn OFF.
- Wallstation buttons will issue commands per their default configuration
- Contact Closure Module inputs have the following configuration: *1. Alert mode, 2. Demand Response (DR) reduction to 20%, 3. Not configured, 4. Not Configured*

Distributed Mode default configuration for the CAT Contact Closure Module and CAT Sensor Input Module will be overwritten by the Networked Mode programmed settings.

Discovery/Added to WaveLinx Area Controller

Once the WaveLinx Area Hub has been discovered and added along with its connected devices to a WaveLinx Area Controller, the WaveLinx CAT Dual Tech Occupancy Ceiling Sensor will be added to an area along with all the devices attached to the same CAT bus. The initial programming will be imported from the devices during the discovery/add process. From this point, the devices will then operate in **Networked Mode** with programming maintained for the device in the WaveLinx Area Controller.

LED Operation

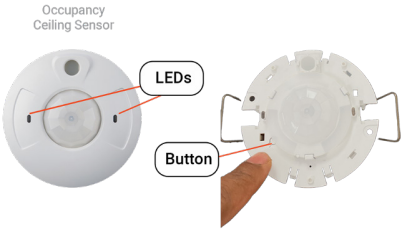
LED conditions	Meaning
Flashes Blue 300ms/OFF for 2.7s with motion	The device is operating in **Distributed Mode** and the PIR technology is detecting motion.
Flashes Blue 300ms/OFF 100ms/ Blue 300ms/OFF 2.3s with motion	The device is operating in **Distributed Mode** and the acoustic sensing technology is detecting motion.
LED flashes blue for 1s / OFF for 1s. Repeats indefinitely independent of motion.	The device is operating in **Distributed Mode** but has been disabled by a WaveLinx CAT Mobile App command. The sensor will not respond to motion activity in disabled mode.
Flashes White 300ms/OFF for 2.7s with motion	The device is operating in **Networked Mode** and the PIR technology is detecting motion.
Flashes White 300ms/OFF 100ms/ White 300ms/OFF 2.3s with motion	The device is operating in **Networked Mode** and the acoustic sensing technology is detecting motion.
LED flashes white for 1 sec. / OFF for 1 sec. Repeats indefinitely independent of motion.	The device is operating in **Networked Mode** but has been disabled by a timed schedule event or WaveLinx Mobile App command. The sensor will not respond to motion activity in disabled mode.
Flashes magenta 1s/OFF 1s. Repeats for identify duration.	The device has been placed in **Blink to Identify** mode from the Area Hub Identify button, the Area Hub web interface, or from the Mobile App.
Flashes cyan 1s/OFF 1s. Repeats for update duration.	The device firmware is being updated.
Solid green	The device is in bootloader mode (image is being swapped). The LED will return to normal operation once the image swap is complete.
Flashes yellow for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 5 and 10 seconds and the device is in the process of a factory reset.
Flashes blue for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 1 and 5 seconds and the device is in the process of a soft reset.
ALL LEDs turn OFF with reset button press	The reset button has been pressed for less than 1 second or greater than 10 seconds. No reset occurs.

[166] While in Distributed Mode, device programming can be changed from defaults to other behavior using the WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.

WaveLinx CAT Dual Tech Occupancy Ceiling Sensor continued

Dual Tech Occupancy Ceiling Sensor Pushbutton Functions

The Occupancy Ceiling Sensor has a pushbutton that allows for device reset. The pushbutton is located under the front sensor casing which can be easily removed for access.



Function	Press Length	LED feedback	Device outcome
Soft Reset/Reboot	Press and hold for 2 seconds recommended until LED flashes blue (>=1 sec. to <5 sec.)	LED will flash blue 500ms/ OFF 500ms and repeats for a short period	Soft reset begins. Device restarts without interruption
Factory Reset	Press and hold for 6 seconds recommended until LED flashes yellow (>=5 sec. to <10 sec.)	LED will flash yellow 500ms/ OFF 500ms and repeats for a short period	Factory reset begins for the **Distributed Mode** device settings. If the device is still programmed and communicating to a WaveLinx Area Controller, after the reset completes, it will continue to operate in **Networked Mode** with the settings programmed in the WaveLinx Area Controller (no change in operation).

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select the icon in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a device matching that type should respond for 15 seconds with the described behavior.

Use the Area Hub onboard buttons or web interface to place the Area Hub or a specific CAT bus port in **Blink to Identify** mode. The devices on the CAT bus(es) selected will respond with the described behavior for 1 minute.

Behavior:
- The device LED will flash magenta for the identify duration.

Open Loop Daylight Operation

Daylighting will not operate until an open loop daylight set is created and configured.

- Once configured and calibrated, the controlled zones will dim in response to entering daylight.
  - When the measured daylight contribution increases or decreases, the controlled zones will dim or raise lighting to reduce or increase the light level.
  - When the measured light level exceeds 150% of the calibrated gain for more than 30 minutes, the sensor will dim to OFF.
- If lighting has dimmed to OFF and the area is still occupied, lighting will be turned back ON when one of the two conditions occurs:
  - The measured light level falls between 100% and 50% of the calibrated gain for more than 10 minutes
  - The measured light level falls below 50% of the calibrated gain for longer than 30 seconds

Open Loop Daylight Set Configuration

- Create the open loop daylight set.
- Assign the zones that should be controlled by the daylight set.[167]
- Assign the sensor to the daylight set
- Calibrate the sensor

Important Mounting Considerations

- Open loop daylight sensors should be mounted so that the sensor lens views mainly daylight, not the electric light being controlled in the area.
- The optimal mounting location for occupancy sensing may not be optimal for open loop daylighting. Separate sensors may be necessary.

Open Loop Daylight Adjustment Details

Perform adjustment during daylight hours when electric lighting should be reduced but not fully dimmed. The use of a light meter is recommended. With electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if the desired light level at the work surface is 500 lux, the reading with electric lighting OFF should be between 250 to 375 lux for best results.)

In the daylight set's **Calibrate** screen, adjust the slider bar to change the light level to the desired light level, then tap the back button to save the change.

Loss of Communications Operation

If the connected Area Hub has not communicated with the WaveLinx Area Controller the devices connected to the CAT bus will begin **Distributed Mode** operation. The light level will remain until a command from an occupancy sensor or wallstation occurs. The devices will operate in **Distributed Mode** until communications are re-established after which **Networked Mode** operation will begin.

Operation upon Return of Power

Upon return of power, the device will resume operation in **Distributed Mode** until the Area Hub communications with the WaveLinx Area Controller are restored. Once communicating with the WaveLinx Area Controller, the device will begin normal operation in **Networked Mode**.

Factory Reset Instructions

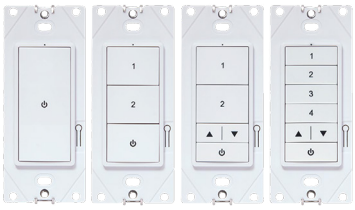
Although the device contains an onboard button for factory reset, if the device is connected to a WaveLinx Area Hub/WaveLinx Area Controller, the device will continue to operate with the programming in the WaveLinx Area Controller after the factory reset is performed.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx Area Hub to add the device as a new device.

[167] If fixtures in the zones that are assigned to open loop daylight sets contain Integrated Sensors or Tilemount Sensors, closed loop daylighting will automatically be disabled for these devices.

WaveLinx CAT WST-C Series Wallstation Reference Sheet

WaveLinx CAT WST-C Series Wallstation



Features

- Multi-scene selection, raise/lower, and toggle ON/OFF control
- Single or multi-gang mounting

Power:
- CAT bus power: 9.5 - 22.5 VDC supplied by communication bus

Typical Applications

- Office, education, and other indoor applications

Models:

- **WST-C-1**: 1 Button
- **WST-C-3**: 3 Button
- **WST-C-3D**: 3 Button with Raise/Lower
- **WST-C-5D**: 5 Button with Raise/Lower
- **WST-C-1-Z***: 1 Button Zone Toggle
- **WST-C-3-Z***: 2 Zone/1 Scene Toggle
- **WST-C-1D-Z***: 1 Zone Toggle with Raise/Lower
- **WST-C3D-Z***: 2 Zone/1 Scene Toggle with Raise/Lower
- **WST-C-5D-Z**: 4 Zone/1 Scene Toggle with Raise/Lower

*=Zone number(s)

WaveLinx App Details:

Connection to a WaveLinx Area Hub required to communicate with the WaveLinx Area Controller/WaveLinx Mobile App

- Default Device Name:
  - Wall Station C 1 (WST-C 1)
  - Wall Station C 3 (WST-C-3)
  - Wall Station C 3D (WST-C-3D)
  - Wall Station C 5D (WST-C-5D)
- Unassigned Device Category:
  - Wallstation

Icon Displayed in WaveLinx App:

Programmable options:

- Scene Selection
- Scene Toggle
- Save Scene
- Zone Toggle
- Zone Level
- Raise
- Lower
- Hold/Release Occupied
- Wall Status Toggle[168]
- No Action
- Network Action from WaveLinx CORE[169]

Use the WaveLinx CAT WST-C Series Wallstations to manually operate connected loads and provide customized light levels for each WaveLinx controlled space.

WaveLinx CAT Distributed and Network Modes

WaveLinx CAT devices connect to CAT buses that can operate independently or may be connected to an Area Hub to operate as part of a system.

- **Distributed Mode**: The WaveLinx CAT devices connected to the same WaveLinx CAT bus operate together and control based on their out-of-the-box default settings or settings programmed using a WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.
- **Networked Mode**: The WaveLinx CAT devices are connected to an Area Hub, are added to a WaveLinx Area Controller, and operate from the commands configured in the WaveLinx Area Controller. CAT devices can respond to or issue commands from/to other devices configured in the WaveLinx Area Controller.

Out-of-the-Box Operation

The WaveLinx CAT WST-C Series Wallstations will operate in **Distributed Mode** until the connected Area Hub is discovered and the CAT devices are added to the WaveLinx Area Controller.

In **Distributed Mode,** all CAT devices connected to the same CAT bus work together as an Area with the following programming[170]:

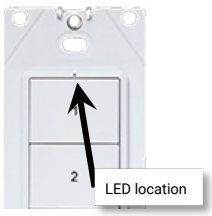
- The CAT Dimming Switchpack will function in its factory programmed zone (Z1, Z2, Z3, Z4 or ZR [receptacle zone])
- CAT Ceiling Sensors and Sensors connected to CAT Sensor Interface Modules will turn ON all lighting Zones at 50% upon occupancy and turn ON all receptacle zones (ZR). A 20-minute total hold time will be applied. After 10 minutes of vacancy, lighting will go to 25%. After 10 additional minutes of vacancy, controlled zones will turn OFF.
- Wallstation buttons will issue commands per their default configuration
- Contact Closure Module inputs have the following configuration: *1. Alert mode, 2. Demand Response (DR) reduction to 20%, 3. Not configured, 4. Not Configured*

Distributed Mode default configuration for the CAT Contact Closure Module and CAT Sensor Input Module will be overwritten by the Networked Mode programmed settings.

Discovery/Added to WaveLinx Area Controller

Once the WaveLinx Area Hub has been discovered and added along with its connected devices to a WaveLinx Area Controller, the WaveLinx CAT WST-C Series Wallstation will be added to an area along with all the devices attached to the same CAT bus. The initial programming will be imported from the devices during the discovery/add process. From this point, the devices will then operate in **Networked Mode** with programming maintained for the device in the WaveLinx Area Controller.

LED Operation

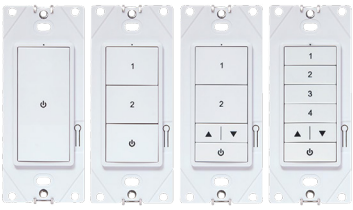
LED conditions	Meaning	
Flashes Blue 300ms/OFF 1.7s. Repeats for 10 seconds.	One of the wallstation buttons was pressed and the device is operating in **Distributed Mode.**	
Flashes White 300ms/OFF 1.7s. Repeats for a max of 10 seconds.	One of the wallstation buttons was pressed and the device is operating in **Networked Mode.** The LED will stop flashing when a response message is received or after 10 seconds.	
LED flashes white for 1 sec. / OFF for 1 sec. Repeats for 10 seconds.	The device is operating in **Networked Mode** but has been disabled by a timed schedule event or WaveLinx Mobile App command. The buttons will not operate when disabled.	
Flashes magenta 1s/OFF 1s. Repeats for identify duration.	The device has been placed in **Blink to Identify** mode from the Area Hub Identify button, the Area Hub web interface, or from the WaveLinx Mobile App.	
Flashes cyan 1s/OFF 1s. Repeats for update duration.	The device firmware is being updated.	
Solid green	The device is in bootloader mode (image is being swapped). The LED will return to normal operation once the image swap is complete.	
Flashes yellow for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 5 and 10 seconds and the device is in the process of a factory reset.	
Flashes blue for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 1 and 5 seconds and the device is in the process of a soft reset.	
LED turns OFF with reset button press	The reset button has been pressed for less than 1 second or greater than 10 seconds. No reset occurs.	

[168] **Wall Status Toggle** will only show in WaveLinx Area Controller version 14.1.x.x firmware and higher. This option is for use with Partitioned Areas.

[169] **Network Action** will only show in WaveLinx Area Controller version 10.0.x.x firmware and higher. WAC must be a configured part of a WaveLinx CORE platform to perform supported network actions.

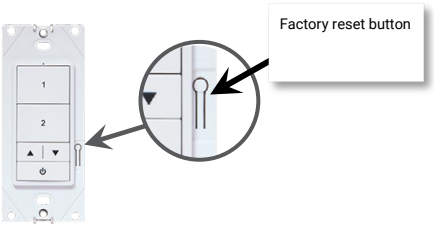
[170] While in Distributed Mode, device programming can be changed from defaults to other behavior using the WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.

WaveLinx CAT WST-C Series Wallstation continued



WST-C Series Wallstation Pushbutton Functions

The WST-C Series Wallstation has a pushbutton that allows for device reset.



Function	Press Length	LED feedback	Device outcome
Soft Reset/Reboot	Press and hold for 2 seconds recommended until LED flashes blue (>=1 sec. to <5 sec.)	LED will flash blue 500ms/ OFF 500ms and repeats for a short period	Soft reset begins. Device restarts without interruption
Factory Reset	Press and hold for 6 seconds recommended until LED flashes yellow (>=5 sec. to <10 sec.)	LED will flash yellow 500ms/ OFF 500ms and repeats for a short period	Factory reset begins for the **Distributed Mode** device settings. If the device is still programmed and communicating to a WaveLinx Area Controller, after the reset completes, it will continue to operate in **Networked Mode** with the settings programmed in the WaveLinx Area Controller (no change in operation).

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select the icon in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a device matching that type should respond for 15 seconds with the described behavior.

Use the Area Hub onboard buttons or web interface to place the Area Hub or a specific CAT bus port in **Blink to Identify** mode. The devices on the CAT bus(es) selected will respond with the described behavior for 1 minute.

Behavior:
- The device LED will flash magenta for the identify duration.

Loss of Communications Operation

If the connected Area Hub has not communicated with the WaveLinx Area Controller the devices connected to the CAT bus will begin **Distributed Mode** operation. The light level will remain until a command from an occupancy sensor or wallstation occurs. The devices will operate in **Distributed Mode** until communications are re-established after which **Networked Mode** operation will begin.

Operation upon Return of Power

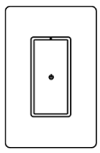
Upon return of power, the device will resume operation in **Distributed Mode** until the Area Hub communications with the WaveLinx Area Controller are restored. Once communicating with the WaveLinx Area Controller, the device will begin normal operation in **Networked Mode**.

Factory Reset Instructions

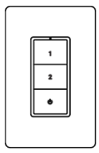
Although the device contains an onboard button for factory reset, if the device is connected to a WaveLinx Area Hub/WaveLinx Area Controller, the device will continue to operate with the programming in the WaveLinx Area Controller after the factory reset is performed.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx Area Hub to add the device as a new device.

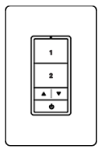
Default WaveLinx WST-C Wallstation Operation



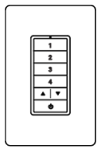
WST-C-1
- Button ⏻: Toggle Scene (Scene 0/Scene 1)



WST-C-3
- Button #1: Scene 1 = 100%
- Button #2: Scene 3 = 50%
- Button ⏻: Scene 0 (OFF)



WST-C-3D
- Button #1: Scene 1 = 100%
- Button #2: Scene 3 = 50%
- Raise/Lower: Raise/Lower the light level of the last zone or scene command [171] *(1% per press or 15% per sec. when held)*
- Button ⏻: Toggle Scene (Scene 0/Scene 1)

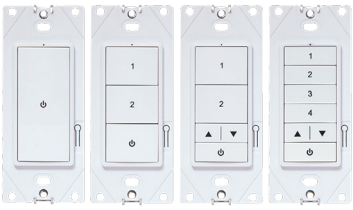


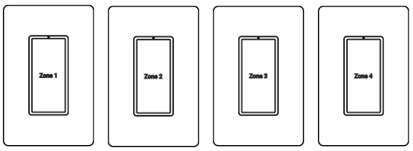
WST-C-5D
- Button #1: Scene 1 = 100%
- Button #2: Scene 2 = 70%
- Button #3: Scene 3 = 50%
- Button #4: Scene 4 = 30%
- Raise/Lower Raise/Lower the light level of the last zone or scene command [146] *(1% per press or 15% per sec. when held)*
- Button ⏻: Toggle Scene (Scene 0/Scene 1)

[171] White tuning zones are automatically exempted from raise/lower **ALL** zones to prevent inadvertent adjustment of the color temperature when adjusting light levels.

WaveLinx CAT WST-C Series Wallstation continued

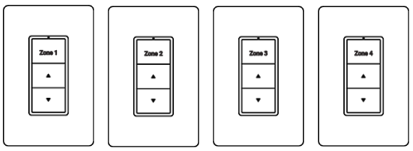
Default WaveLinx WST-C Wallstation Operation *(continued)*





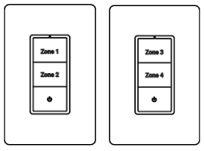
WST-C-1-Z*
- Button #1: Toggle Zone (Zone OFF/Zone 100%)

*select from zone 1 (**Z1**), zone 2 (**Z2**), zone 3 (**Z3**), or zone 4 (**Z4**)



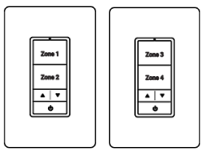
WST-C-1D-Z*
- Button #1: Toggle Zone (Zone OFF/Zone 100%)
- Raise/Lower: Raise/Lower the preconfigured zone in current area *(1% per press or 15% per sec. when held)*

*select from zone 1 (**Z1**), zone 2 (**Z2**), zone 3 (**Z3**), or zone 4 (**Z4**)



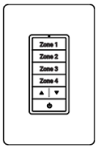
WST-C-3-Z*
- Button #1: Toggle Zone (Zone OFF/Zone 100%)
- Button #2: Toggle Zone (Zone OFF/Zone 100%)
- Button ⏻: Toggle Scene (Scene 0/Scene 1)

*select from zone 1&2 (**Z12**) or zone 3&4 (**Z34**)



WST-C-3D-Z*
- Button #1: Toggle Zone (Zone OFF/Zone 100%)
- Button #2: Toggle Zone (Zone OFF/Zone 100%)
- Raise/Lower: Raise/Lower the light level of the last zone or scene command[172] *(1% per press or 15% per sec. when held)*
- Button ⏻: Press -Toggle Scene (Scene 0/Scene 1)
  Hold – Scene 0 (OFF)

*select from zone 1&2 (**Z12**) or zone 3&4 (**Z34**)



WST-C-5D-Z
- Button #1: Toggle Zone 1 (Zone OFF/Zone 100%)
- Button #2: Toggle Zone 2 (Zone OFF/Zone 100%)
- Button #3: Toggle Zone 3 (Zone OFF/Zone 100%)
- Button #4: Toggle Zone 4 (Zone OFF/Zone 100%)
- Raise/Lower: Raise/Lower the light level of the last zone or scene command[172] *(1% per press or 15% per sec. when held)*
- Button ⏻: Press - Toggle Scene (Scene 0/Scene 1)
  Hold – Scene 0 (OFF)

*select from zone 1&2 (**Z12**) or zone 3&4 (**Z34**)

[172] White tuning zones are automatically exempted from raise/lower **ALL** zones to prevent inadvertent adjustment of the color temperature when adjusting light levels.

WaveLinx CAT Contact Closure Input Module Reference Sheet

WaveLinx CAT Contact Closure Input Module

Features

- Four dry contact inputs for connection to up to four separate maintained dry contact closure switches.
- Response to contact input closures is user defined.

Power:
- CAT bus power: 9.5 - 22.5 VDC supplied by communication bus

Typical Applications

- Office, education, and other indoor applications

Special Features

- Offers ability of issuing Alert Mode, Demand Response, and After Hours Occupancy commands to the WaveLinx WAC

Typical Applications

- Office, education, or other indoor applications
- Where interface to an external input is required

Models:

- **CCI-C-V-:** WaveLinx CAT CCI-C Contact Closure Input Module

WaveLinx App Details:

Connection to a WaveLinx Area Hub required to communicate with the WaveLinx Area Controller/WaveLinx Mobile App

- Default Device Name:
  - Contact Closure Inputs C
- Unassigned Device Category:
  - Relay Switchpack-CCI

Icon Displayed in WaveLinx App:

Programmable options:

- Alert Mode[173]
- Demand Response[173]
- After Hours Occupancy Mode[173]
- Wall Status Toggle[173]
- Scene Select ,Zone Level
- Scene Toggle, Zone Toggle[174]

Use the WaveLinx CAT Contact Closure Input Module as an interface for a variety of devices outside the WaveLinx network. The Contact Closure Input Module can detect up to four separate dry contact closures. Maintained contact closures support most functions and can be user defined for operation when closure or open is received from the connected contact. Momentary contact closures can be used for limited scene and zone function commands.

WaveLinx CAT Distributed and Network Modes

WaveLinx CAT devices connect to CAT buses that can operate independently or may be connected to an Area Hub to operate as part of a system.

- **Distributed Mode**: The WaveLinx CAT devices connected to the same WaveLinx CAT bus operate together and control based on their out-of-the-box default settings or settings programmed using a WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.
- **Networked Mode**: The WaveLinx CAT devices are connected to an Area Hub, are added to a WaveLinx Area Controller, and operate from the commands configured in the WaveLinx Area Controller. CAT devices can respond to or issue commands from/to other devices configured in the WaveLinx Area Controller.

Out-of-the-Box Operation

The WaveLinx CAT Contact Closure Input Module s will operate in **Distributed Mode** until the connected Area Hub is discovered and the CAT devices are added to the WaveLinx Area Controller.

In **Distributed Mode,** all CAT devices connected to the same CAT bus work together as an Area with the following programming[175]:

- Contact Closure Module inputs have the following configuration: *1. Alert mode, 2. Demand Response (DR) reduction to 20%, 3. Not configured, 4. Not Configured*
- The CAT Dimming Switchpack will function in its factory programmed zone (Z1, Z2, Z3, Z4 or ZR [receptacle zone])
- CAT Ceiling Sensors and Sensors connected to CAT Sensor Interface Modules will turn ON all lighting Zones at 50% upon occupancy and turn ON all receptacle zones (ZR). A 20-minute total hold time will be applied. After 10 minutes of vacancy, lighting will go to 25%. After 10 additional minutes of vacancy, controlled zones will turn OFF.
- Wallstation buttons will issue commands per their default configuration

Distributed Mode default configuration for the CAT Contact Closure Module and CAT Sensor Input Module will be overwritten by the Networked Mode programmed settings.

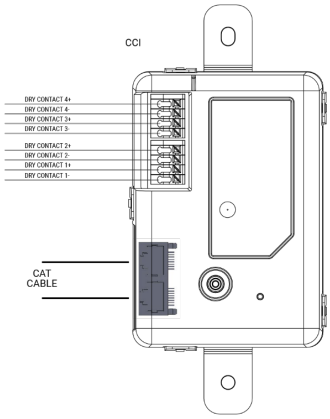
Once the WaveLinx Area Hub has been discovered and added along with its connected devices to a WaveLinx Area Controller, the WaveLinx CAT Contact Closure Input Module will be added to an area along with all the devices attached to the same CAT bus. The initial programming will be imported from the devices during the discovery/add process. From this point, the devices will then operate in **Networked Mode** with programming maintained for the device in the WaveLinx Area Controller.

Alert Mode

Alert Mode is a high priority command that triggers all dimmable, non-dimmable, and receptacle zones in the WaveLinx Area Controller to go to 100% and prevents operation of lighting from other devices until Alert Mode is deactivated. Once the Alert Mode contact is cancelled:

- Lighting will blink one time to warn that lighting is being released to normal operation in 5 minutes. (manual wallstation actions can operate and adjust light level after this point).[176]
- If no manual action is used and 1 minute is left, lighting will blink twice to warn that lighting is being released to normal operation.[176]
- Normal operation will begin once the timer expires.

Note: If occupancy sensors are in the area, the occupancy set will be evaluated for status upon deactivation of Alert Mode.



Demand Response

An input programmed to send a Demand Response action will cause all Areas in the WaveLinx Area Controller to assume Demand Response mode. All zones that are programmed for Demand Response reduction will reduce their light level by the defined reduction level and operate within the reduced range. When the Demand Response input is deactivated, the system will return to normal operation. Lighting will remain at the last light level until the next command is received.

After Hours Occupancy Mode

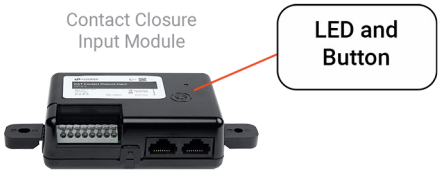
An input programmed to send an After Hours Occupancy action will only affect Areas programmed for After Hours Occupancy mode. When the mode is activated, the areas will change the occupancy set unoccupied command to the After Hours Occupancy mode programmed level. When the mode is deactivated, the unoccupied command will return to normally programmed behavior. This is typically used to allow for external time clock control.

[173] This function available for maintained input type only.
[174] Scene and Zone Toggle functions will only be available for momentary device types.
[175] While in Distributed Mode, device programming can be changed from defaults to other behavior using the WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.
[176] WaveLinx Networked Relay Panels: Relays will not blink when released from Alert Mode.

WaveLinx CAT Contact Closure Input Module continued

Contact Closure Input Module Pushbutton Functions

The CAT Contact Closure Input Module has a pushbutton that allows for device reset.



Function	Press Length	LED feedback	Device outcome
Soft Reset/Reboot	Press and hold for 2 seconds recommended until LED flashes blue (>=1 sec. to <5 sec.)	LED will flash blue 500ms/ OFF 500ms and repeats for a short period	Soft reset begins. Device restarts without interruption
Factory Reset	Press and hold for 6 seconds recommended until LED flashes yellow (>=5 sec. to <10 sec.)	LED will flash yellow 500ms/ OFF 500ms and repeats for a short period	Factory reset begins for the **Distributed Mode** device settings. If the device is still programmed and communicating to a WaveLinx Area Controller, after the reset completes, it will continue to operate in **Networked Mode** with the settings programmed in the WaveLinx Area Controller (no change in operation).

LED Operation

LED conditions	Meaning
Flashes Blue 300ms/OFF 1.7s. Repeats.	The device is operating in **Distributed Mode**.
Flashes White 300ms/OFF 1.7s. Repeats.	The device is operating in **Networked Mode**.
Flashes magenta 1s/OFF 1s. Repeats for identify duration.	The device has been placed in **Blink to Identify** mode from the Area Hub Identify button, the Area Hub web interface, or from the WaveLinx Mobile App.
Flashes cyan 1s/OFF 1s. Repeats for update duration.	The device firmware is being updated.
Solid green	The device is in bootloader mode (image is being swapped). The LED will return to normal operation once the image swap is complete.
Flashes yellow for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 5 and 10 seconds and the device is in the process of a factory reset.
Flashes blue for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 1 and 5 seconds and the device is in the process of a soft reset.
LED turns OFF with reset button press	The reset button has been pressed for less than 1 second or greater than 10 seconds. No reset occurs.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select the icon in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a device matching that type should respond for 15 seconds with the described behavior.

Use the Area Hub onboard buttons or web interface to place the Area Hub or a specific CAT bus port in **Blink to Identify** mode. The devices on the CAT bus(es) selected will respond with the described behavior for 1 minute.

Behavior:

- The device LED will flash magenta for the identify duration.

Loss of Communications Operation

If the connected Area Hub has not communicated with the WaveLinx Area Controller the devices connected to the CAT bus will begin **Distributed Mode** operation. The light level will remain until a command from an occupancy sensor or wallstation occurs. The devices will operate in **Distributed Mode** until communications are re-established after which **Networked Mode** operation will begin.

Operation upon Return of Power

Upon return of power, the device will resume operation in **Distributed Mode** until the Area Hub communications with the WaveLinx Area Controller are restored. Once communicating with the WaveLinx Area Controller, the device will begin normal operation in **Networked Mode**.

Factory Reset Instructions

Although the device contains an onboard button for factory reset, if the device is connected to a WaveLinx Area Hub/WaveLinx Area Controller, the device will continue to operate with the programming in the WaveLinx Area Controller after the factory reset is performed.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx Area Hub to add the device as a new device.

WaveLinx CAT Sensor Interface Module Reference Sheet

WaveLinx CAT Sensor Interface Module

Features

- One input terminal for connection to a Greengate Dual Tech sensor
- 24VDC output with protection to power one Greengate sensor per SIM

Power:
- CAT bus power: 9.5 - 22.5 VDC supplied by communication bus

Typical Applications

- Office, education, and other indoor applications

Typical Applications

- Office, education, or other indoor applications
- Where interface to a Greengate dual tech sensor is a requirement

Models:

- **SIM-C-V-:** WaveLinx CAT SIM-C Sensor Interface Module

WaveLinx App Details:

Connection to a WaveLinx Area Hub required to communicate with the WaveLinx Area Controller/WaveLinx Mobile App

- Default Device Name:
  - Sensor Interface Module C
- Unassigned Device Category:
  - Sensor Interface Module

Icon Displayed in WaveLinx App:

Use the WaveLinx CAT Sensor Interface Module to connect with a Greengate Dual Tech sensor. The interface provides the necessary power to the Greengate sensor and offers limited configuration through the WaveLinx system.

WaveLinx CAT Distributed and Network Modes

WaveLinx CAT devices connect to CAT buses that can operate independently or may be connected to an Area Hub to operate as part of a system.

- **Distributed Mode**: The WaveLinx CAT devices connected to the same WaveLinx CAT bus operate together and control based on their out-of-the-box default settings or settings programmed using a WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.
- **Networked Mode**: The WaveLinx CAT devices are connected to an Area Hub, are added to a WaveLinx Area Controller, and operate from the commands configured in the WaveLinx Area Controller. CAT devices can respond to or issue commands from/to other devices configured in the WaveLinx Area Controller.

Out-of-the-Box Operation

The WaveLinx CAT Contact Closure Input Module s will operate in **Distributed Mode** until the connected Area Hub is discovered and the CAT devices are added to the WaveLinx Area Controller.

In **Distributed Mode,** all CAT devices connected to the same CAT bus work together as an Area with the following programming[177]:

- Contact Closure Module inputs have the following configuration: *1. Alert mode, 2. Demand Response (DR) reduction to 20%, 3. Not configured, 4. Not Configured*
- The CAT Dimming Switchpack will function in its factory programmed zone (Z1, Z2, Z3, Z4 or ZR [receptacle zone])
- CAT Ceiling Sensors and Sensors connected to CAT Sensor Interface Modules will turn ON all lighting Zones at 50% upon occupancy and turn ON all receptacle zones (ZR). A 20-minute total hold time will be applied. After 10 minutes of vacancy, lighting will go to 25%. After 10 additional minutes of vacancy, controlled zones will turn OFF.
- Wallstation buttons will issue commands per their default configuration

Distributed Mode default configuration for the CAT Contact Closure Module and CAT Sensor Input Module will be overwritten by the Networked Mode programmed settings.

Discovery/Added to WaveLinx Area Controller

Once the WaveLinx Area Hub has been discovered and added along with its connected devices to a WaveLinx Area Controller, the WaveLinx CAT Contact Closure Input Module will be added to an area along with all the devices attached to the same CAT bus. The initial programming will be imported from the devices during the discovery/add process. From this point, the devices will then operate in **Networked Mode** with programming maintained for the device in the WaveLinx Area Controller.

LED Operation

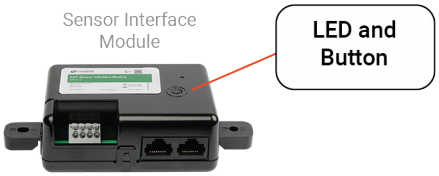
LED conditions	Meaning
Flashes Blue 300ms/OFF 2.7s with motion	The device is operating in **Distributed Mode** and the connected sensor is detecting motion.
LED flashes blue for 1 sec. / OFF for 1 sec. Repeats indefinitely independent of motion.	The device is operating in **Distributed Mode** but has been disabled by a WaveLinx CAT Mobile App command. The connected sensor will not respond to motion activity in disabled mode.
Flashes White 300ms/OFF 2.7s with motion	The device is operating in **Networked Mode** and the connected sensor is detecting motion.
LED flashes white for 1 sec. / OFF for 1 sec. Repeats indefinitely independent of motion.	The device is operating in **Networked Mode** but has been disabled by a timed schedule event or WaveLinx Mobile App command. The connected sensor will not respond to motion activity in disabled mode.
Flashes magenta 1s/OFF 1s. Repeats for identify duration.	The device has been placed in **Blink to Identify** mode from the Area Hub Identify button, the Area Hub web interface, or from the WaveLinx Mobile App.
Flashes cyan 1s/OFF 1s. Repeats for update duration.	The device firmware is being updated.
Solid green	The device is in bootloader mode (image is being swapped). The LED will return to normal operation once the image swap is complete.
Flashes yellow for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 5 and 10 seconds and the device is in the process of a factory reset.
Flashes blue for 500ms/OFF for 500ms with reset button press	The reset button has been pressed between 1 and 5 seconds and the device is in the process of a soft reset.
ALL LEDs turn OFF with reset button press	The reset button has been pressed for less than 1 second or greater than 10 seconds. No reset occurs.

[177] While in Distributed Mode, device programming can be changed from defaults to other behavior using the WaveLinx CAT Bluetooth Programming Interface Module and the WaveLinx CAT Mobile App.

WaveLinx CAT Sensor Interface Module continued

Sensor Interface Module Pushbutton Functions

The CAT Sensor Interface Module has a pushbutton that allows for device reset.



Function	Press Length	LED feedback	Device outcome
Soft Reset/Reboot	Press and hold for 2 seconds recommended until LED flashes blue (>=1 sec. to <5 sec.)	LED will flash blue 500ms/ OFF 500ms and repeats for a short period	Soft reset begins. Device restarts without interruption
Factory Reset	Press and hold for 6 seconds recommended until LED flashes yellow (>=5 sec. to <10 sec.)	LED will flash yellow 500ms/ OFF 500ms and repeats for a short period	Factory reset begins for the **Distributed Mode** device settings. If the device is still programmed and communicating to a WaveLinx Area Controller, after the reset completes, it will continue to operate in **Networked Mode** with the settings programmed in the WAC (no change in operation).

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select the icon in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a device matching that type should respond for 15 seconds with the described behavior.

Use the Area Hub onboard buttons or web interface to place the Area Hub or a specific CAT bus port in **Blink to Identify** mode. The devices on the CAT bus(es) selected will respond with the described behavior for 1 minute.

Behavior: The device LED will flash magenta for the identify duration.

Loss of Communications Operation

If the connected Area Hub has not communicated with the WaveLinx Area Controller the devices connected to the CAT bus will begin **Distributed Mode** operation. The light level will remain until a command from an occupancy sensor or wallstation occurs. The devices will operate in **Distributed Mode** until communications are re-established after which **Networked Mode** operation will begin.

Operation upon Return of Power

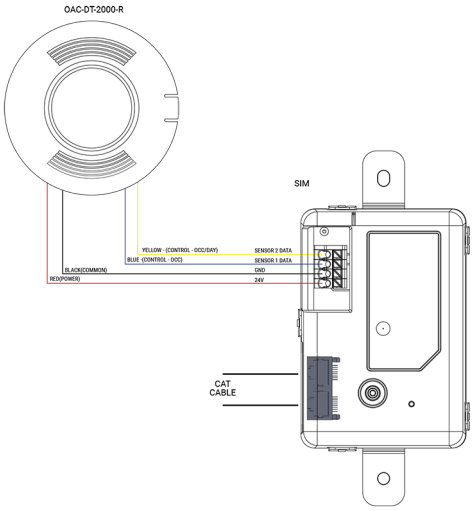
Upon return of power, the device will resume operation in **Distributed Mode** until the Area Hub communications with the WaveLinx Area Controller are restored. Once communicating with the WaveLinx Area Controller, the device will begin normal operation in **Networked Mode**.

Factory Reset Instructions

Although the device contains an onboard button for factory reset, if the device is connected to a WaveLinx Area Hub/WaveLinx Area Controller, the device will continue to operate with the programming in the WaveLinx Area Controller after the factory reset is performed.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx Area Hub to add the device as a new device.

Greengate Sensor Details



Greengate Sensor Onboard Selection Switch Settings

Greengate Occupancy Sensors have onboard configuration switches for configuration in a non-WaveLinx application. **For best operation with the WaveLinx system, set the configuration switches for the settings shown.** Refer to the installation instructions for the sensor being used to identify the switch locations. If sensors have additional option switches, leave them at the defaults described in the sensor installation instructions.

Setting	Default	Recommended Setting
Time Delay	Auto	**5 minutes**
Activation Mode[178]	Auto	**Auto**
Override Mode	Disabled	**Disabled**
Daylight Options	Disabled	**Disabled**

[178] Not all supported Greengate sensor types will have this option.

WaveLinx DALI Field Relay Reference Sheet

WaveLinx DALI Field Relay

General Features

- Provides ON/OFF control of lighting and/or receptacles
- Electrical Details
  - Input voltage: 120VAC-347VAC
  - Output control
    - Electronic ballast/driver 20A (120VAC-277VAC)
    - General purpose (receptacle) 20A (120VAC-347VAC)
    - Motor loads up to 1.5 HP (120VAC), 3HP (277VAC)
- Powered by the DALI-2 two wire communications bus:
  - DALI-2 bus connects to a WaveLinx DALI Hub for power and communications routing
  - Current Draw: 3.75mA

Special Features

- UL924 approved: Loss of power on the WaveLinx DALI bus will automatically set the relay to the closed position.
  - The WaveLinx DALI Hub must be powered from a normal power circuit
  - The connected load must be powered from an emergency power circuit

Typical Applications

- Office, education, healthcare, industrial, manufacturing, and outdoor

Models:

- **FRS-DA**: WaveLinx DALI Field Relay

WaveLinx App Details:

Connection to a WaveLinx DALI Hub required to communicate with the WaveLinx Area Controller/WaveLinx Mobile App

- Default Device Name:
  - Relay D
- Unassigned Device Category:
  - Relay

Icon Displayed in WaveLinx App:

Use the WaveLinx DALI Field Relay to control a zone of switched loads such as lighting and/or receptacles. The WaveLinx DALI Field Relay connects directly to a DALI Bus that is wired to a WaveLinx DALI Hub found within a WaveLinx DALI Panel. The DALI Hub communicates via Ethernet to the WaveLinx Area Controller for programming and control.

Out-of-the-Box Operation

- The DALI Field Relay defaults to a normally closed position. Until a command is received, the attached load will remain ON.
- There are no onboard diagnostic LEDs.

Construction Area Default Operation

Once the associated WaveLinx DALI-2 Hub is discovered and devices are added to the WaveLinx Area Controller, the DALI Field Relay(s) will be placed in the Construction Area, but not in a zone. The field relay will remain ON until the device is assigned to a user created area and zone.

Assigned to an Area Default Operation

Connected for ON/OFF Lighting Control	Connected for Receptacle Control

Once assigned to the created area and a non dimmable zone[179], the device operates as part of the area.
• It will respond to the sensors in the area's occupancy set.
  • If occupied, the field relay will turn ON (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the field relay will turn OFF (Scene 0).
• All paired wallstations will operate the area devices per their default programming (WaveLinx Non-Dim Zones turn OFF with Scene 0 and ON with other scenes).
	If assigned to a Receptacle Zone in the Area:
	• It will respond to the sensors in the area's occupancy set.
	  • If occupied, controlled WaveLinx Receptacles will turn ON (Scene 3).
	  • The occupancy set default hold time is 20 minutes.
	  • If the space remains unoccupied for 20 minutes, controlled WaveLinx Receptacles will turn OFF (Scene 0).
	• All paired wallstations will operate the area devices per their default programming (WaveLinx Receptacles turn OFF with Scene 0 and ON with other scenes).

LED Operation

There are no onboard LEDs on the WaveLinx DALI Field Relay

Adding the DALI Field Relay to a WaveLinx Area Controller

The WaveLinx DALI Field Relay does not PAIR with the WaveLinx Area Controller using pairing mode. Instead, the WaveLinx App is used to ADD/Discover the connected WaveLinx DALI-2 Hub. Once the DALI-2 Hub is discovered, the attached devices are imported into the WaveLinx Area Controller's construction area.

There is no need for pre-addressing DALI devices when using the WaveLinx DALI-2 Hub. The DALI-2 Hub will handle the addressing as part of the discovery process.

Blink to Identify

CAUTION: Do not use the WaveLinx App's **Blink to Identify** mode with the WaveLinx DALI Field Relay. Instead, manually command the relay ON and OFF with a 20 second duration in between. If Blink to Identify is used, the Field Relay will initially respond a couple of times and then remain ON for a up to a minute of time as it recharges.

Use the DALI Hub onboard buttons, DALI Hub web interface or WaveLinx App DALI Hub management screen during DALI Hub discovery to use other identification test tools. See page 37, page 411, or page 178 for further information.

Loss of Communications Operation

If the device has lost communication with the WaveLinx DALI Hub or the DALI Hub has lost communications with the WaveLinx Area Controller, the WaveLinx Field Relay will turn ON and remain ON until communications are re-established.

Operation upon Return of Power

Upon return of power, the device will remain ON until communications are reestablished between the DALI Hub and the WaveLinx Area Controller. At that point, the device will resume its last known light level and resume normal operation.

Factory Reset Instructions

There is no factory reset onboard the WaveLinx DALI Field Relay.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx DALI Hub to add the device as a new device.

Note: The Field Relay is designed for low frequency switching applications, i.e. less than 4 cycles in 2 minutes. The Field Relay requires 20 seconds of recharge time between cycles for best operation. If cycled too quickly, state will be ON until recharged.

[179] The DALI Field Relay can also be assigned to a dimmable zone. In a dimmable zone, with any level of 1% and higher, the Field Relay will turn ON. The Field Relay will turn OFF at a level of 0%.

WaveLinx DALI DAC Reference Sheet

WaveLinx DALI DAC

- Provides ON/OFF and 0-10V dimming control of lighting
- Electrical Details
  - Input voltage: 120VAC-347VAC
  - Output control
    - Ballast and general purpose 4.5A (120VAC-347VAC)[180]
- Class 2, 0-10V dimming output
  - Sinks up to 50mA *(approximately 25 ballasts/drivers [2mA each])*
- Powered by the DALI-2 two wire communications bus:
  - DALI-2 bus connects to a WaveLinx DALI Hub for power and communications routing
  - Current Draw: 3.75mA

Special Features

- White Tuning Control for Cooper Lighting Solutions VividTune or BioUp tunable fixtures
- UL924 approved: Loss of power on the WaveLinx DALI bus will automatically set the relay to the closed position and dimmer to 100%
  - The WaveLinx DALI Hub must be powered from a normal power circuit
  - The connected load must be powered from an emergency power circuit

Typical Applications

- Office, education, healthcare, industrial, and manufacturing

Models:

- **DAC-DC1**: WaveLinx DALI Digital to Analog Converter for Class 1 installation of DALI bus
- **DAC-DC2**: WaveLinx DALI Digital to Analog Converter for Class 2 installation of DALI bus

WaveLinx App Details:

Connection to a WaveLinx DALI Hub required to communicate with the WaveLinx Area Controller/WaveLinx Mobile App

- Default Device Name:
  - DAC D
- Unassigned Device Category:
  - Relay Switchpack

Icon Displayed in WaveLinx App:

Use the WaveLinx DALI DAC to control a zone of switched loads, 0-10V dimmable lighting loads, or for 0-10V control of tunable white lighting. The WaveLinx DALI DAC connects directly to a DALI Bus that is wired to a WaveLinx DALI Hub found within a WaveLinx DALI Panel. The DALI Hub communicates via Ethernet to the WaveLinx Area Controller for programming and control.

Out-of-the-Box Operation

Connected for Lighting Control	Connected for White Tuning Control
Once power is applied: • Connected loads will turn ON and 0-10V dimmable loads will go to 100% and remain at that level.	Once power is applied: • If controlling white tuning, the color temperature of the attached load will default to the cool white side of the color temperature spectrum and remain at that level. Note: The actual color temperature will be dependent on the color temperature range of attached load.

Construction Area Default Operation

Connected for Lighting Control	Connected for White Tuning Control
Once paired, the device will respond per the default operation of occupancy sensors or wallstations that are in the Construction area.	White tuning operation may have unexpected operation until the device is configured properly due to operation of occupancy sensors and wallstations in the Construction area.

Assigned to an Area Default Operation

Connected for Lighting Control	Connected for White Tuning Control

Once assigned to a created area, the device operates as part of the area.
• It will respond to the sensors in the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
• It will respond to any wallstations added to the area per the default wallstation programming.
	Once the device is assigned to a created area, configured for White Tuning, and assigned to a White Tuning Zone:
	The White Tuning Response defaults to 3500K for all programmed scenes.

LED Operation

There are no onboard LEDs on the WaveLinx DALI Field Relay

Adding the DALI DAC to a WaveLinx Area Controller

The WaveLinx DALI DAC does not PAIR with the WaveLinx Area Controller using pairing mode. Instead, the WaveLinx App is used to ADD/Discover the connected WaveLinx DALI-2 Hub. Once the DALI-2 Hub is discovered, the attached devices are imported into the WaveLinx Area Controller's construction area.

There is no need for pre-addressing DALI devices when using the WaveLinx DALI-2 Hub. The DALI-2 Hub will handle the addressing as part of the discovery process.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond with the following behavior:

Connected for Lighting Control	Connected for White Tuning Control
• When placed in **Blink to Identify** mode, the connected fixture(s) will turn ON for 1 second, turn OFF for 1 second and repeat this cycle for 15 seconds.	• When placed in **Blink to Identify** mode, the connected tunable white fixture(s) will cycle between cool and warm color temperatures for 15 seconds.

Use the DALI Hub onboard buttons, DALI Hub web interface or WaveLinx App DALI Hub management screen during DALI Hub discovery to use other identification test tools. See page 37, page 411, or page 178 for further information.

[180] Rating for device in operating temperature lower than 104°F. If used in temperatures over 104°F, reduce rating to 3A. Max. temperature rating 140°F.

WaveLinx DALI DAC continued

White Tuning Configuration Details

For proper white tuning control, the device must be configured for white tuning control and assigned to a white tuning zone.

- Create the dimming zone(s) needed for the area. (p. 187)
- Create the white tuning zone(s) needed for the area. (p. 187)
- Identify all fixture integrated sensors in the room and assign them to the dimming zone(s). (p. 200)
- Configure the WaveLinx DALI DAC (p.207):
  - Identify the DALI DAC controlling the color temperature and assign it to the **AREA**.
  - Edit the DALI DAC in the area, changing the type to white tuning and defining the color temperature range for the fixture.
  - Assign the white tuning DALI DAC to the white tuning zone.
- Add other devices to the area as needed and proceed with programming.

Loss of Communications Operation

If the device has lost communication with the WaveLinx DALI Hub or the DALI Hub has lost communications with the WaveLinx Area Controller, the WaveLinx DALI DAC will turn ON to 100% and remain ON/100% until communications are re-established.

Operation upon Return of Power

Upon return of power, the device will remain ON at 100% until communications are reestablished between the DALI Hub and the WaveLinx Area Controller. At that point, the device will resume its last known light level and resume normal operation.

Factory Reset Instructions

There is no factory reset onboard the WaveLinx DALI DAC.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx DALI Hub to add the device as a new device.

WaveLinx DALI-2 WST-D2 Series Wallstation Reference Sheet

WaveLinx DALI-2 WST-D2 Series Wallstation

Features

- Multi-scene selection, raise/lower, and toggle ON/OFF control
- Single or multi-gang mounting; standard decorator sizing
- Faceplate and buttons changeable
- Powered by the DALI-2 two wire communications bus:
  - DALI-2 bus connects to a WaveLinx DALI Hub for power and communications routing
  - Current Draw: 7.0mA

Typical Applications

- Education, office, healthcare, industrial, manufacturing, and other interior spaces

Models:

- **WST-D2-XX**
  - Large Button Configurations:
    - **XX** = **1L**, **1DL**, **2L**, **2DL**, **3L**
  - Small Button Configurations:
    - **XX** = **4S**, **4DS**, **6S**

WaveLinx App Details:

Connection to a WaveLinx DALI Hub required to communicate with the WaveLinx Area Controller/WaveLinx Mobile App

- Default Device Name:
  - Wall Station D XX (XX=button configuration)
- Unassigned Device Category:
  - Wallstation

Icon Displayed in WaveLinx App:

Programmable options:

- Scene Selection
- Scene Toggle
- Save Scene
- Zone Toggle
- Zone Level
- Raise
- Lower
- Hold/Release Occupied
- Wall Status Toggle
- No Action
- Network Action from WaveLinx CORE[181]

Use the WaveLinx DALI-2 WST-D2 Series Wallstations to manually operate connected loads and provide customized light levels for each controlled space. The WaveLinx DALI-2 WST-D2 Wallstation connects directly to a DALI Bus that is wired to a WaveLinx DALI Hub found within a WaveLinx DALI Panel. The DALI Hub communicates via Ethernet to the WaveLinx Area Controller for programming and control.

Out-of-the-Box Operation

- Once power is applied, if a button is pressed, the button's LED will flash once.
- The WaveLinx DALI-2 WST-D2 Series Wallstation will have no control functionality out-of-the-box.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction area.	Once assigned to a created area, the device operates as part of the area.
• All WaveLinx wallstations will operate all lighting devices and WaveLinx receptacles in the area per the default scenes and programming (see chart next page). • The button LED indicator will illuminate briefly when the button is pressed.	

Button LED Operation

LED conditions	Meaning
Button LED flashes ON and then OFF 1 time when pressed	The wallstation is giving visual feedback that the button has been pressed.
Button LED OFF	This is the button LED's normal state. If the button LEDs do not flash 1 time when the buttons are pressed, verify the station is connected to the DALI Bus and that the DALI Bus has power.
All the button LEDs flash in a cycle pattern for 15 sec. and then turn OFF.	The wallstation has been placed in **Blink to Identify** mode from the WaveLinx App. OR The wallstation has been added to the WaveLinx Area Controller and is still in the Construction Area and a button on the station has been pressed.
All LEDs flash in a cycle pattern continuously.	The DALI Bus has been placed into Test Mode from the WaveLinx DALI Hub test buttons or the DALI Hub Configurator web page. The pattern will repeat until test mode is cancelled or automatically times out after 60 minutes. The WaveLinx App can also be used to place the DALI Bus into a test mode which will last for a duration of 1 minute.

Adding the DALI WST-D2 Wallstation to a WaveLinx Area Controller

The WaveLinx DALI-2 WST-D2 Wallstation does not PAIR with the WaveLinx Area Controller using pairing mode. Instead, the WaveLinx App is used to ADD/Discover the connected WaveLinx DALI-2 Hub. Once the DALI-2 Hub is discovered, the attached devices are imported into the WaveLinx Area Controller's construction area.

There is no need for pre-addressing DALI devices when using the WaveLinx DALI-2 Hub. The DALI-2 Hub will handle the addressing as part of the discovery process.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse, and the wallstation LEDs should respond. When placed in **Blink to Identify** mode the wallstation with flash all button LEDs in a cycle pattern for a period of 15 seconds.

Use the DALI Hub onboard buttons, DALI Hub web interface or WaveLinx App DALI Hub management screen during DALI Hub discovery to use other identification test tools. See page 37, page 411, or page 178 for further information.

Loss of Communications Operation

If the device has lost communication with the WaveLinx DALI Hub or the DALI Hub has lost communications with the WaveLinx Area Controller, the wallstation will not control the assigned loads. If a button is pressed and power is present on the DALI bus, the button LED will flash to give visual acknowledgement of the button press. The buttons will not control the assigned loads until communications are re-established.

Operation upon Return of Power

Upon return of power, once connection from the WaveLinx DALI Hub is re-established to the WaveLinx Area Controller, the wallstation will wait for a button press before issuing commands.

Factory Reset Instructions

There is no factory reset onboard the WaveLinx DALI-2 WST-D2 Wallstation.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx DALI Hub to add the device as a new device.

[181] **Network Action:** WAC must be a configured part of a WaveLinx CORE platform to perform supported network actions. When programmed for this action type, the button LED will not change when the button is used.

WaveLinx DALI-2 WST-D2 Series Wallstation

Default WaveLinx DALI-2 WST-D2-Series Wallstation Operation

WST-D2-1L
- Button #1: Toggle Scene (Scene 0/Scene1)

WST-D2-1DL
- Button # 1: Scene 3
- ON/OFF: Toggle Scene (Scene 0/Scene 1)
- Raise/Lower: Raise/Lower All Zones in Current Area[182]

WST-D2-2L
- Button #1: Scene 1
- Button #2: Scene 0

WST-D2-2DL
- Button #1: Scene 3
- Button #2: Scene 1
- ON/OFF: Toggle Scene (Scene 0/Scene 1)
- Raise/Lower: Raise/Lower All Zones in Current Area[141]

WST-D2-3L
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 0

WST-D2-4S
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 4
- Button #4: Scene 0

WST-D2-4DS
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 2
- Button #4: Scene 4
- ON/OFF: Toggle Scene (Scene 0/Scene 1)
- Raise/Lower: Raise/Lower All Zones in Current Area[141]

WST-D2-6S
- Button #1: Scene 3
- Button #2: Scene 1
- Button #3: Scene 2
- Button #4: Scene 4
- Button #5: Scene 5
- Button #6: Scene 0

[182] White tuning zones are automatically exempted from raise/lower **ALL** zones to prevent inadvertent adjustment of the color temperature when adjusting light levels.

WaveLinx DALI-2 Occupancy Ceiling Sensor Reference Sheet

WaveLinx DALI-2 Occupancy Ceiling Sensor

General Features

- Integrated photocell for open loop daylighting
- Integrated Passive Infrared (PIR) motion sensor for occupancy or vacancy sensing
- Powered by the DALI-2 two wire communications bus:
  - DALI-2 bus connects to a WaveLinx DALI Hub for power and communications routing
  - Current Draw: 7.0mA

Typical Applications

- Office, education, healthcare, industrial, manufacturing, and other indoor applications

Models:

- **OCS-D2-P12**: WaveLinx DALI Occupancy Ceiling Sensor, 1200 sq. ft.
- **OCS-D2-P06**: WaveLinx DALI Occupancy Ceiling Sensor, 600 sq. ft.

WaveLinx App Details:

Connection to a WaveLinx DALI Hub required to communicate with the WaveLinx Area Controller/WaveLinx Mobile App

- Default Device Name:
  - Ceiling Sensor D
- Unassigned Device Category:
  - Sensor

Icon Displayed in WaveLinx App:

The WaveLinx DALI-2 Occupancy Ceiling Sensor provides motion sensing and/or open loop daylight dimming to the WaveLinx system. In open loop daylighting applications, the sensor can control multiple zones in the same space. The WaveLinx DALI-2 Occupancy Ceiling Sensor connects directly to a DALI Bus that is wired to a WaveLinx DALI Hub found within a WaveLinx DALI Panel. The DALI Hub communicates via Ethernet to the WaveLinx Area Controller for programming and control.

Out-of-the-Box Operation

- The LED will flash white every 3 seconds if motion is occurring.
- The daylight sensor and occupancy sensor will have no control functionality out-of-the-box.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction area.	Once assigned to a created area, the device operates as part of the area.

- The daylight sensor remains disabled. It must be assigned to an area and be configured to operate.
- All occupancy sensors report to the area's occupancy set.
  - If occupied, the fixtures will turn ON to 50% (Scene 3).
  - The occupancy set default hold time is 20 minutes.
  - If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
- Sensor LED flashes white approximately once every 3 seconds when there is motion activity in the space.

LED Operation

LED conditions	Meaning
Flashes White 300ms/OFF 2.7s with motion	The device is sensing motion.
LED OFF	No motion is occurring in the area. If motion is occurring and the LED is OFF, verify that the sensor is connected to the DALI Bus and that the DALI Bus has power.
Flashes magenta 1s/OFF 1s. Repeats for 15 sec.	The device has been placed in **Blink to Identify** mode from the WaveLinx Mobile App.
Flashes magenta 1s/OFF 1s. Repeats indefinitely.	The DALI Bus has been placed into Test Mode from the WaveLinx DALI Hub test buttons or the DALI Hub Configurator web page. The pattern will repeat until test mode is cancelled or automatically times out after 60 minutes. The WaveLinx App can also be used to place the DALI Bus into a test mode which will last for a duration of 1 minute.

Adding the DALI OCS-D2 Sensor to a WaveLinx Area Controller

The WaveLinx DALI OCS-D2 Sensor does not PAIR with the WaveLinx Area Controller using pairing mode. Instead, the WaveLinx App is used to ADD/Discover the connected WaveLinx DALI-2 Hub. Once the DALI-2 Hub is discovered, the attached devices are imported into the WaveLinx Area Controller's construction area.

There is no need for pre-addressing DALI devices when using the WaveLinx DALI-2 Hub. The DALI-2 Hub will handle the addressing as part of the discovery process.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse, and the OCS-D2 sensor LEDs should respond, flashing magenta for 15 seconds.

Use the DALI Hub onboard buttons, DALI Hub web interface or WaveLinx App DALI Hub management screen during DALI Hub discovery to use other identification test tools. See page 37, page 411, or page 178 for further information.

Loss of Communications Operation

If the device has lost communication with the WaveLinx DALI Hub or the DALI Hub has lost communications with the WaveLinx Area Controller, the OCS-D2 sensor will not control the assigned loads. If the OCS-D2 sensor senses motion and power is present on the DALI bus, the sensor LED will still flash with motion. The sensor will not control the assigned loads until communications are re-established.

Operation upon Return of Power

Upon return of power, once connection from the WaveLinx DALI Hub is re-established to the WaveLinx Area Controller, the occupancy sensor will wait for motion or vacancy before issuing commands.

Factory Reset Instructions

There is no factory reset onboard the WaveLinx DALI OCS-D2 sensor.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx DALI Hub to add the device as a new device.

WaveLinx DALI-2 Occupancy Ceiling Sensor

Open Loop Daylight Operation

Daylighting will not operate until an open loop daylight set is created and configured.

- Once configured and calibrated, the controlled zones will dim in response to entering daylight.
  - When the measured daylight contribution increases or decreases, the controlled zones will dim or raise lighting to reduce or increase the light level.
  - When the measured light level exceeds 150% of the calibrated gain for more than 30 minutes, the sensor will dim to OFF.
- If lighting has dimmed to OFF and the area is still occupied, lighting will be turned back ON when one of the two conditions occurs:
  - The measured light level falls between 100% and 50% of the calibrated gain for more than 10 minutes
  - The measured light level falls below 50% of the calibrated gain for longer than 30 seconds

Open Loop Daylight Set Configuration

- Create the open loop daylight set.
- Assign the zones that should be controlled by the daylight set.[183]
- Assign the sensor to the daylight set
- Calibrate the sensor

Important Mounting Considerations

- Open loop daylight sensors should be mounted so that the sensor lens views mainly daylight, not the electric light being controlled in the area.
- The optimal mounting location for occupancy sensing may not be optimal for open loop daylighting. Separate sensors may be necessary.

Open Loop Daylight Adjustment Details

Perform adjustment during daylight hours when electric lighting should be reduced but not fully dimmed. The use of a light meter is recommended. With electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if the desired light level at the work surface is 500 lux, the reading with electric lighting OFF should be between 250 to 375 lux for best results.)

In the daylight set's **Calibrate** screen, adjust the slider bar to change the light level to the desired light level, then tap the back button to save the change.

[183] If fixtures in the zones that are assigned to open loop daylight sets contain Integrated Sensors or Tilemount Sensors, closed loop daylighting will automatically be disabled for these devices.

WaveLinx DALI: Luminaires with DALI-2 Device Type DT8: Tunable White LED Drivers Reference Sheet

DALI-2 Device Type DT8: Tunable White LED Drivers

Features

- DALI-2 LED Driver that operates a Tunable White LED luminaire.
- Connection to the DALI-2 two wire communications bus:
  - DALI-2 bus connects to a WaveLinx DALI Hub for communications routing
  - Typical Current Draw: 2.0mA

NOTE: DT8 RGB/RGBW drivers are not currently supported in WaveLinx ver. 17.0.

Special Features

- White Tuning Control for Cooper Lighting Solutions VividTune or BioUp tunable fixtures

Typical Applications

- Spaces where individual fixture sensor controls are not needed
- White tuning control

WaveLinx App Details:

- Default Device Name:
  - DT8 DALI Driver

Icon Displayed in WaveLinx App:

(icon is dependent on where the device is located in the app)

Unassigned Devices

Dimmable Zone

White Tuning Zone

D4i or DALI SR drivers may contain a power supply. It is recommended to use a non-power supply driver when connected to the WaveLinx DALI Hub. If using a power supply driver:

- Make sure that the driver's power supply is off (refer to the driver manufacturer's instructions)
- These drivers are polarity sensitive. Take care to observe polarity when wiring devices to the DALI bus when these drivers are used.

The addition of a WaveLinx DALI Hub allows Luminaires equipped with DALI-2 compliant type DT8 White Tunable LED drivers to connect to and communicate with a WaveLinx Area Controller for configuration and control

Out-of-the-Box Operation

Dimming & ON/OFF	White Tuning Control
Once power is applied: • Connected loads will turn ON and 0-10V dimmable loads will go to 100% and remain at that level.	Once power is applied: • If controlling white tuning, the color temperature of the attached load will default to the cool white side of the color temperature spectrum and remain at that level. Note: The actual color temperature will be dependent on the color temperature range of attached load.

Construction Area Default Operation

Dimming & ON/OFF	White Tuning Control
Once paired, the luminaire will remain at its full ON level until programmed.	Once paired, the luminaire will remain at a default white tuning level until programmed.

Assigned to an Area Default Operation

Dimming & ON/OFF	White Tuning Control

Once assigned to a created area, the device/channel operates as part of the area.
• It will respond to the sensors in the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
• It will respond to any wallstations added to the area per the default wallstation programming.
	Once the device is assigned to a created area and white tuning default range is adjusted (if necessary), the White Tuning Response defaults to 3500K for all programmed scenes until scenes are modified.

LED Operation

Not applicable. There are no onboard LED indicator.

Adding the DALI DT8 Driver to a WaveLinx Area Controller

The DALI-2 DT8 Driver does not PAIR with the WaveLinx Area Controller using pairing mode. Instead, the WaveLinx App is used to ADD/Discover the connected WaveLinx DALI-2 Hub. Once the DALI-2 Hub is discovered, the attached devices are imported into the WaveLinx Area Controller's construction area.

There is no need for pre-addressing DALI devices when using the WaveLinx DALI-2 Hub. The DALI-2 Hub will handle the addressing as part of the discovery process.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond with the following behavior:

Dimming & ON/OFF	White Tuning Control
• When placed in **Blink to Identify** mode, the connected fixture(s) will turn ON for 1 second, turn OFF for 1 second and repeat this cycle for 15 seconds.	• When placed in **Blink to Identify** mode, the connected tunable white fixture(s) will cycle between cool and warm color temperatures for 15 seconds.

Use the DALI Hub onboard buttons, DALI Hub web interface or WaveLinx App DALI Hub management screen during DALI Hub discovery to use other identification test tools. See page 37, page 411, or page 178 for further information.

DALI-2 Device Type DT8: Tunable White LED Drivers

White Tuning Configuration Details

For proper white tuning control, the device must be configured for white tuning control and assigned to a white tuning zone.

- Create the dimming zone(s) needed for the area. (p. 187)
- Create the white tuning zone(s) needed for the area. (p. 187)
- Add the device to the area and select the dimming zone. When prompted, select the white tuning zone for the white tuning control. (p. 202)
- Add other devices to the area as needed and proceed with programming.

Loss of Communications Operation

If the device has lost communication with the WaveLinx DALI Hub or the DALI Hub has lost communications with the WaveLinx Area Controller, the DALI driver will turn ON to 100% and remain ON/100% until communications are re-established.

Operation upon Return of Power

Upon return of power, the luminaire will remain ON at 100% until communications are reestablished between the DALI Hub and the WaveLinx Area Controller. At that point, the device will resume its last known light level and resume normal operation.

Factory Reset Instructions

There is no factory reset onboard the DT8 LED driver.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx DALI Hub to add the device as a new device.

WaveLinx DALI: Luminaires with DALI-2 Device Type DT6 LED Drivers Reference Sheet

DALI-2 Device Type DT6 LED Drivers

Features

- DALI-2 LED Driver that operates dimmable luminaire.
- Connection to the DALI-2 two wire communications bus:
  - DALI-2 bus connects to a WaveLinx DALI Hub for communications routing
  - Typical Current Draw: 2.0mA

Typical Applications

- Spaces where individual fixture sensor controls are not needed

WaveLinx App Details:

- Default Device Name:
  - DT6 DALI Driver

Icon Displayed in WaveLinx App:

(icon is dependent on where the device is located in the app)

Unassigned Devices

Dimmable Zone

D4i or DALI SR drivers may contain a power supply. It is recommended to use a non-power supply driver when connected to the WaveLinx DALI Hub. If using a power supply driver:

- Make sure that the driver's power supply is off (refer to the driver manufacturer's instructions)
- These drivers are polarity sensitive. Take care to observe polarity when wiring devices to the DALI bus when these drivers are used.

The addition of a WaveLinx DALI Hub allows Luminaires equipped with DALI-2 compliant type DT6 LED drivers to connect to and communicate with a WaveLinx Area Controller for configuration and control

Out-of-the-Box Operation

Once power is applied:

- Connected loads will turn ON and 0-10V dimmable loads will go to 100% and remain at that level.

Construction Area Default Operation

Once paired, the luminaire will remain at its full ON level until programmed.

Assigned to an Area Default Operation

Once assigned to a created area, the device/channel operates as part of the area.

- It will respond to the sensors in the area's occupancy set.
  - If occupied, the fixtures will turn ON to 50% (Scene 3).
  - The occupancy set default hold time is 20 minutes.
  - If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
- It will respond to any wallstations added to the area per the default wallstation programming.

LED Operation

Not applicable. There are no onboard LED indicator.

Adding the DALI DT6 Driver to a WaveLinx Area Controller

The DALI-2 DT6 Driver does not PAIR with the WaveLinx Area Controller using pairing mode. Instead, the WaveLinx App is used to ADD/Discover the connected WaveLinx DALI-2 Hub. Once the DALI-2 Hub is discovered, the attached devices are imported into the WaveLinx Area Controller's construction area.

There is no need for pre-addressing DALI devices when using the WaveLinx DALI-2 Hub. The DALI-2 Hub will handle the addressing as part of the discovery process.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond with the following behavior:

- When placed in **Blink to Identify** mode, the connected fixture(s) will turn ON for 1 second, turn OFF for 1 second and repeat this cycle for 15 seconds.

Use the DALI Hub onboard buttons, DALI Hub web interface or WaveLinx App DALI Hub management screen during DALI Hub discovery to use other identification test tools. See page 37, page 411, or page 178 for further information.

Loss of Communications Operation

If the device has lost communication with the WaveLinx DALI Hub or the DALI Hub has lost communications with the WaveLinx Area Controller, the DALI driver will turn ON to 100% and remain ON/100% until communications are re-established.

Operation upon Return of Power

Upon return of power, the luminaire will remain ON at 100% until communications are reestablished between the DALI Hub and the WaveLinx Area Controller. At that point, the device will resume its last known light level and resume normal operation.

Factory Reset Instructions

There is no factory reset onboard the DT8 LED driver.

To factory reset the device AND remove programming from the WaveLinx Area Controller, use the Mobile Application to delete the device from the database. A device rescan command can then be performed on the WaveLinx DALI Hub to add the device as a new device.

WaveLinx LV Low-Voltage Fixture with Integrated Sensor Reference Sheet

WaveLinx LV Low-Voltage Fixture with Integrated Sensor

Features

- Integrated photocell for closed loop daylighting
- Integrated Passive Infrared (PIR) motion sensor for occupancy or vacancy sensing
- Class 2, low-voltage connection to a WaveLinx Low-Voltage Power Module for easy installation

Typical Applications

- Education, office, and other interior spaces

Models:

- **LV1-SLVPD1:** Available option on many Cooper Lighting luminaires.
- **WLA:** Available option on many Cooper Lighting luminaires

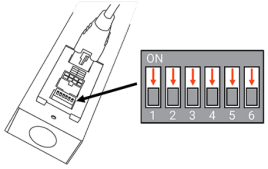
WaveLinx App Details:

- Default Device Name:
  - IS-LV
- Unassigned Device Category:
  - Integrated Sensor

Icon Displayed in WaveLinx App:

The WaveLinx LV Low-Voltage Fixture with Integrated Sensor communicates through the WaveLinx Low-Voltage Power Module to the WaveLinx system. The onboard Integrated Sensor provides both occupancy and daylight control that can be easily configured using the WaveLinx App.

Important Installation Details:



- Low-Voltage Fixtures have onboard selector switches. Ensure that all fixture selector switches are in the OFF or down position (default).
- Always power down the WaveLinx Low-Voltage Power Module before connecting Low-Voltage Fixtures.

Out-of-the-Box Operation

- Once power is applied, the attached fixture operates via the motion sensor.
  - The occupancy sensor is set for high sensitivity.
  - If occupied, the fixture will turn ON to 100%.
  - The fixture will dim to OFF (0%) after 20 minutes when the space is unoccupied.
- The daylight sensor is disabled.
- The LED flashes red or green (tri-color LED) for 100ms once every 3 seconds when motion is detected.[184]

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction Area. • The daylight sensor remains disabled.	Once assigned to a created area, the device operates as part of the area. • The daylight sensor is disabled.

• All occupancy sensors report to the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
• LED: Flashes red (single-color) or white (tricolor) for 100ms once every 3 sec. with motion detection.	

LED Operation (The LED is located beneath the sensor lens.)

Note: Older Low Voltage Integrated Sensors may have a single-color red LED. Newer models will have multiple LED color options (tricolor) to display different conditions.

LED conditions	Meaning
Flashes for 100ms, once every 3 sec. • green (tricolor) • red (single-color)	The device is unpaired (out-of-the-box) and is detecting motion or the connected Low-Voltage Power Module lost communication with the WaveLinx Area Controller and the device is detecting motion.
Flashes for 100ms, once every 3 sec. • white (tricolor) • red (single-color)	The device is paired to a WaveLinx Area Controller and is detecting motion.
Fast blink 10ms every 250ms: • white (tricolor) • red (single-color)	The daylight sensor has exceeded 150% of the calibrated light level for 30 minutes.[185]
LED is OFF	The device is not detecting motion. If motion is occurring, ensure device is powered and that the LED has not been disabled.[186]
LED flashes magenta (tricolor) one time	The flashlight method has been used to identify the device. The LED will flash red in single-color LED sensors.

Pairing Information

The Low-Voltage Fixture with Integrated Sensor will automatically pair when its WaveLinx Low-Voltage Power Module is paired with the WaveLinx Area Controller. If a Low-Voltage device is attached after the initial pairing was completed (always power down before the connection) or a Low-Voltage device is deleted in error from the WaveLinx App, manually refresh the pairing. Place the WaveLinx Area Controller into pairing mode. The Low-Voltage Power Module will refresh the connected devices to the WaveLinx Area Controller and will pair any unpaired devices.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

- Fixture dims to 10%.
- Single-color LED Sensor: LED flashes red for 100ms once every 3 seconds when motion is detected.
- Tri-color LED Sensor: LED flashes white for 100ms once every 3 seconds when motion is detected.

[184] Devices with older firmware may go to 75% light output when occupied in out-of-the-box operation and may take up to 1 hour to enter loss of communication operation.

[185] The LED will stop flashing if the light level drops but stays between 50% and 100% of the calibrated light level for 10 minutes OR if the light level falls below 50% of the calibrated light level for 30 seconds.

[186] The LED may be difficult to see in very bright areas.

Low-Voltage Fixture with Integrated Sensor continued

Supported Identification Methods:

- **Laser pointer or focused flashlight beam**: For fixtures mounted at reasonable mounting heights, use a laser pointer or bright, focused beam flashlight to trigger identification mode. Standing beneath the sensor, shine the light directly into the sensor lens for 3-4 seconds. The timing needs to be precise for the identification mode to respond. The LED in the sensor window will briefly flash violet (tri-color LED sensor) or red (single color LED sensor) at the end of this 3-4 second period.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond. When placed in **Blink to Identify** mode, the fixture will turn ON for 1 second, turn OFF for 1 second and repeat this cycle for 15 seconds.

Daylight Operation (closed loop)

- Once assigned to an area and enabled, the sensor will begin closed loop daylight dimming operation to a reasonable light level. If a specific light level (target) is expected at the surface, then calibration is required.
- When the measured light exceeds the calibrated level, the fixture will dim lighting to reduce the light level.
- Dim to OFF is automatically enabled when daylighting is enabled and cannot be disabled.
  - When the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will dim to OFF.
  - Lighting will be turned back ON when one of the two conditions occurs:
    - The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes
    - The measured light level falls below 50% of the calibrated light level for longer than 30 seconds

Closed Loop Daylight Calibration Details

It is best to calibrate indoor applications when there is a moderate to low level of daylight. If the daylight level is too high, it may be difficult to obtain the desired level of light at the task surface, even if the fixtures are completely OFF.

During calibration, use the **Calibrate All** feature and adjust slider bars to change the light level to the desired light level for each controlled fixture. Once all fixtures are adjusted, use a light meter on the surface to ensure the reading is in the desired range and then send the **Calibrate** command.

If the light level in the space is still too bright when electric lighting is fully dimmed, use available shading to adjust the amount of incoming daylight or postpone calibration until the amount of incoming daylight has decreased.

Loss of Communications Operation

The lighting will remain in its last known state. If the connected WaveLinx Low-Voltage Power Module has not communicated with the WaveLinx Area Controller for longer than approx. 15 minutes, the fixture will revert to its out-of-the-box behavior until communications are re-established.[187]

Operation upon Return of Power

Upon return of power, the device will return to the last known light level until communications are re-established between the Low-Voltage Power Module and the WaveLinx Area Controller.[188] If communications cannot be established for more than approx. 15 minutes, loss of communications operation will begin.[187]

Factory Reset Instructions

To factory reset a single Low-Voltage Fixture with Integrated Sensor, use the WaveLinx App to delete the device from the app. The device should then display out-of-the-box behavior and may be paired as a new device. Note: All devices connected to the same Low-Voltage Power Module must be paired with the same WaveLinx Area Controller.

There is no manual method of factory resetting a single low-voltage device. Refer to the Low-Voltage Power Module's reference sheets for details on performing a factory reset on the Low-Voltage Power Module.[189]

[187] Devices with older firmware may go to 75% light output when occupied in out-of-the-box operation and may take up to 1 hour to enter loss of communication operation.

[188] If closed loop daylighting is enabled, when powering up the fixture may flash ON, then OFF, and then flash again as it resumes the last known level.

[189] Factory resetting a Low-Voltage Power Module will remove pairing and configuration for ALL Low-Voltage Devices that are connected to the Power Module.

WaveLinx LV Low-Voltage Fixture Reference Sheet

WaveLinx LV Low-Voltage Fixture

Features

- Class 2, low-voltage connection to a WaveLinx Low-Voltage Power Module for easy installation

Typical Applications

- Education, office, and other interior spaces

Models:

- **LV1:** (with no SLVPD1) Available option on many Cooper Lighting luminaires.

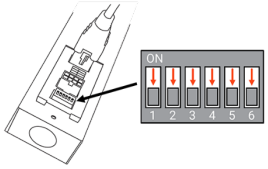
WaveLinx App Details:

- Default Device Name:
  - DM-LV
- Unassigned Device Category:
  - Dimmable

Icon Displayed in WaveLinx App:

The WaveLinx LV Low-Voltage Fixture contains an internal control module that communicates through the WaveLinx Low-Voltage Power Module to the WaveLinx system. The fixture can be easily configured to be controlled from WaveLinx devices using the WaveLinx App.

Important Installation Details:



- Low-Voltage Fixtures have onboard selector switches. Ensure that all fixture selector switches are in the OFF or down position (default).
- Always power down the WaveLinx Low-Voltage Power Module before connecting Low-Voltage Fixtures.

Out-of-the-Box Operation

- Once power is applied, the Low-Voltage Fixture turns ON and remains ON at a 100% light level.[190]

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction Area.	Once assigned to a created area, the device operates as part of the area.

• It will respond to the sensors in the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
• It will respond to any wallstations in the area per the default wallstation programming.	

LED Operation

Not applicable. The WaveLinx Low-Voltage Fixture has no onboard LED indicator.

Pairing Information

The Low-Voltage Fixture will automatically pair when its WaveLinx Low-Voltage Power Module is paired with the WaveLinx Area Controller. If a Low-Voltage device is attached after the initial pairing was completed (always power down before the connection) or a Low-Voltage device is deleted in error from the WaveLinx App, manually refresh the pairing. Place the WaveLinx Area Controller into pairing mode. The Low-Voltage Power Module will refresh the connected devices to the WaveLinx Area Controller and will pair any unpaired devices.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

- Fixture dims to 10%.

Blink to Identify

Blink to Identify: Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond. When placed in **Blink to Identify** mode, the fixture will turn ON for 1 second, turn OFF for 1 second and repeat this cycle for 15 seconds.

Loss of Communications Operation

The lighting will remain in its last known state. If the connected WaveLinx Low-Voltage Power Module has not communicated with the WaveLinx Area Controller for longer than approx. 15 minutes, the fixture will revert to its out-of-the-box behavior until communications are re-established.[190]

Operation upon Return of Power

Upon return of power, the device will return to the last known light level until communications are re-established between the Low-Voltage Power Module and the WaveLinx Area Controller. If communications cannot be established for more than approx. 15 minutes, loss of communications operation will begin.[190]

Factory Reset Instructions

To factory reset a single Low-Voltage Fixture, use the WaveLinx App to delete the device from the app. The device should then display out-of-the-box behavior and may be paired as a new device. Note: All devices connected to the same Low-Voltage Power Module must be paired with the same WaveLinx Area Controller.

There is no manual method of factory resetting a single low-voltage device. Refer to the Low-Voltage Power Module's reference sheets for details on performing a factory reset on the Low-Voltage Power Module.[191]

[190] Devices with older firmware may go to 75% light output in out-of-the-box operation and may take up to 1 hour to enter loss of communication operation.

[191] Factory resetting a Low-Voltage Power Module will remove pairing and configuration for ALL Low-Voltage Devices that are connected to the Power Module.

Additional Accessories: ISHH-01 Integrated Sensor Programming Remote Reference Sheet

ISHH-01 Integrated Sensor Programming Remote

Typical Applications

- Activate Pairing Mode in supported WaveLinx Devices
- Activate Reverse Identification in supported WaveLinx Devices

Models:

ISHH-01: Integrated Sensor Programming Remote

WaveLinx App Details:

- Not Applicable. Device is not displayed in the WaveLinx App.

Icon Displayed in WaveLinx App:

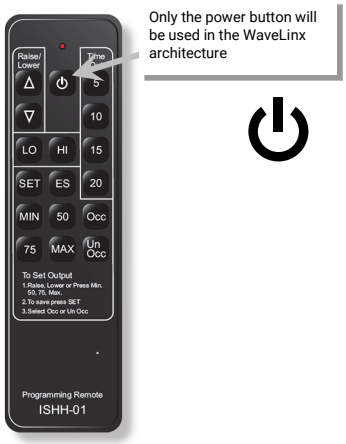
- Not Applicable: Device is not displayed in the WaveLinx App.

Place supported devices into pairing mode without the need to cycle power[192], or place devices into Reverse Identification Mode using the ISHH-01 Integrated Sensor Remote Control. The use of the remote streamlines system setup, removing the need to cycle power to place supported devices in pairing mode and simplifying reverse identification activation.

Refer to the device reference sheet to determine if the device supports the use of the ISHH-01.

Only the power button ⏻ on the ISHH-01 remote will be used in the WaveLinx system.

- **If a supported device is not paired with a WaveLinx Area Controller**, press ⏻ to place the device into pairing mode.
- **If a supported device is paired with a WaveLinx Area Controller**, press ⏻ to place the device into Reverse Identification Mode.



[192] Devices may require firmware update to activate pairing mode from the remote. Refer to the device reference sheet for that device type for further details.

WaveLinx Device Archive

This section contains information for products that are no longer sold. These devices may be unsupported in the version17.0 architecture or may not support all the features.

WaveLinx Area Controller (Gen 1) Reference Sheet

WaveLinx Area Controller (Gen 1)

Features

- Coordinates communication between WaveLinx Devices and the Mobile App
  - Built-in Wi-Fi for connection to WaveLinx Applications
  - Built-in Ethernet for PoE power and LAN connection
- Optionally connects to WaveLinx Core for use with:
  - CORE Applications
  - BMS,

Power:

- Powered from PoE or PoE Injector

Typical Applications

- Required for communication to WaveLinx Devices

Models:

WAC: WaveLinx Area Controller (Gen 1)

WaveLinx App Details:

NOTE: WAC Gen 1 is not directly supported in the WaveLinx Mobile App V15. When connecting to a WAC Gen 1, the app will open a separate browser window allowing configuration within the browser.

- Default Device Name:
  - CooperWAC-XX-XX

Icon Displayed:

A G1 icon will display at the top of the browser for a Gen 1 WaveLinx Area Controller

NOTE: WAC Gen 1 is not directly supported in the WaveLinx Mobile App V15. When connecting to this version WAC, the app will open a separate browser window allowing configuration within the browser. Please refer to the manual for the WAC Gen 1's software version as version 17.0 features may not be supported.

The WaveLinx Area Controller (WAC) is a central communications coordinator for the WaveLinx system. A WaveLinx Area Controller (Gen 1) can coordinate communication to up to 150 devices within its wireless range (for best performance, connect up to 100 devices). **The WAC Gen 1 supports connection to PRO and LV devices. WaveLinx CAT devices are not supported.**

The WaveLinx Area Controller can operate as a stand-alone coordinator or may be connected to a building network with other WaveLinx Area Controllers to meet larger building requirements.

WAC Details

Feature	Details

Supported Devices	The WAC supports up to 150 WaveLinx Devices (for best performance, connect up to 100 devices).
	• All devices may be WaveLinx PRO devices OR
	• Up to 100 of the devices may be WaveLinx LV devices
	  • Example: 100 WaveLinx LV = 100 Devices
	• Up to 50 of the devices may be actively using RTLS functionality
	  • Example: 50 RTLS Devices + 50 WaveLinx PRO = 100 Devices
	  • Example: 50 RTLS Devices + 40 WaveLinx LV + 10 WaveLinx PRO = 100 Devices

Areas	The WAC supports up to 16 areas. • 15 user defined areas plus 1 default construction area.
Zones	• The WAC creates two default dimming zones per area (Zone 1 and Zone 2), and one default receptacle zone per area (Zone 3). • The WAC supports up to 16 zones per area.
Scenes	The WAC supports up to 16 scenes per area.
Occupancy Sets	The WAC supports up to 6 occupancy sets per area.
Closed Loop Daylighting	The WAC will automatically create a closed loop daylight set when an applicable device is paired.
Open Loop Daylighting	The WAC supports up to 6 open loop daylight sets per area using the WaveLinx Ceiling Sensor or the WaveLinx Outdoor Lighting Control Module. Open Loop Daylighting must be programmed.

Out-of-the-Box

- Once power is applied, after approximately 1-2 minutes, the blue power/health LED on top of the unit and the 802.15.4 LED should illuminate.[193]

Loss of Communications Operation

Please refer to the device reference sheets for the devices in the facility for the expected behavior upon loss of communications with the WaveLinx Area Controller.

Operation upon Return of Power

Upon return of power, after approximately a 1-2-minute power up period, the WaveLinx Area Controller will begin re-establishing connection with controlled devices. This process may take several minutes depending on the quantity of devices being controlled. Controlled devices will remain in their return of power state until the connection is re-established.

How to Place in Pairing Mode:

Method	Description
PAIR button	Press and release (1 second press) the PAIR button located on the rear panel of the WaveLinx Area Controller.
Mobile App	• Login to the WaveLinx Area Controller. • From the menu, select **Devices**. • With the WaveLinx Area Controller selected, tap **Actions,** or locate the actions bar at the bottom of the mobile device screen. • Select **Enable Discover Devices**.

The blue 802.15.4 LED on the WaveLinx Area Controller will blink at a rate of one blink per second to indicate the WaveLinx Area Controller is in pairing mode.

The WaveLinx Area Controller pairing mode automatically times-out after 60 minutes. Manually exit by pressing and releasing (1 second press) the PAIR button or select **Disable Discover Devices** from the Mobile App.

[193] The green LAN LED may also illuminate if the controller is connected to a building LAN with a DHCP server. Other LEDs should remain OFF.

WaveLinx Area Controller (Gen 1) continued

LED Operation

After power is applied, wait approximately 1 minutes for the WaveLinx Area Controller to fully boot before reviewing the LED status.

LED	Color/Pattern	Description
Connection Port LEDs	Green LED ON/Flashing	The WaveLinx Area Controller is connected to the Ethernet and is connected to a 10/100Mb network.
	Orange LED ON/Flashing	The WaveLinx Area Controller is connected to the Ethernet and is connected to a Gigabyte network.
	OFF	There is no connection to the Ethernet
Power/Health LED	Solid BLUE	The WaveLinx Area Controller is powered from the PoE connection.
	OFF	There is no power on the PoE connection.
	Blinking BLUE	The WaveLinx Area Controller may be running a firmware update, may be running firmware updates on connected devices, or may be processing a factory reset.
WAN LED	OFF	Normal condition in stand-alone use. If used in a WaveLinx CORE system, the WAC has lost its connection to WaveLinx CORE.
	Solid GREEN	The WaveLinx Area Controller is connected to a WaveLinx CORE, OpenADR or a Third-Party system.
	Blinking GREEN	The connected system is communicating.
LAN LED	OFF	There is no connection or IP address from the building LAN.
	Solid GREEN	The WaveLinx Area Controller is connected to the building LAN and has received an IP address
	Blinking GREEN	There are communications from the building LAN connection.
Wi-Fi LED	OFF	There is no connection to the Wi-Fi.
	Solid BLUE	There is an active connection to the Wi-Fi and the unit has received an IP address.
	Blinking BLUE	There are communications through the Wi-Fi connection.
802.15.4 LED	Blinking BLUE	The WaveLinx Area Controller is in pairing mode.
	Solid BLUE	The 802.15.4 network communications are normal.
	OFF	The 802.15.4 LED should not be OFF. Verify unit is powered and has had time to fully power up (approx. 1-2 minutes).

WaveLinx Area Controller (Gen 1) continued

WaveLinx Area Controller Pushbutton Functions

The WaveLinx Area Controller pushbutton options allow for several administrative functions. These functions should be used with caution!

Function	PAIR button press	Device outcome	WAC LED feedback
Enter Pairing Mode	1 press (1 second)	Paired PRO and LV devices will exhibit paired behavior described in the device reference sheets. Unpaired devices can pair with the WaveLinx Area Controller if they are in pairing mode.	802.15.4 LED flashes
Exit Pairing Mode (if pairing mode is still active)	1 press (1 second)	Paired PRO and LV devices will start operation within the construction grouping. Lighting still in the default construction area will turn ON to a 100% level or operate from paired wallstations and occupancy sensor controls.	802.15.4 LED ON steady
Remove Unassigned Devices	Press and hold for 4 seconds	Devices still in the default construction area will leave the WaveLinx network.	No LED feedback
Authorization Reset	Press and hold for 20 seconds	No effect on devices. The following data will be cleared and replaced with factory defaults: • Admin user accounts • User-uploaded custom certificates • Network configuration • Wi-Fi settings • Ethernet settings • Wi-Fi access point settings	After the 20 second press, the Wi-Fi LED will begin flashing. As the command continues to process, different combinations of LEDs may flash or turn ON and OFF, including the power/health LED. After approximately 2-3 minutes, the power/health LED and blue 802.15.4 LED will be ON steady indicating that the process is complete (other LEDs may be ON depending upon connections).

Factory Reset	Power cycle the WaveLinx Area Controller and wait approx. 2 to 4 minutes for the reboot to occur. The power/health LED will be ON, and the 802.15.4 LED illuminated when the reboot is complete (other LEDs may be ON depending on connections).
	Within 15 minutes of the power cycle, press and hold the PAIR button for 30 seconds.
		All programming will be cleared for the WaveLinx Area Controller and reset to factory defaults including:
		• Removing all 802.15.4 device pairing
		• All user accounts
		• Clearing user-uploaded custom certificates
		• Network configuration including:
		  • Wi-Fi settings
		  • Ethernet settings
		  • Wi-Fi access point settings
		• Clearing programming including area and zone designations
		• Resetting WAC name to default
			During the 30 second press, the Wi-Fi LED will start flashing for approx. 10 seconds, and then all LEDs start flashing at the 30 second mark. As the command continues to process, different combinations of LEDs may flash or turn ON and OFF, including the power/health LED. After approximately 2-3 minutes, the power/health LED and blue 802.15.4 LED will be ON steady indicating that the process is complete (other LEDs may be ON depending upon connections).

The WaveLinx Area Controller Reset button issues a soft reset to the WaveLinx Area Controller. A soft reset will not impact the WaveLinx Area Controller's settings.

Initial Configuration Steps for the WaveLinx Area Controller (Gen 1)

WaveLinx Area Controller (Gen 1) continued

Initial Configuration Steps for WAC

The steps in this section should be completed before pairing devices to the WaveLinx Area Controller.

Use this section to:

- Connect to the WaveLinx Area Controller Webpage
- Set the Clock Parameters
- Set the IP address of the WaveLinx Area Controller

Step 1: Connect to the WaveLinx Area Controller Webpage

The steps in this section assume that the WaveLinx Area Controller has not been connected to a building network and is still in its factory default state for wireless name and username/password. If the WaveLinx Area Controller is connected to the building network, or the wireless name and password has been changed from the default, please refer to the network administrator for access information.

1: Make sure that the computer being used has wireless connectivity and has a current version web browser installed. The WaveLinx internal webpage configuration is accessed using the web browser.

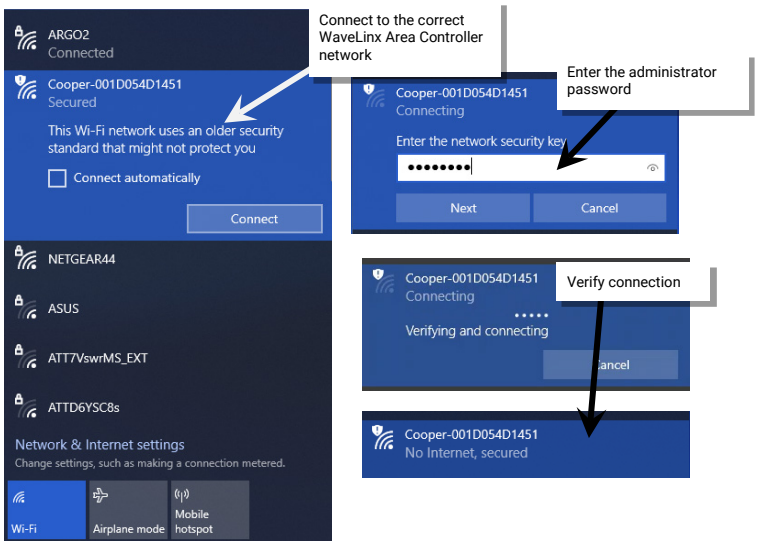
2: Go to the location of the WaveLinx Area Controller. Verify that the unit is powered and has the Blue Power/Health LED and the 802.15.4 LED illuminated (other LEDs may also be illuminated depending on connections).

On the front plate of the WaveLinx Area Controller below the blue power/health LED, locate the label with the MAC ID. Make note of the MAC ID shown.

3: Ensure that the computer's Wi-Fi is active and then navigate to the list of available Wi-Fi networks. Locate the Wi-Fi network with the name Cooper-XXXXXXXXXXXX (where X is a string of letters and numbers).

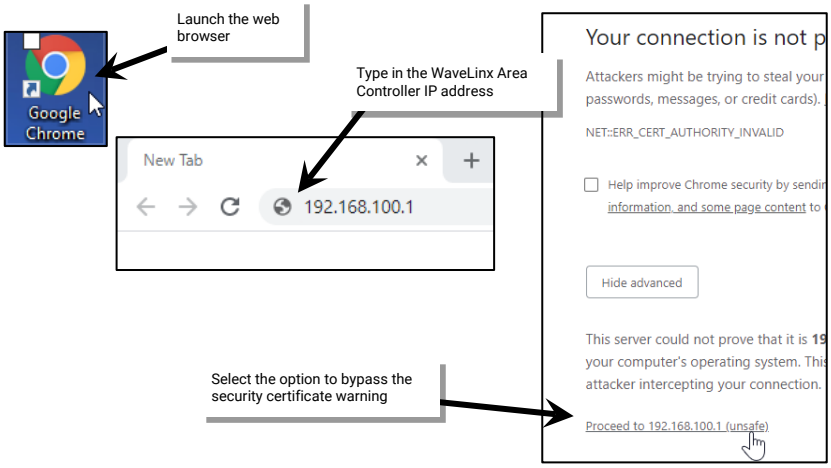
Select the Wi-Fi network Cooper-XXXXXXXXXXXXXX where the X characters match the MAC ID noted in the last step. The last number will be one digit higher than the MAC ID noted.

Enter the password wclAdmin when prompted matching the case shown and join the network



4: Open the web browser and enter the IP address of the WaveLinx Area Controller in the address bar. (The default IP address is 192.168.100.1.)

The first time the WaveLinx Area Controller is accessed, the browser may display message windows regarding the site security certificate. The display and wording of these messages may differ between web browsers. Locate the option to bypass the warning to proceed to the site.



WaveLinx Area Controller (Gen 1) continued

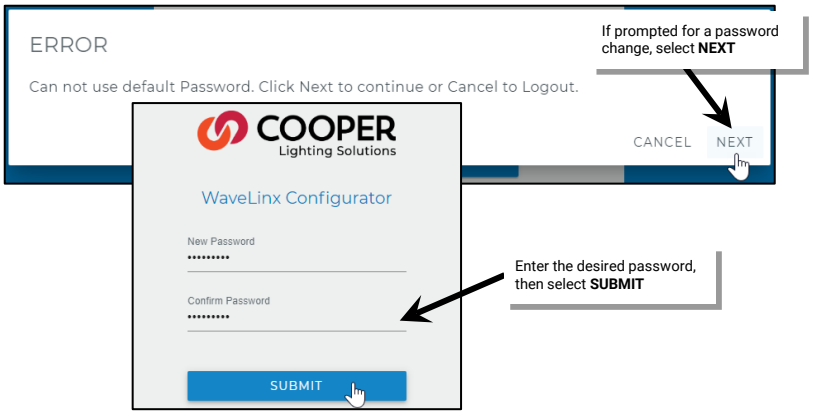
5: In the log in screen, enter the username and password for the administrator user.[194]

- Default Username: **WclAdmin**
- Default Password: **wclAdmin**

6: If this is the first login, the system will force a password change. When prompted, enter a new password for the administrative user.

Set a complex password when changing passwords, making sure it is something that can be remembered.

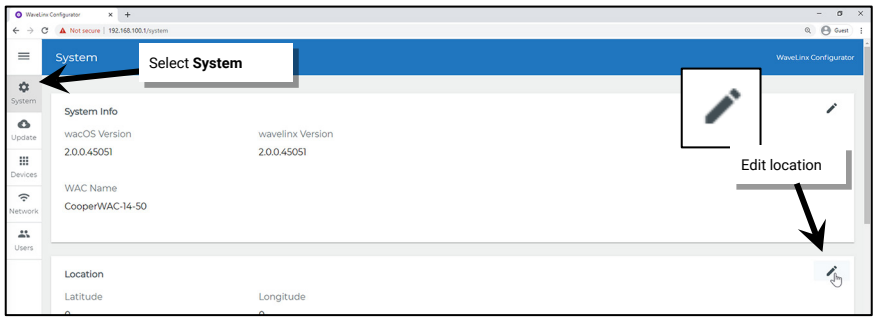
IMPORTANT! REMEMBER THE NEW PASSWORD AS IT WILL BE USED FOR ALL FUTURE ADMINISTRATOR LOGINS FOR THE INTERNAL WEBPAGE AND FOR THE MOBILE APPLICATION.



Step 2: Set the WaveLinx Area Controller Clock

The WaveLinx Area Controller clock settings need to be set for the site. This includes the location, time, date, and time zone settings. These settings are found within the system webpage. In the event of a power loss, the time and date will be retained for up to 48 hours. If power is lost for longer than a 48-hour period, the settings will need to be refreshed once power is restored.

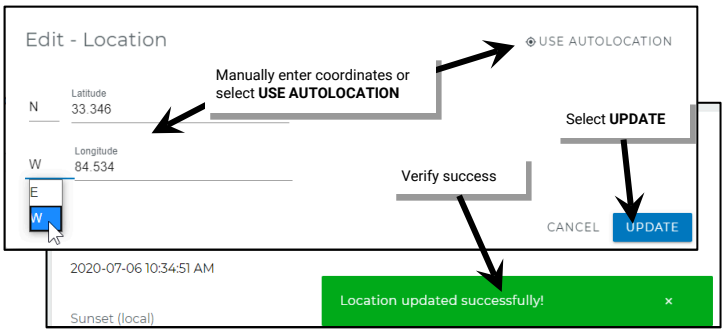
1: In the WaveLinx Area Controller's webpage, select the **System** page and then select the pencil icon in the location section to open it for editing.



2: Set the location using either the auto location feature or by manually entering the coordinates.

- Auto-Location: Can be used if the computer is connected to a network that allows for GPS location. Fields will automatically populate with the coordinates.
- Manually enter: Manually enter the coordinates after determining the latitude and longitude for the site.

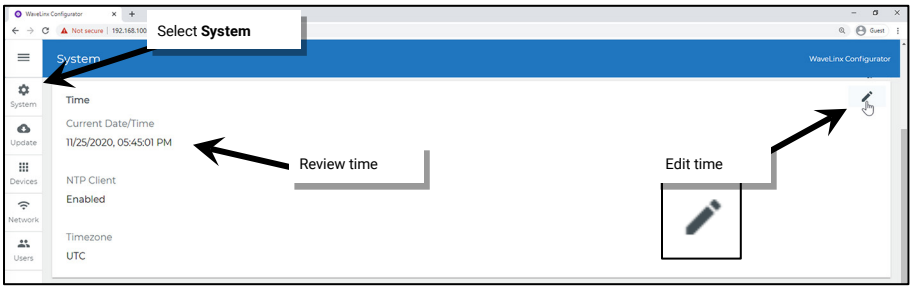
Select **UPDATE** to save the coordinates. A success message will appear once completed.



[194] If the username and password have been changed, use the updated username or password when logging in.

WaveLinx Area Controller (Gen 1) continued

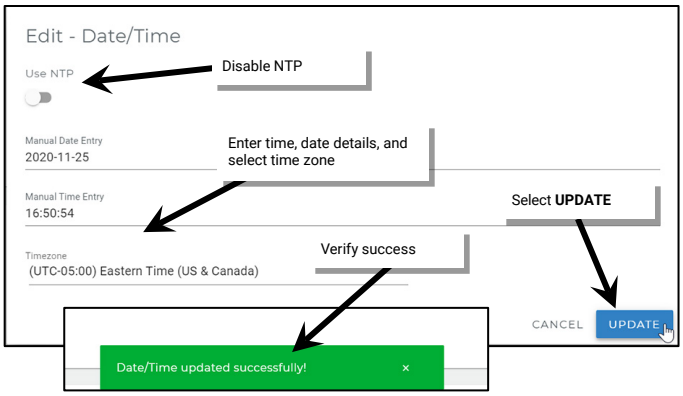
3: In the system page, review the current time, date, and time zone. If they are not correct, select the pencil icon to edit.

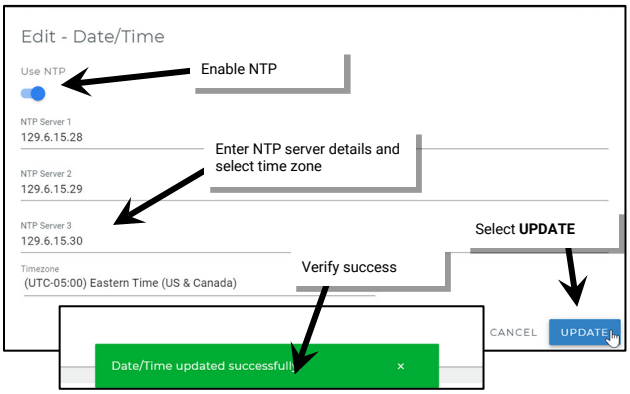


4: Update the time information by either entering the data manually or entering the NTP server details.

- **Enter manually**: Disable the **Use NTP** slider and enter the date (year-month-day YYYY-MM-DD format) and time fields (Use 24-hour military clock format to distinguish AM from PM). Click the time zone drop down and select the proper time zone.
- **Use NTP**: If the WaveLinx Area Controller is connected to a building network that uses a network time protocol (NTP) server, enable the **Use NTP** slider and fill in the NTP server address details. NTP servers do not set the time zone field. Manually set the time zone using the provided time zone drop down.

Click **UPDATE** to save the coordinates to the WaveLinx Area Controller. A success message will appear once completed.





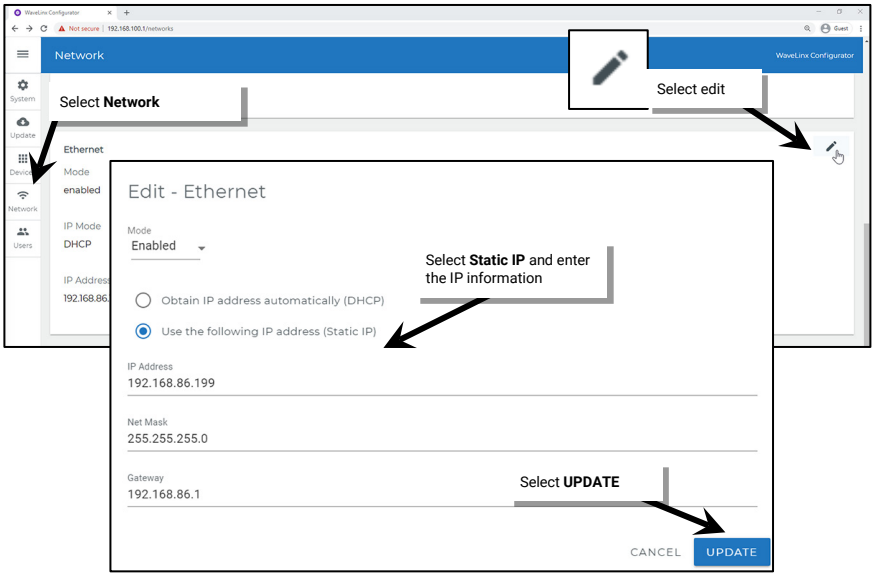
Step 3: Set the IP Address of the WaveLinx Area Controller

The WaveLinx Area Controller is set to DHCP by default. If using DHCP for IP addressing, skip this step. Follow the steps below only if assigning a static IP address.

1: Select the **Network** page and then click on the pencil icon in the **Ethernet** section to edit.

2: Disable **DHCP** and manually enter the desired IP address, subnet mask and default gateway. Select **UPDATE** to send the settings to the WaveLinx Area Controller.

Verify that the WaveLinx Area Controller is properly connected to the Building LAN.



The WaveLinx Area Controller initial setup is complete.

WaveLinx PRO Universal Voltage Dimming Switchpack with Emergency Reference Sheet

WaveLinx PRO Universal Voltage Dimming Switchpack with Emergency

General Features

- Universal voltage input (120V-347V)
- Output control (120V-347V):
  - Electronic ballast/driver 16A
  - General purpose (receptacle) 20A
  - Motor loads up to 1.5 HP (120VAC)
- Class 2, 0-10V dimming output
  - Sinks up to 120mA *(approximately 60 ballasts/drivers [2mA each])*
- IEEE 802.15.4, (router and end point)

Special Features

- Control of Emergency Lighting

Typical Applications

- Emergency fixture control
- Office, education, and other indoor applications

Models:

- **WSP-UV-010-EM**: Universal Voltage Dimming Switchpack with Emergency

WaveLinx App Details:

- Default Device Name:
  - Relay Switchpack Emergency
- Unassigned Device Category:
  - Relay Switchpack

Icon Displayed in WaveLinx App:

Use the WaveLinx PRO Universal Voltage Dimming Switchpack with Emergency to wirelessly control Emergency lighting, including switched or 0-10V emergency lighting loads.

Out-of-the-Box Operation

Once power is applied:

- Connected loads will turn ON and 0-10V dimmable loads will go to 100%.
- The onboard commissioning button can be pressed (less than 4 seconds) to turn load OFF and ON.
- White LED on switchpack indicates load state.

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction Area.	Once assigned to a created area, the device operates as part of the area.

• It will respond to the sensors in the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
• It will respond to any wallstations in the area per the default wallstation programming.	

LED Operation

LED conditions	Meaning
ON (white)	The device relay is closed
OFF	The device relay is opened
Flashes ON and OFF approximately 1 time per second for 10 seconds	Onboard commissioning button has been pressed for longer than 4 seconds, placing the device in pairing mode.

How to Place in Pairing Mode:

Method	Description
Power Cycle Method[195]	Using the circuit breaker, perform the following power cycle sequence: • Turn OFF power for 30 seconds, and then turn ON power for 5 seconds • Turn OFF power for 30 seconds, and then turn ON power and leave ON
Onboard Commissioning Button	Press the onboard commissioning button for more than 4 seconds. The onboard LED will blink for 10 seconds to indicate the device has entered pairing mode.

The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode with these methods.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

- Connected loads will turn ON and 0-10V dimmable loads will go to 10%.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond. When placed in **Blink to Identify** mode, the connected fixture(s) will turn ON for 1 second, turn OFF for 1 second and repeat this cycle for 15 seconds.

[195] Devices with older firmware (prior to WSP-UV 1.01.05.00) may only require a single power cycle to place in pairing mode (30 seconds OFF and then turn back ON).

WaveLinx PRO Universal Voltage Dimming Switchpack with Emergency continued

Loss of Communications Operation

If the device has not communicated with the WaveLinx Area Controller for longer than approx.15 minutes, it will revert to its out-of-the-box behavior until communications are re-established.

Emergency Mode Operation & Operation upon Return of Power

To ensure proper operation for Emergency Mode:

- The WSP-UV-010-EM **MUST** be wired to an emergency circuit
- The paired WaveLinx Area Controller **MUST** be powered from a normal circuit. Do not place the WaveLinx Area Controller on a UPS backup or other emergency backup power supply.

If the WSP-UV-010-EM loses power for more than 30 milliseconds, the device will turn ON to 100% output. The switchpack will ignore all WaveLinx system messages for 20 seconds and then will try to communicate with the WaveLinx Area Controller. The switchpack will remain in Emergency Mode until communications are re-established. It will then go to the last known light level and resume normal operation.

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- Cycle power the device's circuit **six times** to (switch **OFF 4 seconds** | **ON 4 seconds – 6th time leave ON**).

This removes pairing for ALL devices of this type on the affected circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.[196]

[196] The device may flash the light to indicate the reset was successful. If the light was ON prior to the reset, the light will flash twice then remain ON. If OFF prior to reset, the flash behavior may not be observed, but lighting will turn ON.

WaveLinx PRO Wireless Fixture Reference Sheet

WaveLinx PRO Wireless Fixture

Features

- IEEE 802.15.4, (router and end point)

Typical Applications

- Interior spaces where individual fixture sensor controls are not needed

Models:

- WN: WaveLinx Wireless Fixture, No Sensor

WaveLinx App Details:

- Default Device Name:
  - Dimmable Light
- Unassigned Device Category:
  - Dimmable

Icon Displayed in WaveLinx App:

The WaveLinx PRO Wireless Fixture is preconfigured with a wireless radio without an Integrated Sensor providing wireless control within the light fixture to reduce wiring, design, and installation time. The fixture can be easily configured to be controlled from WaveLinx devices using the WaveLinx App.

Out-of-the-Box Operation

Once power is applied, the attached fixture turns ON and remains ON at a 100% light level.[197]

Construction Area Default Operation	Assigned to an Area Default Operation
Once paired, the device operates as part of the Construction Area.	Once assigned to a created area, the device operates as part of the area.

• It will respond to the sensors in the area's occupancy set.
  • If occupied, the fixtures will turn ON to 50% (Scene 3).
  • The occupancy set default hold time is 20 minutes.
  • If the space remains unoccupied for 20 minutes, the fixture will dim to 0% (Scene 0).
• It will respond to any wallstations in the area per the default wallstation programming.	

LED Operation

Not applicable. The WaveLinx Wireless Fixture has no onboard LED indicator.

How to Place in Pairing Mode:

Method	Description
Power Cycle Method	Cycle the power once (switch OFF and then ON) using the circuit breakers. The device will stay in pairing mode for 60 minutes and then time out automatically if a connection with WaveLinx Area Controller is not made. Only unpaired devices will enter pairing mode on the power cycle.

Successful Paired Device Behavior: (While WAC is still in or placed in pairing mode)

- Fixture dims to 10%.

Blink to Identify

Use the WaveLinx App's **Blink to Identify** feature to identify the device. Select in a device row to place the device in **Blink to Identify** mode. The icon will appear to pulse and a load matching that type should respond. When placed in **Blink to Identify** mode, the fixture will turn ON for 1 second, turn OFF for 1 second and will repeat this cycle for 15 seconds.

Loss of Communications Operation

If the device has not communicated with the WaveLinx Area Controller for longer than approx.15 minutes, it will revert to its out-of-the-box behavior until communications are re-established.[197]

Operation upon Return of Power

Upon return of power, the fixture will resume its last known light level. If not able to communicate with the WaveLinx Area Controller for more than approx. 15 minutes, loss of communications operation will begin.[197]

Factory Reset Instructions

CAUTION: The factory reset will set the device back to factory settings (out-of-the-box behavior) removing pairing and programmed settings.

- Cycle power the device's circuit six times to (switch OFF 4 seconds | ON 4 seconds – 6th time leave ON).

This removes pairing for ALL devices of this type on the affected circuit. After a brief period, the device should exhibit out-of-the-box behavior and may be paired as a new device.[198]

[197] Devices with older firmware may go to 75% light output in out-of-the-box operation and may take up to 1 hour to enter loss of communication operation.

[198] The device may flash the light to indicate the reset was successful. If the light was ON prior to the reset, the light will flash twice then remain ON. If OFF prior to reset, the flash behavior may not be observed, but lighting will turn ON.

Preparing the WaveLinx Apps for First Use

Either the WaveLinx Mobile App or the WaveLinx Area Controller (WAC) Lighting App[199] can be used to pair/add, organize, and program WaveLinx PRO, WaveLinx CAT, WaveLinx DALI, and WaveLinx LV devices. This section discusses the basics of preparing to use either the WaveLinx Mobile App or the WaveLinx WAC Lighting App to administer the WaveLinx system.

Preparing to use the WaveLinx Mobile App

To use the WaveLinx Mobile App to administer WaveLinx PRO, WaveLinx CAT, WaveLinx DALI, and WaveLinx LV devices, users of the application must first download the application, and then sign in with a registered user account.

Download and Install the WaveLinx Mobile App

The WaveLinx Mobile App is supported on mobile devices running iOS 17+ or Android™14+ operating systems.

Download the latest version of the WaveLinx Mobile App on the App Store® or get it on Google Play™. Install the mobile app on a smartphone or tablet.

Once installed, the Mobile App can be launched by tapping the provided icon.

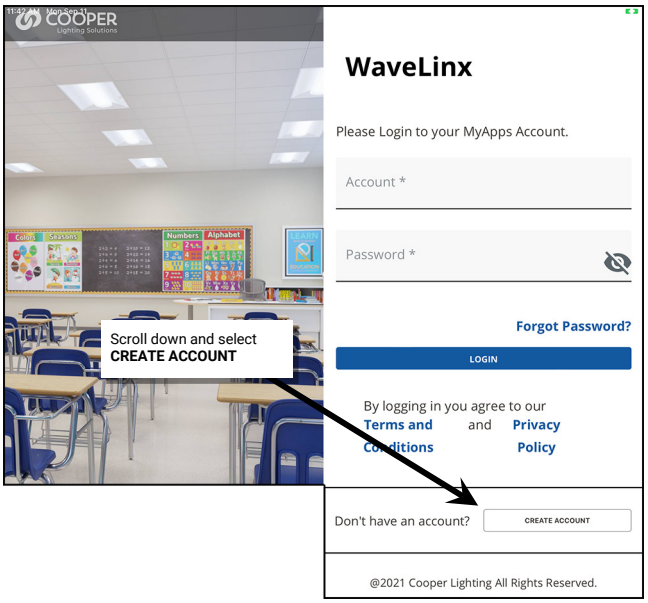
Register for a WaveLinx Mobile App Account

Before initial use, the user must register for a Cooper MyApps Account. **An internet connection is required for the initial registration**. After registration, the user can log in to the MyApps Account and then use the application without an internet connection if they do not log out. Once logged in, the WaveLinx Mobile App can communicate with the WaveLinx system.

To register for a Cooper MyApps Account:

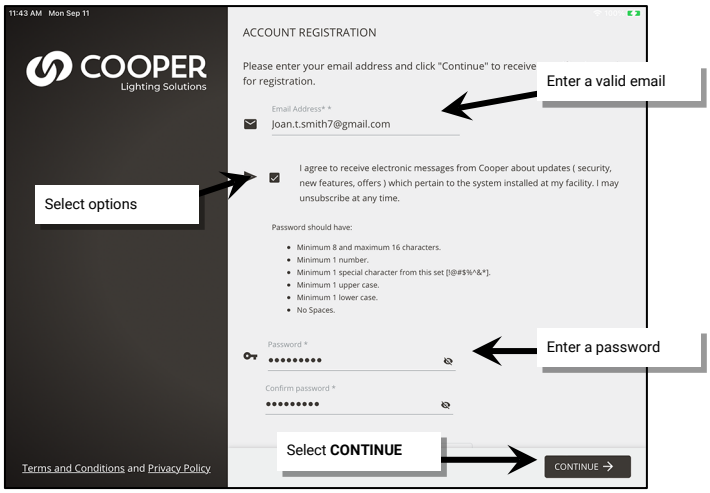
1: Tap on the WaveLinx App icon to launch the WaveLinx Mobile App.

2: When prompted to login, select the option to **CREATE ACCOUNT**. Scroll down if necessary.

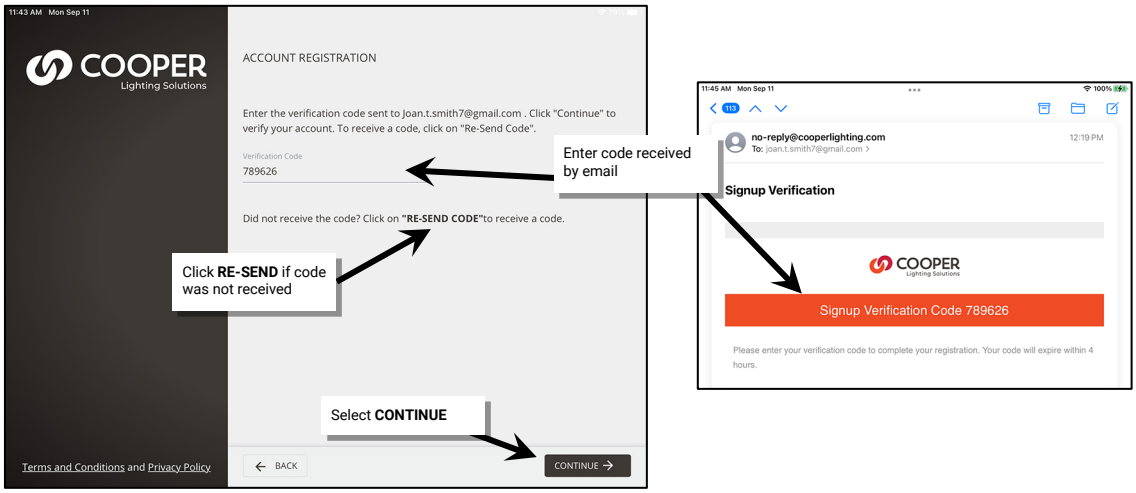


[199] This feature requires the use of a WaveLinx Area Controller with the minimum software version 11.x.x.x.

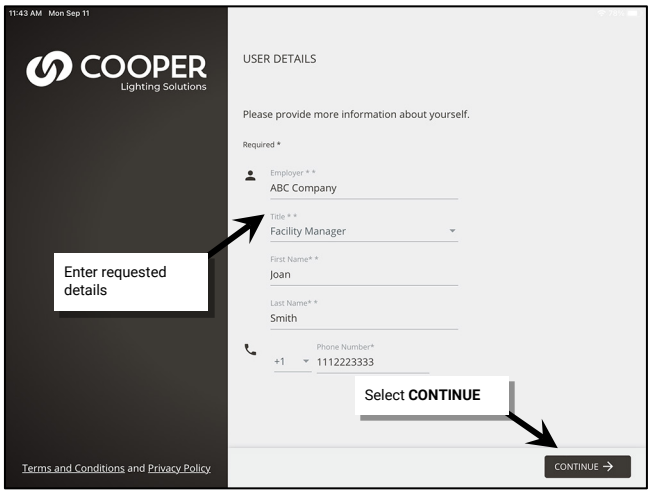
3: Enter a valid email address, select options for electronic messages, and enter the desired password (This password is for the MyApps Account and is different from the password assigned to a WaveLinx Area Controller). Tap **CONTINUE**.

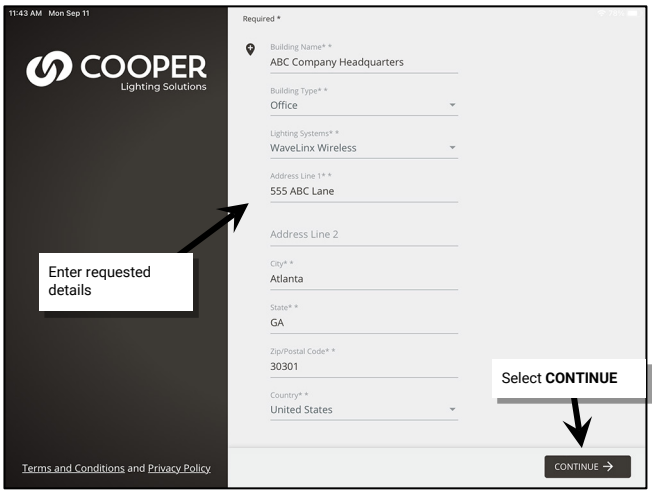


4: An email verification code will be sent to the email address entered. Enter the provided code, and then tap **CONTINUE**. (If the code is not received, click **RE-SEND CODE** and check the email spam folder.)



5: Enter the requested details and then click **CONTINUE** to advance the screen.





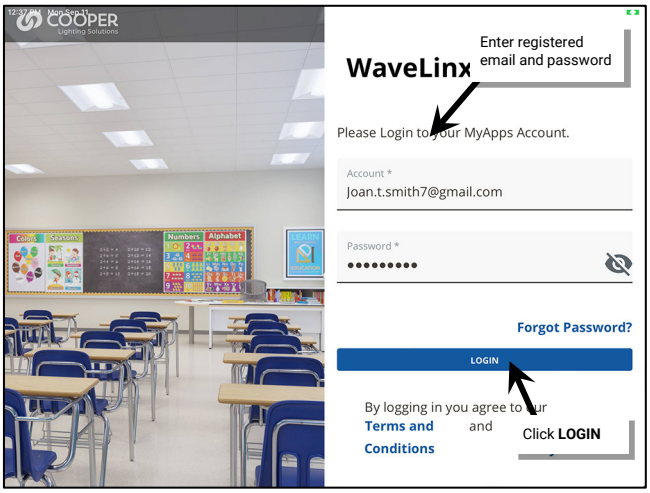
6: Review the Terms and Conditions and Privacy Policy, tap the **checkbox** to agree, and then tap **ACCEPT** to finish registration. Confirmation of registration will appear.

To manage the MyApps Account or to obtain firmware updates, use a web browser to login to https://myapps.cooperlighting.com. Enter the registered email address and password.

Login to the WaveLinx Mobile App

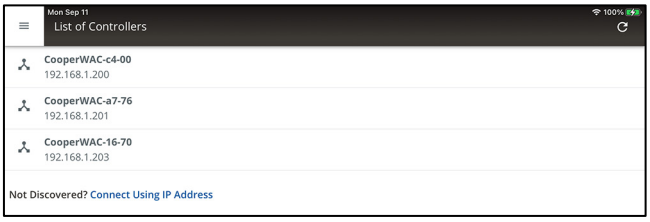
After registering for a MyApps Account, login to the WaveLinx Mobile App. **An internet connection is required for the initial login**. After login, the application will operate without an internet connection unless the user logs out. The WaveLinx Mobile App can communicate with any WaveLinx Area Controller.

1: When prompted to login, enter the registered email address and account password and then tap **LOGIN**.



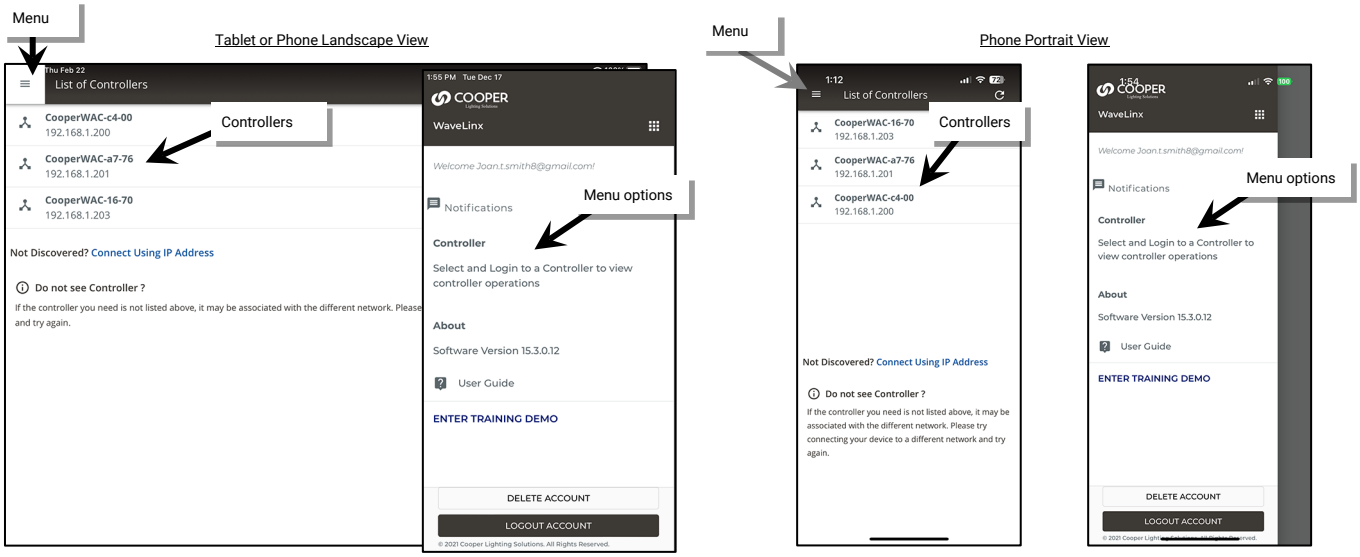
2: The first time the app opens, grant permission to allow network access and notifications to ensure that the app functions properly.

3: The application is now logged in and ready for use with the WaveLinx system with the **List of Controllers** screen displayed. The app will remain logged in, even if closed, unless the user logs out of the application.



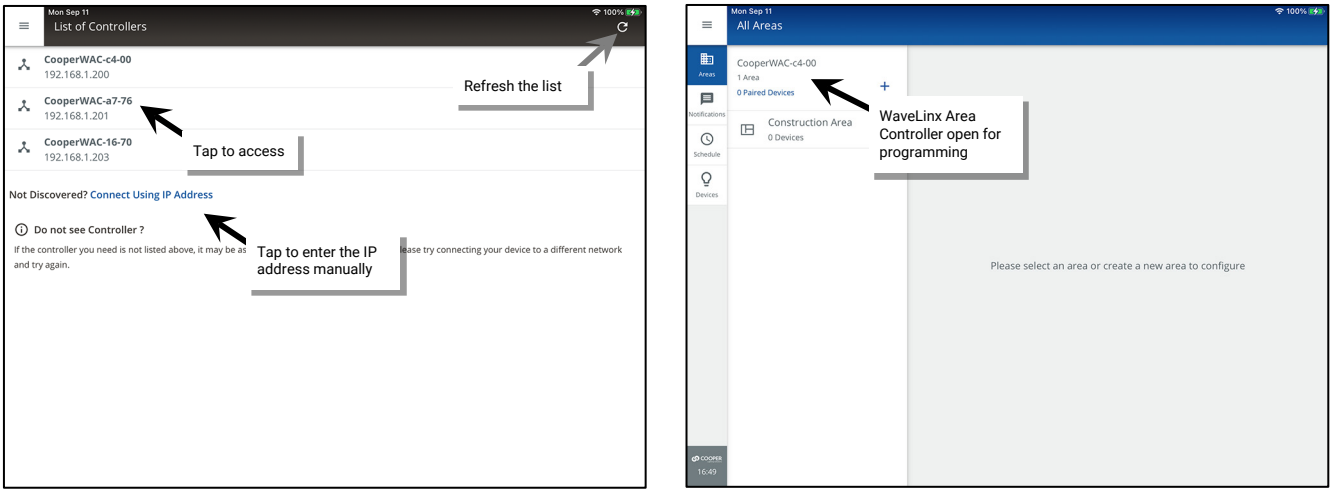
Using the List of Controllers Screen

Once logged in to the Mobile App, the **List of Controllers** will appear. The main function of the screen is to allow access to the programming of WaveLinx Area Controllers. Additional screen options include access to Notifications and WaveLinx Demonstration Mode.

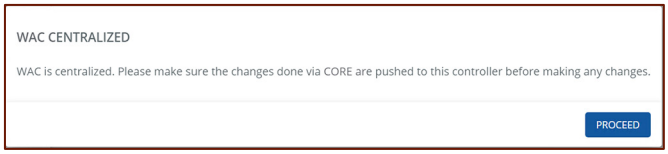


The **List of Controllers** is used to open a WaveLinx Area Controller for programming. Multiple WaveLinx Area Controllers may appear if the site has multiple connected to same network that the mobile device is accessing.

To display the programming for the WaveLinx Area Controller, tap on the WaveLinx Area Controller in the list and then enter the login credentials. If no WaveLinx Area Controllers are listed, check that the correct Wi-Fi network is selected and then click **refresh** ↻ to restart the search. If needed, manually enter the WaveLinx Area Controller's IP address.

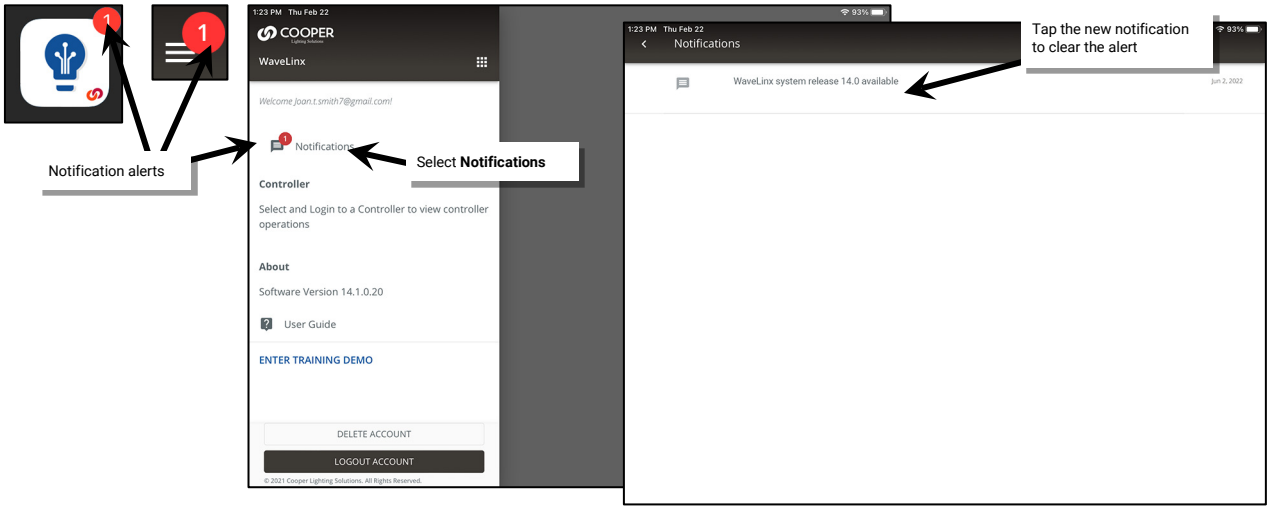


When logging in, if the message displays **WAC CENTRALIZED**, the WaveLinx Area Controller has been added to the WaveLinx CORE System for administration. Before proceeding, make certain to sync the programming from WaveLinx CORE to the WAC before any changes are made. Once changes are complete, make certain that the WAC changes are synced to WaveLinx CORE.



Accessing Notifications

The notifications screen will be used to display notifications that have been pushed the mobile device from the user's MyApps account. Notifications may be issued with new releases or other Cooper Lighting Solutions communications. If app notifications are allowed, notifications will display on the mobile device. New notification alerts will also be indicated by a symbol over the WaveLinx Mobile App icon and the app menu. To review and acknowledge the notification alert, from the menu, select **Notifications** and then tap the new notification.



Using Demonstration Mode

Place the WaveLinx Mobile App in **Demonstration Mode** to learn how to use the Mobile App without needing to be connected to a system. The demonstration uses a basic database containing several WaveLinx Area Controllers, each with a selection of paired devices.

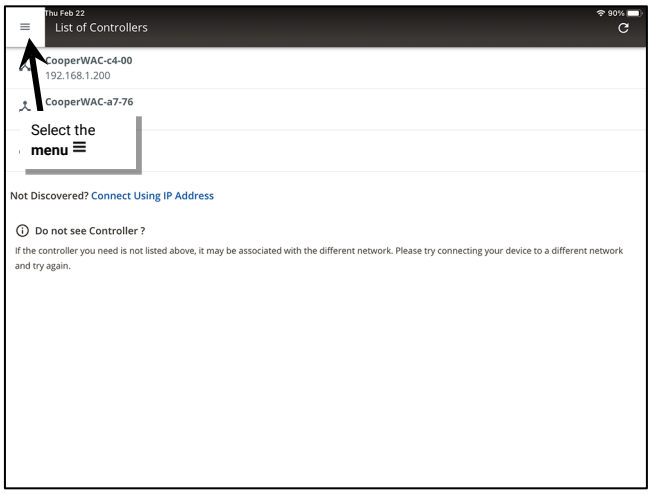
The demonstration mode operates offline and does not require access to a WaveLinx Area Controller or WaveLinx devices.

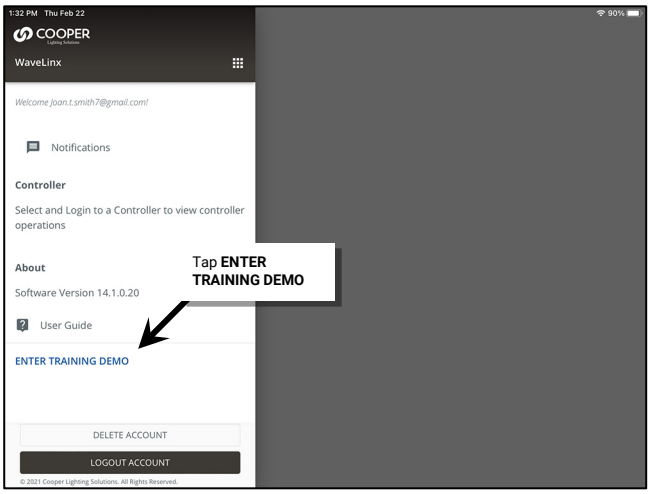
Entering Demonstration Mode

To place the WaveLinx Mobile App in **Demonstration Mode**:

1: Open the Mobile App but do not login to a WaveLinx Area Controller (If already logged in to a WaveLinx Area Controller, tap the menu and select **WAC Logout**).

2: From the **List of Controllers** screen, tap **menu** ≡ and select **ENTER TRAINING DEMO**.

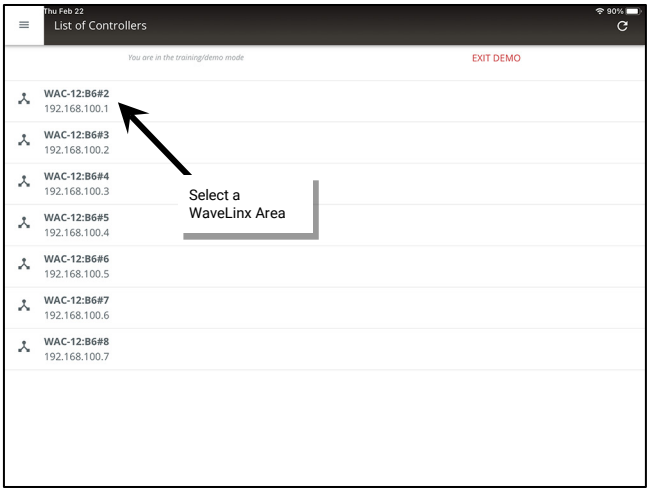


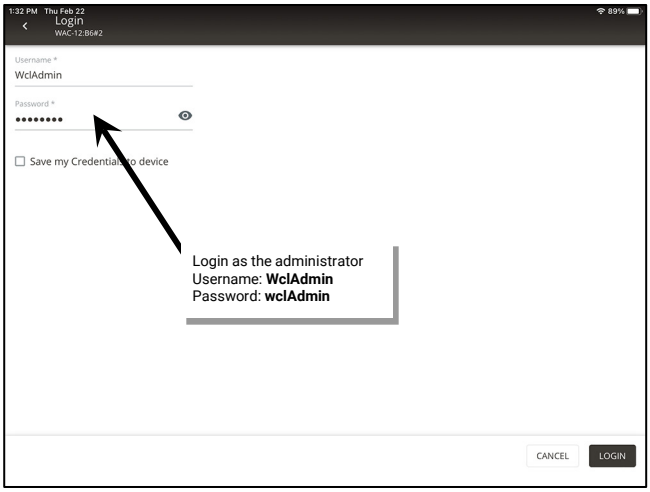


3: Tap to open one of the WaveLinx Area Controllers.

4: When prompted to enter a username and password, enter the administrator credentials:

- Default Username: **WclAdmin**
- Default Password: **wclAdmin**





The demo may require changing the default WaveLinx Area Controller password. Once the password is changed, login with the new credentials to open the database and begin configuring the demonstration site.

Resetting the Demonstration Database

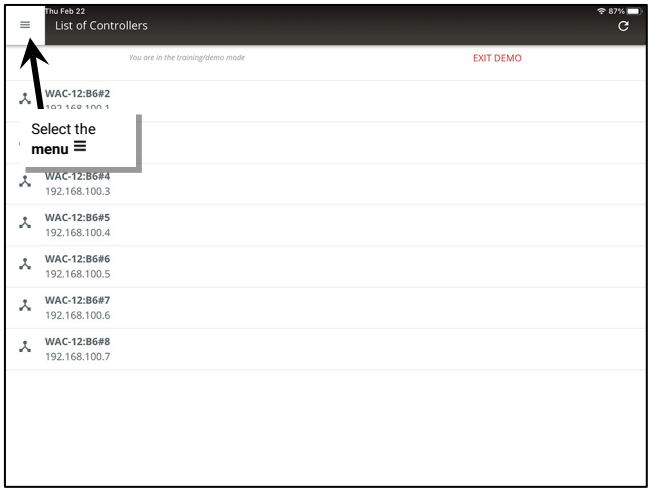
After using the demonstration mode, if demo devices have been reorganized, reprogrammed, or deleted, they can be restored by resetting the demonstration database.

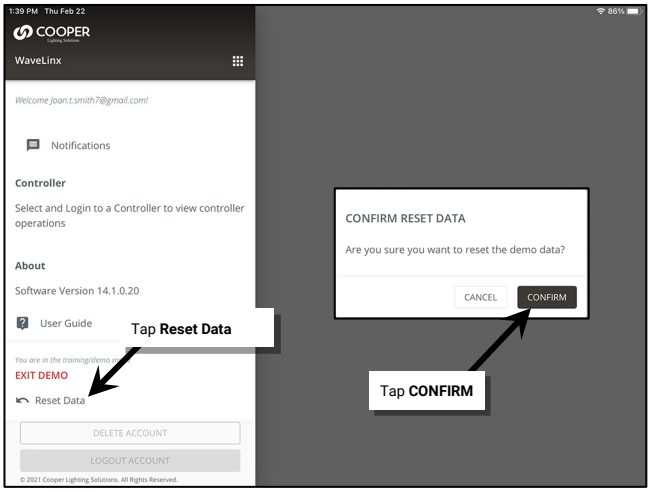
To reset the demonstration database:

1: If not already in, enter **Demonstration Mode** and navigate to the **List of Controllers**.

2: Tap **menu** ☰ and select ↶ **Reset Data**.

3: When prompted, confirm the data reset.



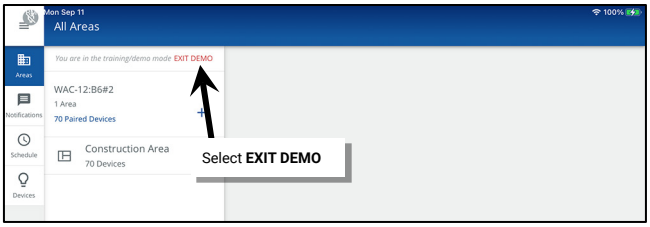


The demonstration data will be back in its original format.

Exiting Demonstration Mode

To exit **Demonstration Mode** and revert to **Live** mode.

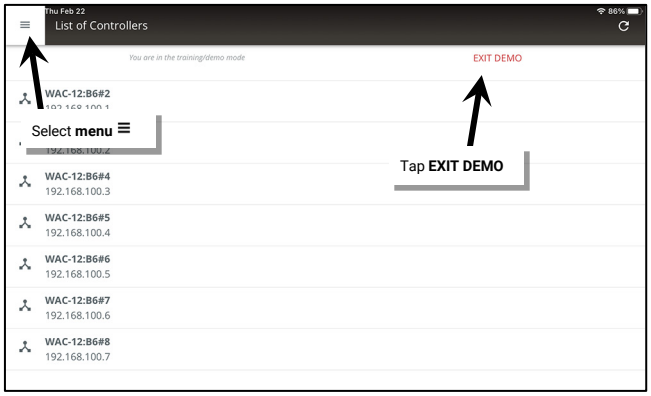
1: If in the demo and logged into a WaveLinx Area Controller, select **EXIT DEMO**.



OR:

1: Open the Mobile App but do not login to a WaveLinx Area Controller (If already logged in to a WaveLinx Area Controller, tap menu and select **WAC Logout**).

2: Tap **EXIT DEMO** at the top of the **List of Controllers** screen or tap **menu** ≡ and select **EXIT DEMO**.



The demo will exit. The Mobile App will now allow access to WaveLinx Area Controllers and WaveLinx devices at the facility.

WaveLinx Area Controller Login using the WaveLinx Mobile App

The WaveLinx Mobile App must make a connection to a WaveLinx Area Controller to allow the app to administer the system. This section describes how to make a communication connection from the WaveLinx Mobile App to a WaveLinx Area Controller, logging in as the administrative user. This procedure assumes that the user has previously registered for a MyApps account and has logged into the application.

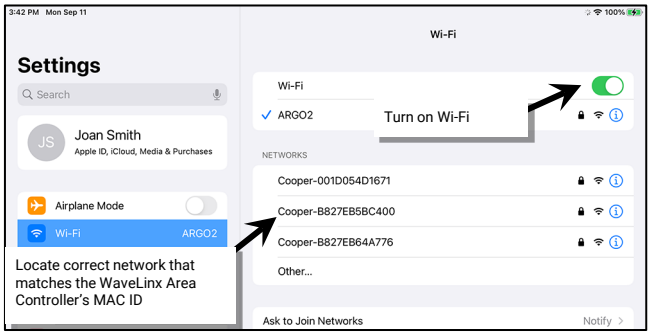
Before using the WaveLinx Mobile App, perform the initial setup of the WaveLinx Area Controller recommended in “Initial Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller” on page 24. Once these steps are completed, proceed with the steps below.

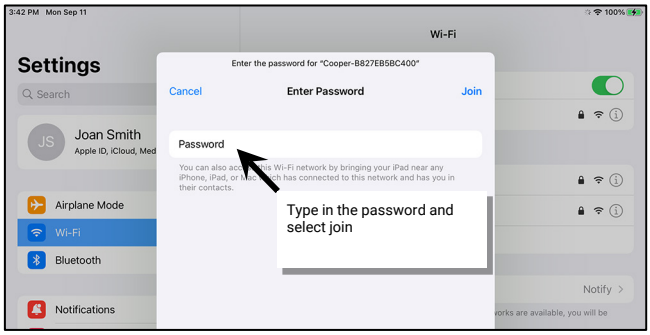
The below steps assume that during the initial configuration steps, the WaveLinx Area Controller default password and network key have been updated from the defaults. The steps use the WaveLinx Area Controller’s built-in Wi-Fi access to connect to the mobile app. If the WaveLinx Area Controller has been installed into the facility network and the mobile device has access, connect the mobile device to facility network to access the WaveLinx Area Controller. Refer to the network administrator for access information, the WaveLinx Area Controller’s IP address, and the credentials to use when logging in.

For security purposes, change the default password. Users should set a complex password when changing passwords. See “Modifying Existing User Accounts and Passwords” on page 375 for this procedure.

1: If there is more than one WaveLinx Area Controller in the facility, locate the label with the MAC ID on the top face of the WaveLinx Area Controller. Make note of the MAC ID shown.

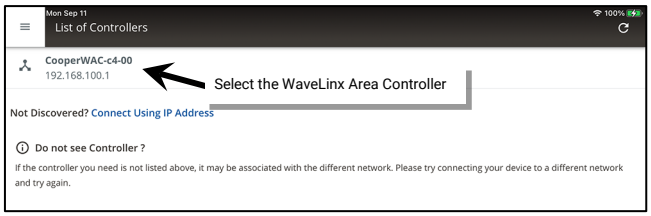
2: Turn on the smartphone or tablet Wi-Fi. Locate the Wi-Fi network named Cooper-XXXXXXXXXXXX (where X is a string of letters and numbers). Select the network where the X characters match the MAC ID noted in the previous step. When prompted, enter the Wi-Fi password assigned to the WaveLinx Area Controller during the initial setup. (If still in the default configuration, use the default password, **wclAdmin,** to join the network.)





3: Tap on the WaveLinx icon to launch the Mobile App.

4: Once the app opens, the WaveLinx Area Controller should display. Tap on the WaveLinx Area Controller to open the connection. Depending on the controller version, follow the appropriate steps listed below.



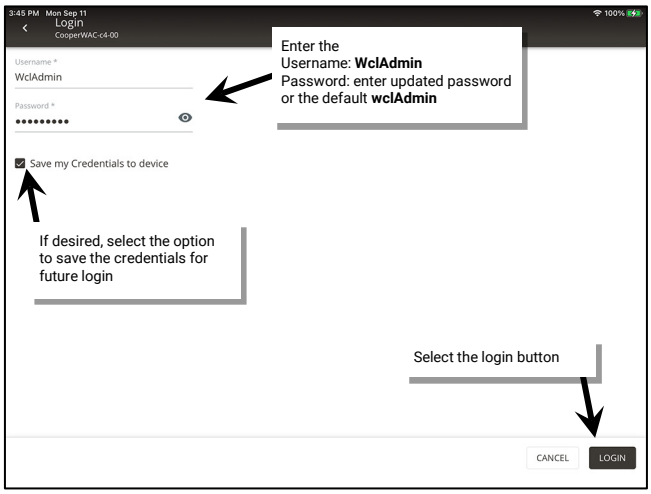
WaveLinx Area Controller Version 17.0.x.x

WaveLinx Area Controller models with version 17.0.x.x software will automatically open in the Mobile App and display the login screen.

In the log in screen, enter the username and password for the administrator user.

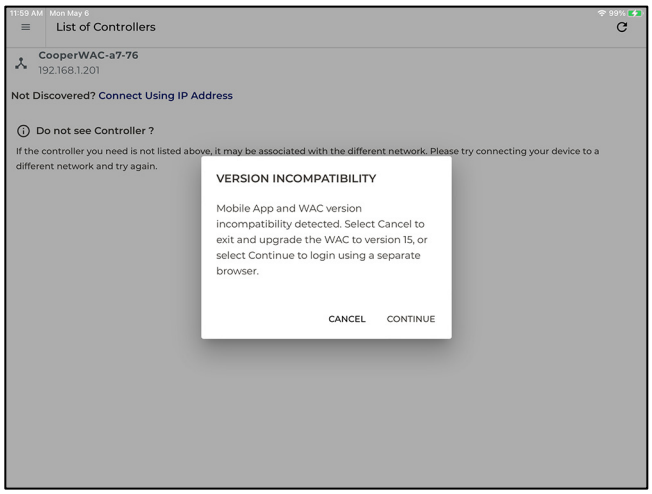
- Username: **WclAdmin**
- Password: Enter the assigned password (if still at default settings, enter password wclAdmin).

Select the option to save credentials to remember the login credentials automatically on this device for future connections and then select the log in button.



WAC2 Version 16.x.x.x and Lower

For a WAC2 model with 16.0.x.x or lower versions software, the WaveLinx Mobile App will display a warning indicating that there is a version incompatibility and that the WAC should be updated.

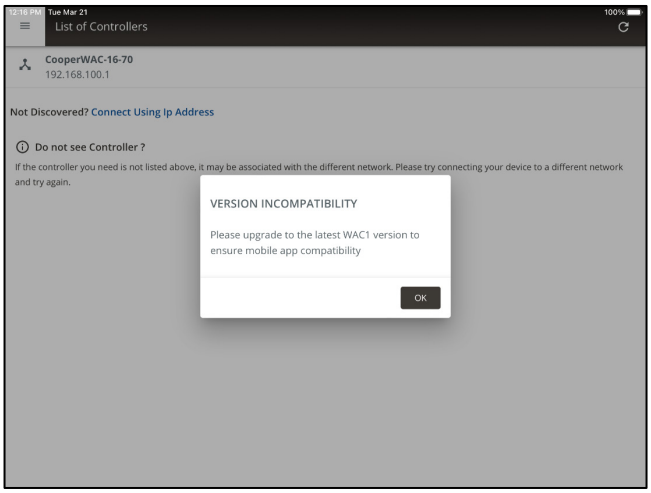


- For best results, update the WaveLinx Area Controller to the latest software available before proceeding (see "Viewing and Updating Firmware of the WaveLinx Area Controller and WaveLinx Devices" on page 384 for instructions).
- If the WaveLinx Area Controller is not upgraded, tapping CONTINUE will force a redirection to login to the WAC's webpage using the WaveLinx WAC Lighting App for administration as this will show only available features for that WAC version (see "Preparing to use the WaveLinx WAC Lighting App" on page 157).

WAC

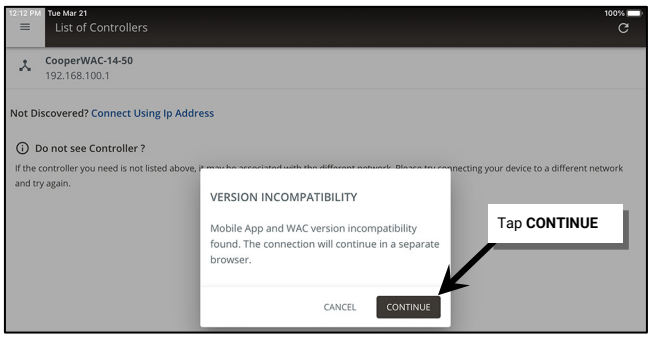
The mobile app will not directly connect to a WAC (G1) but will allow for a browser portal to be opened to the WAC for administration. Note that the features shown in the WAC browser portal will reflect the features available for that software version release. Refer to the user guide for that version release for information on using these features.

- If the WAC (G1) is not at the latest firmware version available for the unit, a version incompatibility message will display, prompting that the update be done. First, update the WAC (G1) to the latest G1 firmware and then open the WAC again. (see "Viewing and Updating Firmware of the WaveLinx Area Controller and WaveLinx Devices" on page 384 for instructions).

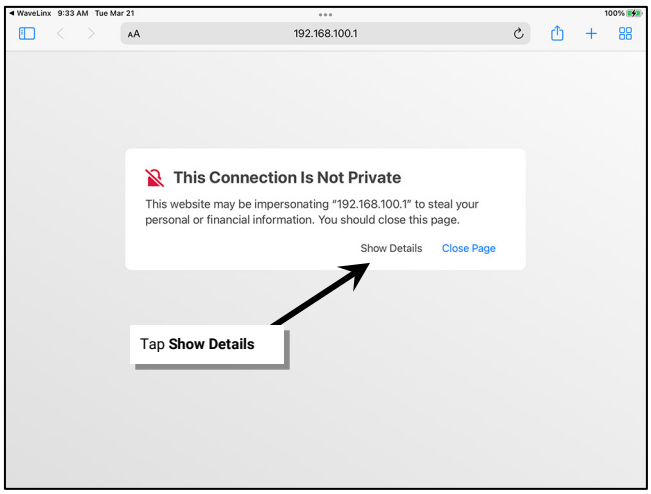


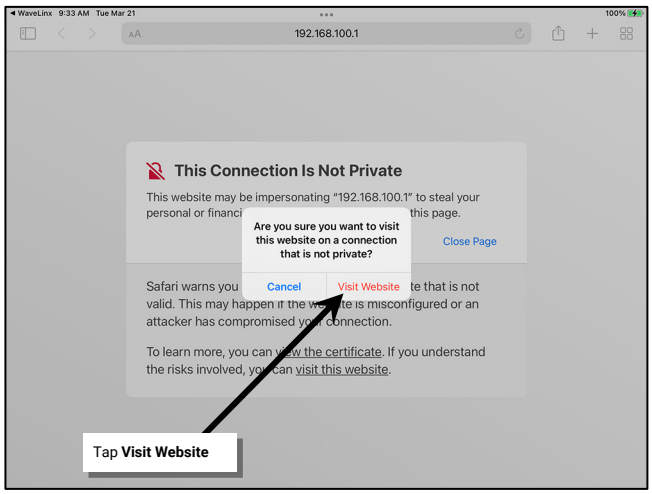
- For a WAC (G1) at the latest firmware version, the mobile app will display a version incompatibility message, along with the option to **Continue** to open the WAC for administration in a separate browser window.

1: Tap **CONTINUE** to open the device's browser.



2: If a warning is displayed, click **Show Details,** and then select the option to bypass and **Visit Website**.

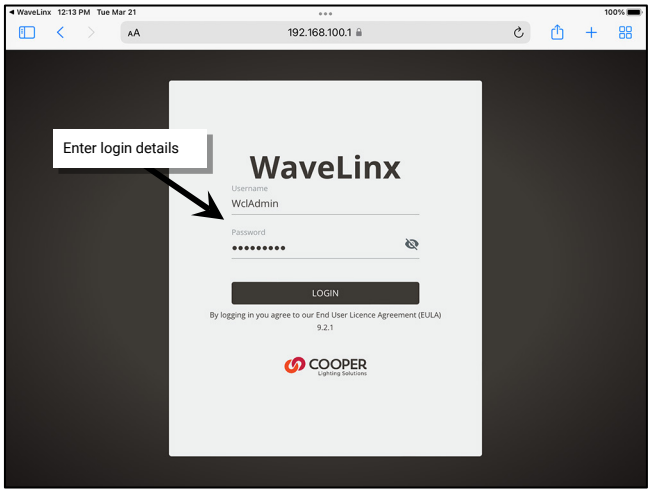


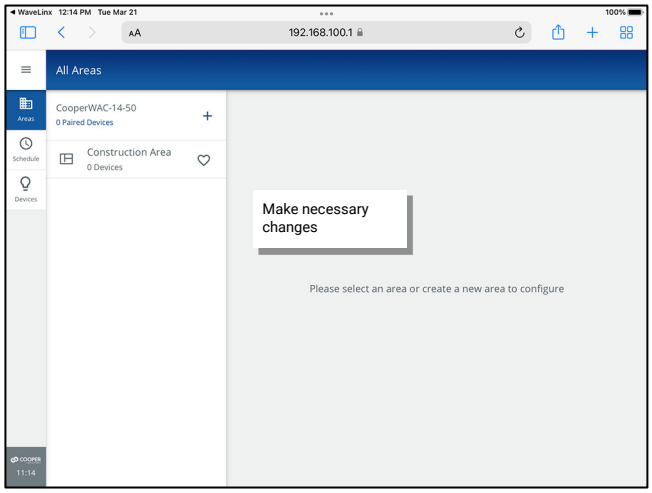


3: In the log in screen, enter the username and password for the administrator user.

- Username: **WclAdmin**
- Password: Enter the assigned password (if still at default settings, enter password wclAdmin).

Use the browser connected WaveLinx App to make the desired modifications.





Note: The Mobile App will not be the active app displayed when logging out of a browser connected WaveLinx WAC. Tap on the WaveLinx Mobile App to access additional WaveLinx Area Controllers.

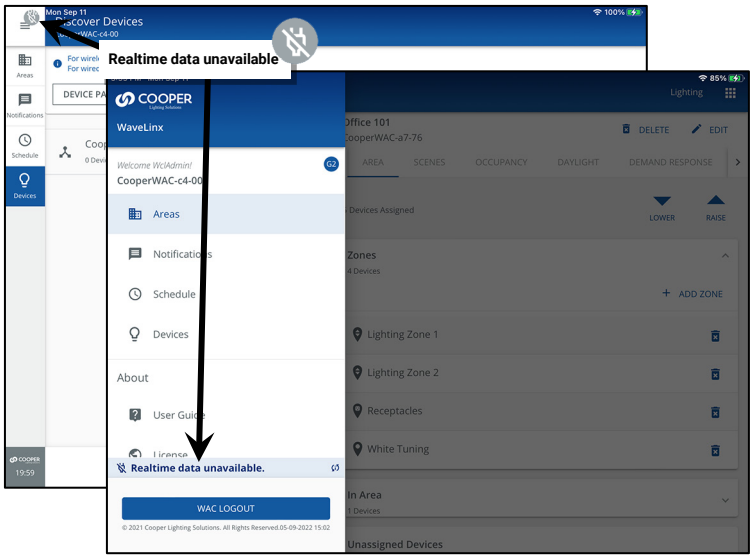
Verifying Mobile App Connection Reliability: Real-time Data Unavailable

Before proceeding on, ensure that the Mobile App has a reliable communications connection. The WaveLinx Mobile App relies on a reliable connection to the WaveLinx Area Controller to display real-time data such as:

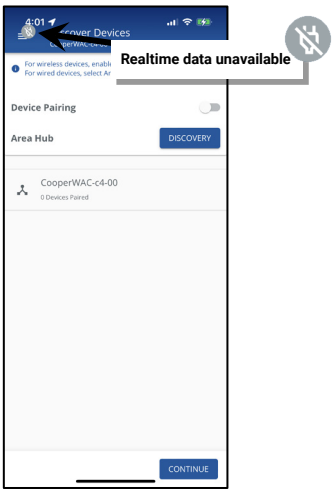
- new device pairing/adding notifications
- current scene, daylight, and zone levels
- occupancy set status
- displaying the identified device when a device is identified using an onboard button, flashlight/laser method, or remote.

If the communication signal between the Mobile App and the WaveLinx Area Controller becomes unreliable, the Mobile App will display a special icon over the menu icon and the message **Realtime data unavailable** at the bottom of the menu. Although real-time data is affected, commands and programming changes may continue to process properly.

Tablet or Phone Landscape View



Phone Portrait View



In most cases, the Mobile App will automatically recover from the live data disconnected state if the signal improves.

If the Mobile App indicates a disconnected state that does not automatically resolve:

1: Try force closing the Mobile App and then reopen it.

2: Move the Mobile Device closer to the Wi-Fi access point.

3: Ensure that the wireless network is operating properly. A poor wireless network signal will cause this intermittent issue.

Additional Login Details

If this is the first login for the WclAdmin user, a password change may be forced. If prompted to change the password, follow the instructions on screen to set a complex password. Important: Select a password that can be remembered as it will be required when logging in to the WaveLinx Area Controller through the Mobile App or through the internal webpages.

When logging in, if the message **WAC CENTRALIZED** displays, the WaveLinx Area Controller has been added to WaveLinx CORE for administration. Before proceeding, make certain to sync the programming from the WaveLinx CORE to the WAC before any changes are made. Once changes are complete, make certain that the WAC changes are synced back to the WaveLinx CORE.

Quick Links for Common Questions

- I previously logged in on my mobile device as a personal control user and saved my credentials. Now I need to log in as the administrator user. How do I switch users? See the answer on page 471.
- How do I change the default password for the user? See the answer on page 375.
- How do I create additional users? See the answer on page 374.
- When I open the Mobile App, I get an error message. What should I do? See the answer on page 471.

Logout of the WaveLinx Area Controller using the WaveLinx Mobile App

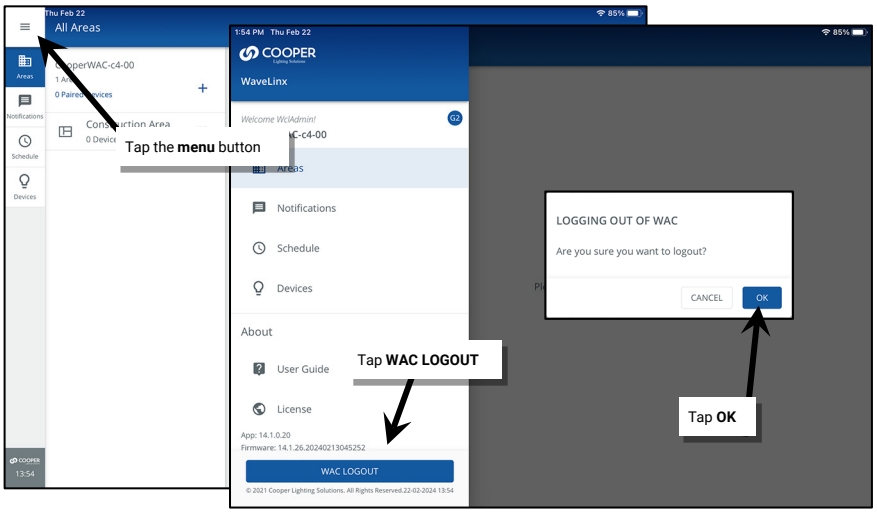
Once the changes are complete, log out of the WaveLinx Area Controller.

To log out of the WaveLinx Area Controller

1: Tap **menu** ≡.

2: Select **WAC LOGOUT**.

3: Tap **OK**.



The Mobile App will logout and return to the **List of Controllers**.

Logout of the Mobile App

Once logged in to the Mobile App, it is not necessary to log out. The WaveLinx Mobile App can be used without need of an external internet connection if the user account remains logged in.[200]

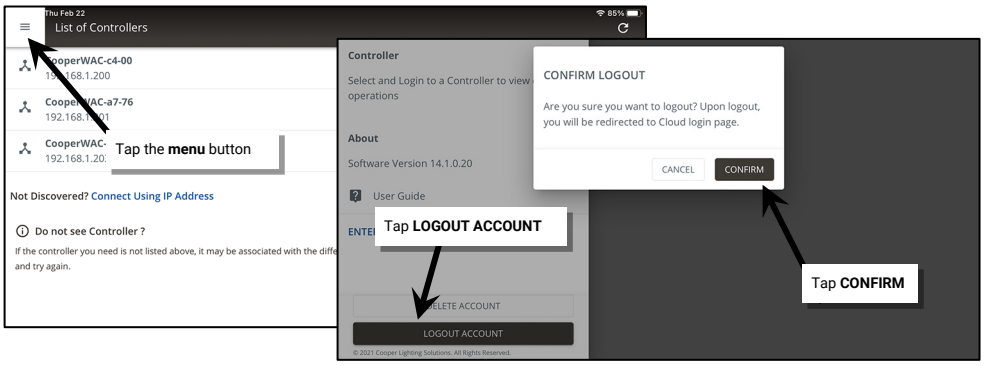
WARNING: If an App logout is processed, an internet connection will be required to log back in.

To log out of the Mobile App:

1: Tap **menu** ≡.

2: Select **LOGOUT ACCOUNT**.

3: Tap **CONFIRM**.



To use the WaveLinx Mobile App again, login as a registered user (requires an internet connection).

[200] Selecting **WAC Logout** closes the connection to the current WaveLinx Area Controller. It will not logout the Mobile App user account.

Preparing to use the WaveLinx WAC Lighting App

The WaveLinx Area Controller internal webpages offer the capability to login via PC to administer the lighting programming through a built-in Lighting App. This feature requires a WaveLinx Area Controller with minimum software version 11.x.x.x.

The WaveLinx WAC Lighting App will have the same appearance and functionality as the WaveLinx Mobile App when logged in to a WaveLinx Area Controller. The WAC Lighting App will not require user registration, and will not display the notification options or demonstration mode features of the WaveLinx Mobile App.

Logging in to the WaveLinx WAC Lighting App

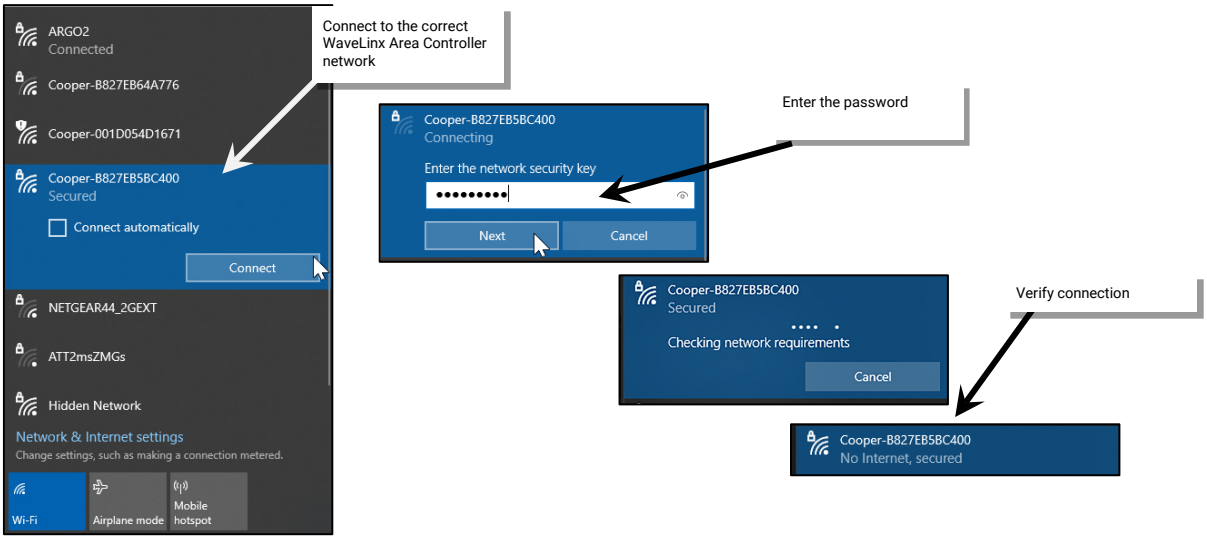
Before logging in to the WAC WaveLinx Web App, perform the initial setup of the WaveLinx Area Controller recommended in “Initial Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller” on page 24. Once these steps are completed, the WAC Lighting App is ready for use.

The below steps assume that during the initial configuration steps, the WaveLinx Area Controller default password and network key have been updated from the defaults. The below steps use the WaveLinx Area Controller’s built-in wireless access to connect to the computer being used. If the WaveLinx Area Controller has been installed into the facility network and the computer has access through the facility network, use the IP address assigned to the WaveLinx Area Controller on the facility network to access the webpage. Refer to the network administrator for access information, the WaveLinx Area Controller’s IP address, and the credentials to use when logging in.

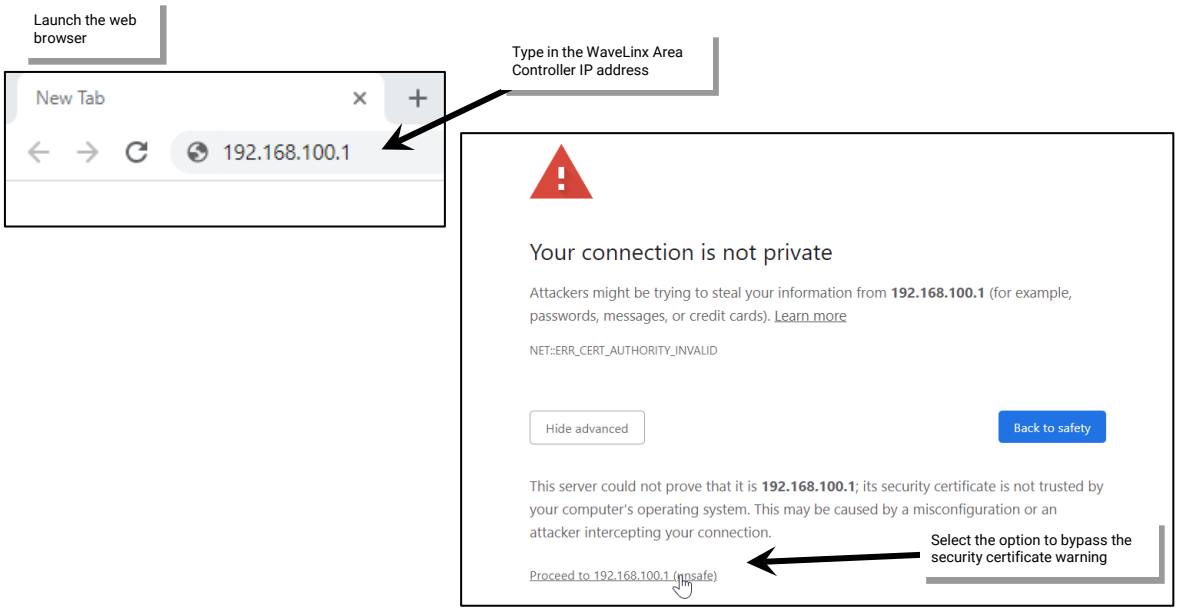
1: Make sure that the mobile device or computer being used has wireless connectivity and has a current web browser installed. The WaveLinx internal webpage configuration is accessed using a current version web browser.

2: If there is more than one WaveLinx Area Controller in the facility, on the top of the WaveLinx Area Controller, locate the label with the MAC ID. Make note of the MAC ID shown.

3: Turn on the mobile device or computer Wi-Fi and locate the Wi-Fi network named Cooper-XXXXXXXXXXXX (where X is a string of letters and numbers). Select the Wi-Fi network Cooper-XXXXXXXXXXXXXX where the X characters match the MAC ID noted in the last step. When prompted, enter the previously customized password, and then join the network (If still at the default settings, use the network key password **wclAdmin** [case sensitive]).

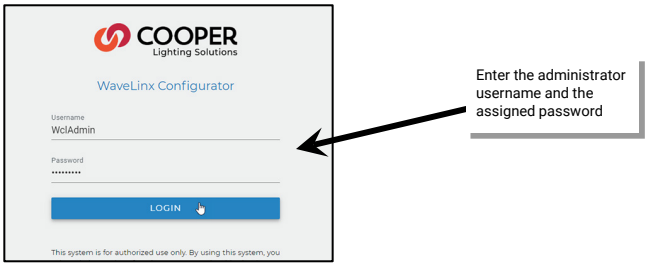


4: Open the web browser and enter the IP address of the WaveLinx Area Controller in the address bar. (The default IP address if connecting through the onboard wireless access point is 192.168.100.1.) The first time the WaveLinx Area Controller is accessed, the browser may display message windows regarding the site security certificate. The display and wording of these messages may differ between web browsers. Locate the option to bypass the warning to proceed to the site.

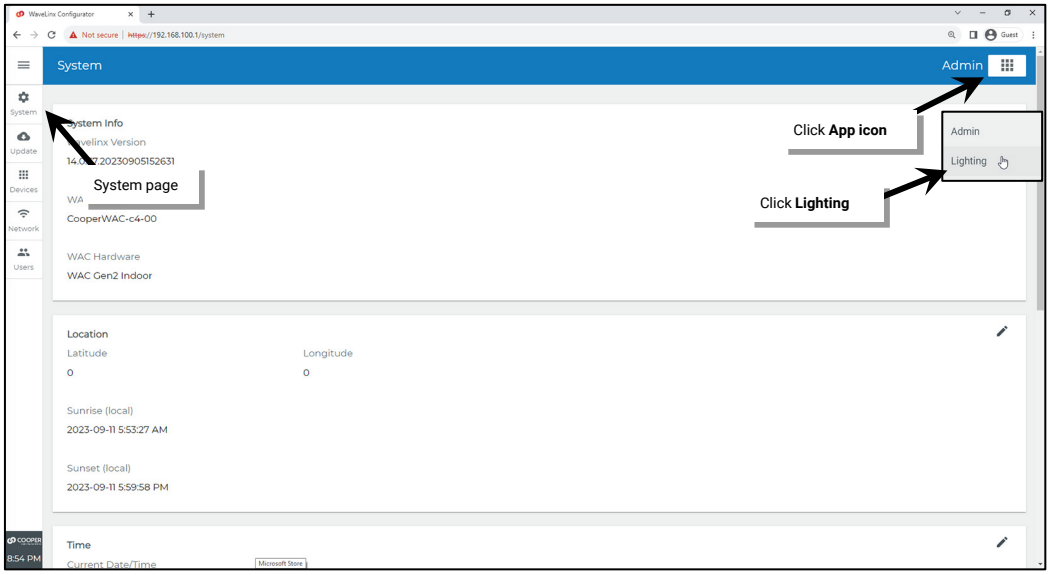


5: In the log in screen, enter the username and password for the administrator user.

- Username: **WclAdmin**
- Password: Enter the assigned password.

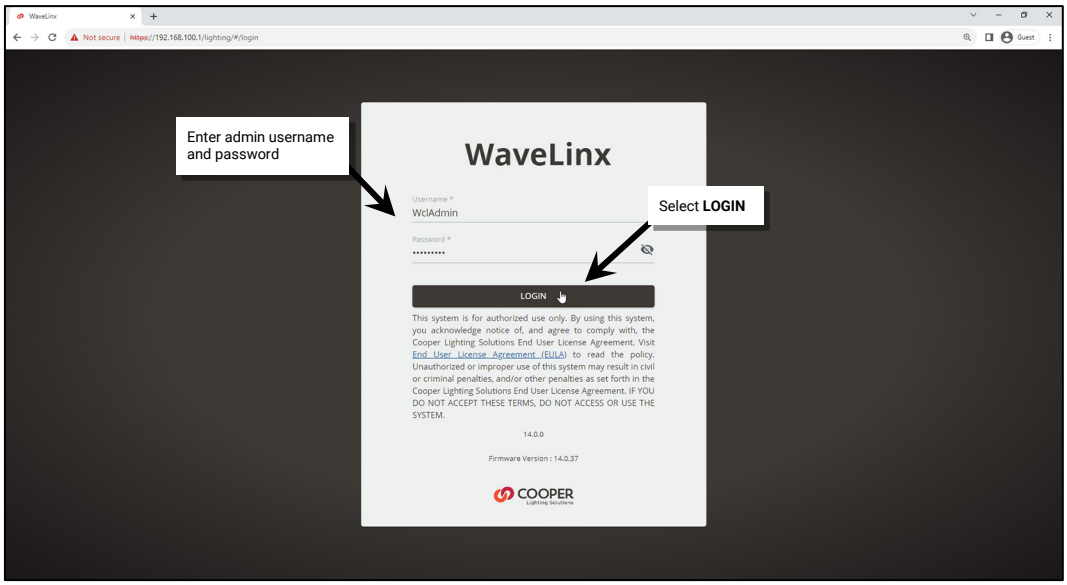


6: In the top right of the system page, click on the **App icon** ⠿ and then select **Lighting** from the drop down.

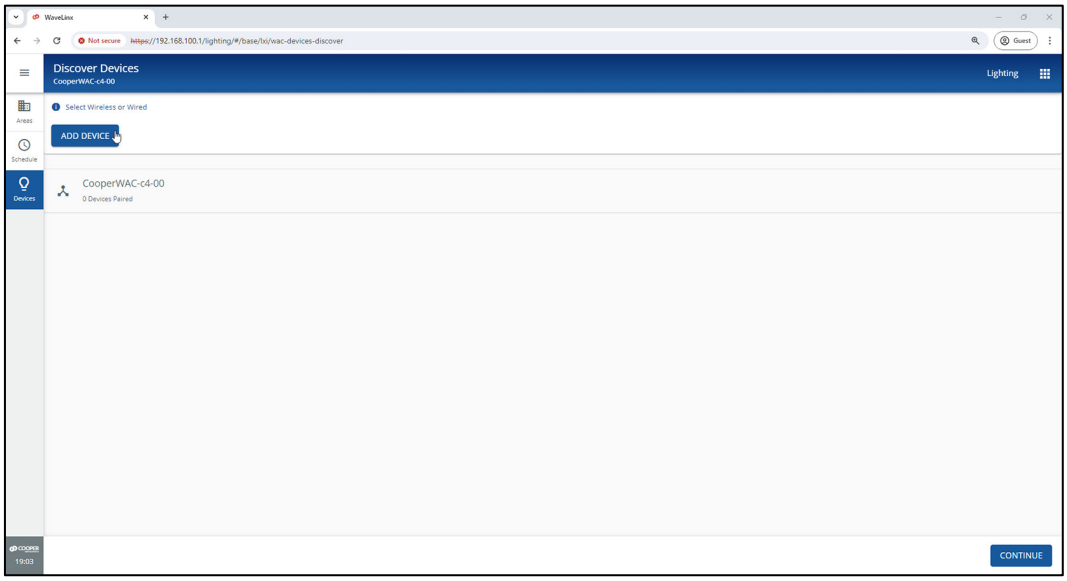


7: When prompted, enter the username and password for the WaveLinx Area Controller's administrator user and then select **LOGIN**.

- Username: **WclAdmin**
- Password: Enter the assigned password.



8: The WAC Lighting App will allow administration and programming of the devices that are paired with this WaveLinx Area Controller.

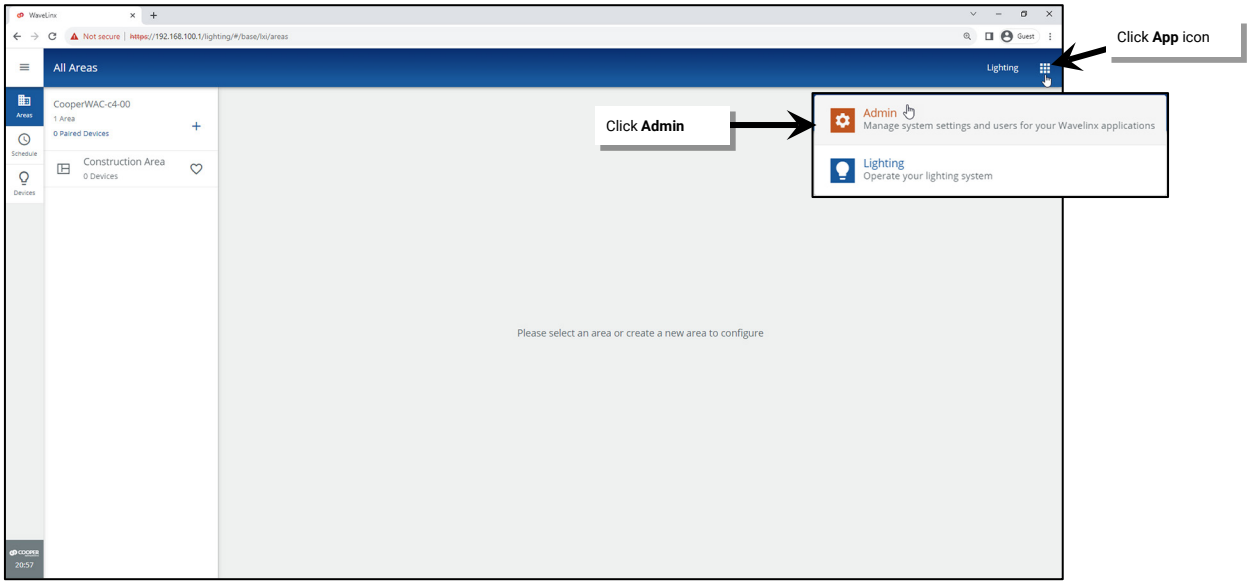


When logging in, if the message **WAC CENTRALIZED** displays, the WaveLinx Area Controller has been added to WaveLinx CORE for administration. Before proceeding, make certain to sync the programming from the WaveLinx CORE to the WAC before any changes are made. Once changes are complete, make certain that the WAC changes are synced back to the WaveLinx CORE.

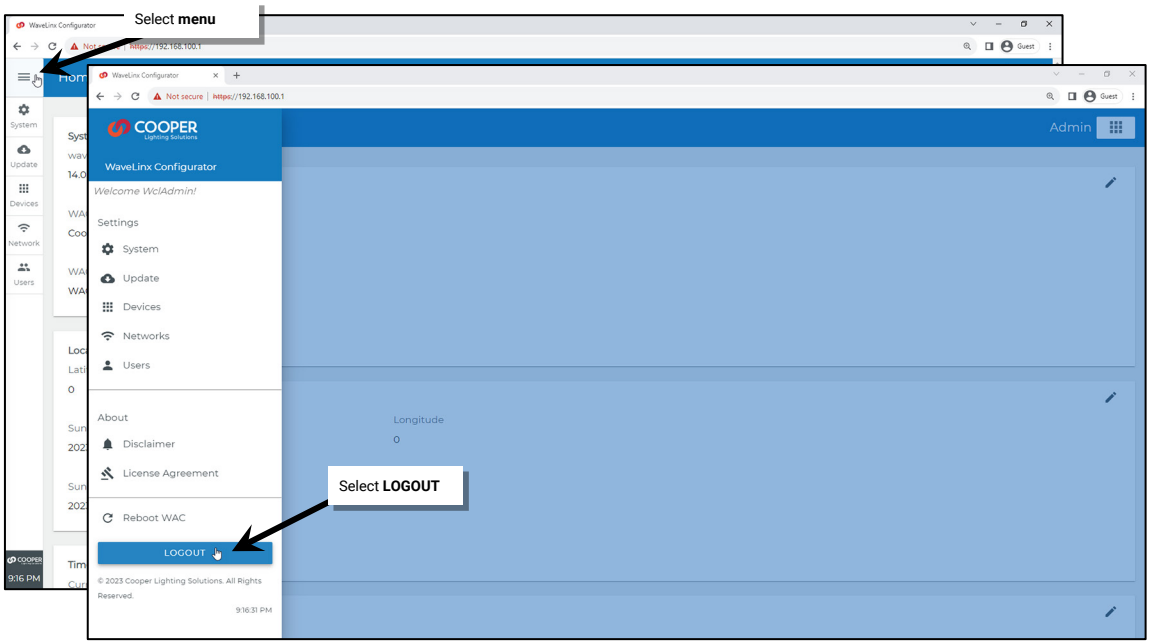
Close and Logout of the WaveLinx WAC Lighting App

To logout and close out of the WaveLinx WAC Lighting App follow the instructions below:

1: In the top right of the Lighting App page, click on the **App icon** ⠿ and then select **Admin** from the drop down.



2: Select **menu** ≡ and then select **LOGOUT**.

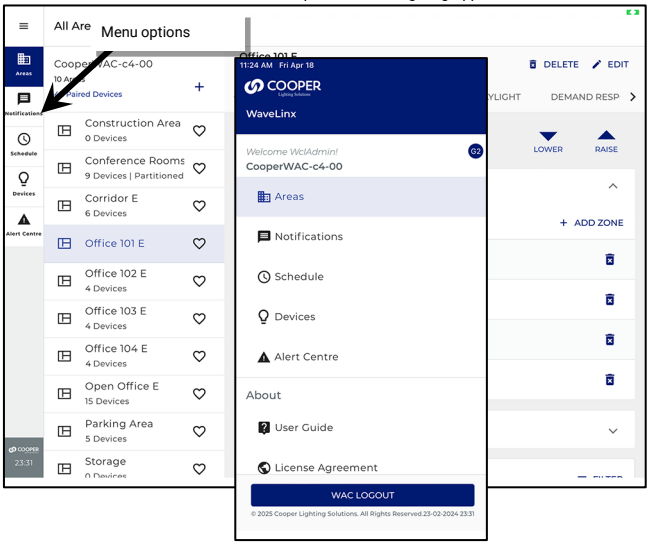


WaveLinx Area Controller Screen Layout and Navigation

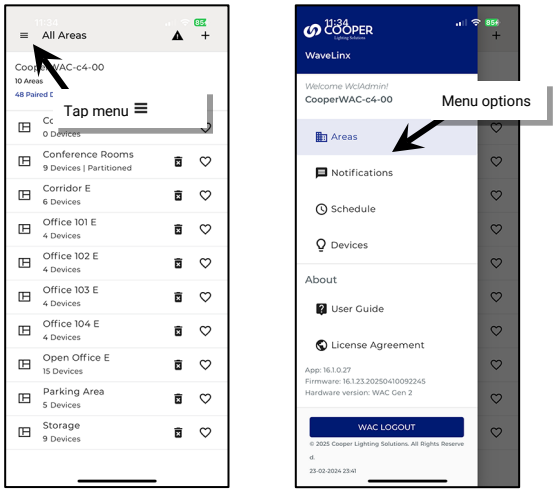
The layout of the Mobile App and the WAC Lighting App[201] may appear slightly different between mobile phones and tablets/PCs as well as if the device is used in portrait or landscape orientation.

On larger tablets in landscape view and in the WAC Lighting App, menu items will be displayed along the app sidebar for easy navigation. In smaller devices or in portrait view, use the menu to navigate between the options.

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



The menu allows access to:

- Areas: Where the organization of devices and programming occurs.
- Notifications: Where any notifications will display. This feature may only be displayed in the WaveLinx Mobile App.
- Schedule: Where timed event programming occurs.
- Devices: Where detailed device information can be displayed
- Alert Center: Where a quick view of special mode statuses will be displayed.

Using the Area Screen

The area screen is used to organize the WaveLinx Area Controller, setting up areas and zones, assigning devices, and adjusting programming.

Areas

An **Area** can be either a **standard area** or a **partitioned area**.[202] Devices will be assigned to areas during the initial setup for standard areas or during setup of a partitioned area.

- A **standard area** is a space within a facility with devices that operate separately from other spaces (a room). The area will contain the devices that operate to control that room.
- A **partitioned area** is a space within the facility that may have moveable divider walls to allow creation of one large space or several smaller spaces (**sub areas**). Devices in the space may need to operate independently for a single sub area when divider walls are closed or may need to operate a combination of sub areas when walls are opened.

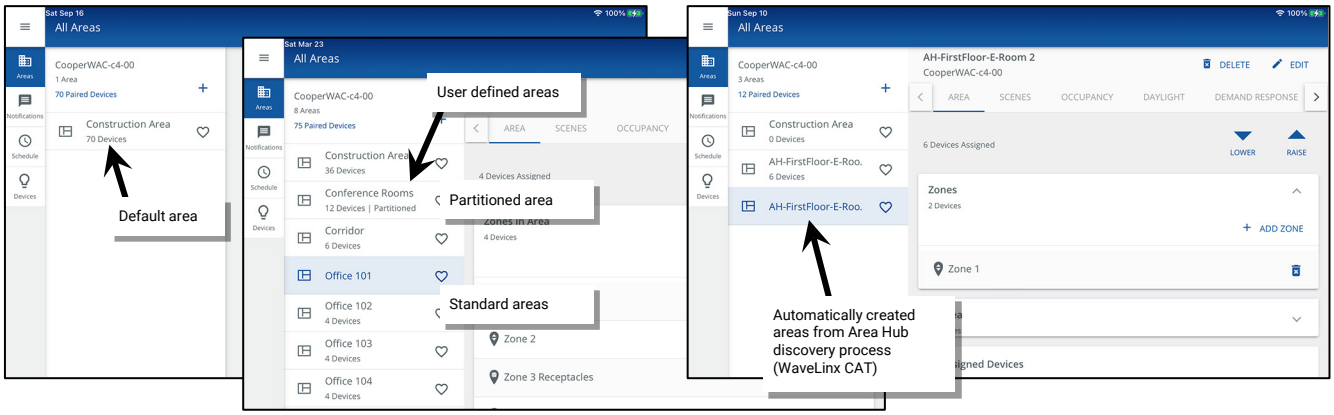
During the initial pairing with the WaveLinx Area Controller, all WaveLinx PRO and WaveLinx LV devices are placed in the default construction area. WaveLinx DALI devices will also be placed in the default construction area after the WaveLinx DALI Hub is discovered and added to the

[201] This feature requires the use of a WaveLinx Area Controller with the minimum software version 11.x.x.x.

[202] The use of partitioned areas requires the use of a WaveLinx Area Controller with the minimum software version 14.1.x.x.

WaveLinx Area Controller. As part of system setup, additional areas can be created to organize devices that will work together.

With WaveLinx CAT devices, when the WaveLinx Area Hub is discovered, areas are automatically created for each Area Hub port that is connected to WaveLinx CAT devices. The devices are automatically assigned to the port areas. Additional areas can be created manually and devices moved to other areas as needed.



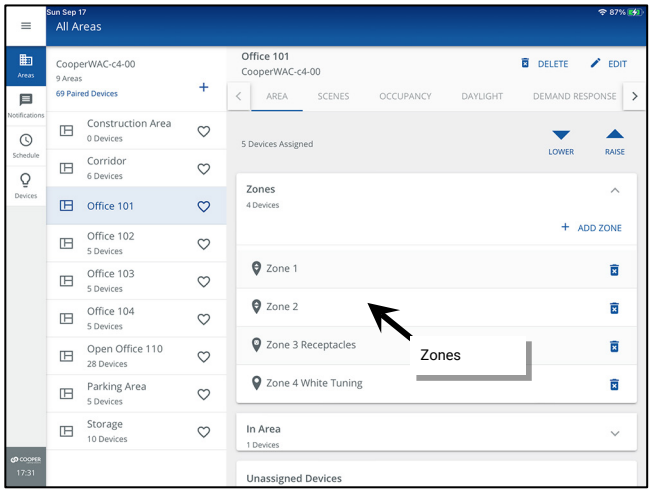
Zones

A **Zone** is a collection of load devices within an area that operate together.

Once areas are created, the controlled loads within a room (area) will be organized further, grouping loads that should operate together into zones. For instance:

- Fixtures in the same row may be grouped into a dimmable zone to allow for uniform operation.
- Relays controlling the same portion of a space may be grouped in a non-dimmable zone for easy group control.
- Controlled WaveLinx PRO Receptacles or receptacles operated from WaveLinx PRO or CAT Switchpacks or WaveLinx DALI Field Relays are placed in a receptacle zone to allow easy control capability.
- White tunable devices may be separated to allow for separate control of color tuning from the ON/OFF and dimming functionalities of the fixtures.
- In a partitioned area, a zone that is shared between multiple spaces will be split into sub zones to allow for independent operation when the partition walls are closed.

The WaveLinx App creates at least one dimmable zone by default for each area. Additional zones may be added manually as needed. The type of zone is indicated by each zone's icon.



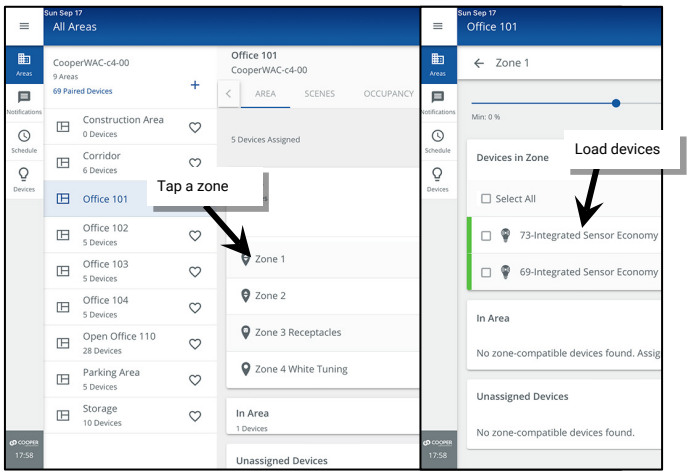
Icon	Description
	Dimmable Zone: May contain any dimmable load connected to a dimmable WaveLinx PRO, CAT, DALI DT6 or DT8 drivers, or LV devices such as Integrated or Tilemount Sensors, Dimming Switchpacks, Outdoor Lighting Control Modules, or WaveLinx Networked Relay Panel Dimming Module outputs.
	Receptacle Zone: May contain WaveLinx PRO Receptacles or receptacles switched through a WaveLinx Networked Relay Panel, WaveLinx PRO or CAT Switchpack (0-10V connections not being used) or WaveLinx DALI Field Relays.
	Non-Dimmable Zone: May contain non-dim load (switched load) switched through a WaveLinx Networked Relay Panel, WaveLinx PRO or CAT Switchpacks (0-10V connections not being used), WaveLinx PRO Control Multiplier, or WaveLinx DALI Field Relay.
	White Tuning Zone: White tuning control zone for use by; WaveLinx PRO Universal Voltage Dimming Switchpacks connected to the 0-10V white tuning control wires of a fixture or fixture group. (RSP-P-010-347, WSP-MV-010 and WSP-UV-010 models only). WaveLinx DALI DAC connected to the 0-10V white tuning control wires of a fixture or fixture group. Also operates with the Advanced Integrated Sensor model IS-PRO CCT, Dual Channel WaveLinx PRO Nodes, and DALI DT8 drivers (white tunable) when a WaveLinx DALI Hub is used.

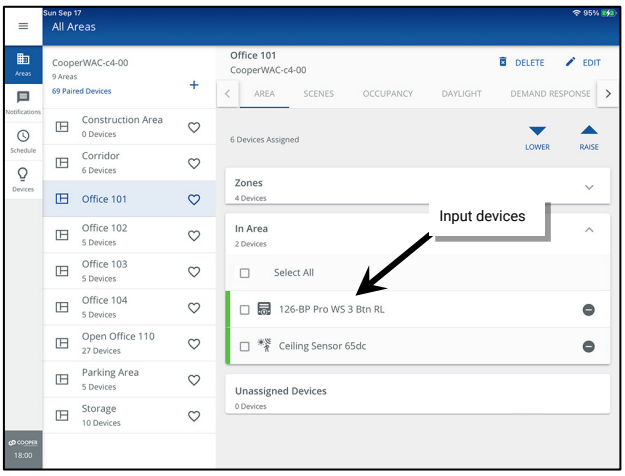
Devices

A **Device** is a WaveLinx PRO, LV, CAT, or DALI component that can be controlled and configured for control by the WaveLinx Area Controller. A Device may also be a relay or dimmer channel from a WaveLinx Networked Relay Panel. Devices will be assigned to areas. It is possible to use a mixture of device families within the same area if the application calls for it.

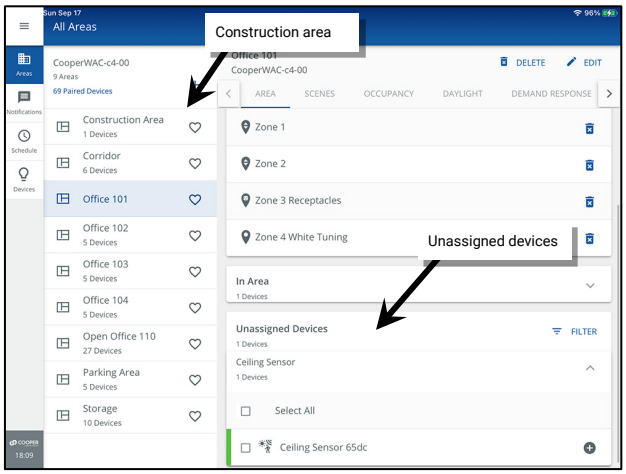
- Devices that directly attach to or control lighting or receptacle loads are assigned to zones. Tap a zone to show the assigned control devices.

  Note: WaveLinx Networked Relay Panel relays will be assigned to the **Devices in Area** section and will need manual assignment to a zone.
- Other devices such as WaveLinx Wallstations, WaveLinx Ceiling Sensors, WaveLinx Contact Closure Input and Sensor Interface Modules, or other input devices will be in the **Devices in Area** section in a standard area or in **Devices** in a partitioned sub area.

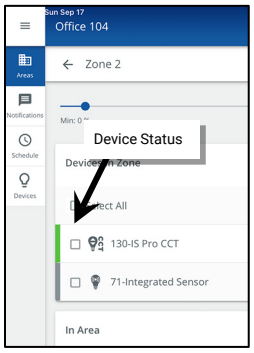




If devices have not been assigned to an area, they will appear in the **Unassigned Devices** section or in the Construction Area.



Each device will have a color-coded status bar that shows online or offline status.



Icon	Description
	Device Green: The device is communicating and operational
	Device Gray/Device Red: The device is no longer communicating to the WaveLinx Area Controller. • Upon reboot devices that do not communicate with the WaveLinx Area Controller will remain gray. • If the device drops offline without a WaveLinx Area Controller reboot, the icon will turn red after no communication for more than 15 minutes.[203] • For WaveLinx Ceiling Sensors and WaveLinx Battery Powered Wallstations, the battery may be low, or the device is not communicating.

[203] Devices with older firmware may take up to 1 hour before the icon indicates an offline status.

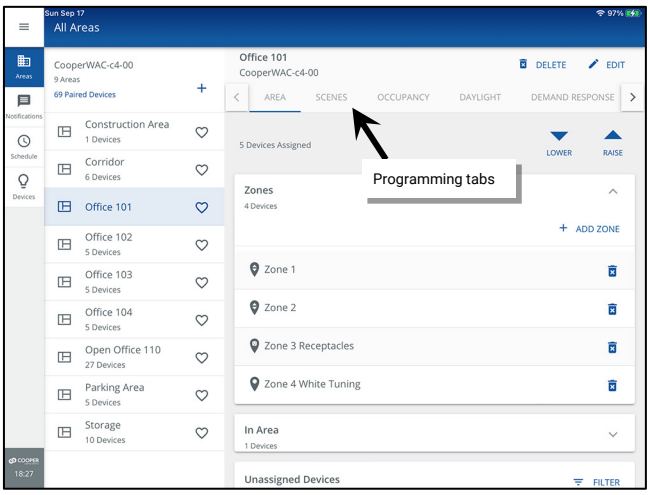
Programming

The area screen is used to program devices and control operation.

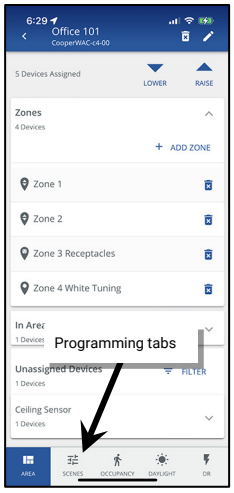
- Tap on a device to access the device.
- Access operation programming by tapping on the tabs located either at the top or bottom of the screen (position differs based on device type and landscape/portrait view).

For more information on programming devices or using the programming tabs, see “Customizing Programming” beginning on page 223.

Tablet or Phone Landscape View



Phone Portrait View

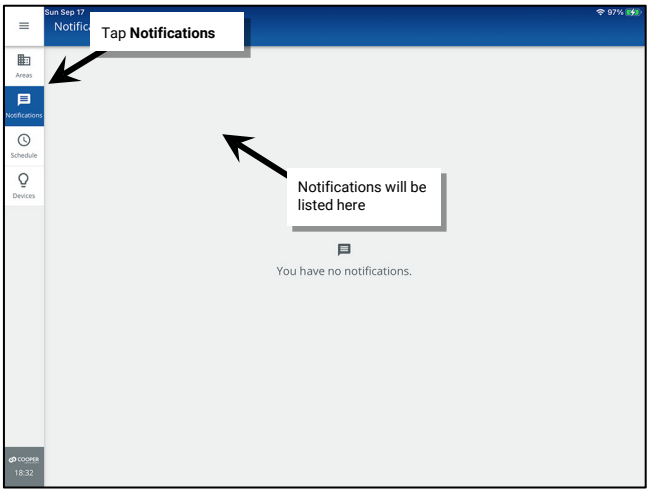


Using the Notifications Screen

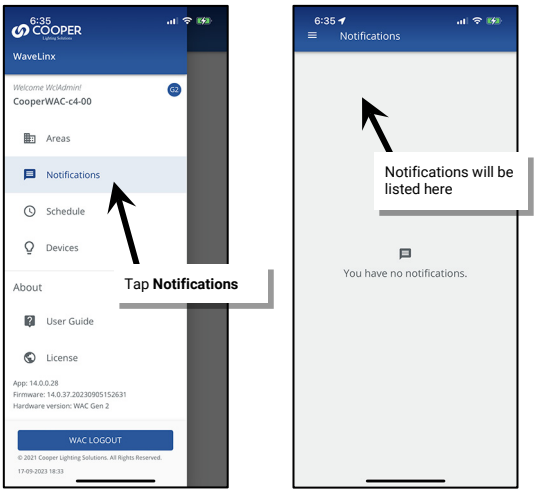
The notifications screen will be used to display notifications that have been pushed the mobile device from the user’s MyApps account. Notifications will only display in the Mobile App and will not display in the WaveLinx WAC Lighting App.

Notifications may be issued with new releases or other Cooper Lighting Solutions communications. If app notifications are allowed, notifications will display on the mobile device. New notification alerts will also be indicated by a symbol over the WaveLinx App icon and the app menu. To review and acknowledge the notification alert, from the menu, select **Notifications** and then tap the new notification.

Tablet or Phone Landscape View



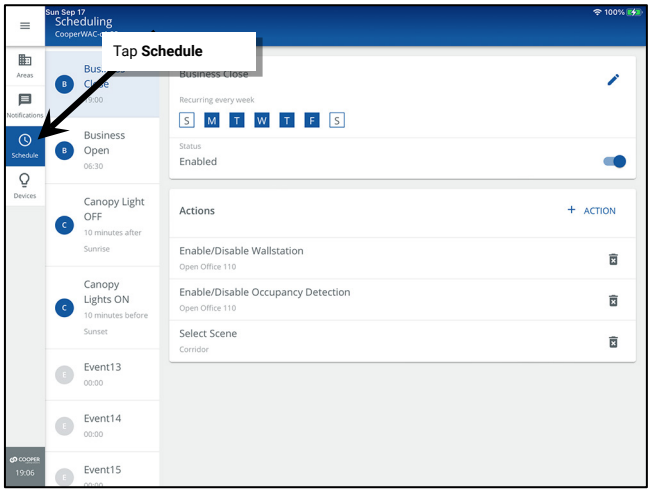
Phone Portrait View



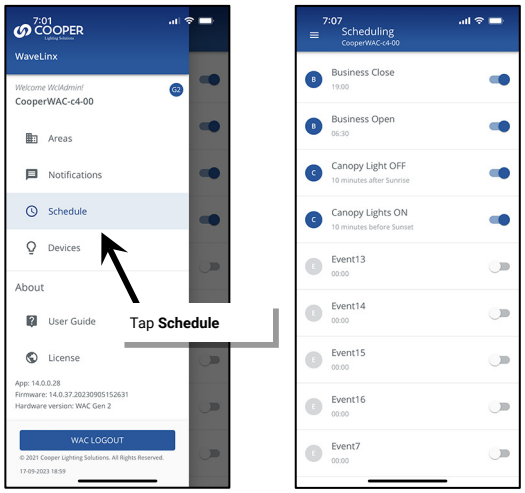
Using the Schedule Screen

The schedule screen will display the scheduled events in this WaveLinx Area Controller. An active event will display in blue while inactive events display in gray. Tap an event to review the event details. For more information on using schedule events, see “Adding Schedules to the Control Strategy” on page 319.

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



Using the Devices Screen

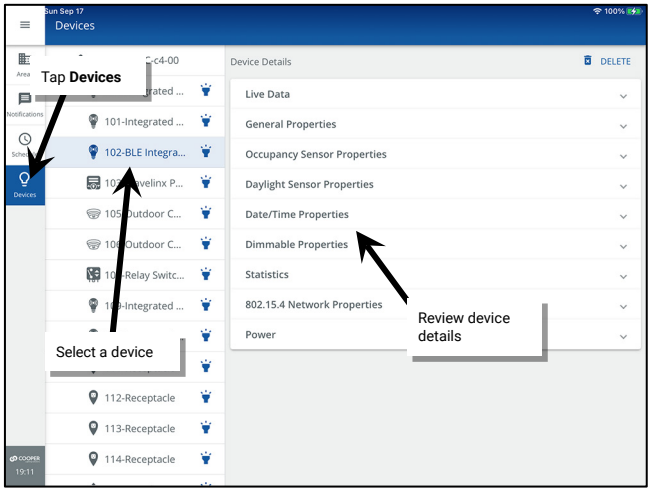
The devices screen will display all the devices paired to the WaveLinx Area Controller and will also display the WaveLinx Area Controller details. Tap any device to open the device information details. Device information details listed for the device will differ based on the type of device selected.

Expand each device detail section to view details such as:

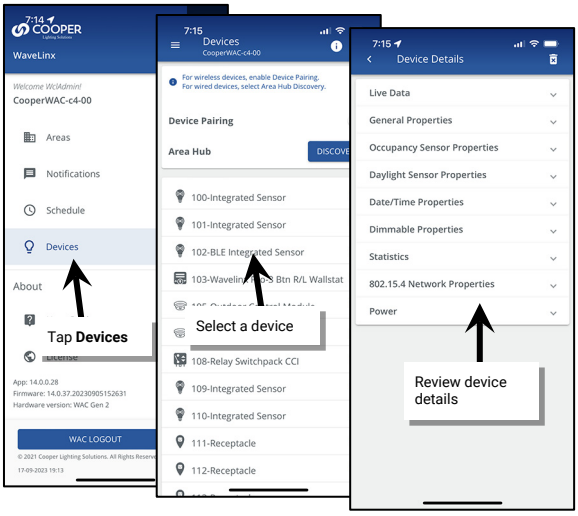
- online or offline status,
- device type and firmware details
- 802.15.4 network details,
- device properties regarding occupancy settings, daylight settings, and dimming
- current battery voltage for battery powered devices
- Ethernet and wireless network settings for devices connected to the Ethernet, and more

Devices may also be identified using the **Blink to Identify** option . **Reverse identification mode** will also operate in the **Devices** screen.

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



Viewing Alerts

The **alerts center** will display the special modes that are activated (**ON**) or deactivated (**OFF**) in the WaveLinx Area Controller.

For mobile devices using landscape mode or viewing in the WAC Lighting App, the Alert Center icon will have a notification alert if any of the monitored modes are active.

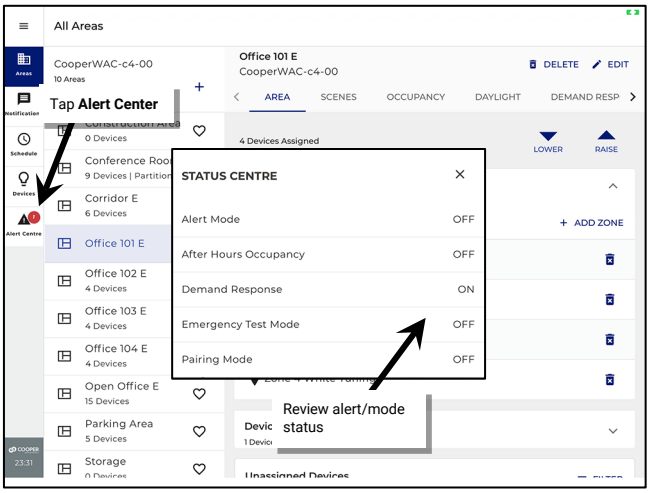
Monitored modes include:

- **Alert Mode**: Alert Mode is a high priority command that can be activated by an input programmed for the alert mode action. If Alert Mode is active (ON), all lighting devices will turn ON to 100% and all commands will be ignored. Once the input is deactivated, lighting will return to normal operation after a 5 minute delay with a blink warn when the delay begins and then 1 minute before returning to normal mode.[204]
- **After Hours Occupancy**: After Hours Occupancy Mode allows occupancy sets to issue a different unoccupied level when activated and return to the defined occupancy set unoccupied level when deactivated.
- **Demand Response**: When Demand Response mode is activated (ON), the programmed Demand Response dimming reduction for all lighting devices paired/added to this WaveLinx Area Controller will occur. Light levels will not be able to be raised above the programmed dimmed reduction level. Once the input is deactivated, the lighting will return to normal operation.
- **Emergency Test Mode**: Emergency Test Mode is issued from the WaveLinx App to test correct Emergency Mode response without the need to cycle normal power breakers. When activated (ON), all EM Devices from the selected Emergency Sets will turn ON/100% and will not respond to other WaveLinx Device commands until Emergency Test Mode is deactivated, returning lighting to normal operation. If left ON, Emergency Test Mode will automatically time out (max time allowed 30 minutes).
- **Pairing Mode**: Pairing is the first step in preparing PRO and LV devices for configuration from the WaveLinx App. The WaveLinx Area Controller can be placed in pairing mode (ON) to allow PRO and LV devices to connect to the controller and then join the default Construction Area, allowing the WaveLinx App to access and configure the devices. If left ON, pairing mode will automatically time out after 60 minutes.

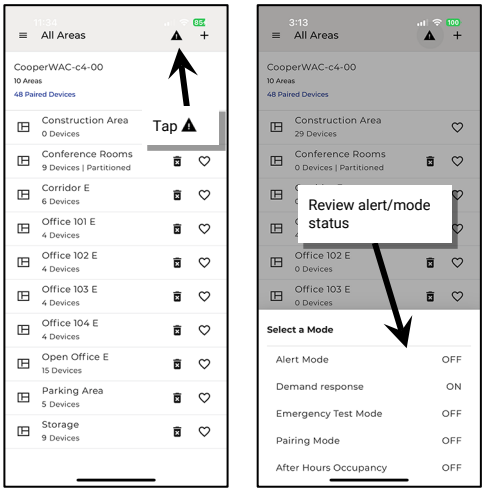
To display the alerts center:

For tablet users in landscape view, use the side menu to open the **Alerts Center**. For smaller devices in portrait view, at the top of the area list tap ⚠ to open the **Alerts Center**.

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



[204] WaveLinx Networked Relay Panels: Relays will not blink when exiting Alert Mode.

Adding WaveLinx Devices to a WaveLinx Area Controller

The WaveLinx Area Controller can operate with WaveLinx PRO, WaveLinx CAT, WaveLinx DALI, WaveLinx LV devices, and WaveLinx Networked Relay Panel relays and 0-10V dimmers. Regardless of the category of WaveLinx device being used, the device must be added to the WaveLinx Area Controller to allow for WaveLinx control. The process of adding the device to the WaveLinx Area Controller may be slightly different depending on the category of device being used. Use the steps in this section to:

- Pair WaveLinx PRO and LV Devices with a WaveLinx Area Controller (Construction Grouping)
- Discover the WaveLinx DALI Hub and Add DALI Devices
- Discover the WaveLinx CAT Area Hub and Add CAT Devices
- Add WaveLinx Networked Relay Panels

Pair WaveLinx PRO and LV Devices with a WaveLinx Area Controller (Construction Grouping)

The WaveLinx Area Controller pairs with WaveLinx PRO devices to allow immediate energy savings. WaveLinx LV devices also join the WaveLinx Area Controller using the pairing process. Use the steps in this section to:

- Part 1: Verify WaveLinx PRO and LV Devices are Ready for Pairing
- Part 2: Pair WaveLinx PRO and LV Devices with a WaveLinx Area Controller (Construction Grouping)
- Part 3: Establish WaveLinx App Communication with a WaveLinx Area Controller

Part 1: Verify WaveLinx PRO and LV Devices are Ready for Pairing

Steps in this section will refer to the WaveLinx Device Reference Sheets. Refer to the reference sheets for the equipment at the site when prompted.

1: Perform the initial configuration steps for the WaveLinx Area Controller. Refer to “Initial Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller” on page 24.

2: If the site is using WaveLinx LV devices, perform the initial configuration steps for the WaveLinx Low-Voltage Power Module. Refer to “Initial Configuration Steps for the Low-Voltage Power Module” on page 57 for the necessary steps.

3: Ensure that all WaveLinx devices are installed and powered. Then verify that each device shows the proper out-of-the-box behavior as described in the device reference sheets beginning on page 17.

Quick Links for Common Questions

- One of my devices does not display the correct out-of-the-box functionality. What should I do? See the answer on page 459.

Part 2: Pair WaveLinx PRO and LV Devices with a WaveLinx Area Controller (Construction Grouping)

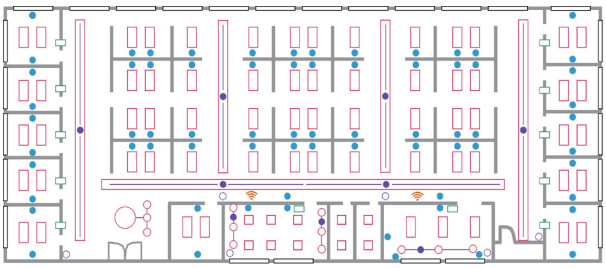
Pairing is the first step in preparing PRO and LV devices for configuration from the WaveLinx App. When paired, the devices will join the default **Construction Area**. This forms one large default control group for basic operation during the construction phase and allows the WaveLinx App to access the devices through the paired WaveLinx Area Controller. There are two methods of pairing WaveLinx PRO or LV devices with the WaveLinx Area Controller.

Option 1: Pairing WaveLinx PRO or LV Devices with the WaveLinx Area Controller using the WaveLinx App

On sites with multiple WaveLinx Area Controllers, place one WaveLinx Area Controller into pairing mode at a time. When in pairing mode, WaveLinx DALI, CAT and Relay Panel discovery will be disabled.

The WaveLinx Mobile App or WaveLinx WAC Lighting App[205] can also be used to enter or exit pairing mode. This will be used for all WaveLinx Outdoor Area Controllers and can be used when the WaveLinx Area Controller’s onboard PAIRING button is not easily accessible.

1: On the site floorplan, locate the WaveLinx Area Controller and identify each WaveLinx PRO and LV device that should be paired with it.[206]



[205] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

[206] Sites designed to use multiple WaveLinx Area Controllers should identify the devices that belong to each controller so that they can be correctly paired with the appropriate WaveLinx Area Controller according to the design plan.

2: Launch the WaveLinx Mobile App or WaveLinx WAC Lighting App

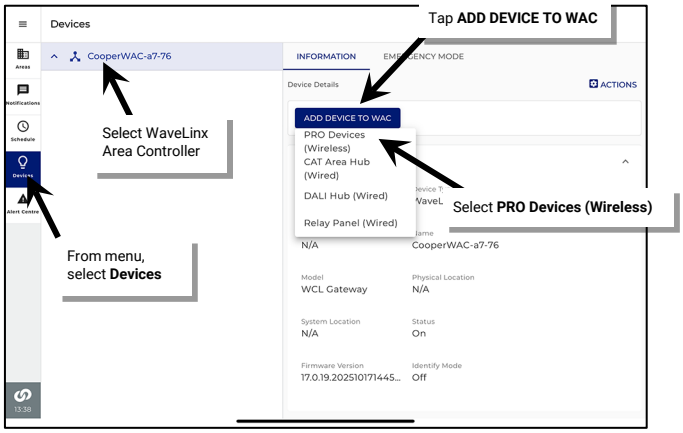
- To use the Mobile App, open the app and login to the WaveLinx Area Controller as the administrator. See “Login to the WaveLinx Mobile App” on page 147 for login details.
- To use the WaveLinx WAC Lighting App[207], login to the internal WaveLinx Area Controller webpage as the administrator and launch the lighting app. See “Logging in to the WaveLinx WAC Lighting App” on page 157 for details.

3: Place each WaveLinx PRO device that should pair with the WaveLinx Area Controller into pairing mode. Refer to the device reference sheets beginning on page 17 for details on how to place each device into pairing mode.

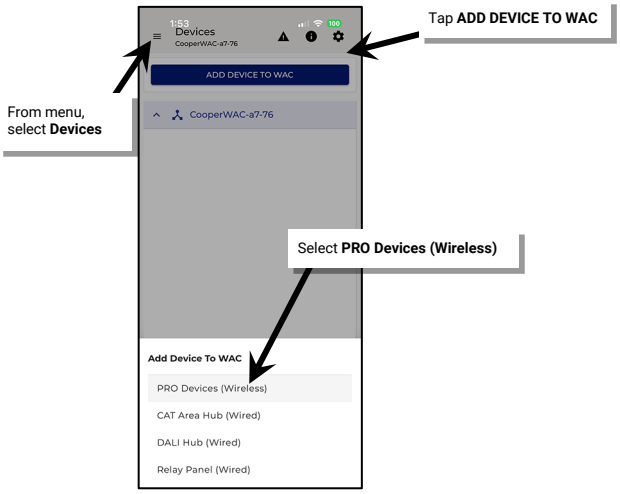
It is not necessary to place WaveLinx LV devices in pairing mode. For WaveLinx LV devices, if the Low-Voltage Power Module has been configured with an IP Address in the same subnet as the WaveLinx Area Controller, it will be ready for pairing. The connected LV devices will pair when the Low-Voltage Power Module is paired.

4: Use the WaveLinx App to place the WaveLinx Area Controller into **Device Pairing Mode**. From the menu, select **Devices**. Select the **WaveLinx Area Controller**, and then tap **ADD DEVICE TO WAC**. Select **PRO Devices (Wireless)**.

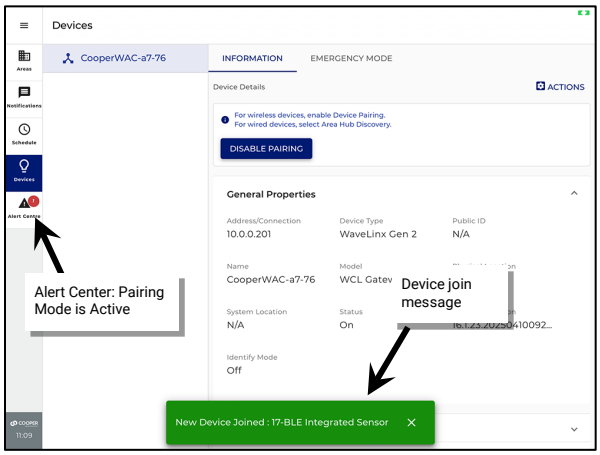
Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



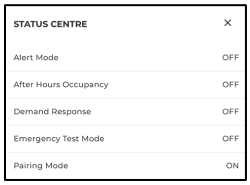
During the 60-minute pairing period, WaveLinx PRO devices and the WaveLinx Low-Voltage Power Module should pair with the WaveLinx Area Controller. Devices should exhibit the successful paired device behavior described in the device reference sheets.



As devices join, messages may briefly display on the screen.

Refresh the app display by selecting a different menu option and then navigating back to **Devices** to display the newly paired devices.

The Alert Center will display an active alert for Pairing Mode.



The WaveLinx Area Controller will exit pairing mode automatically after 60 minutes or can be manually exited from the app or onboard PAIR button.

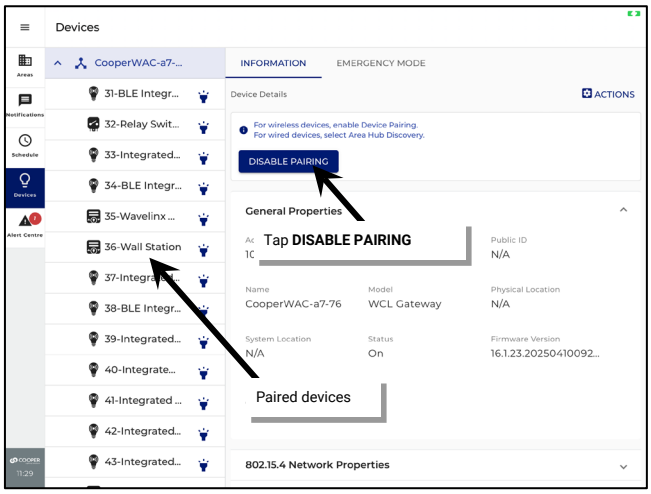
[207] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

5: Allow the pairing mode's 60-minute automatic time-out period to expire or manually cancel pairing mode. To manually cancel pairing mode, use the mobile app to **DISABLE PAIRING**. The blue 802.15.4 LED should remain ON continuously when in normal operation.

6: Verify that all WaveLinx PRO and LV devices paired with the WaveLinx Area Controller successfully. The WaveLinx Area Controller can be placed back in pairing mode to check device pairing. Refer to the device reference sheets beginning on page 17 for details on each device's expected successful pairing behavior.

Repeat the procedures in this section for each WaveLinx Area Controller in the facility.

Tablet or Phone Landscape View/WAC Lighting App View



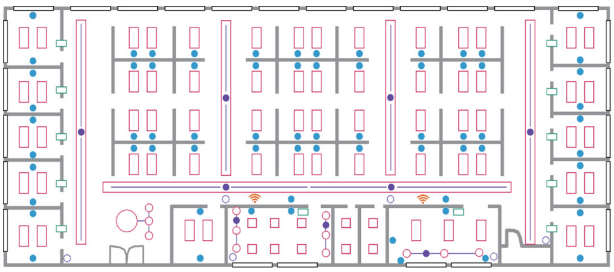
Phone Portrait View

Option 2: Pairing WaveLinx PRO or LV Devices with the WaveLinx Area Controller using the PAIR Button

On sites with more than one WaveLinx Area Controller, only place one WaveLinx Area Controller into pairing mode at a time. When in pairing mode, WaveLinx Area Hub discovery mode will be disabled.

The WaveLinx Area Controller has an onboard PAIR button that may be used for pairing WaveLinx PRO and LV devices. To use the onboard button to place the WaveLinx Area Controller in pairing mode:

1: On the site floorplan, locate the WaveLinx Area Controller and identify each WaveLinx PRO and LV device that should be paired with it.[208]



2: Place the WaveLinx Area Controller into pairing mode. Press and release (1 second press) the PAIR button. The blue 802.15.4 LED on the WaveLinx Area Controller will blink to indicate pairing mode is active.

The WaveLinx Area Controller will remain in pairing mode for 60 minutes unless pairing mode is exited manually from the mobile app or by pressing and releasing (1 second press) the PAIR button again.

3: Place each WaveLinx PRO device that should pair with the WaveLinx Area Controller into pairing mode. Refer to the device reference sheets beginning on page 17 for details on how to place each device into pairing mode.

It is not necessary to place WaveLinx LV devices in pairing mode. For WaveLinx LV devices, if the Low-Voltage Power Module has been configured with an IP Address in the same subnet as the WaveLinx Area Controller, it will be ready for pairing. The connected LV devices will pair when the Low-Voltage Power Module is paired.

[208] Sites designed to use multiple WaveLinx Area Controllers should identify the devices that belong to each controller so that they can be correctly paired with the appropriate WaveLinx Area Controller according to the design plan.

4: During the 60-minute pairing period, WaveLinx PRO devices and the WaveLinx Low-Voltage Power Module should pair with the WaveLinx Area Controller. Devices should exhibit the successful paired device behavior described in the device reference sheets.

5: Allow the pairing mode's 60-minute automatic time-out period to expire or manually cancel pairing mode. To manually cancel pairing mode, press and release the PAIR button (1 second press) or use the mobile app to disable pairing.[209] The blue 802.15.4 LED should remain ON continuously when in normal operation.

6: Verify that all WaveLinx PRO and LV devices paired with the WaveLinx Area Controller successfully. The WaveLinx Area Controller can be placed back in pairing mode to check device pairing. Refer to the device reference sheets beginning on page 17 for details on each device's expected successful pairing behavior.

Repeat the procedures in this section for each WaveLinx Area Controller in the facility.

Quick Links for Common Questions

- Pairing mode timed out before I was done adding my devices or before I confirmed that my devices paired properly. What should I do? See the answer on page 469.
- One or more of my devices did not pair. What should I do? See the answer on page 470.
- I have more than one WaveLinx Area Controller in my facility. A device or multiple devices paired with the wrong WaveLinx Area Controller. How do I resolve this? See the answer on page 470.
- My device is showing paired behavior, but it is not paired with the correct WaveLinx Area Controller. I am unable to find what WaveLinx Area Controller it has paired with. How do I remove its pairing to start over? See the answer on page 470.
- I installed a new device after I completed the initial construction pairing. How do I pair the new device into the existing group? See the answer on page 471.
- A device was not powered during the pairing process and did not successfully pair with the WaveLinx Area Controller. How do I get it to join the construction group? See the answer on page 471.
- What will my devices do if they lose communication with the WaveLinx Area Controller? See the answer on page 473.

Operation of Devices within the Construction Area

As part of the construction area, WaveLinx PRO and LV devices operate with basic default operation. For details on a specific device's expected behavior, refer to the device reference sheet for that device.

- Once construction area pairing is complete, all paired WaveLinx PRO and LV devices will operate as one large area or room.
- Any WaveLinx PRO Wallstation in the area will operate all the paired lighting (WaveLinx PRO or LV Integrated Sensors, WaveLinx PRO Tilemount Sensors, WaveLinx PRO Nodes, WaveLinx PRO Wireless Fixtures, WaveLinx PRO Switchpacks, WaveLinx PRO Outdoor Lighting Control Modules) per the default scenes and programming.
- WaveLinx PRO Receptacles paired to a WaveLinx Area Controller will operate by manual pushbutton and will not be controlled by other devices until programmed in the WaveLinx App.
- All WaveLinx PRO and LV occupancy sensors work together. Any occupancy sensor sensing motion will turn the entire group ON (default level) and will keep loads ON until no occupancy is detected throughout the entire area. Once occupancy ceases, after 20 minutes, controlled loads will turn OFF.
- Daylight dimming is disabled for all WaveLinx PRO and LV devices in the construction group. This includes interior and exterior devices.
- All scene commands will default to the following light levels:

Scene	Dimmable Zone Response
Scene 0	0%
Scene 1	100%
Scene 2	70%
Scene 3	50%
Scene 4	30%
Scene 5	10%
Scene 6	1%
Scene 7 through 15	Not programmed[210]

- White tuning loads connected to WaveLinx PRO Switchpacks may adjust color temperature with commands from WaveLinx PRO Wallstations or occupancy sensors until programmed. White tuning loads connected to WaveLinx PRO Nodes and advanced model Integrated Sensors (WPA IS Pro CCT) may remain at 3500K until programming is adjusted.

[209] The WaveLinx App can also be used to place a WaveLinx Area Controller into pairing mode or to exit pairing mode if the WaveLinx Area Controller is not in an easily accessible location.

[210] Scenes 7 through 15 are not programmed and hidden from general users by default. The administrator must activate and then enable the zones and programming for each zone if they are required for an application.

- Contact closure devices connected to WaveLinx PRO Universal Voltage Dimming Switchpacks or to WaveLinx PRO Contact Closure Input Modules will not function until programmed.
- WaveLinx PRO Emergency Devices will remain in Emergency Mode (ON to 100%) and will ignore all commands until programmed for an Emergency Set assignment.

Discover the WaveLinx CAT Area Hub and Add CAT Devices

The WaveLinx Area Controller connects with the WaveLinx CAT Area Hub easily to allow quick configuration of connected CAT devices. The WaveLinx Area Controller must be using minimum version 14 firmware/software to operate with WaveLinx CAT devices. Use the steps in this section to:

- Part 1: Perform the Initial Configuration Steps for WaveLinx with CAT Devices
- Part 2: Establish WaveLinx App Communication with a WaveLinx Area Controller
- Part 3: Discover the WaveLinx CAT Area Hub and Add CAT Devices

Part 1: Perform the Initial Configuration Steps for WaveLinx with CAT Devices

Steps in this section will refer to the WaveLinx Device Reference Sheets or other manual sections. Refer to the reference sheets for the devices being used on the site as well as the other manual sections.

1: Perform the initial configuration steps for the WaveLinx Area Controller being used. See “Initial Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller” on page 24 for step-by-step directions. The WaveLinx WAC is not compatible with WaveLinx CAT Devices.

2: Ensure that the WaveLinx Area Controller firmware is version 15 or above. Refer to “Viewing and Updating Firmware of the WaveLinx Area Controller and WaveLinx Devices” on page 384 for step-by-step directions on viewing the current WaveLinx Area Controller firmware and updating it if below the minimum requirement of version 15.

3: Perform the initial configuration steps for the WaveLinx Area Hub(s) being used. See ”Initial Configuration Steps for the WaveLinx Area Hub” on page 31 for step-by-step instructions.

4: Ensure that all WaveLinx CAT devices are installed and powered. Verify that each device shows the proper out-of-the-box behavior as described in the device reference sheets beginning on page 17.

Part 2: Establish WaveLinx App Communication with a WaveLinx Area Controller

The WaveLinx Mobile App or the WaveLinx WAC Lighting App will be used to add WaveLinx CAT devices to the WaveLinx Area Controller and then to administer the system.

Before using the WaveLinx Mobile App, perform all the steps from “Part 1: Perform the Initial Configuration Steps for WaveLinx with CAT Devices” in the previous section. Once these steps are completed, proceed with the login.

Use the WaveLinx Mobile App or the WaveLinx WAC Lighting App to connect to the WaveLinx Area Controller, logging in as the administrative user. If using the WaveLinx Mobile App, refer to “WaveLinx Area Controller Login using the WaveLinx Mobile App” on page 151 for instructions. If using the WaveLinx WAC Lighting App, refer to “Logging in to the WaveLinx WAC Lighting App” on page 157 for instructions.

Part 3: Discover the WaveLinx CAT Area Hub and Add CAT Devices

To be able to modify settings of the WaveLinx CAT Devices in the WaveLinx Mobile App or WaveLinx WAC Lighting App, the Area Hub must first be discovered and then the devices added. This process is done using Ethernet communications. Ensure that the Area Hub and WaveLinx Area Controller can be accessed in the same IP Subnet.

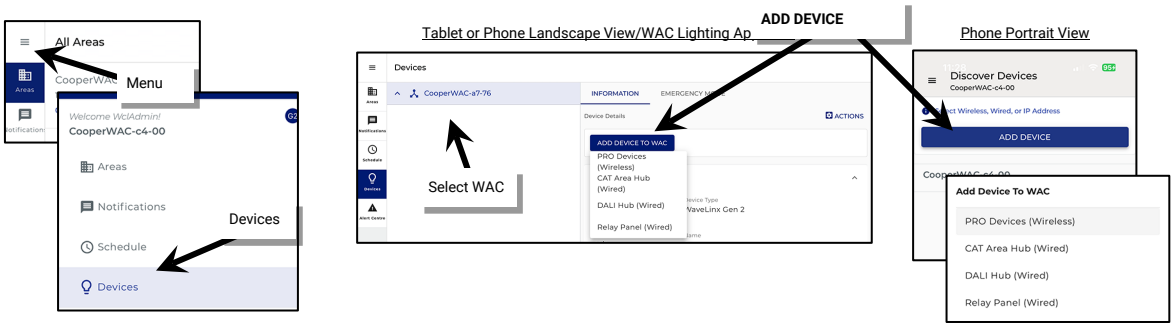
Pairing Mode is not used with WaveLinx CAT devices. Unlike WaveLinx PRO, WaveLinx DALI, and WaveLinx LV devices, WaveLinx CAT devices are not placed in the default Construction Area. Instead, an area is automatically created for each used Area Hub port when the Area Hub is added. Any CAT device connected to the same Area Hub port will be assigned to that port's area. Any settings defined for the WaveLinx CAT devices prior to being connected to the Area Hub and WAC will also import with the devices and be assigned in the port area.

To discover the Area Hub and add devices:

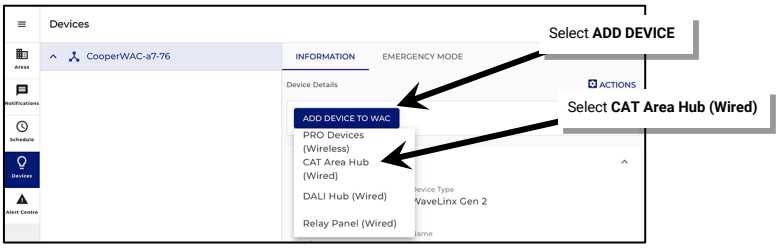
1: Open the **WaveLinx Mobile App** and **Login** to the WaveLinx Area Controller that will be controlling the WaveLinx CAT devices.

2: Confirm that the **Discover Devices** screen is displayed or from the sidebar or **menu** ☰, tap **Devices**.

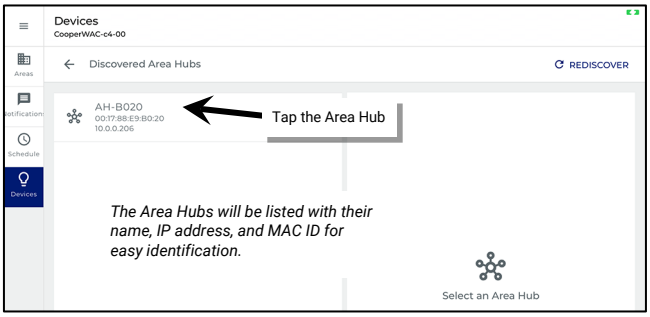
*For tablet devices or devices being used in landscape view, tap on the WaveLinx Area Controller. For smaller devices using portrait view, the **ADD DEVICE** controls for the Area Controller will already be at the top of the screen.*



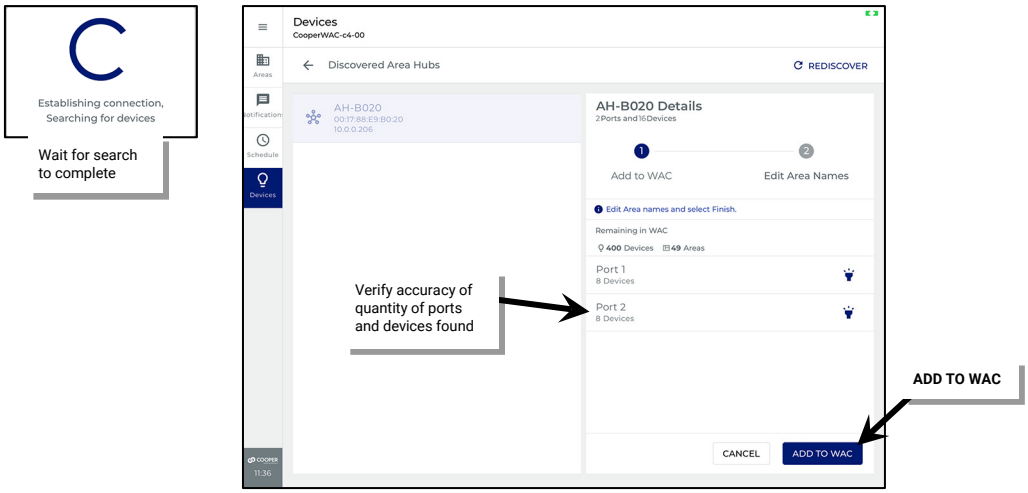
3: Tap **ADD DEVICE** and select **CAT Area Hub (Wired)** to perform the Area Hub search.



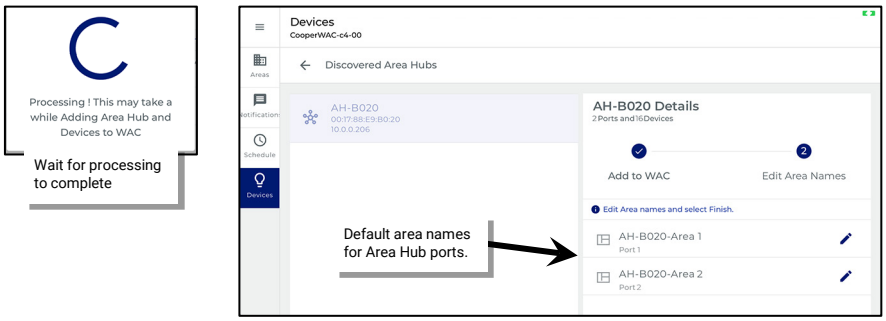
4: Wait for the search to complete and then review the Area Hub list; ensure that the desired area hub(s) is displayed by reviewing the area hub name, IP address, and/or MAC address. Tap the row for the desired **Area Hub**.



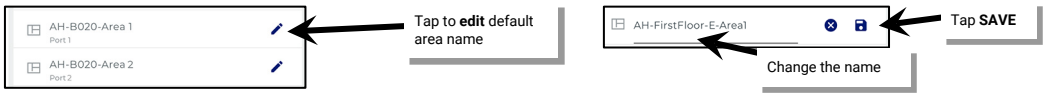
5: Wait for the search to be completed (may take several minutes) and then review that the active ports and device quantities are accurate. Tap **ADD TO WAC**.



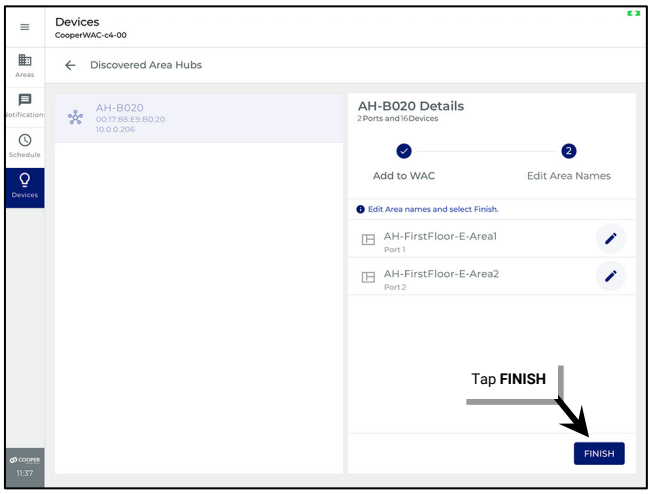
6: Once processed (may take several minutes), the default area names given to each of the Area Hub's ports will be displayed.



7: (Optional). Tap **edit** beside the area name to rename it for the port's controlled area (typically the room name/description) and then. Tap **save** at the end of the name row. Repeat for each area name.



8: Tap **FINISH** to complete reading the devices and verify that a green checkmark or success message is displayed next to the Area Hub name.



Repeat these steps to add additional Area Hub devices to the WaveLinx Area Controller

Note: The Area Hub import keeps track of quantity of imported Area Hubs (maximum 6), the available areas in the WaveLinx Area Controller (maximum 49 created areas) as well as the available quantity of devices (maximum 400 WAC2 or 800 WAC2 R4 dependent on the WaveLinx Area Controller hardware).

- If there are already 6 Areas Hubs imported on one WAC and another one is discovered, the message “Area hub exceeds WAC limit” will be displayed and the Add button will be disabled.
- If the Area Hub import will cause the Areas or devices to exceed the maximum amount, the message “Area Hub exceeds WAC limit” will be displayed and the button to add the Area Hub to the WaveLinx Area Controller will be disabled.

Recommended: Visually check each CAT device for the correct LED behavior for an added or networked device. The LEDs of the Area Hub and CAT Devices will reflect the new networked behavior. Refer to the device reference sheets beginning on page 17 for details on each device’s expected behavior.

Part 4: (Optional) Move WaveLinx CAT Devices to the Construction Area for Reassignment

Unlike WaveLinx PRO, WaveLinx DALI, and WaveLinx LV devices, WaveLinx CAT devices are not placed in the default Construction Area. Instead, an area is automatically created for each used Area Hub port when the Area Hub is added. Any CAT device connected to the same Area Hub port will be assigned to that port’s area. **If the devices that operate one room in the facility are all connected to the same Area Hub port, the devices do not need to be reassigned. Skip this section.**

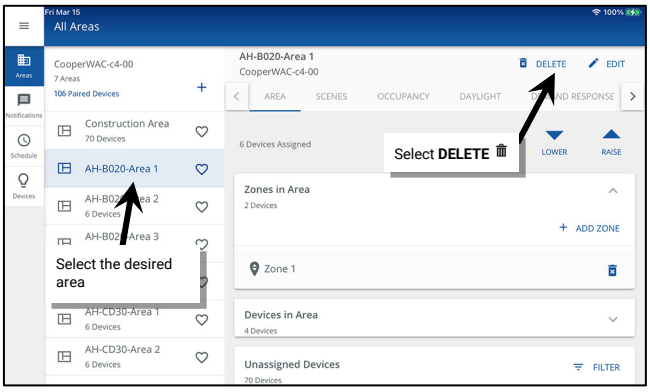
If WaveLinx CAT devices need to be reassigned to an area other than the port area they are assigned to, they can be moved from the port area to the Construction Area where they can be assigned like any other WaveLinx device.

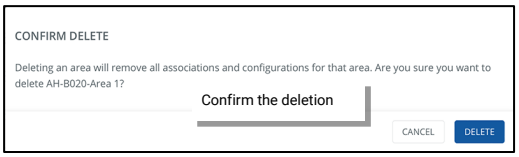
Option 1: Move All CAT Devices and Delete the Area

If all the CAT devices in the created area will be reassigned follow these steps:

1: In the **All Areas** list, select the area that contains the devices.

2: Select **DELETE** 🗑 and then confirm the deletion. The area will be deleted and all devices in that area will be moved to the Construction Area.



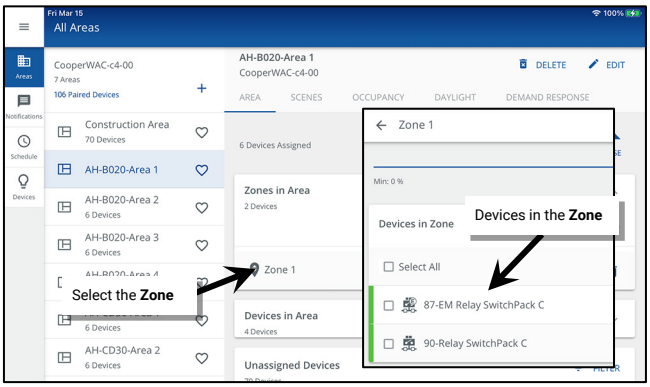


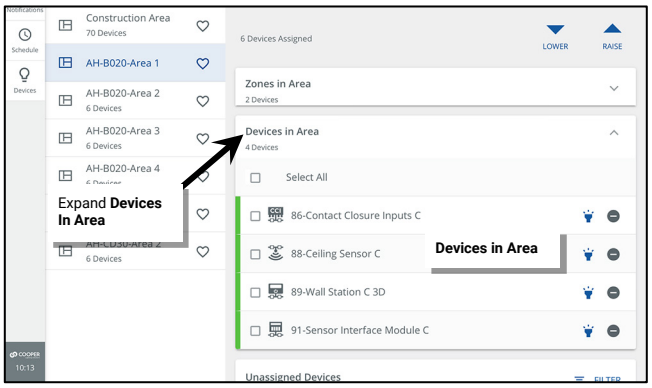
Repeat this process for other WaveLinx CAT areas and devices as needed.

Option 2: Move Specific CAT Devices and Keep the Area

If specific CAT devices will be reassigned but others will remain in the area:

1: In the **All Areas** list, select the area that the WaveLinx CAT device is assigned to. For a lighting control device such as an integrated or tilemount sensor, switchpack device, node device, control module or receptacle, tap on the **zone** and locate the device(s). For an input device such as a wallstation, contact closure input device, ceiling sensor, or sensor input module, locate the device(s) in the **Devices in Area** section.

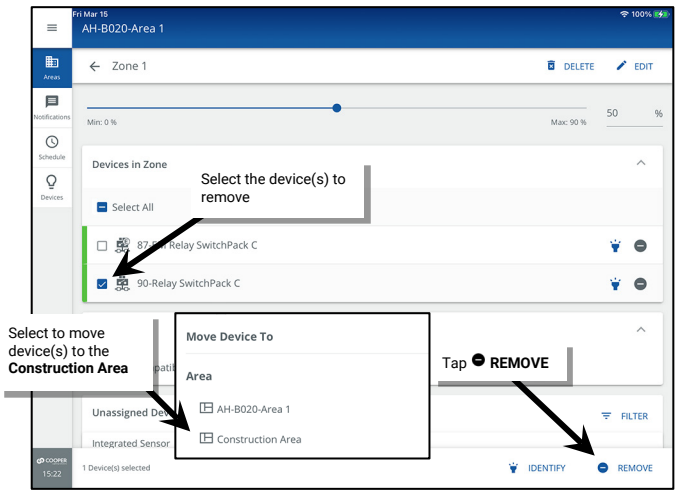




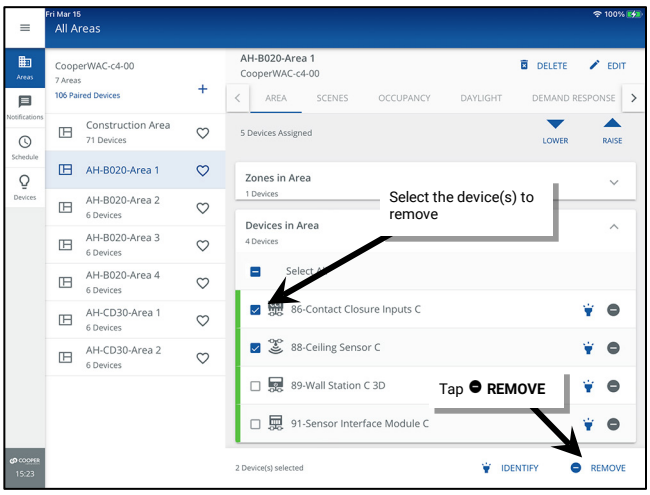
2: Select the desired device(s), and then tap ⊖ **REMOVE**.

- If removed from a **zone**, when prompted, select **Construction Area**.
- If removed from the **Devices in Area** section, the devices will automatically be moved to the Construction Area.

Remove Devices from a Zone



Remove Devices from In Area



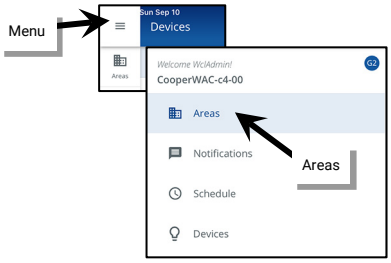
Repeat this process for other WaveLinx CAT areas and devices as needed.

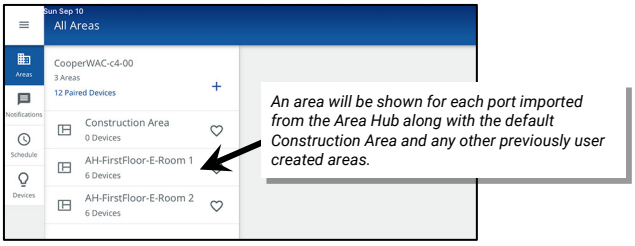
View the WaveLinx CAT Areas and Devices

To view the automatically created Area Hub port areas and WaveLinx CAT devices:

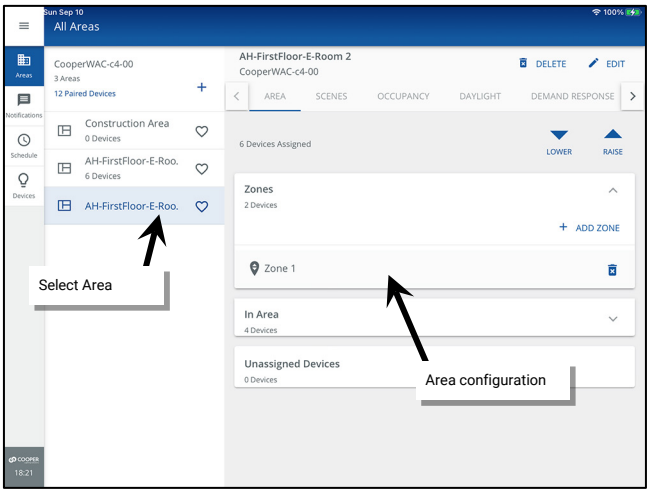
1: Open the **WaveLinx Mobile App** and **Login** to the WaveLinx Area Controller.

2: If the area list is not already displayed, from the menu ☰, select **Areas** to display the **All Areas** list.

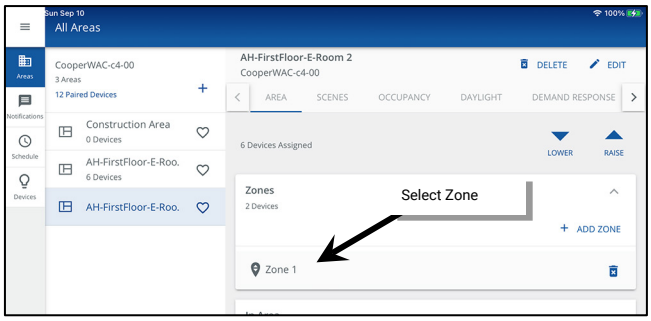




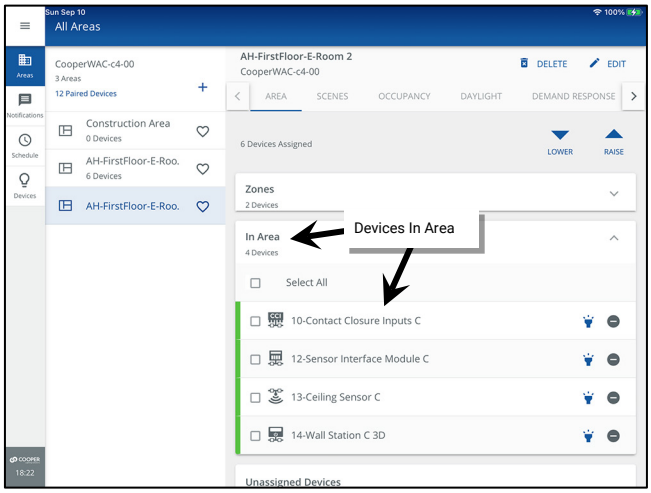
3: Tap any area to display the area's configuration.



4: Tap any **Zone** to display any load controlling devices that are assigned to that zone. Tap a device to view it. Tap **back** < at the top of the screen to return to the area.



5: Tap **Devices in Area** to show additional devices such as wallstations, ceiling sensors, and interface modules. Tap a **device** to view it.



Operation of CAT Devices in the Imported Area Hub Port Area

Unlike WaveLinx PRO, WaveLinx DALI, and WaveLinx LV devices, WaveLinx CAT devices are not placed in the default Construction Area unless specifically moved there. Instead, an area is automatically created for each used Area Hub port when the Area Hub is added. Any CAT device connected to the same Area Hub port will be assigned to that port's area.

- If WaveLinx CAT devices have not been programmed and are still in their factory default state when the Area Hub is connected the WAC, the expected operation is:
  - All imported normal powered lighting load control devices (Relay Switchpacks) will be assigned to Zone 1 through Zone 4 per the zone default for the ordered model(-Z1, -Z2. -Z3. -Z4)
  - All imported normal powered relay switchpacks ordered for receptacle control (model -ZR) will be assigned to Zone 16, the default receptacle zone.
  - All imported emergency powered lighting load control devices (Emergency Relay Switchpacks) will be assigned to Zone 1.
  - Any CAT Wallstation in the imported port area will operate the lighting in the area according to the default button configuration. See the WaveLinx CAT Wallstation reference sheet on page 112 for details on the default button commands.
  - All imported CAT Occupancy Ceiling Sensors or Occupancy Sensors tied to a CAT Interface Module are automatically assigned to the area's Occupancy Set to work together.
    - Any occupancy sensor sensing motion will turn the entire area ON/50% and will keep it ON until no occupancy is detected throughout the entire area.
    - A 20-minute total hold time will be applied.
      - After 10 minutes of vacancy, controlled lighting loads will reduce the light level to 25% (energy saver).
      - After an additional 10 minutes of vacancy, all controlled loads will turn OFF.
  - Daylight dimming is disabled and will not function until programmed.
  - Contact closure inputs connected to a CAT Contact Closure Module will not function until programmed.

- All scene commands will default to the following light levels:

Scene	Dimmable Zone Response
Scene 0	0%
Scene 1	100%
Scene 2	70%
Scene 3	50%
Scene 4	30%
Scene 5	10%
Scene 6	1%
Scene 7 through 15	Not programmed[211]

- Demand Response behavior is assigned to the default dimmable lighting zones. By default, if a demand response signal or test is received, all dimmable loads will reduce by 20% light output.
- If WaveLinx CAT devices have been programmed previously using the standalone WaveLinx CAT Mobile App, any settings defined for the WaveLinx CAT devices prior to being connected to the Area Hub and WAC will import with the devices to the port's area. This includes created zones, scene levels, occupancy set, and daylight set settings.
- WaveLinx CAT Emergency Devices will remain in Emergency Mode (ON to 100%) and will ignore all commands until programmed for an Emergency Set assignment.

WaveLinx CAT devices can be moved to other zones and areas and can be configured with different settings like any WaveLinx device. Refer to "Customizing Programming" on page 223 for additional information.

Discover the WaveLinx DALI Hub and Add DALI Devices

The WaveLinx Area Controller connects with the WaveLinx DALI Hub easily to allow quick configuration of the connected DALI devices. The WaveLinx Area Controller must be using minimum version 17 firmware/software to operate with DALI devices. The WaveLinx Area Controller and WaveLinx DALI Hub support the use of:

- WaveLinx DALI Field Relay (FRS-DA)
- WaveLinx DALI DAC (DAC-DC1 or DC2)
- WaveLinx DALI-2 Wallstation (WST-D2)
- WaveLinx DALI-2 Occupancy Ceiling Sensor (OCS-D2)
- Fixtures with DALI single channel LED drivers (DALI DT6)
- Fixtures with DALI tunable white LED drivers (DALI DT8)

Use the steps in this section to:

- Part 1: Perform the Initial Configuration Steps for WaveLinx with DALI Devices
- Part 2: Establish WaveLinx App Communication with a WaveLinx Area Controller
- Part 3: Discover the WaveLinx DALI Hub and Add DALI Devices

Part 1: Perform the Initial Configuration Steps for WaveLinx with DALI Devices

Steps in this section will refer to the WaveLinx Device Reference Sheets or other manual sections. Refer to the reference sheets for the devices being used on the site as well as the other manual sections.

1: Perform the initial configuration steps for the WaveLinx Area Controller being used. See "Initial Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller" on page 24 for step-by-step directions. The WaveLinx WAC is not compatible with WaveLinx DALI Devices.

2: Ensure that the WaveLinx Area Controller firmware is version 17 or above. Refer to "Viewing and Updating Firmware of the WaveLinx Area Controller and WaveLinx Devices" on page 384 for step-by-step directions on viewing the current WaveLinx Area Controller firmware and updating it if below the minimum requirement of version 17.

3: Perform the initial configuration steps for the WaveLinx DALI Hub(s) being used. See "Initial Configuration Steps for the WaveLinx DALI Hub" on page 41 for step-by-step instructions.

4: Ensure that all WaveLinx DALI devices are installed and powered. Verify that each device shows the proper out-of-the-box behavior as described in the device reference sheets beginning on page 17.

Part 2: Establish WaveLinx App Communication with a WaveLinx Area Controller

[211] Scenes 7 through 15 are not programmed and hidden from general users by default. The administrator must activate and then enable the zones and programming for each zone if they are required for an application.

The WaveLinx Mobile App or the WaveLinx WAC Lighting App will be used to add WaveLinx CAT devices to the WaveLinx Area Controller and then to administer the system.

Before using the WaveLinx Mobile App, perform all the steps from “Part 1: Perform the Initial Configuration Steps for WaveLinx with CAT Devices” in the previous section. Once these steps are completed, proceed with the login.

Use the WaveLinx Mobile App or the WaveLinx WAC Lighting App to connect to the WaveLinx Area Controller, logging in as the administrative user. If using the WaveLinx Mobile App, refer to “WaveLinx Area Controller Login using the WaveLinx Mobile App” on page 151 for instructions. If using the WaveLinx WAC Lighting App, refer to “Logging in to the WaveLinx WAC Lighting App” on page 157 for instructions.

Part 3: Discover the WaveLinx DALI Hub and Add DALI Devices

It is not necessary to address DALI devices prior to connection to the WaveLinx system. The WaveLinx DALI Hub will automatically address devices during the WaveLinx DALI Hub discovery process.

Pairing Mode is not used with WaveLinx DALI devices. To be able to modify settings of the WaveLinx DALI Devices in the WaveLinx Mobile App or WaveLinx WAC Lighting App, the DALI Hub must first be **discovered** and then the **devices added**. This process is done using Ethernet communications. Ensure that the WaveLinx DALI Hub and WaveLinx Area Controller can be accessed in the same IP Subnet.

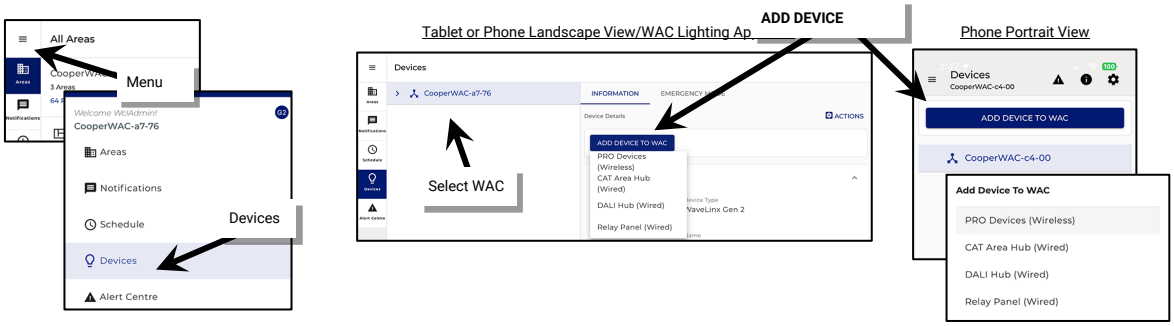
When the WaveLinx DALI Hub is discovered and the DALI devices are added, the devices will join the default **Construction Area**. This forms one large default control group for basic operation during the construction phase and allows the WaveLinx App to access the devices through the WaveLinx Area Controller.

To discover the WaveLinx DALI Hub and add devices:

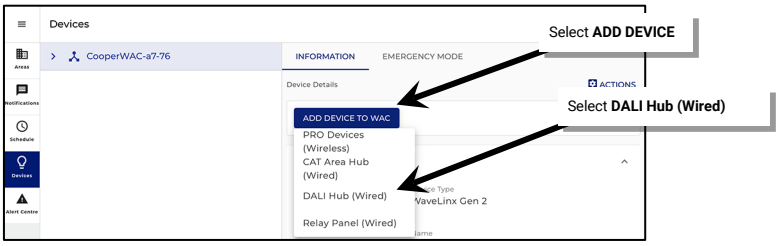
1: Open the **WaveLinx Mobile App** and **Login** to the WaveLinx Area Controller that will be controlling the WaveLinx CAT devices.

2: From the sidebar or **menu** ☰, tap **Devices** and then tap **ADD DEVICE**.

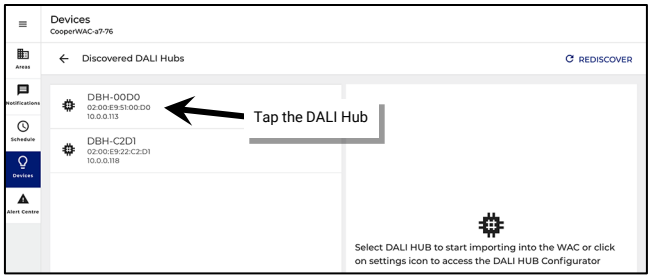
*For tablet devices or devices being used in landscape view, tap on the WaveLinx Area Controller. For smaller devices using portrait view, the **ADD DEVICE** controls for the Area Controller will already be at the top of the screen.*



3: From the ADD DEVICE dropdown select **DALI Hub (Wired)** to start the DALI Hub scan.



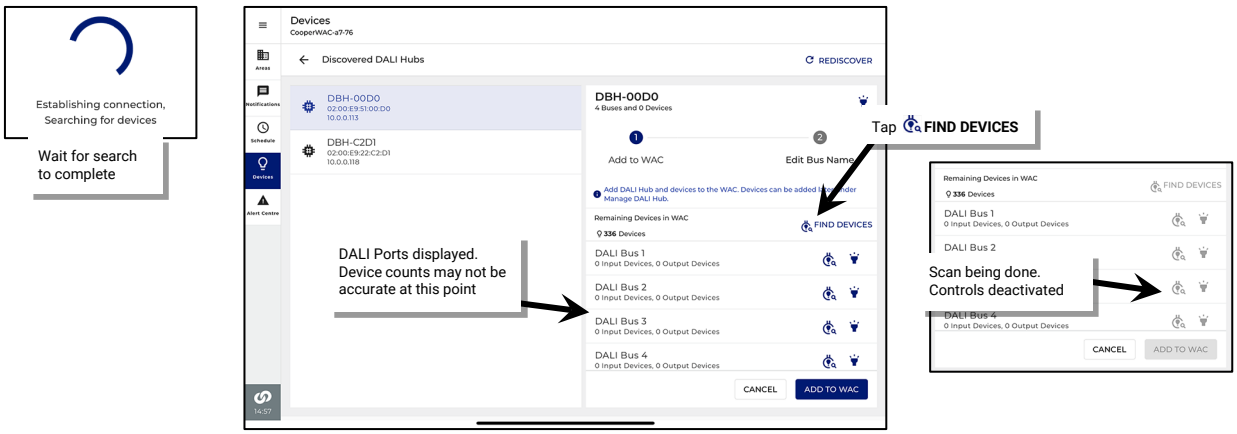
4: Wait for the search to complete and then review the found DALI Hub list. Make sure that the desired DALI hubs are displayed by reviewing the DALI hub name, IP address, and/or MAC address. Tap the row for the desired **DALI Hub**.



The DALI Hubs will be listed with their name, IP address, and MAC ID for easy identification.

5: Wait for the app to establish a connection and search for devices that have been previously addressed. **If the DALI Hub has never been discovered previously no devices will be found. <u>DO NOT ADD TO WAC YET.</u>**

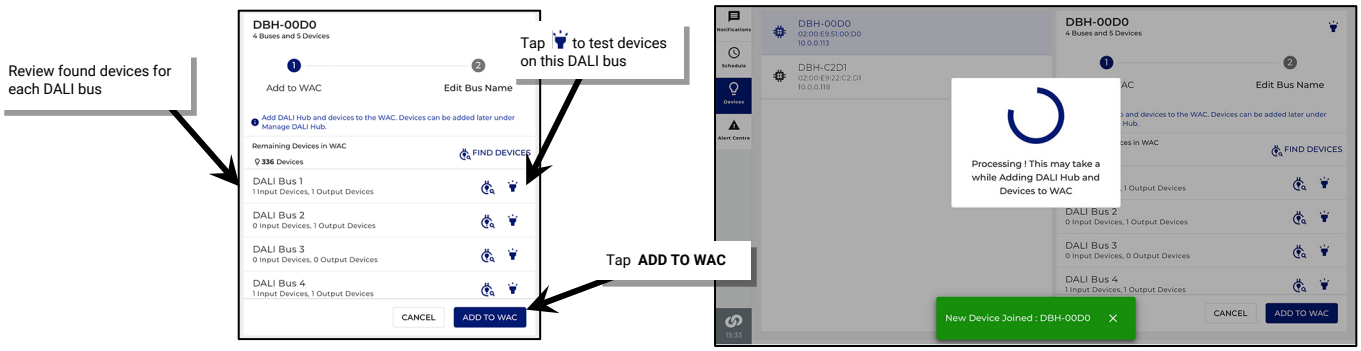
6: **<u>IMPORTANT</u>**: At the top of the DALI Bus list, tap **FIND DEVICES** to have the DALI Hub search for any unaddressed DALI devices on all the DALI Buses. This may take several minutes to complete. All FIND DEVICES and blink-to-identify options will be deactivated until the scan is complete.



7: Review the found devices for each DALI Bus for the quantity of inputs devices and output devices found is accurate for each bus.

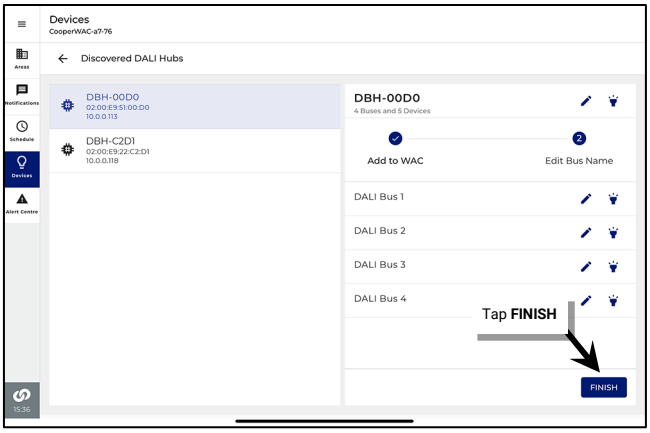
Note: If desired, tap next to a DALI Bus row to place the row in test mode. In test mode, WaveLinx DALI Wallstations and WaveLinx DALI Ceiling sensors will flash their LEDs. WaveLinx dimmable fixtures will cycle ON/100% for 5 seconds, ON/10% for 5 seconds (DIM), and then turn OFF for 5 seconds. This cycle will repeat until test mode times out after 1 minute.

8: Once the review is complete, tap **ADD TO WAC**. This may take several minutes to add devices to the WAC.



9: (Optional). Tap **edit** beside the DALI Bus name to rename it. Tap **save** at the end of the name row. Repeat for other DALI buses.

10: Tap **FINISH** to complete adding the devices and verify that a green checkmark or success message is displayed next to the DALI Hub name.



11: Repeat these steps to add additional WaveLinx DALI Hub devices to the WaveLinx Area Controller

Note: The DALI Hub discover and add tool keeps track of the quantity of imported DALI Hubs (maximum 10) as well as the available quantity of devices (maximum 400 WAC2 or 800 WAC2 R4 dependent on the WaveLinx Area Controller hardware).

- If the number of allowed DALI hubs on one WAC is exceeded the message “DALI hub exceeds WAC limit” will be displayed and the Add button will be disabled.
- If the DALI Hub import will cause the devices to exceed the maximum amount, the message “DALI Hub exceeds WAC limit” will be displayed and the button to add the DALI Hub to the WaveLinx Area Controller will be disabled.

Operation of Devices within the Construction Area

As part of the construction area, WaveLinx PRO, DALI, and LV devices operate with basic default operation. For details on a specific device’s expected behavior, refer to the device reference sheet for that device.

- Once construction area pairing is complete, all paired WaveLinx PRO, DALI and LV devices will operate as one large area or room.
- Any WaveLinx PRO or DALI Wallstation in the area will operate all the paired lighting devices in the Construction Area per the default scenes and programming.
- WaveLinx PRO Receptacles paired to a WaveLinx Area Controller will operate by manual pushbutton and will not be controlled by other devices until programmed in the WaveLinx App.
- All WaveLinx PRO, DALI and LV occupancy sensors work together. Any occupancy sensor sensing motion will turn the entire group ON (default level) and will keep loads ON until no occupancy is detected throughout the entire area. Once occupancy ceases, after 20 minutes, controlled loads will turn OFF.
- Daylight dimming is disabled for all WaveLinx PRO, DALI and LV devices in the construction group. This includes interior and exterior devices.
- All scene commands will default to the following light levels:

Scene	Dimmable Zone Response
Scene 0	0%
Scene 1	100%
Scene 2	70%
Scene 3	50%
Scene 4	30%
Scene 5	10%
Scene 6	1%
Scene 7 through 15	Not programmed[212]

- White tuning loads connected to WaveLinx PRO Switchpacks may adjust color temperature with commands from WaveLinx PRO Wallstations or occupancy sensors until programmed. White tuning loads connected to WaveLinx PRO Nodes, WaveLinx PRO advanced model Integrated Sensors (WPA IS Pro CCT), and DALI Device Type DT8 may remain at 3500K until programming is adjusted.

[212] Scenes 7 through 15 are not programmed and hidden from general users by default. The administrator must activate and then enable the zones and programming for each zone if they are required for an application.

- Contact closure devices connected to WaveLinx PRO Universal Voltage Dimming Switchpacks or to WaveLinx PRO Contact Closure Input Modules will not function until programmed.
- WaveLinx PRO Emergency Devices will remain in Emergency Mode (ON to 100%) and will ignore all commands until programmed for an Emergency Set assignment.

Add WaveLinx Networked Relay Panels

The WaveLinx Area Controller connects to the WaveLinx Networked Relay Panels using IP based Ethernet to allow configuration of the panel's relays and optional 0-10V dimmer channels. The WaveLinx Area Controller must be using minimum version 15 firmware/software to operate with the WaveLinx Networked Relay Panel. Use the steps in this section to:

- Part 1: Perform the Initial Configuration Steps for WaveLinx Networked Relay Panel
- Part 2: Establish WaveLinx App Communication with a WaveLinx Area Controller
- Part 3: Add the WaveLinx Networked Relay Panel
- Part 4: Verify WaveLinx Networked Relay Panel Import and Rename the Panel (optional)

Part 1: Perform the Initial Configuration Steps for the WaveLinx Networked Relay Panel

Steps in this section will refer to the WaveLinx Device Reference Sheets or other manual sections. Refer to the reference sheets for the devices being used on the site as well as the other manual sections.

1: Perform the initial configuration steps for the WaveLinx Area Controller being used. See "Initial Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller" on page 24 for step-by-step directions. The WaveLinx WAC is not compatible with WaveLinx CAT Devices.

2: Ensure that the WaveLinx Area Controller firmware is version 15 or above. Refer to "Viewing and Updating Firmware of the WaveLinx Area Controller and WaveLinx Devices" on page 384 for step-by-step directions on viewing the current WaveLinx Area Controller firmware and updating it if below the minimum requirement of version 15.

3: Perform the initial configuration steps for the WaveLinx Networked Relay Panel(s). See "Initial Configuration Steps for the WaveLinx Networked Relay Panel" on page 49 for step-by-step instructions.

4: Ensure that the WaveLinx Networked Relay Panel is powered and connected to the Ethernet.

5: Make sure to note the IP address for each WaveLinx Networked Relay Panel. This will be needed when adding the panel to the WaveLinx Area Controller.

Part 2: Establish WaveLinx App Communication with a WaveLinx Area Controller

The WaveLinx Mobile App or the WaveLinx WAC Lighting App will be used to add WaveLinx Networked Relay Panel to the WaveLinx Area Controller and then to administer the system.

Before using the WaveLinx Mobile App, perform all the steps from "Initial Configuration Steps for the WaveLinx Networked Relay Panel" in the previous section. Once these steps are completed, proceed with the login.

Use the WaveLinx Mobile App or the WaveLinx WAC Lighting App to connect to the WaveLinx Area Controller, logging in as the administrative user. If using the WaveLinx Mobile App, refer to “WaveLinx Area Controller Login using the WaveLinx Mobile App” on page 151 for instructions. If using the WaveLinx WAC Lighting App, refer to “Logging in to the WaveLinx WAC Lighting App” on page 157 for instructions.

Part 3: Add the WaveLinx Networked Relay Panel

To be able to modify the settings of the Networked Relay Panel’s relays and optional 0-10V dimmer channels in the WaveLinx Mobile App or WaveLinx WAC Lighting App, the WaveLinx Networked Relay Panel must be added to the WAC. This process is done using IP based Ethernet communications. Ensure that the WaveLinx Networked Relay Panel and WaveLinx Area Controller can be accessed in the same IP Subnet.

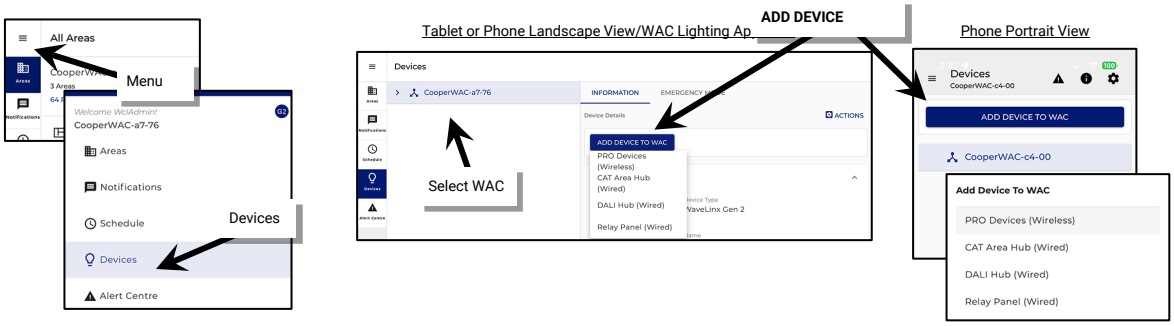
Pairing Mode is **not** used with the WaveLinx Networked Relay Panel. The WaveLinx Networked Relay Panel will be added using the IP address that has been assigned to the relay panel during the initial configuration. Once added, the panel’s relays and dimmers will be assigned to the Construction Area. Relays will be placed directly in the Area (**Devices in Area**) while any 0-10V dimmers will be placed in the Construction Area’s dimmable **Zone**.

To add the WaveLinx Networked Relay Panel:

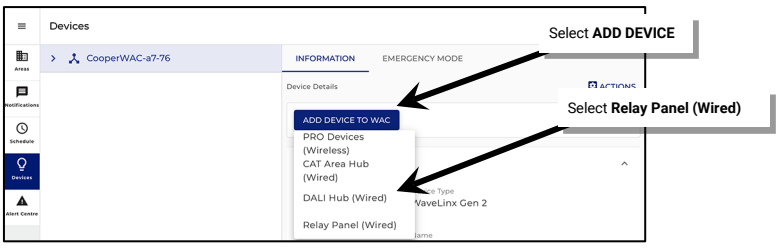
1: Open the **WaveLinx Mobile App** and **Login** to the WaveLinx Area Controller that will be controlling the relay panel’s relays and 0-10v dimmers.

2: From the sidebar or **menu** ☰, tap **Devices** and then tap **ADD DEVICE**.

*For tablet devices or devices being used in landscape view, tap on the WaveLinx Area Controller. For smaller devices using portrait view, the **ADD DEVICE** controls for the Area Controller will already be at the top of the screen.*

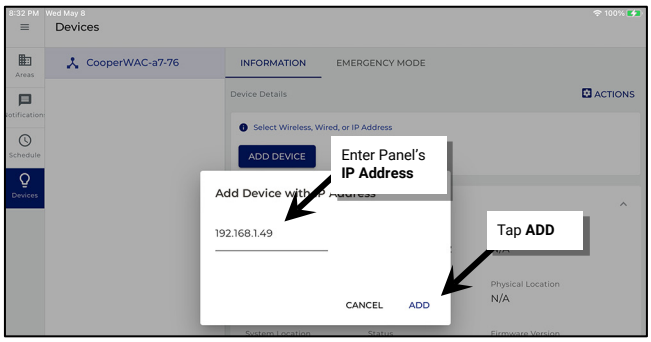


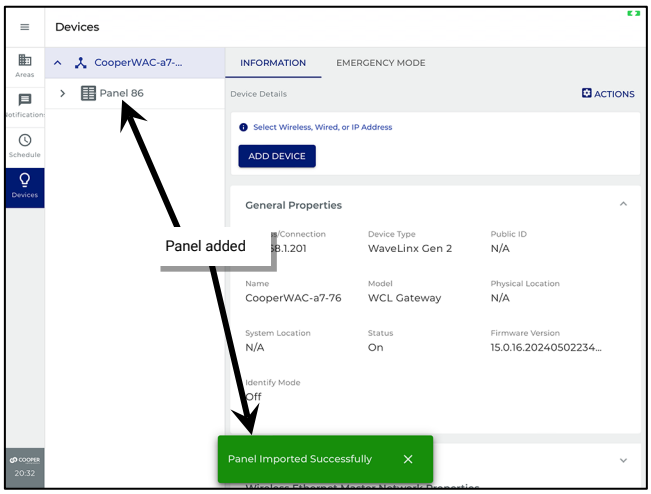
3: Tap **ADD DEVICE** and select **Relay Panel (Wired)**.



4: Enter the **IP Address** that has been assigned to the WaveLinx Networked Relay Panel and tap **ADD**.

5: Wait for the panel import to complete.





Repeat these steps to add additional Relay Panels to the WaveLinx Area Controller (maximum of 400 devices).

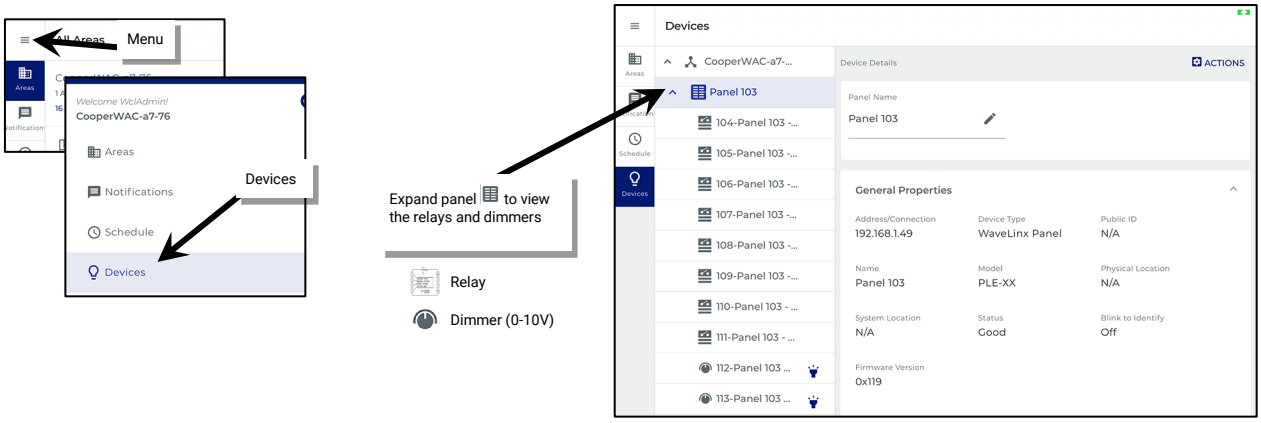
Part 4: Verify WaveLinx Networked Relay Panel Import and Rename the Panel (Optional)

It is recommended that the import be verified. During the check, the panel can be renamed from the default name given (optional).

1: Open the **WaveLinx Mobile App** and **Login** to the WaveLinx Area Controller.

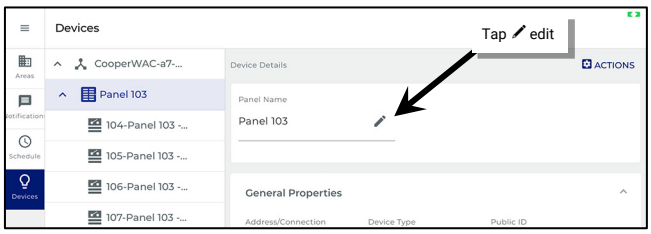
2: Tap menu ☰, and select **Devices**.

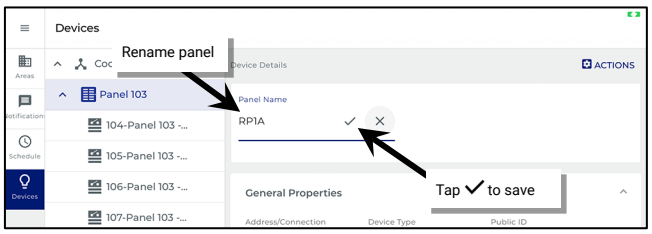
3: Locate and then tap the panel ▦ to expand it and display the imported relays and dimmers. Verify that the correct number of relays and dimmers are displayed.



4: Optionally rename the panel. Tap the panel and then tap ✎ next to the **Panel Name** in the **Device Details**.

5: Enter the desired panel name and then tap ✓ to save.





Note: A panel name change will not update the relay or dimmer default names. To update relay and dimmer names with the new panel name, individually delete each relay or dimmer by selecting each item and tapping 🗑 **DELETE**. Once all relays and dimmers are deleted, select the panel, and then tap the **ACTIONS** menu. Select **Reimport**. Wait for the import to complete. The relays and dimmers will reflect the new panel name.

Operation of WaveLinx Networked Relay Panel Devices within the Construction Area

As part of the construction area, WaveLinx Networked Relay Panels will operate with basic default operation. For details on a specific device's expected behavior, refer to the device reference sheet for that device. Note that WaveLinx Networked Relay Panels rely on WaveLinx PRO or WaveLinx CAT devices to operate the relays and dimmers as there are no input devices connected to a relay panel.

- **Once added to the construction area all relays in the relay panel will turn ON and remain ON. Relays will remain ON until programmed through the WaveLinx App unless overridden using manual control through the relay panel onboard display.**
- Any WaveLinx PRO or CAT Wallstation in the Construction Area will operate all Relay Panel dimmers per the default scenes and programming.
- All WaveLinx PRO, CAT, DALI or LV occupancy sensors in the Construction Area will work together. Any occupancy sensor sensing motion will cause relay panel dimmers to go to the default level. Once occupancy ceases, after 20 minutes, the dimmers will go to their lowest level. Relays will remain ON.
- Daylight dimming is disabled for all devices in the construction group. This includes interior and exterior devices.
- All scene commands will default to the following light levels:

Scene	Dimmable Zone Response
Scene 0	0%
Scene 1	100%
Scene 2	70%
Scene 3	50%
Scene 4	30%
Scene 5	10%
Scene 6	1%
Scene 7 through 15	Not programmed[213]

- Demand Response behavior is assigned to the default dimmable lighting Zone 1. By default, if a demand response signal or test is received, all dimmable loads will reduce by 20% light output.

[213] Scenes 7 through 15 are not programmed and hidden from general users by default. The administrator must activate and then enable the zones and programming for each zone if they are required for an application.

Creating WaveLinx Areas and Zones

Once WaveLinx devices have been added to the WaveLinx Area Controller, the WaveLinx Mobile App or the WaveLinx WAC Lighting App[214] will be used to administer the system.

Any WaveLinx PRO, CAT, LV or WaveLinx Networked Relay Panel device can be assigned to any area created in the WaveLinx Area Controller. Use the steps in this section to:

- Part 1: Establish WaveLinx App Communication with a WaveLinx Area Controller
- Part 2: (Optional) Move WaveLinx CAT Devices to the Construction Area for Reassignment
- Part 3: Create the Areas and Zones Needed for the Project
- Part 4: Organize the WaveLinx Devices into Areas and Zones
- Part 5: Finalize WaveLinx Area Controller Setup

Part 1: Establish WaveLinx App Communication with a WaveLinx Area Controller

To open the WaveLinx Mobile App or the WaveLinx WAC Lighting App:

1: If the WaveLinx Mobile App was not used to add the WaveLinx devices, make sure to perform the initial setup of the WaveLinx Area Controller recommended in “Initial Configuration Steps for the WaveLinx Area Controller 2 or WaveLinx Outdoor Area Controller” on page 24.

2: Use the WaveLinx Mobile App or the WaveLinx WAC Lighting App to connect to the WaveLinx Area Controller, logging in as the administrative user.

- If using the WaveLinx Mobile App, refer to “WaveLinx Area Controller Login using the WaveLinx Mobile App” on page 151 for login instructions.
- If using the WaveLinx WAC Lighting App, refer to “Logging in to the WaveLinx WAC Lighting App” on page 157 for login instructions.

Quick Links for Common Questions

- I previously logged in on my mobile device as a personal control user and saved my credentials. Now I need to log in as the administrator user. How do I switch users? See the answer on page 471.
- How do I change the default password for the user? See the answer on page 375.
- How do I create additional users? See the answer on page 374.
- When I open the Mobile App, I get an error message. What should I do? See the answer on page 471.

Part 2: Create Standard Areas and Zones for the Project

For WaveLinx devices to control lighting in the correct rooms, the devices must be organized. This section shows how to use the WaveLinx App to create standard areas and zones that the WaveLinx devices will be assigned to.

- A **standard area** is a space within a facility with devices that operate separately from other spaces (a room). The **standard area** will contain the devices that operate to control that room.
- A **zone** is a group of devices that will be controlled together in the exact same way within the **standard area**. For instance, fixtures that are installed in the same row are often grouped together to allow for uniform operation. Controlled receptacles in the same room might be placed in a receptacle zone so they switch ON and OFF with the same commands. Relays from a relay panel will need to be added to a non-dimmable zone. Zones are also used to separate the color temperature control of tunable white devices from the ON/OFF and dimming control functionalities.

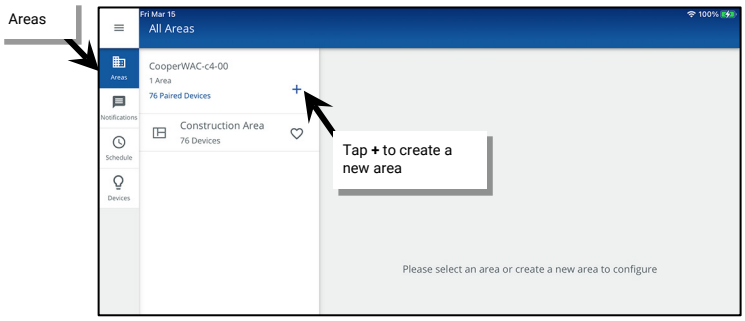
[214] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Step 1: Create a Standard Area

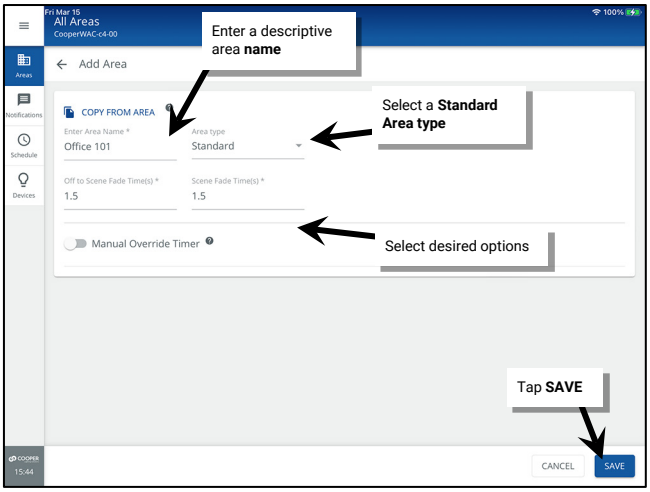
A **standard area** is a space within a facility with devices that operate separately from other spaces (a room). The **standard area** will contain the devices that operate to control that room.

This step will walk through the process of creating the standard areas.

1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator. In the **Areas** option, tap **+** to create a new area.

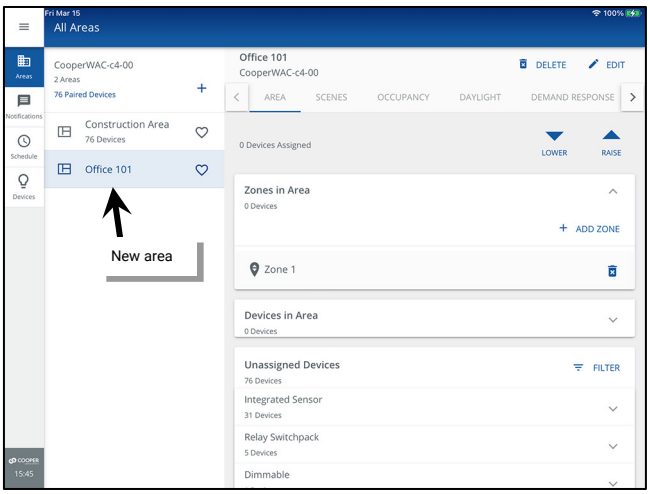


2: Enter a descriptive name for the area, select the **Standard Area** type and select any necessary options (see “Understanding and Modifying Area Settings” on page 245 for option details). Tap **SAVE** to create the new area.

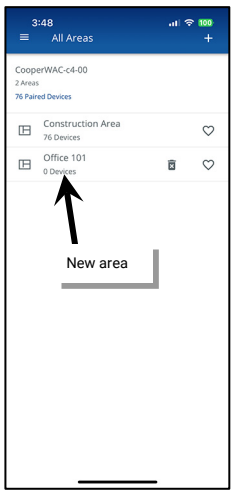


The new area will appear in the **All Areas** list.

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



Step 2: Create a Zone in a Standard Area

A **zone** is a group of devices that will be controlled together in the exact same way within the **standard area**. For instance, fixtures that are installed in the same row are often grouped together to allow for uniform operation. Controlled receptacles in the same room might be placed in a receptacle zone so they switch ON and OFF with the same commands. Zones are also used to separate the color temperature control of tunable white devices from the ON/OFF and dimming control functionalities.

There are four different types of zones that can be created in an area:

- Dimmable Zone: May contain any dimmable load connected to a dimmable WaveLinx device.
- Receptacle Zone: May contain switched controlled receptacle devices.
- Non-Dimmable Zone: May contain non-dim load (switched load) devices such as relays from a WaveLinx Networked Relay Panel.
- White Tuning Zone: May contain white tuning control devices.

This step will walk through the process of adding additional zones that are needed for a standard area, editing the existing zones, and deleting any unneeded zones. Refer to the Item Reference sheets beginning on page 18 for details regarding the default zones created per area and the supported quantity of zones for the WaveLinx Area Controller model being used at this site.

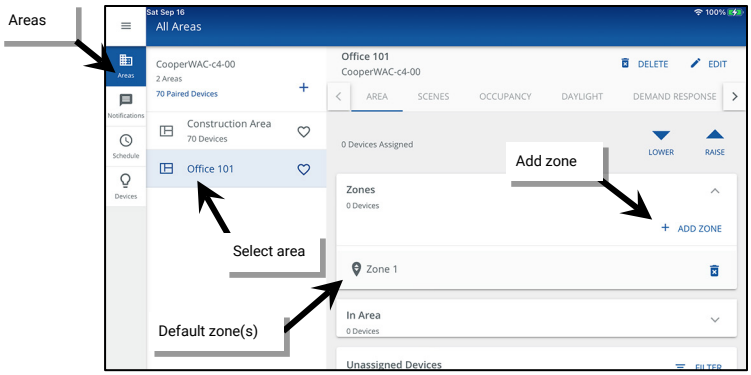
.To create, modify or remove zones in a standard area:

1: Determine how many control zones need to be in the area.

- Each separately controlled lighting group will need a lighting zone, either dimmable or non-dimmable (relays).
- Controlled receptacles should be placed in a receptacle zone.
- VividTune or BioUp tunable fixture white tuning controls connected to advanced model Integrated Sensors (WPA IS Pro CCT), a WaveLinx PRO Node channel, to a Universal Voltage Dimming Switchpack, or a DALI Driver Device Type DT8 should be placed in a white tuning control zone.

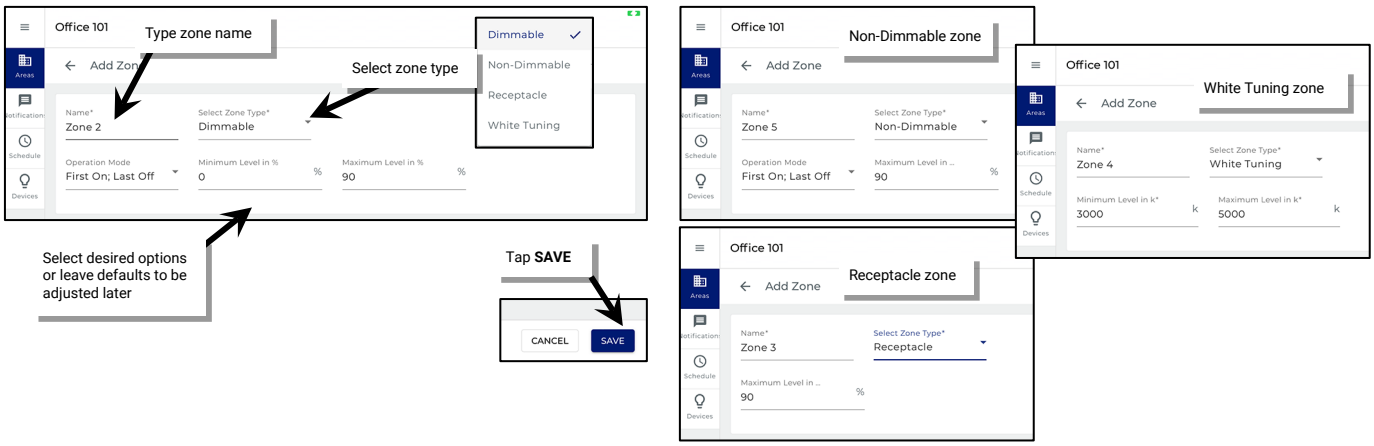
2: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator. In the **All Areas** list, tap the area name.

3: In the zone section, review the current zones/zone types. Tap **+** to create a new zone if necessary.



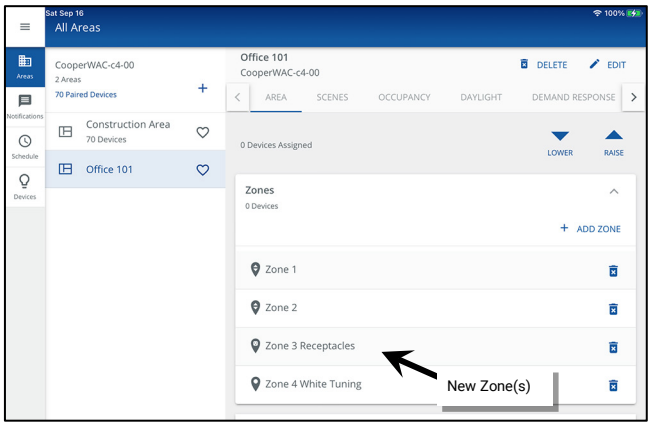
4: Type a descriptive name for the zone, and then select the zone type (dimmable, non-dimmable [switched], receptacle, or white tuning). **Zone type cannot be changed after initial setup**.

Make parameter selections or leave defaults in place to be adjusted later (see “Understanding and Modifying Zone Settings” on page 248 for explanation). For White Tuning zones, the max and min level fields should match a Kelvin temperature range that all the white tuning fixtures support (refer to the fixture information for the supported ranges). Tap **SAVE**.

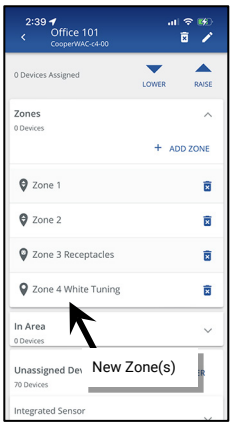


Once the zone is created, the new zone should appear in the area's zone list.

Tablet or Phone Landscape View/WAC Lighting App View

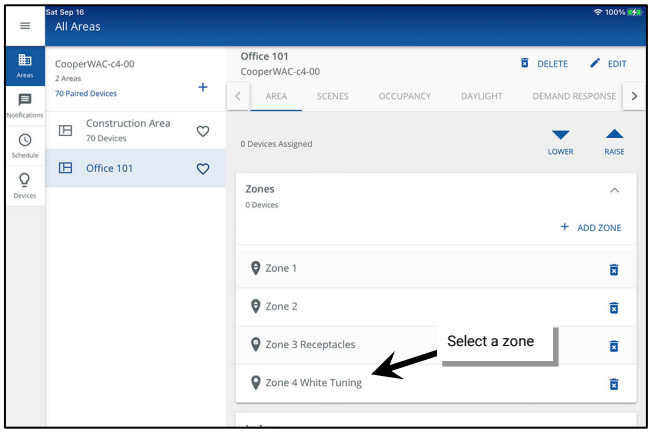


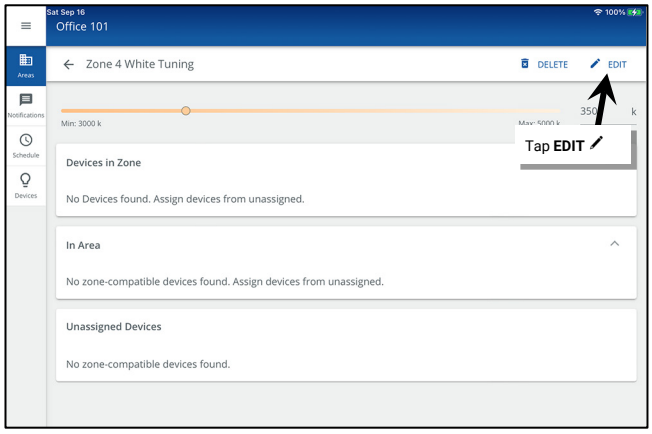
Phone Portrait View



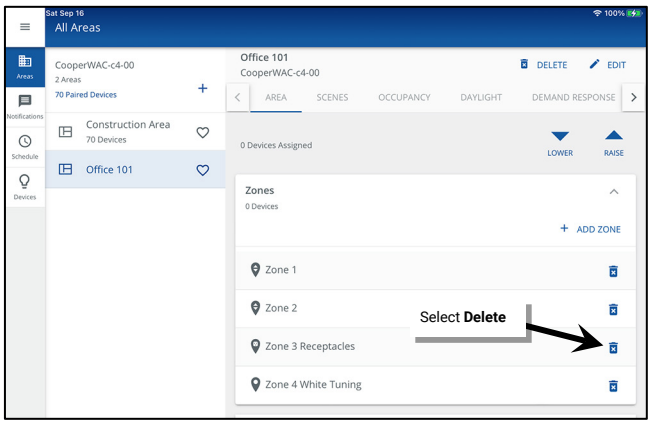
5: Repeat to add additional zones as needed.

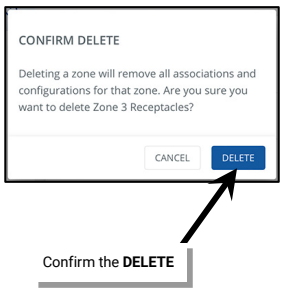
6: (Optional) Modify default zones to adjust the zone name and behaviors by selecting the zone and tapping **EDIT** ✎.





7: (Optional) Delete any unused zones by tapping **DELETE** 🗑 in the zone's row.





IMPORTANT: Newly created dimmable, non-dimmable and receptacle zones are automatically assigned to the default occupancy set. To change this automatic assignment, see "Adjusting Occupancy Set Controlled Zones" on page 284.

Step 3: Create Additional Standard Areas/Use the Copy Area Function

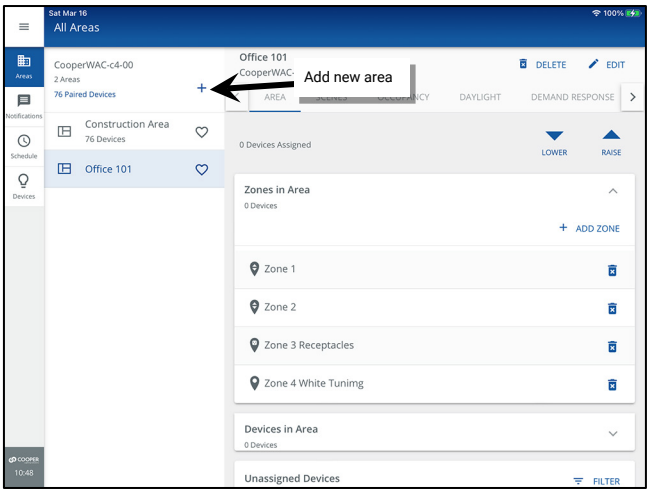
Repeat steps 1 and 2 in this section to create additional standard areas **OR** use the **Copy Area** function**.**

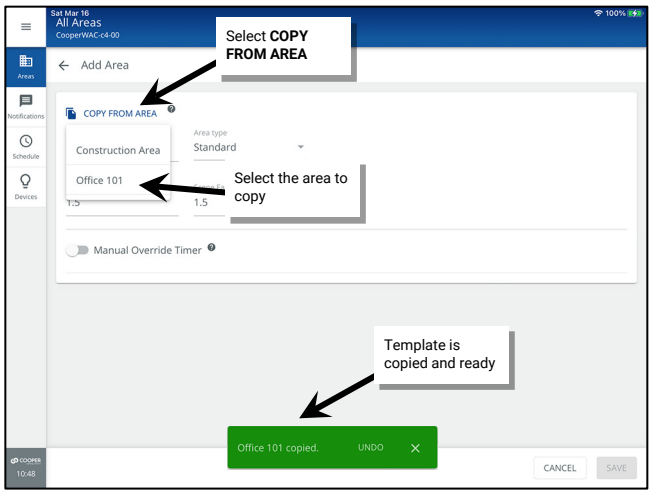
For sites that have multiple rooms with the same lighting layout and zones, one area can be copied to act as a template for other areas being created. After the area is copied, devices will need to be identified and assigned.

Before using this feature, customize the area that will be used for the template, assigning any specialized programming (refer to the section on “Customizing Programming” found on page 223 of this manual). Once the area is programmed use the following steps to use a copy of the area as a template for the new area.

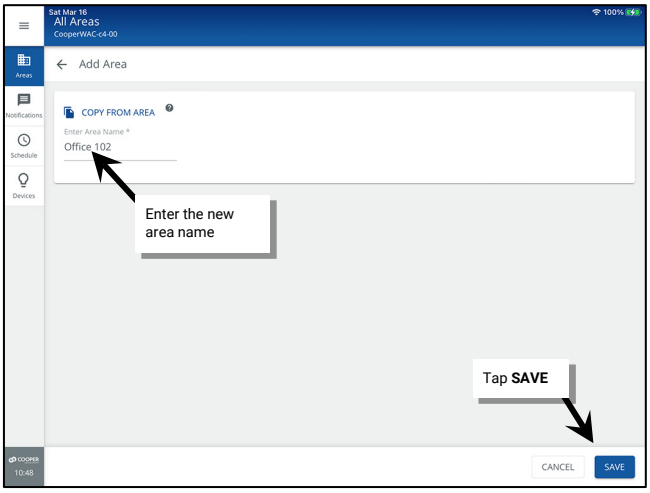
To copy an area’s settings to a new area:

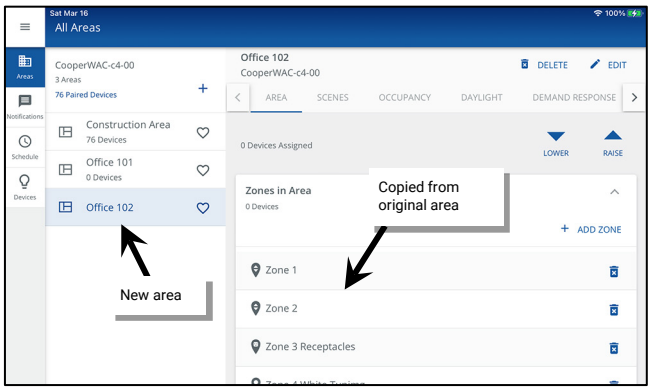
1: In the area screen, tap the plus sign to add a new area. Then, tap **COPY FROM AREA** and select the configured area. The screen should display that the area is copied, indicating that the template has been loaded and is ready for use.





2: Enter the new area’s name, and then tap **SAVE**.





The standard area will have the same configuration as the original standard area including:

- Zone quantities/parameters
- Scene levels
- Occupancy set quantities/parameters
- Open loop daylight set quantities/parameters[215]
- Demand response parameters

3: Repeat these steps until all standard areas are created in the WaveLinx Area Controller.

Once the new area is created, assign the devices to the new area see “Organizing WaveLinx Devices into Areas and Zones” on page 198.

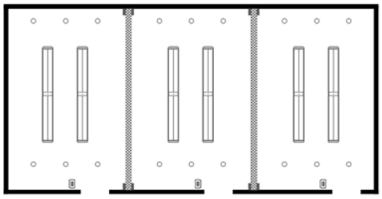
Part 3: Create Partitioned Areas and Assign Zones

An **Area** can be either a **standard area** or a **partitioned area**.[216] This section discusses the setup of a partitioned area and its zones. The steps in this section are only needed if the space has partitioned areas. **Skip to the next section if the site does not have any partitioned areas.**

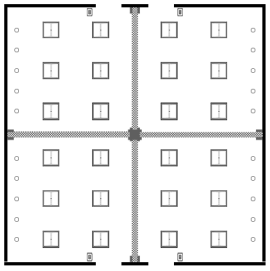
Important Partition Area Details

The WaveLinx Area Controller version 17.0 allows creation of **two** partitioned areas per WaveLinx Area Controller. A **partitioned area** is a space within the facility that may have moveable divider walls to allow creation of one large space or several smaller spaces called **sub areas**. Devices in the space may need to operate independently for a single sub area when divider walls are closed or may need to operate a combination of sub areas when walls are opened.

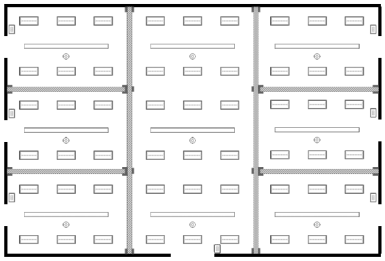
A partitioned area can have a maximum of **10 sub areas** and/or **10 divider walls**. This allows for accommodation of many different partitioning layouts such as those pictured below:



Example 1: 3 Sub Areas, 2 Partitions



Example 2: 4 Sub Areas, 4 Partitions



Example 3: 7 Sub Areas, 10 Partitions

[215] Closed loop daylight sets are not copied as they are device dependent.

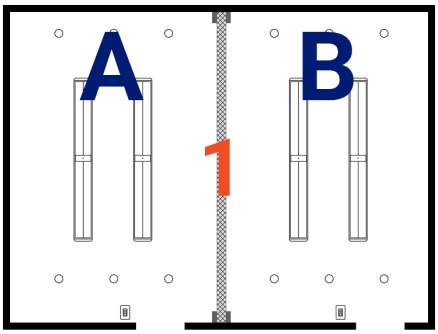
[216] The use of partitioned areas requires the use of a WaveLinx Area Controller WaveLinx Area Controller with the minimum software version 14.1.x.x.

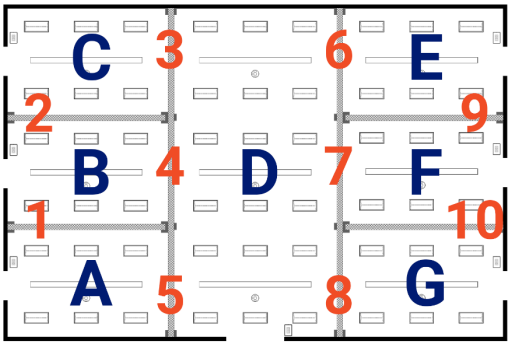
Additional Details

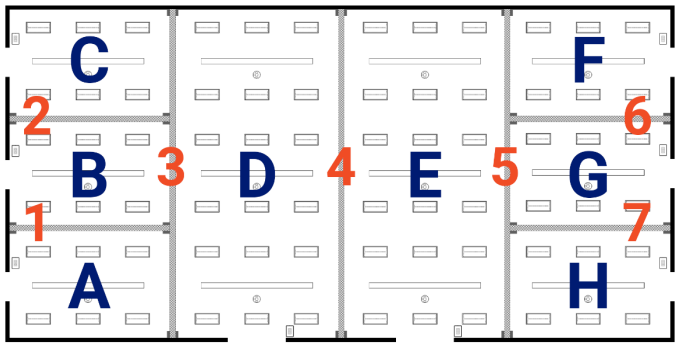
- An input should be assigned to each partition wall to issue the wall open and closed command. This input can be:
  - A wallstation button from any WaveLinx PRO or WaveLinx CAT wallstation
  - A contact closure into a compatible WaveLinx device such as the WaveLinx PRO Universal Voltage Dimming Switchpack with Dry Contact Input (WSP-CA-010), the WaveLinx PRO Contact Closure Input Module (CCI-P-V), or the WaveLinx CAT Contact Closure Input Module (CCI-C-V)
- For proper operation, devices in each sub area that should operate together when walls are open should report to the same sub zone number to allow for uniform operation.
- When sub areas are joined by the opening of the wall, the wallstations in the joined sub areas will issue the programmed command to the original area and any joined sub areas.
- Occupancy set commands will also operate independent sub areas when the walls are closed. When the walls are open, if assigned occupancy set number is the same in the joined sub areas, the occupancy set will act as one occupancy set over the entire joined area.
- Daylight sets are set up at the main partitioned area. Daylighting will operate as defined independent of wall position.
- Demand response commands will issue as defined independent of wall position.
- Time schedule commands, touchscreen commands, and commands from devices that are not assigned to the sub areas will issue commands to the whole partitioned area (no sub area control) independent of wall position.

Step 1: Sketch a Preliminary Layout

For a simple rooms with a single wall between the partitioned sub areas, this step is probably not needed. For more complex spaces, identifying each area and wall and then documenting the areas for each wall join can be helpful prior to creating the partitioned area. See the examples below:

Example 1 Sketch: *2 Sub Areas, 1 Partition Wall*	Wall Number	Sub Areas Joined
	Wall 1	A and B
	Wall 2	*none*
	Wall 3	*none*
	Wall 4	*none*
	Wall 5	*none*
	Wall 6	*none*
	Wall 7	*none*
	Wall 8	*none*
	Wall 9	*none*
	Wall 10	*none*

Example 2 Sketch: *7 Sub Areas, 10 Partition Walls*	Wall Number	Sub Areas Joined
	Wall 1	A and B
	Wall 2	B and C
	Wall 3	C and D
	Wall 4	B and D
	Wall 5	A and D
	Wall 6	D and E
	Wall 7	D and F
	Wall 8	D and G
	Wall 9	E and F
	Wall 10	F and G

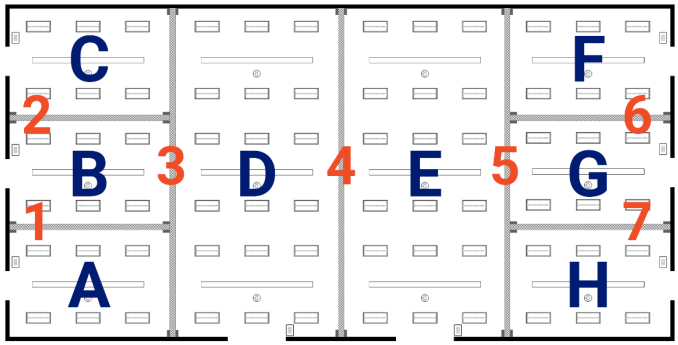
Example 3 Sketch: *8 Sub Areas, 7 Partition Walls*	Wall Number	Sub Areas Joined
	Wall 1	A and B
	Wall 2	B and C
	Wall 3	D, A, B and C
	Wall 4	D and E
	Wall 5	E, F, G and H
	Wall 6	F and G
	Wall 7	G and H
	Wall 8	*none*
	Wall 9	*none*
	Wall 10	*none*

Once the preliminary layout is done, proceed to the next step.

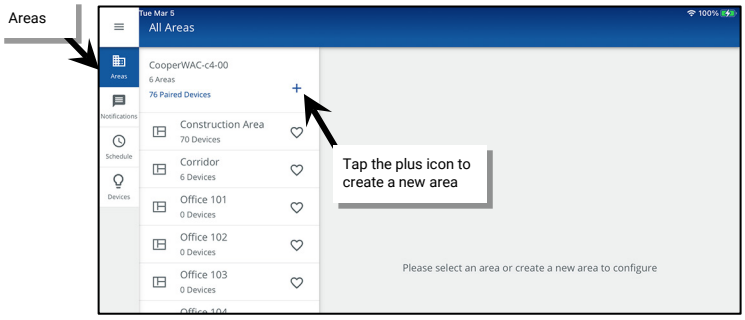
Step 2: Create a Partitioned Area

Use this section to create a partitioned area, assign the number of sub areas, assign the number of walls, define the joined sub areas for each wall and select the input that will be used to indicate an open or closed command.

Before starting these steps make sure to have the sketch created in “Step 1: Sketch a Preliminary Layout” on page 191 available for reference. For the following steps, the following floorplan sketch will be used:

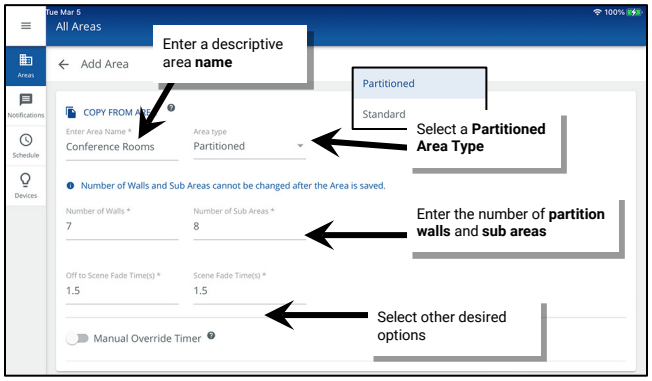
Example Sketch: *8 Sub Areas, 7 Partition Walls*	Wall Number	Sub Areas Joined
	Wall 1	A and B
	Wall 2	B and C
	Wall 3	D, A, B and C
	Wall 4	D and E
	Wall 5	E, F, G and H
	Wall 6	F and G
	Wall 7	G and H
	Wall 8	*none*
	Wall 9	*none*
	Wall 10	*none*

1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator. In the **Areas** option, tap **+** to create a new area.

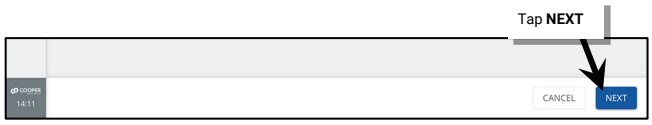


2: Enter a descriptive **name** for the partitioned area and then select the **Partitioned** Area Type.

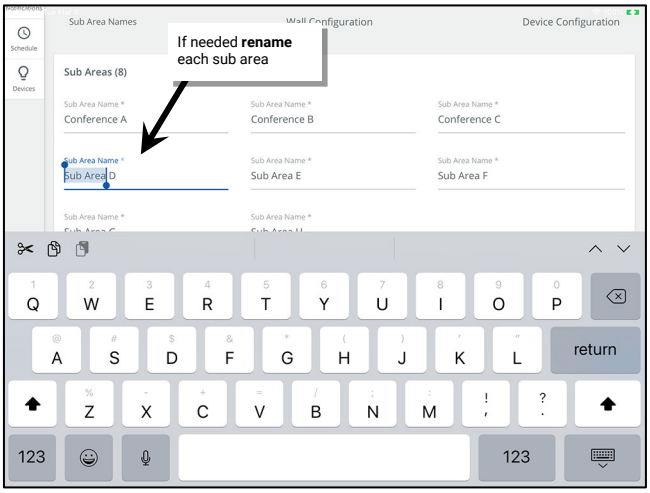
3: Enter the **number of partition walls** and **number of sub areas** in the partitioned area and then select any additional necessary options "Understanding and Modifying Area Settings" on page 245 for option details). Tap **NEXT** to create the new area and advance to the next screen.

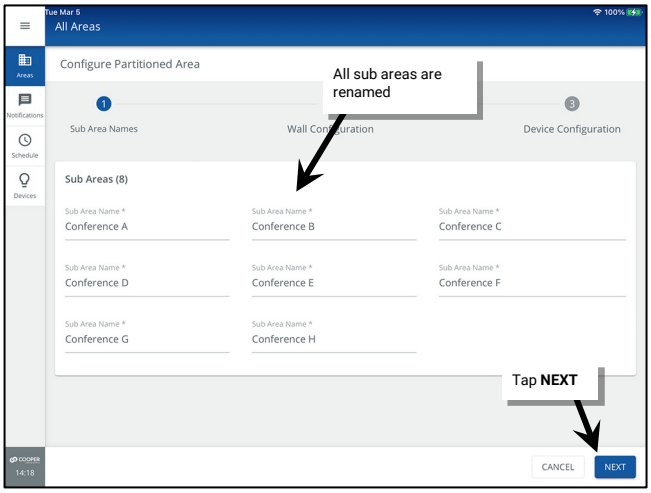


The number of walls and sub areas cannot be changed after the area is created. If the walls or sub areas are incorrect, delete the partitioned area and recreate it with the correct quantities of walls and sub areas.

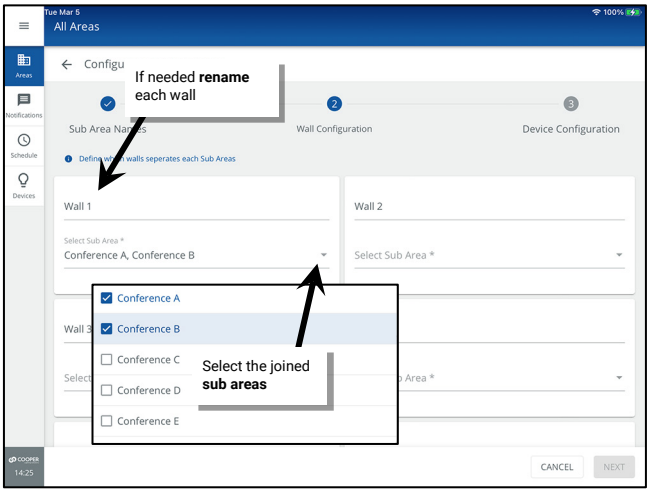


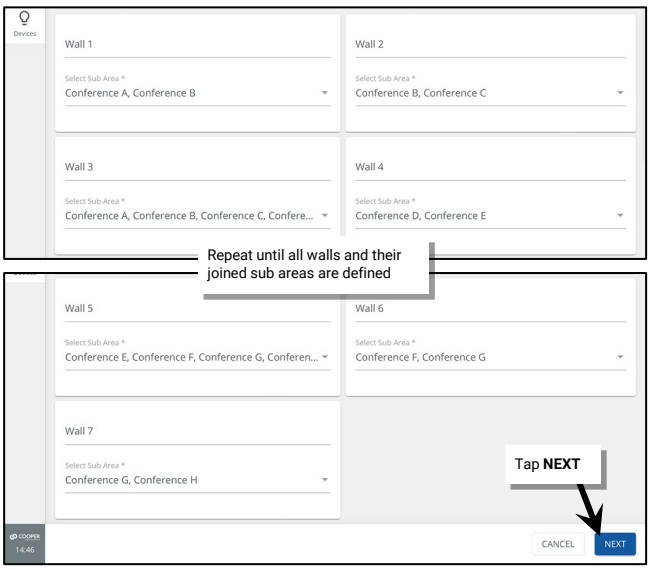
4: If needed, adjust the default **Sub Area Names**. Tap a name and change to the desired name, repeating for each sub area. Tap **NEXT** once all sub area names are correct.





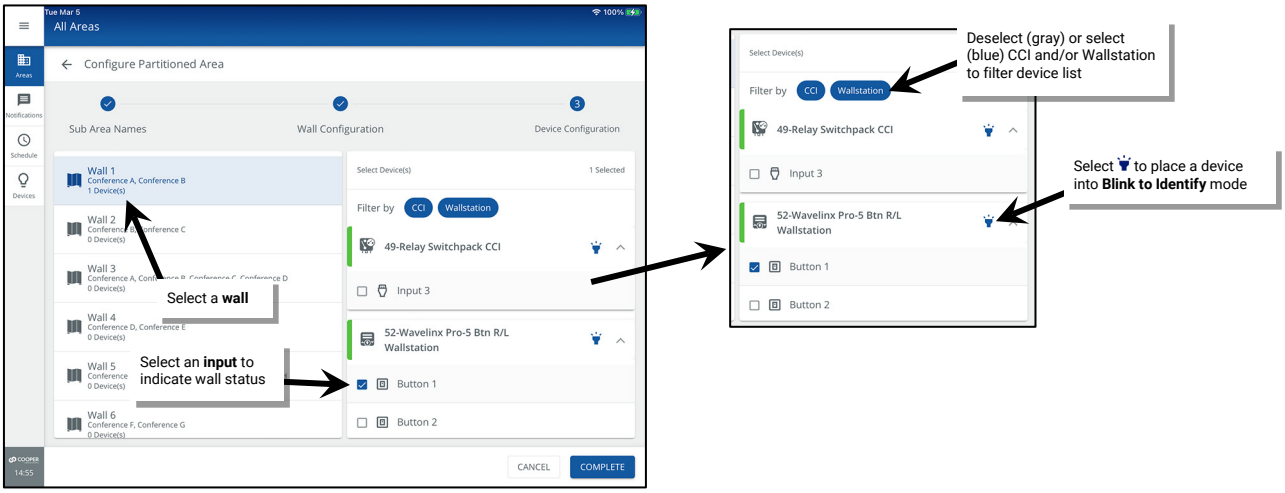
5: Perform the **Wall Configuration**. Tap any **Wall Name** to change the default name and then use the drop down to **select the sub areas** that the wall joins (must select at min. two sub areas, max. ten sub areas). Repeat until all wall names and sub areas are defined. Tap **NEXT** to move on to the next step.





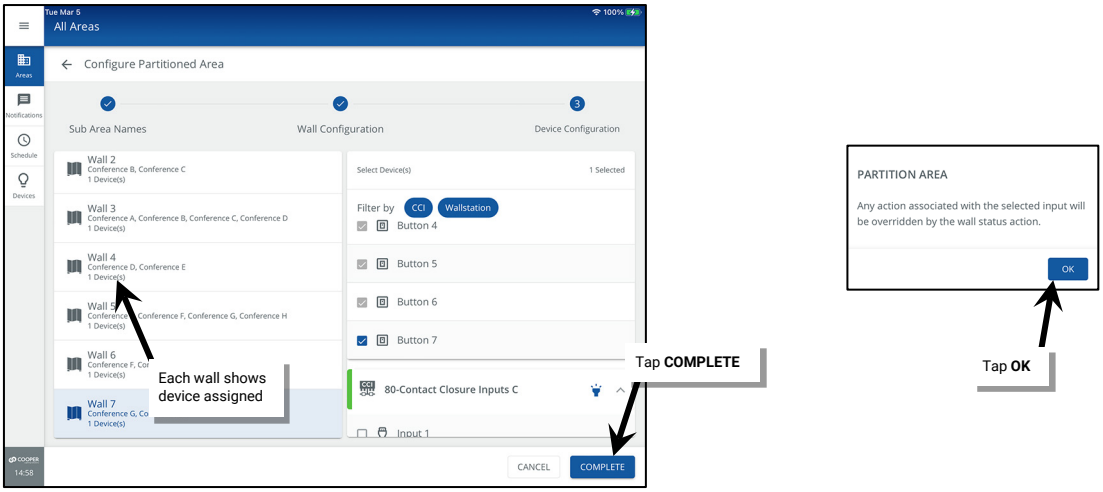
6: Perform the **Device Configuration** to select the input that will indicate that each wall is open or closed. Tap a **wall**. Compatible input devices will be displayed in the **Select Device(s)** list. Once the correct device is located, **check the input** that will be associated with this wall.

- The compatible device list will include CCI (contact closure input) and wallstation devices regardless of the area they are assigned to.
- Use the filter to streamline the view to **CCI** (contact closure input) devices or **wallstations**.
- For devices that support identification, select to place a device into **Blink to Identify** mode to aid in identifying the device.



7. Repeat step 6 for each wall until an input is selected for each wall. Note that inputs that report to other walls will be selected and grayed out. Tap **COMPLETE.**

8: When prompted, tap **OK** to acknowledge that the defined input action will be replaced with the wall status action.



IMPORTANT: The device(s) that contains the inputs being assigned to the wall action WILL NOT be moved from their previously assigned area. If the devices are left in the construction area, there is risk of them being removed when devices are cleared from the construction area. To avoid this, make certain to assign the wall input device(s) to one of the partitioned sub areas. See page 202 for instructions.

Step 3: Create and Assign Zones in a Partitioned Area

Once the partitioned area is created, create the necessary zones for the application. The partitioned area contains one **Zone** (Zone 1) by default. Additional zones can be created as needed. In a partitioned area, **zones** are created at the main **Partitioned Area** screen. To maximize the number of zones available for other areas, the zones are then assigned as **sub zones** if they are needed in the **sub areas**.

A **zone** is a group of devices that will be controlled together in the exact same way. In a partitioned area, devices in each sub area that should operate together when partition walls are open should be assigned to the same zone number (sub zone) in each sub area allowing for a uniform response.

- If each sub area contains fixtures that should operate together when all walls are opened/all sub areas joined, then the fixtures will need to be assigned to the same zone number in each sub area.
- Controlled receptacles in the sub areas might be placed in the same receptacle zone in each sub area so they switch ON and OFF together when the room is joined.
- A zone might also be used to separate the color temperature control of tunable white devices from the ON/OFF and dimming control functionalities, again with the same zone being assigned to each sub area to allow for uniform control in a joined room.

There are four different types of zones that can be created in an area:

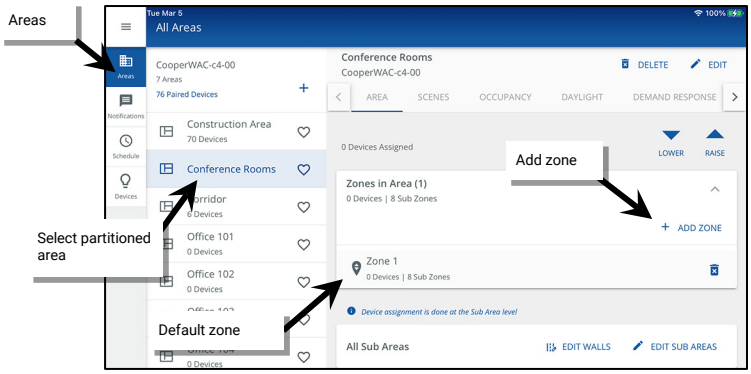
- Dimmable Zone: May contain any dimmable load connected to a dimmable WaveLinx device.
- Receptacle Zone: May contain switched controlled receptacle devices.
- Non-Dimmable Zone: May contain non-dim load (switched load) devices.
- White Tuning Zone: May contain white tuning control devices.

To add zones to a partitioned area and assign the zone to sub areas (sub zone):

1: Determine how many control zones need to be defined for proper operation when all the walls are OPEN and the sub areas are JOINED, i.e., one large open room. Each separately controlled group in the joined area will need its own zone. If WaveLinx controlled receptacles or white tuning capable devices/lighting is being used, make sure to account for the necessary receptacle and white tuning zones.

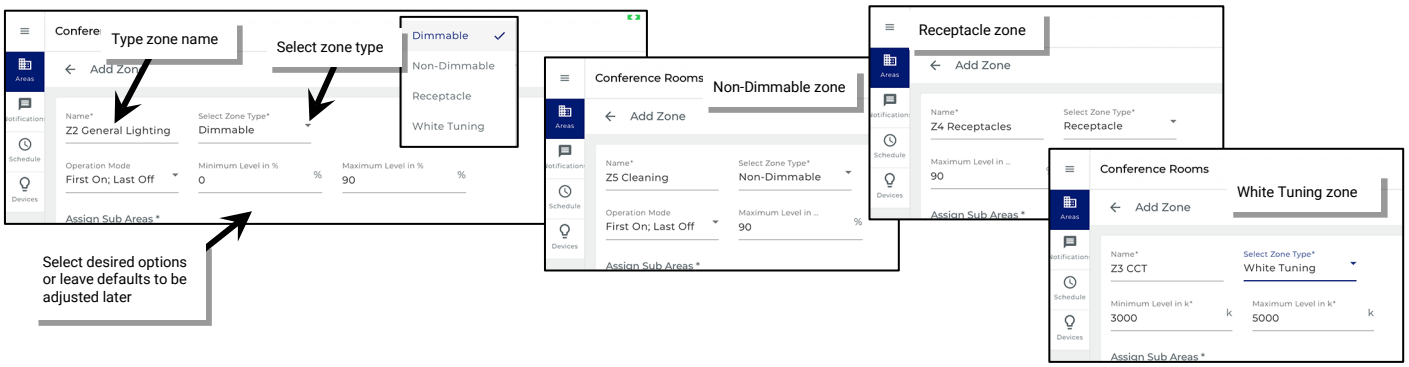
2: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator. In the **All Areas** list, tap the partitioned area name.

3: In the zone section, review the current zones/zone types. Tap **+** to add a new zone if necessary.

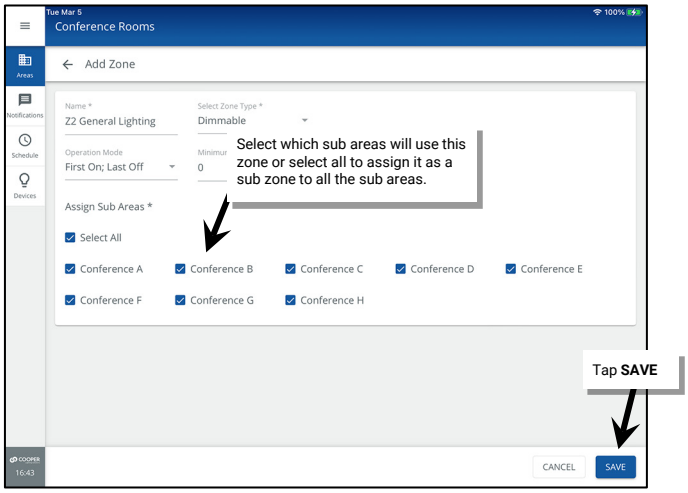


4: Type a descriptive name for the zone, and then select the zone type (dimmable, non-dimmable [switched], receptacle, or white tuning). **Zone type cannot be changed after initial setup**.

Make parameter selections or leave defaults in place to be adjusted later (see “Understanding and Modifying Zone Settings” on page 248 for explanation). For White Tuning zones, the max and min level fields should match a Kelvin temperature range that all the white tuning fixtures support (refer to the fixture information for the supported ranges).

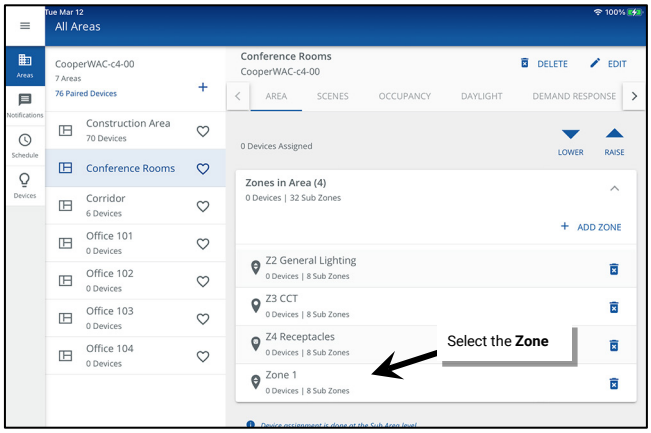


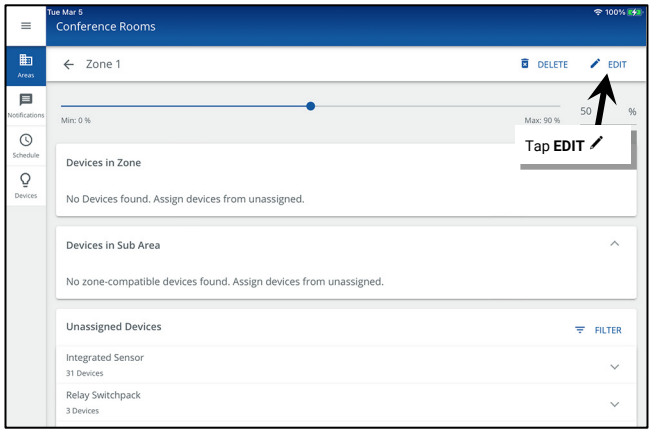
5: **Assign the Zone to the Sub Areas (sub zone)** that will have devices operating in it. Tap **Select All** or individually select the sub areas if the zone will not be used in some sub areas. For instance, if each sub area contains general lighting fixtures that will need to operate together when the room is joined, use **Select All** to assign the sub zone. If only some sub areas have general fixtures and other sub areas do not have them, select only the sub areas that need this zone to maximize the number of zones available for other areas. Tap **SAVE**.



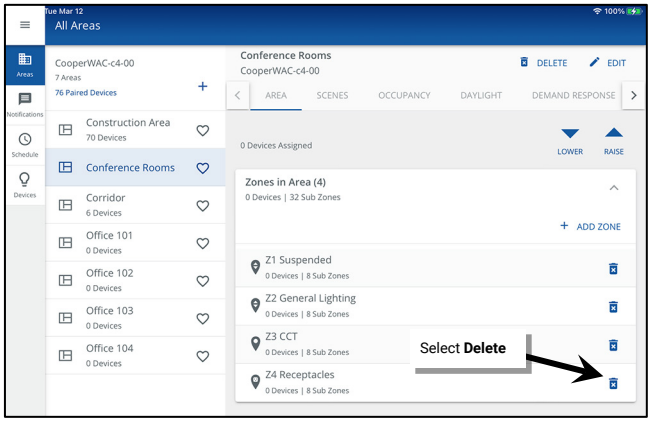
6: Repeat steps 3 through 5 until all needed zones are created.

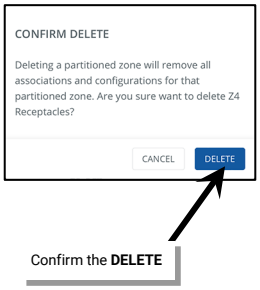
7: If necessary, modify the default zone (Zone 1) to adjust the zone name and behaviors by selecting the zone and tapping **EDIT** ✎. Note: The default zone is automatically assigned to all sub areas. To change this assignment, see “Moving a Device from on Sub Zone or Sub Area to Another“ on page 239.





7: (Optional) Delete any unused zones by tapping **delete** 🗑 in the zone’s row.





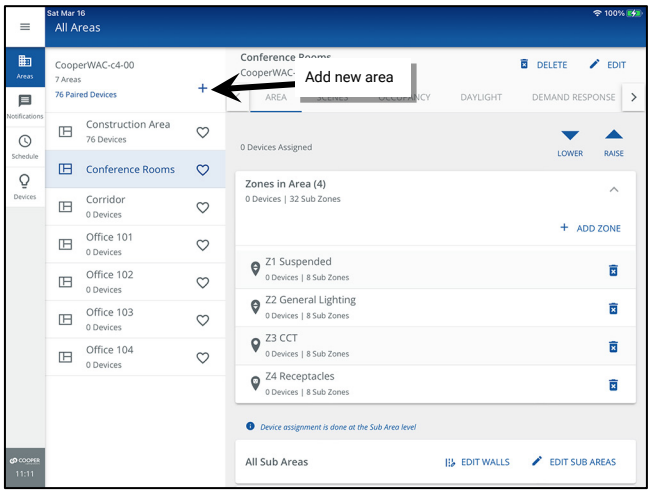
Step 4: Create an Additional Partitioned Area/Use the Copy Area Function

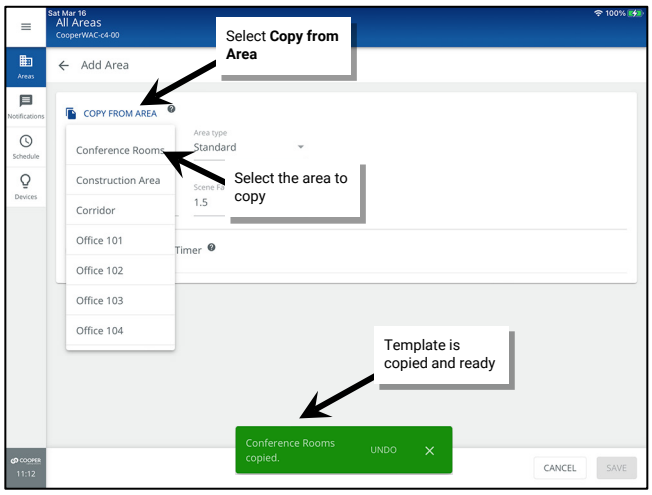
The WaveLinx Area Controller allows up to two (2) partitioned areas. Repeat steps 1 through 3 in this section to create one additional partitioned area **OR** use the **Copy Area** function if the other partitioned area will match the same layout as the original partitioned area.

Before using this feature, customize the area that will be used for the template, assigning any specialized programming (refer to the section on "Customizing Programming" found on page 223 of this manual). Once the area is programmed use the following steps to use a copy of the area as a template for the new area.

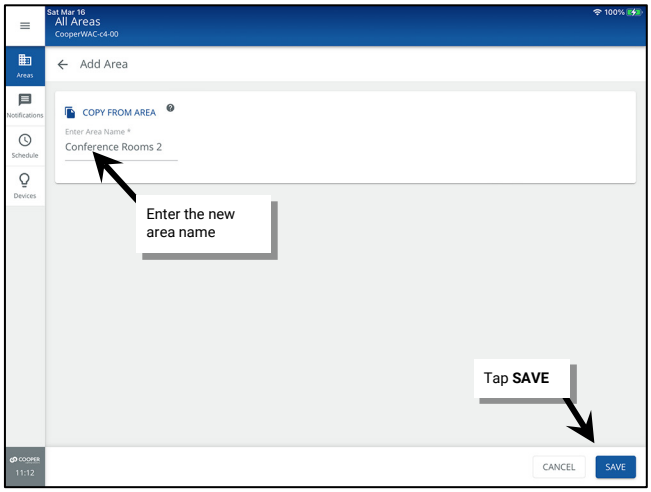
To copy a partitioned area's settings to a new area:

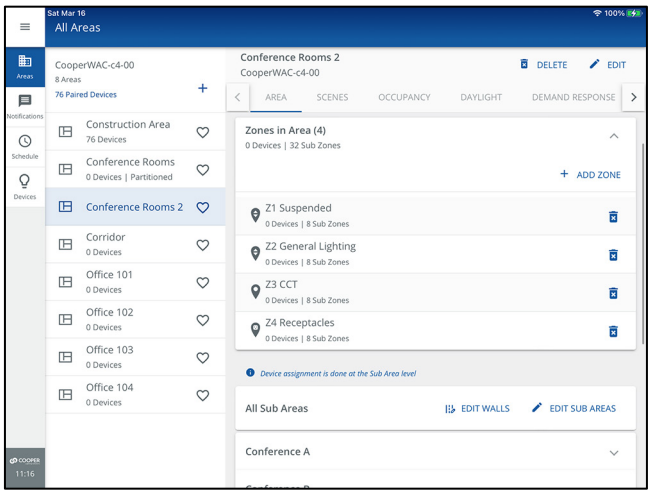
1: In the area screen, tap the plus sign to add a new area. Then, tap **Copy from Area** and select the configured area. The screen should display that the area is copied, indicating that the template has been loaded and is ready for use.





2: Enter the new area's name, and then tap **SAVE**.





The partitioned area will have the same configuration as the original partitioned area including:

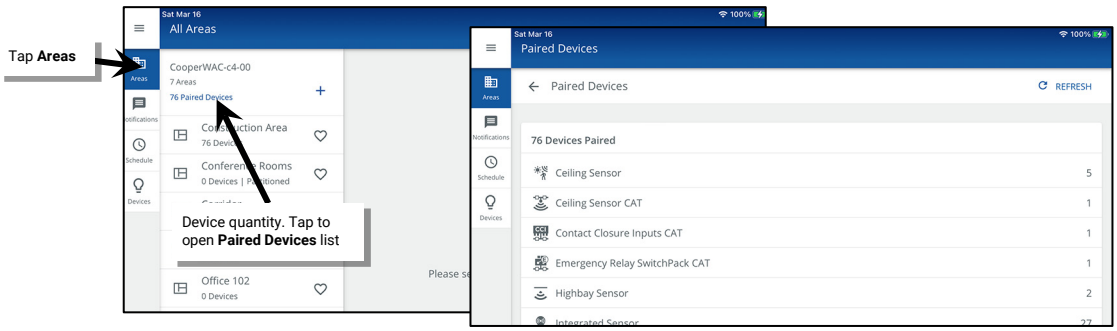
- The same number of sub areas
- The same number of walls
- The same Zone quantities/parameters and sub area assignments
- Scene levels
- Occupancy set quantities/parameters
- Open loop daylight set quantities/parameters[217]
- Demand response parameters

Once the new area is created, assign the devices to the new area by organizing the devices into areas and zones.

Organizing WaveLinx Devices into Areas and Zones

Once devices are added to the WaveLinx Area Controller, they will automatically show in the WaveLinx App. For a quick overview the devices and to view a total device count, open the WaveLinx App and login to the WaveLinx Area Controller.

From the menu tap **Areas**. The display will show the total number of added devices at the top of the Areas list. Tap on this number to display a device list organized by device type.



For the devices to operate properly, they must be assigned to areas and control devices to zones. Some devices also require specific configuration to operate as intended. This section discusses how to identify devices and then add devices to both standard and partitioned areas, add control devices to zones in the areas, and configure special settings for specific device types.

[217] Closed loop daylight sets are not copied as they are device dependent.

Step 1: Access the Unassigned Devices

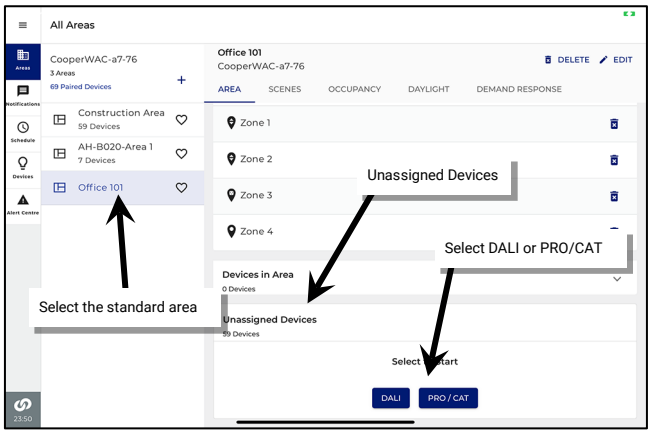
In most cases, devices will be assigned to areas and zones using the **Unassigned Devices** list. The steps to access the Unassigned Devices list in a standard area are different from a partitioned area. These methods of accessing the Unassigned Device list will be used throughout the steps that follow.

Accessing Unassigned Devices in a Standard Area

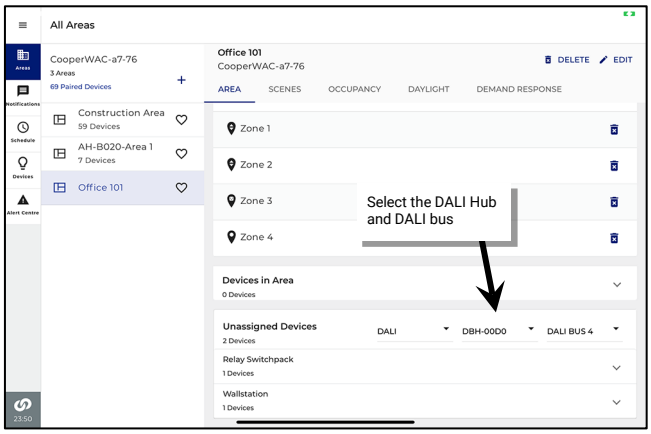
1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

2: In the **All Areas** list, select the area created for this space. Scroll down to view the **Unassigned Devices** section.

3: Tap either **DALI** devices or **PRO/CAT** devices (PRO/CAT includes Relay Panels and LV devices).



4: For **DALI** devices, select the DALI Hub and DALI Bus devices to display.

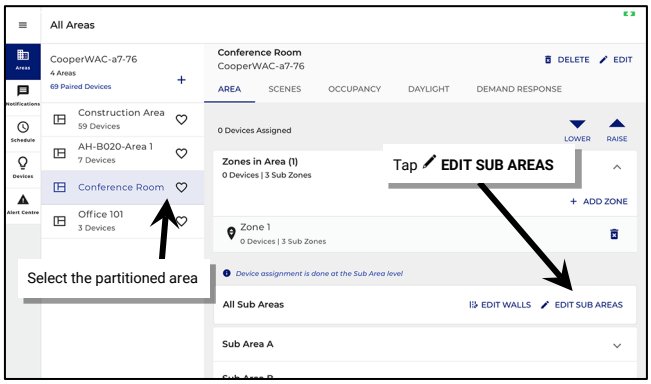


Note: If the DALI and PRO/CAT buttons are not displayed, switch between DALI and PRO/CAT using the drop down.

Accessing Unassigned Devices in a Partitioned Area

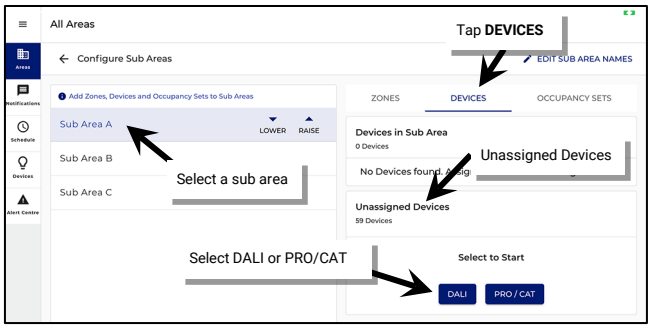
1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

2: In the **All Areas** list, select the **partitioned area** created for this space and then tap on ✎ **EDIT SUB AREAS**.

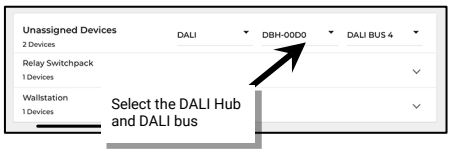


3: Select the **sub area** and tap on **DEVICES** to view the **Unassigned Devices** section.

4: Tap either **DALI** devices or **PRO/CAT** devices (PRO/CAT includes Relay Panels and LV devices).



5: For **DALI** devices, select the DALI Hub and DALI Bus devices to display.



Note: If the DALI and PRO/CAT buttons are not displayed, switch between DALI and PRO/CAT using the drop down.

Step 2: Identify and Assign Devices to the Areas and Zones

This section will discuss the process of identifying and assigning most WaveLinx devices to the areas and zones.

Exception: If the devices are dual channel WaveLinx PRO Nodes or Advanced Integrated Sensors (WPA IS Pro CCT) see page 203.

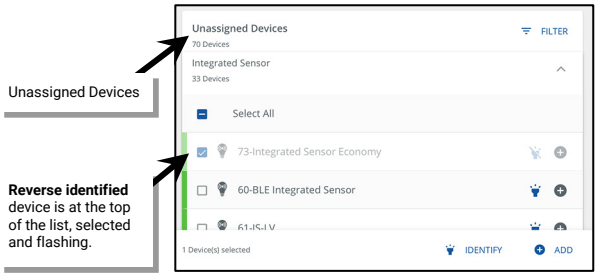
1: Stand in the space (area or sub area) where the area's devices are accessible or visible.

2: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator. Access the area's **Unassigned Device** list per the instructions on page 199.

3: Identify the first device and locate it in the Unassigned Device list in the WaveLinx App by using one of the identification methods described in the device's reference sheets. See the "WaveLinx Device Reference Sheets" beginning on 17 for device specific methods.[218]

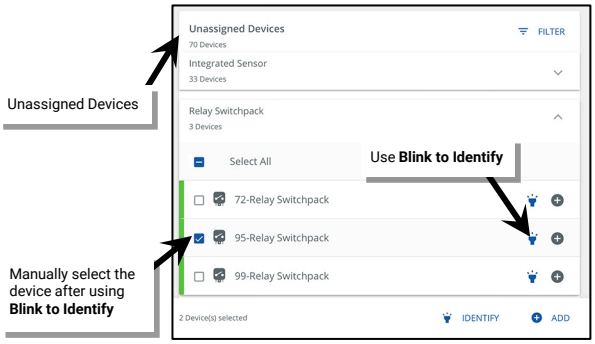
Devices Identified by Reverse Identification

For devices identified by using **Reverse Identification Mode** (ISHH-01 or WaveLinx PRO IR remote, flashlight method, or button press method) the identified load will move to the top of the **Unassigned Devices** section. The load will automatically be selected and will appear to flash or pulse on the screen for about 15 seconds.



Devices Identified by Blink to Identify

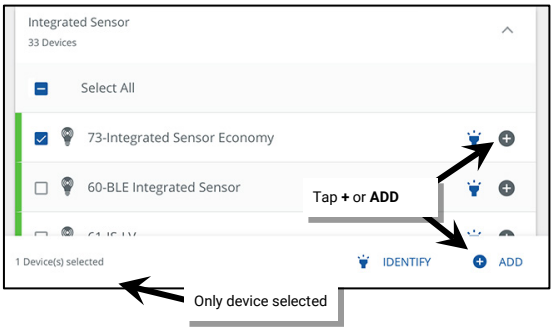
For devices identified by using the **Blink to Identify** mode, once located, manually select the device in the WaveLinx App.

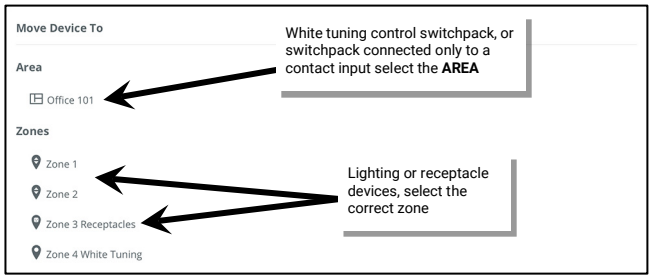


4: Verify that the device is the only device selected and then tap **+** or **ADD**.

5: If the device is a control device that is directly connected to lighting or receptacle loads, select the zone that the device should operate in.

<u>EXCEPTION</u>: For a switchpack that is connected for white tuning control, or a switchpack that is connected only to a contact input, when prompted for the zone, select the area.





The WaveLinx App will confirm that the device has been moved.

6: Repeat the steps in this section until all devices in the area are assigned.

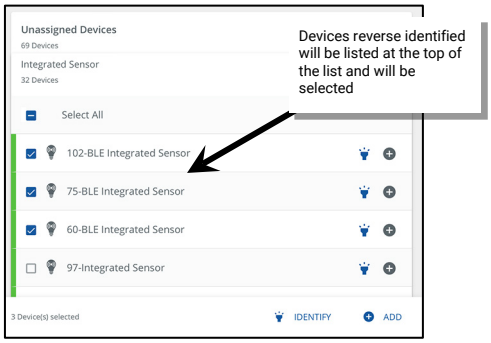
(It is possible to add multiple devices at the same time using the multi-select feature. Please see "Using Multi-Select During Device Assignment" on page 201 for more information on using this feature).

[218] For WaveLinx Networked Relay Panels, there will not be an option to **Blink to Identify**. Tap the device to open it and use the app to manually turn ON and OFF the relay until the load is located.

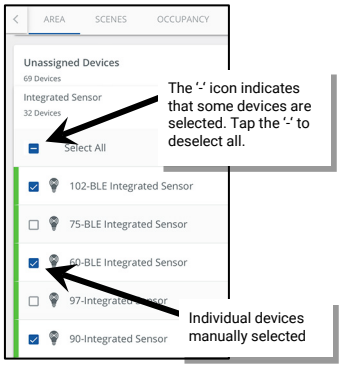
Using Multi-Select During Device Assignment

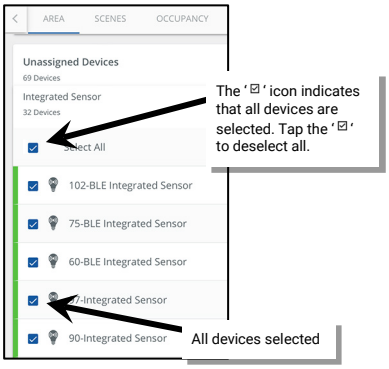
The WaveLinx App allows for multiple devices to be selected and added to the area at the same time. **Use multi-select with caution to avoid adding devices to the area that should not belong**.

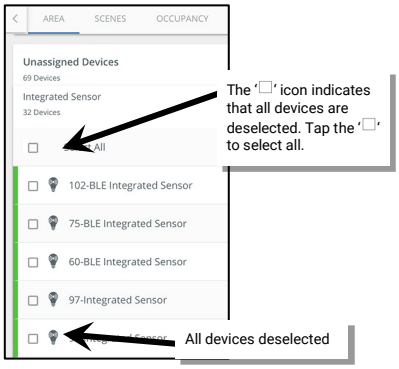
If using **Reverse Identification Mode** (ISHH-01 or WaveLinx PRO IR remote, flashlight method, button press method), each load identified will be selected and added to the already selected devices shown in the **Unassigned Devices** list.



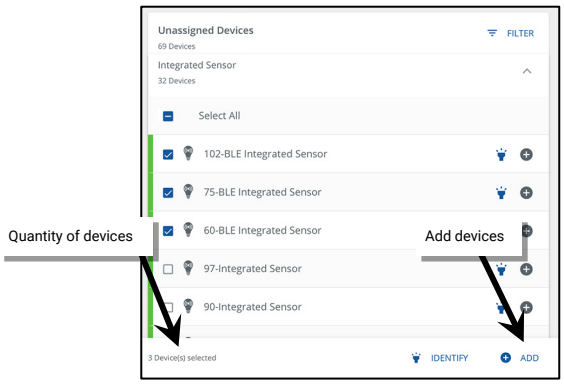
It is also possible to manually select or remove devices from the multi-select by selecting devices individually or using the select/deselect all function.







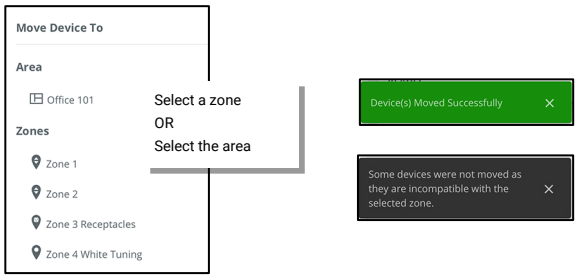
If multiple devices are selected, an additional bar will display at the bottom of the screen that shows the quantity of selected devices along with an option to identify or add the devices to the area.[219] **IMPORTANT! Verify that the quantity of devices selected is correct for the expected devices.** Tap ⊕ **ADD** to add the selected devices.



[219] The identify option will not be displayed if any of the selected devices does not support the **Blink to Identify** feature.

If the selected devices contain load controlling devices, the next screen allows selection of a zone or the option to move the devices into the area.

- If all devices should be part of the same zone, select the zone.
- If devices belong should belong to different zones, select to move the devices to the area where they can then be assigned to specific zones from the zone screen.
- If WaveLinx Ceiling Sensors and Wallstations are selected along with load control devices and a zone is selected, the WaveLinx App will automatically assign the WaveLinx Ceiling Sensors and Wallstations to the selected area or sub area while moving the load control devices into the selected zone. A message may display stating that some devices are **incompatible with the selected zone**.



Step 3: (Partitioned Areas Only) Assign the Partition Wall Device(s) to a Sub Area

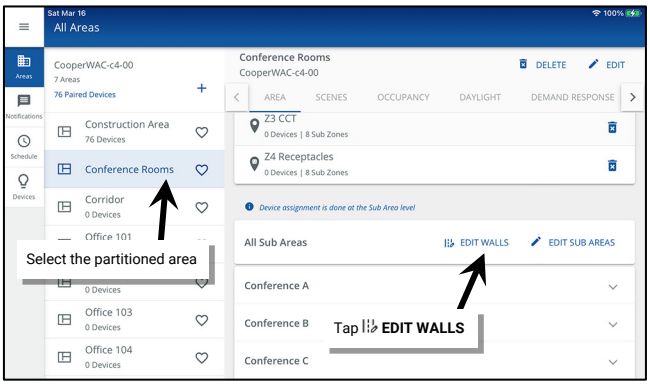
Skip this step if the site does not have any partitioned areas.

During the partition area setup, devices were configured to provide the signal to the WaveLinx system that the partition wall(s) are open or closed. This step will move the configured devices into one or more of the subareas so that they are removed from the Construction Area and easily found in the WaveLinx App.

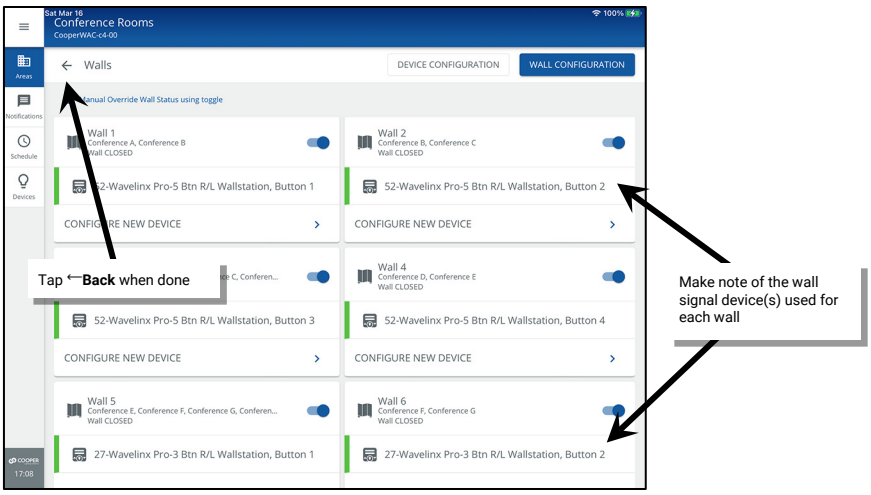
To assign the partition wall signal device(s) to a sub area:

1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

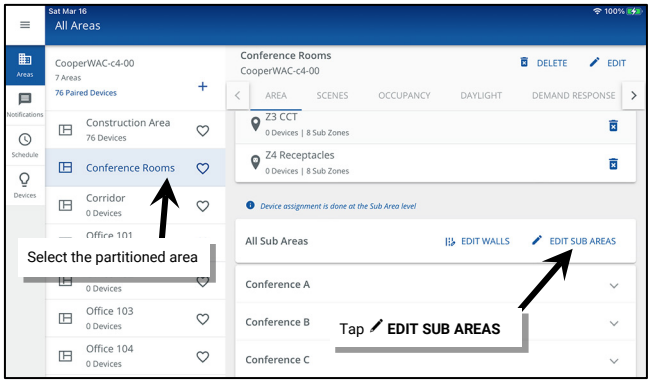
2: In the **All Areas** list, select the **partitioned area** created for this space and then tap on **EDIT WALLS**.



3: In the **Walls** screen, make note of which devices are assigned to each wall and then tap ← **Back**.

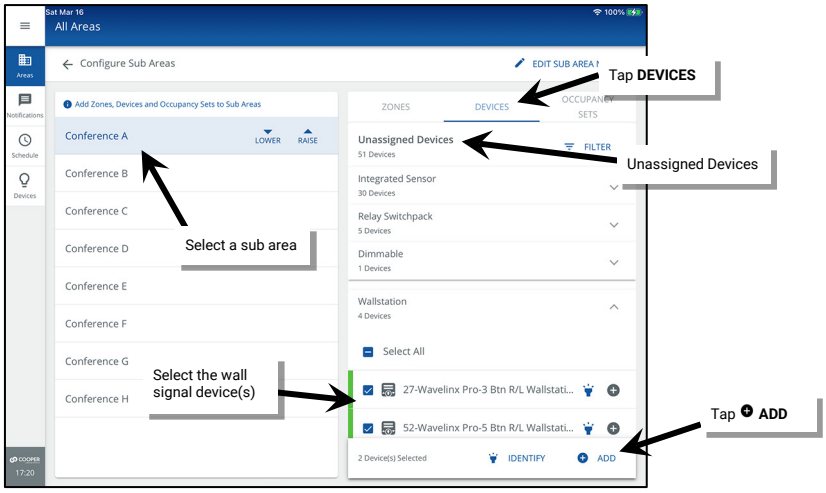


4: Next, select ✎ **EDIT SUB AREAS**.



5: Select the **sub area** that the wall signal device should be added to and then tap on **DEVICES** and select between **DALI** and **PRO/CAT** to view the **Unassigned Devices** section.

6: Locate and select the noted wall signal devices in the unassigned devices list. Tap ⊕ **ADD** to add the selected devices. The devices will be moved into the sub area.



Step 4: Identify, Assign and Dual Channel Control Devices

Dual channel control devices have two control channels in one device. **Skip this step if the site does not have any of the following Dual Channel control devices:**

- Dual Channel WaveLinx PRO Nodes
- Advanced Integrated Sensors (WPA IS Pro CCT)
- DALI -2 DT8 LED Drivers (white tunable)

This section will discuss identification, assignment, and configuration of the dual channel control devices.

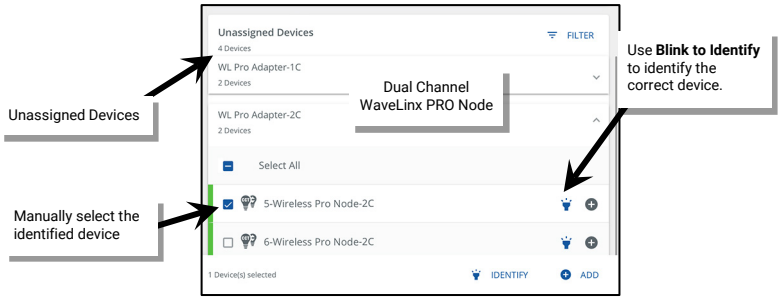
- **Dual Channel WaveLinx PRO Node:** The dual channel WaveLinx PRO Node can be used either for independent dimming control of downlights/uplights within the same fixture, or for intensity control and white tuning control when used with VividTune or BioUp tunable fixtures. While considered a single device, each channel can be configured separately and assigned to a unique zone. The default out-of-the box configuration for the dual channel WaveLinx PRO Node is for channel 1 to perform dimming, and channel 2 to perform white tuning. This configuration can be adjusted if needed.
- **Advanced Integrated Sensor (WPA IS Pro CCT):** Like the WaveLinx PRO Node, the Advanced Integrated Sensor (WPA IS Pro CCT) is a dual control device that for independent control of intensity and white tuning within the same fixture. When assigned, the device will appear with the dimming zone assignment as well as the white tuning zone assignment.
- **DALI-2 DT8 LED Driver (white tunable):** The DALI-2 DT8 LED Driver allows for independent control of intensity and white tuning within the same fixture. When assigned, the device will appear with the dimming zone assignment as well as the white tuning zone assignment.

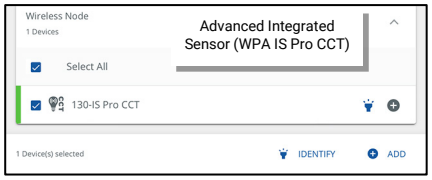
To assign a dual channel control device to an area:

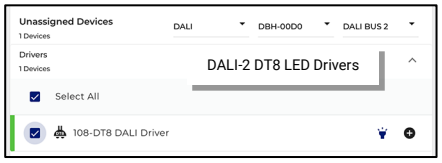
1: Stand in the space (area or sub area) where the area's devices are accessible or visible.

2: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator. Access the area's Unassigned Device list per the instructions on page 199.

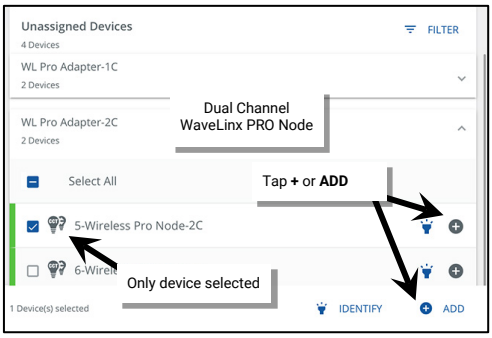
3: Expand the **WL Pro Adapter-2C** category (dual channel WaveLinx PRO Node), **WaveLinx Node** category (WPA IS Pro CCT), or **Drivers** category (DT8 Driver) and tap to place a device into **Blink to Identify** mode. The connected fixture should flash lighting ON/OFF (or Cool/Warm if controlling White Tuning). Once the device is verified, manually select the device in the WaveLinx App.



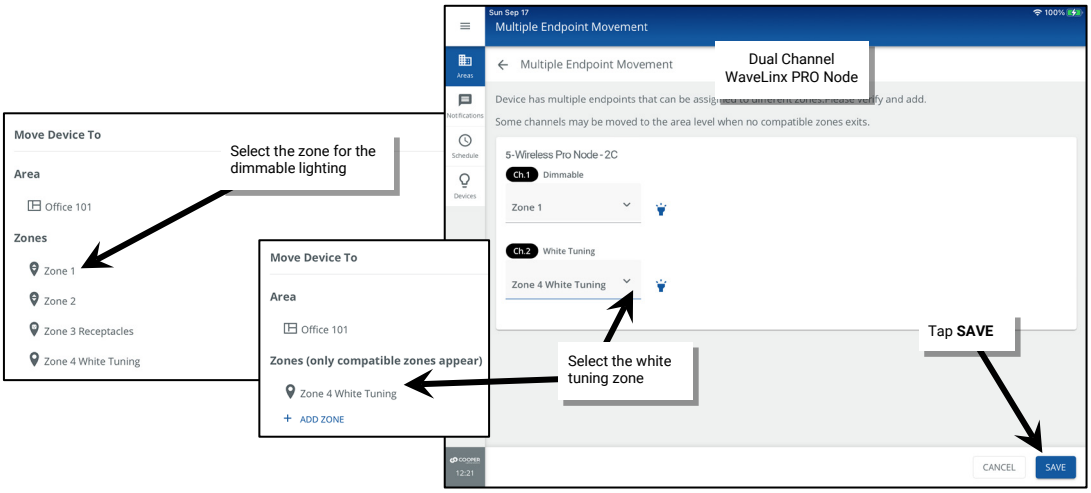


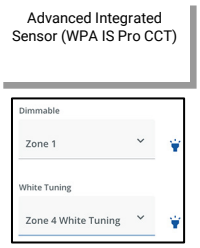


4: Verify that the device is the only device selected and then tap **+** or **Add**. (It is possible to add multiple devices at the same time using the multi-select feature. Please see "Using Multi-Select During Device Assignment" on page 201 for more information on using this feature).



5: When prompted to select where to **Move Device To**, select the dimmable **Zone.** When the **Multiple Endpoint Movement** screen displays, use the drop down to assign the device to the correct white tuning zone (If the white tuning zone was not created initially, use the **+ ADD ZONE** at the bottom of the zone list to create and then assign the zone). Tap **SAVE**.



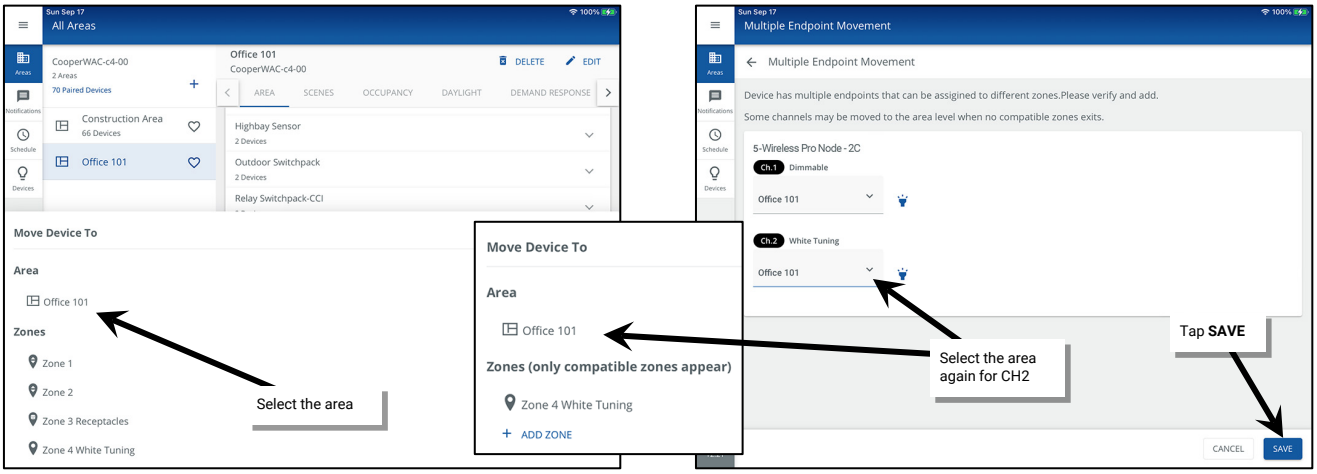


The WaveLinx PRO Node defaults to Channel 1 Dimmable, Channel 2 White Tuning (CCT range 3000-5000K). If the channel type OR default white tuning range (3000-5000K) is NOT correct see the next section "Changing Dual Channel WaveLinx PRO Node Configuration" on page 205.

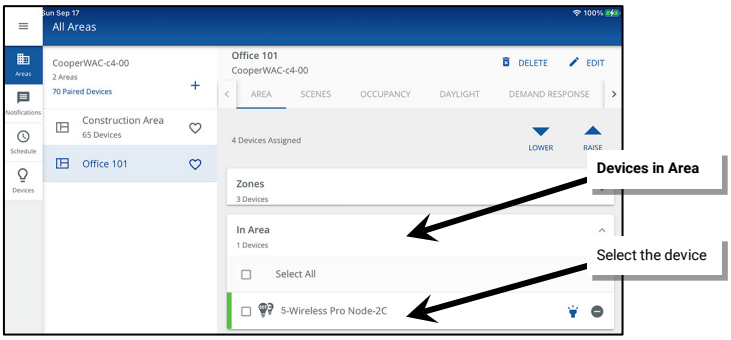
Changing Dual Channel WaveLinx PRO Node Configuration

The dual channel WaveLinx PRO Node defaults to Channel 1 Dimmable, Channel 2 White Tuning (CCT range 3000-5000K). **If the channel type OR default white tuning range (3000-5000K) is NOT correct**:

1: When assigning the device to the area, use the drop down for both channel 1 and channel 2 and select the **AREA** for both channels. Tap **SAVE**.



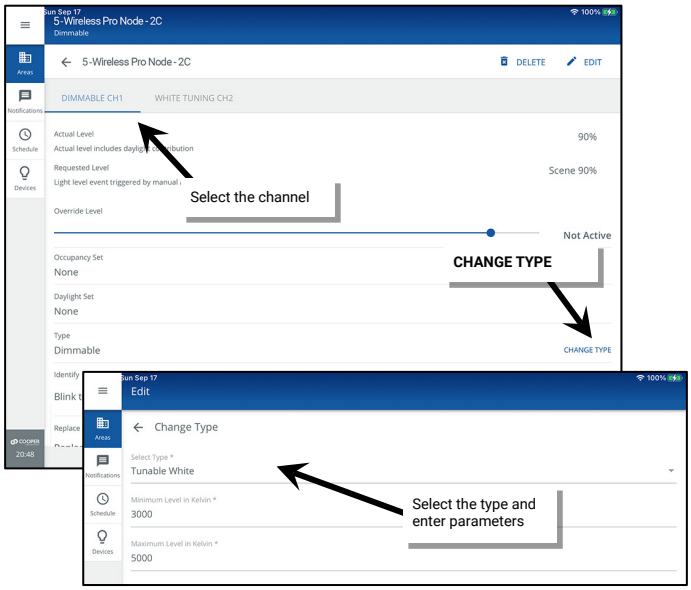
2. Locate and then select the device in the **Devices in Area** section of a standard area or the **Devices in Sub Area** of a partitioned area.



3: Select the tab for the desired channel (CH1 or CH2), and then:

To change from Dimmable type to White Tuning type

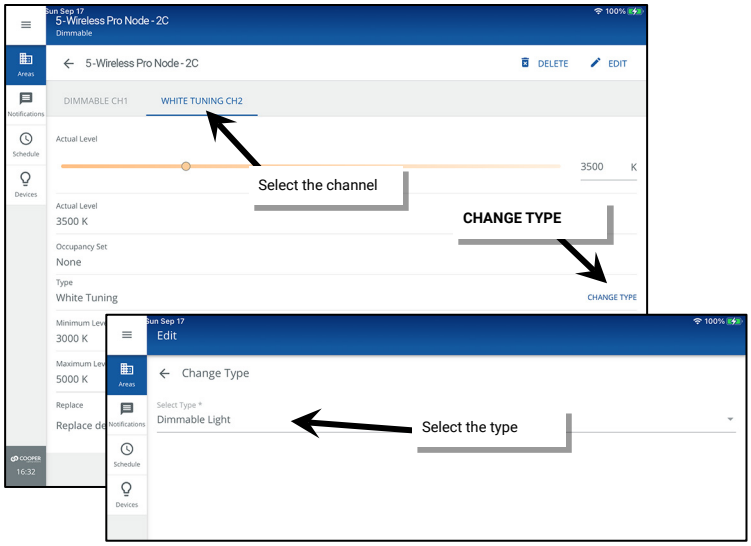
- Select **CHANGE TYPE** and select **Tunable White**. Enter the fixture's correct supported color temperature range in the minimum and maximum physical Kelvin level fields.[220] Tap **SAVE**.



[220] Kelvin temperature range can typically be found in the fixture documentation. Failure to set the proper range may result in an unexpected color temperature response.

To change from White Tuning to Dimmable type

- Select CHANGE TYPE and then Dimmable Light. Tap SAVE.

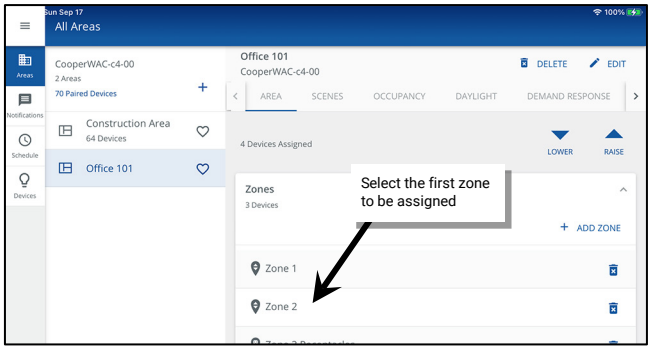


To change the default white tuning range:

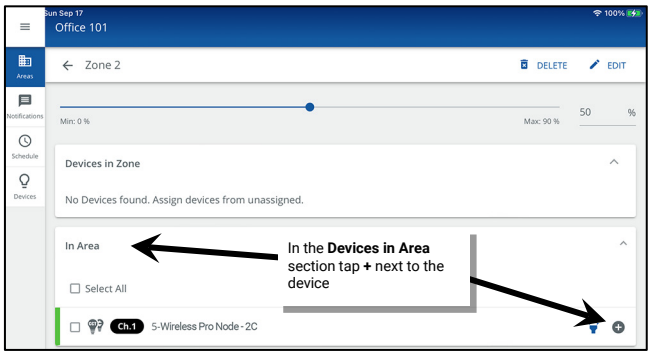
- To change the default white tuning range of a channel that is already set to the white tuning type, change the type to **Dimmable Light** and then change back to **Tunable White** entering the correct range.

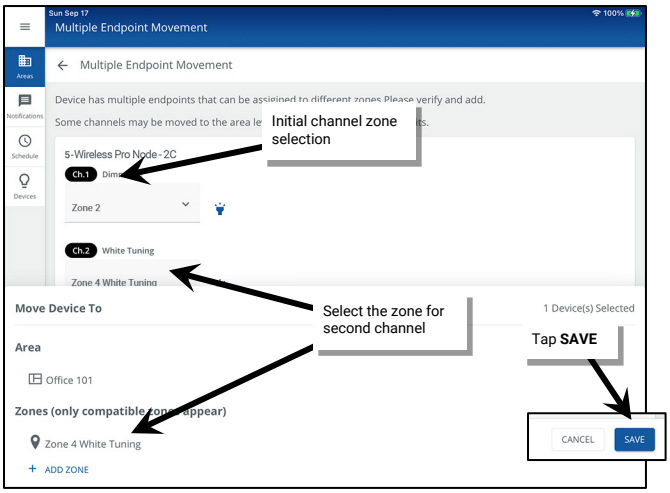
The channels of the WaveLinx PRO Node are now ready to be assigned to the correct zone(s). If a channel is defined as **White Tuning**, make certain that there is a white tuning zone set up before proceeding.

4: Navigate back to the area's main screen and then in **Zones**, select a zone that one of the channels will be assigned to.



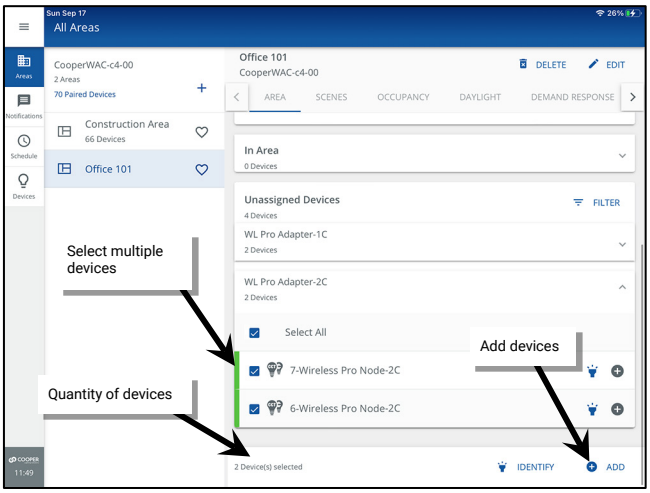
5: In the Zone screen, locate the device in the **Devices in Area** section. Tap ⊕ to add the device channel to the zone. The **Multiple Endpoint Movement** screen should display with the chosen zone displayed for the selected channel. Use the drop down for the second channel to select the desired zone for that channel and then tap **SAVE**.

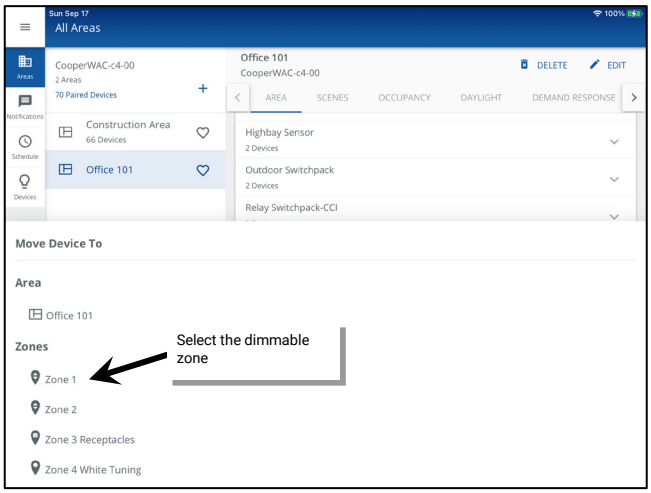




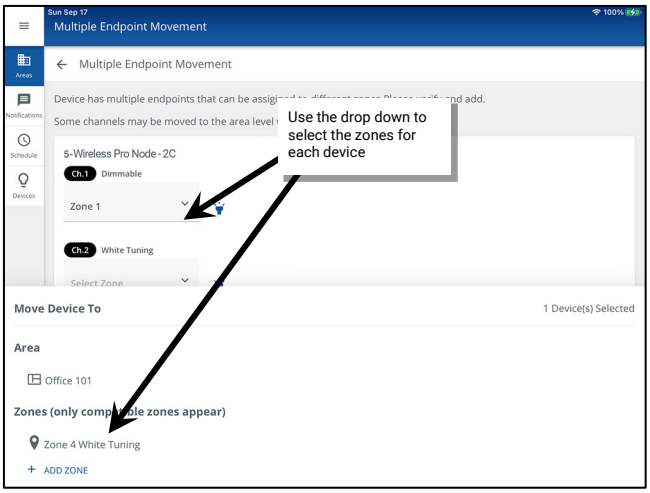
Using Multi-Select During Dual Channel Device Assignment

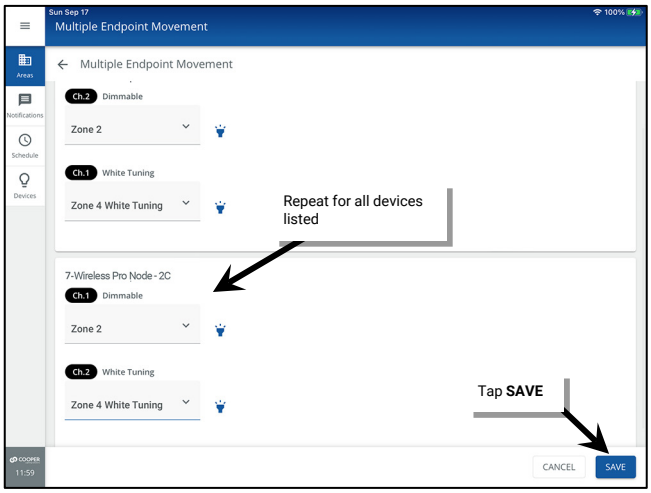
Like other WaveLinx devices, the dual channel control devices allow for multi-select during the initial setup. If more than one dual channel WaveLinx PRO Node should belong to the same area, select both devices. **IMPORTANT! Verify that the quantity of devices selected is correct for the expected devices.** Tap ⊕ **Add** to add the selected devices and then select the dimmable zone.





Use the drop down to select the appropriate zone for white tuning control (or for 2nd dimming zone for dual channel WaveLinx PRO Node). Verify that the zones are correct and then repeat for additional devices listed. Once all device channels are assigned, tap **SAVE**.





WaveLinx PRO Node devices only: If device configuration does not match default channel configuration (CH1 Dimmable, CH2 White Tuning) assign both channels to the area. Review steps in the previous section to reassign the channel type and then assign channels to the appropriate zones.

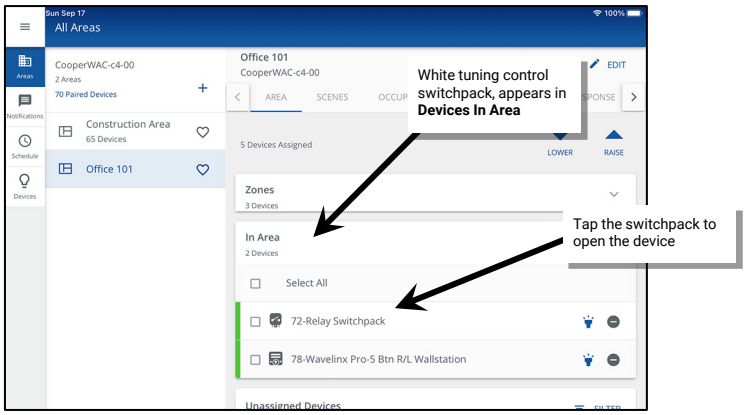
Step 5: Configure WaveLinx Switchpacks and WaveLinx DALI DACs Controlling Tunable White Lighting Control Devices

Skip this step if the site does not have WaveLinx Switchpacks or WaveLinx DALI DACs controlling Tunable White Lighting control devices.

WaveLinx PRO Universal Voltage Dimming Switchpacks (RSP-P-010-347, WSP-MV-010 and WSP-UV-010) , WaveLinx CAT Dimming Switchpacks (RSP-C-010 and RSP-C-347) , and WaveLinx DALI DACs can connect to 0-10V white tuning control wiring in a VividTune or BioUp tunable or other 0-10V controlled white tunable fixture. Ensuring proper white tuning response requires some additional configuration steps.

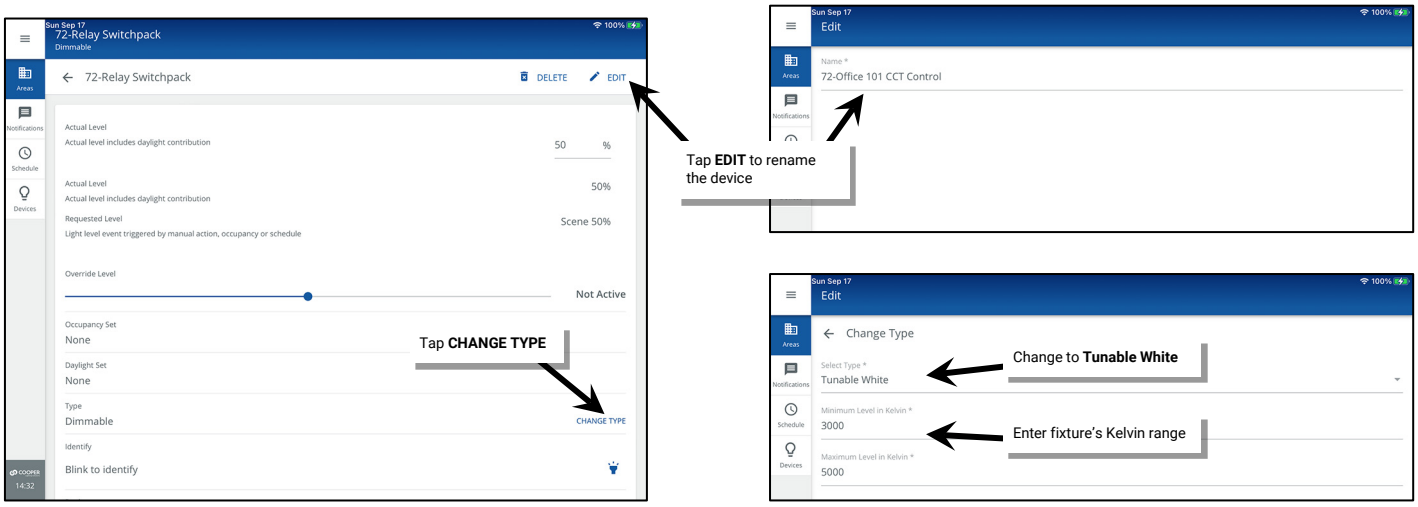
Before performing this configuration, make sure that the Switchpack has been identified and assigned to the area or partitioned area's sub area (see "Step 2: Identify and Assign Devices to the Areas and Zones" on page 200). Do not assign the device to a zone before configuring it for white tuning

1: In a standard area or partitioned sub area, locate the device in the **Devices in Area** or **Devices in Sub Area** section and then tap the device to open it.

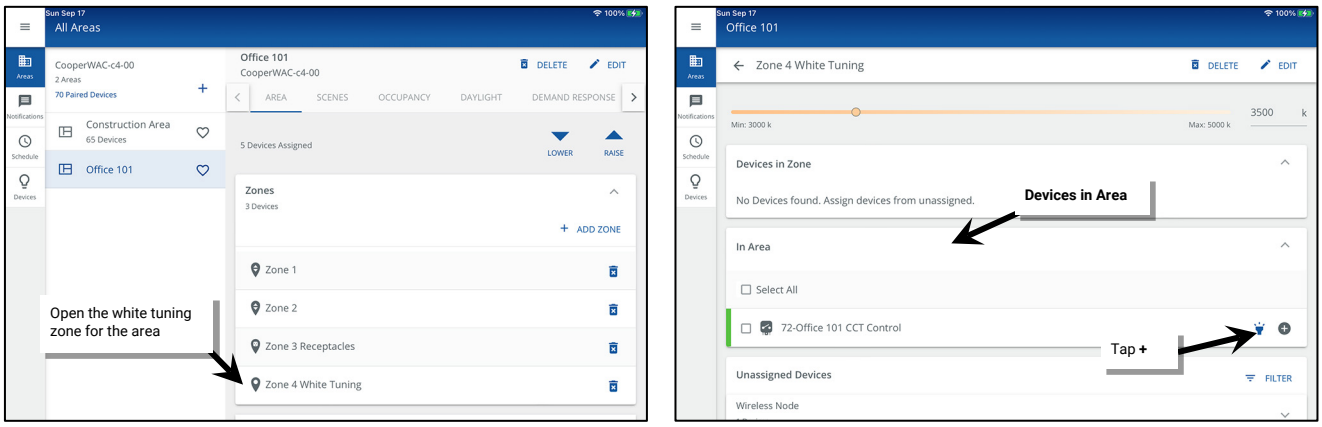


2: (Optional) Tap **EDIT** ✎ and enter a unique descriptive name for the device and then save the change.

3: Next, tap **CHANGE TYPE** and set the type to **Tunable White**. Enter the fixture's correct supported color temperature range in the minimum and maximum physical Kelvin level fields. [221,222] Tap **SAVE** and then tap the back button to go back to the main area screen.



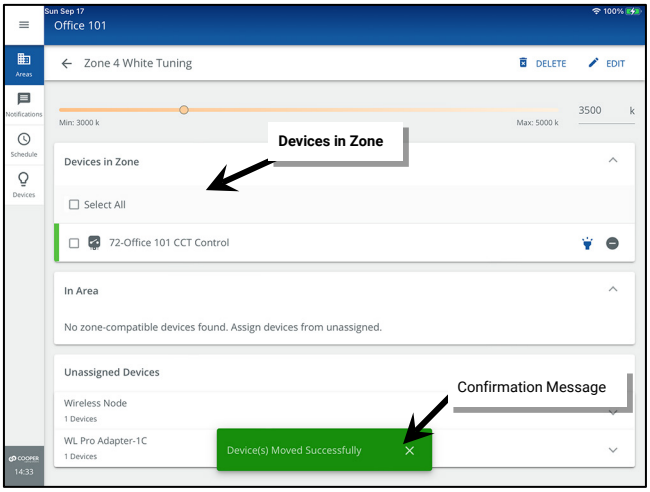
4: For both standard and partitioned areas, in the main area screen, tap on the previously configured white tuning zone. The white tuning Switchpack should now appear under **Devices in Area** or **Devices in Sub Area.** Tap on ⊕ to add the device to the white tuning zone.



[221] Fixtures with different supported color temperatures should be connected to different switchpacks for white tuning control to avoid variances in color temperature.

[222] Kelvin temperature range can typically be found in the fixture documentation. Failure to set the proper range may result in an unexpected color temperature response.

The WaveLinx App may display a brief confirmation message and the device should show under the **Devices in Zone**.

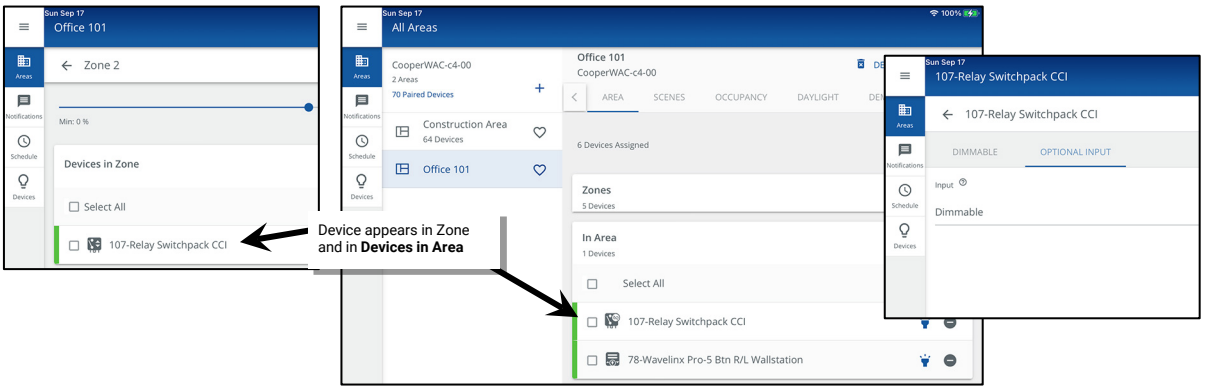


Step 6: Configure Contact Closure Devices Connected to WaveLinx Universal Voltage Dimming Switchpacks

Skip this step if the site does not have contact closure devices connected to WaveLinx Universal Voltage Dimming Switchpacks.

This section walks through the process of assigning contact closure devices that are connected to a WaveLinx Universal Voltage Dimming Switchpacks (WSP-CA-010 model only) to the created area.

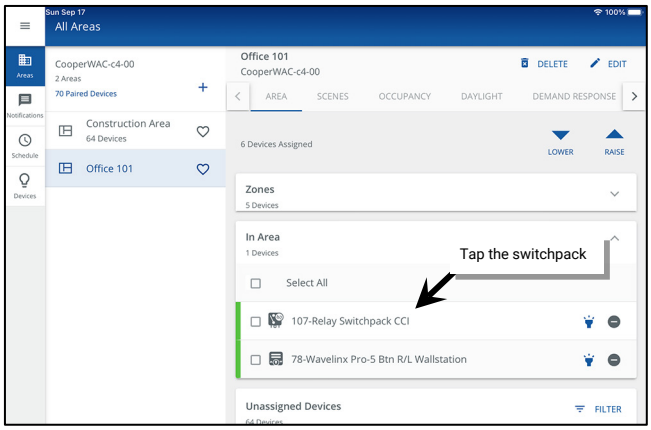
WaveLinx Universal Voltage Dimming Switchpacks that are not connected to a contact closure device are configured as a controllable lighting device. When the switchpack is assigned to an area and lighting zone, a second icon for the device will also appear in the **Devices in Area** or **Devices in Sub Area** section of the screen. By default, the input type is set as **Dimmable**, i.e., contact closure is not being used.[223]



[223] Although the device icon may appear in two different locations, the device is still counted as one device in the area device count.

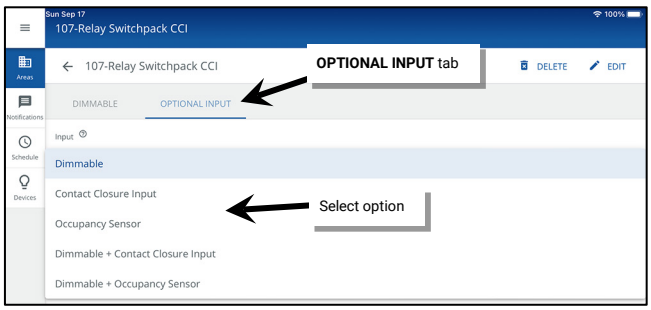
To configure a switchpack that is using the contact closure:

1: In a standard area or partitioned sub area, locate the device in the **Devices in Area** or **Devices in Sub Area** section and then tap the Switchpack to open it (the default name will appear as Relay Switchpack CCI).



2: Select the second tab (may read OPTIONAL INPUT, OCCUPANCY, or MAINTAINED CCI) and then use the **Input** dropdown to select the appropriate choice:[224]

- **Dimmable:** The switchpack is not connected to a contact closure input but is connected to lighting only.
- **Contact Closure Input:** The switchpack is connected to a dry contact closure input but is not connected to lighting.
- **Occupancy Sensor:** The switchpack is connected to a Greengate Occupancy Sensor but is not connected to lighting.
- **Dimmable + Contact Closure Input:** The switchpack is connected to a dry contact closure input and is also connected to lighting.
- **Dimmable + Occupancy Sensor:** The switchpack is connected to a Greengate Occupancy Sensor and is also connected to lighting.



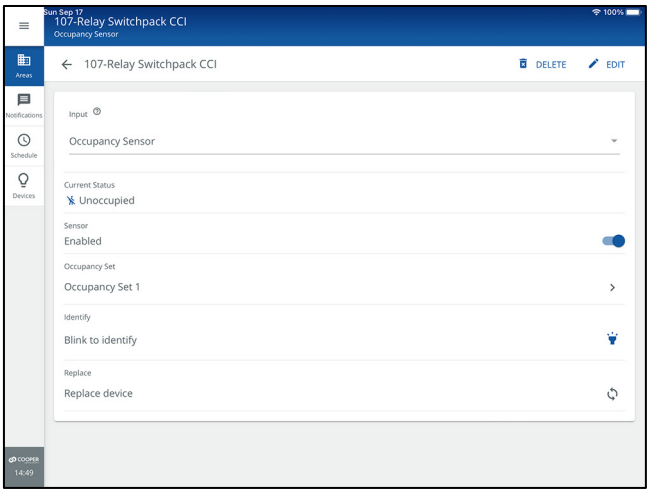
3: If the type is being changed, select **PROCEED** when prompted. The input display will show the options for the selected input type.

[224] If the input has already been set to the option of **Occupancy** or **Contact Closure Input** without the **Dimmable** option, the input tab is automatically displayed.

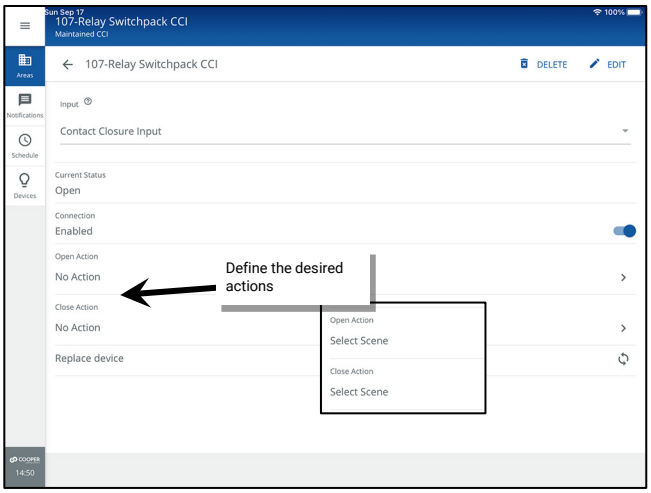
4: If the type of input is set for:

- **Occupancy sensor**: the occupancy sensor will automatically be added to the area's occupancy set. No further configuration is necessary for default occupancy operation. Tap the back button to exit the switchpack screen.
- **Contact closure input**: the input will not operate until an open action and/or close action is configured. Select the desired action and then tap the back button to exit the switchpack screen. See "Modifying Contact Closure Input Response" on page 260 for further information on modifying the contact input behavior.

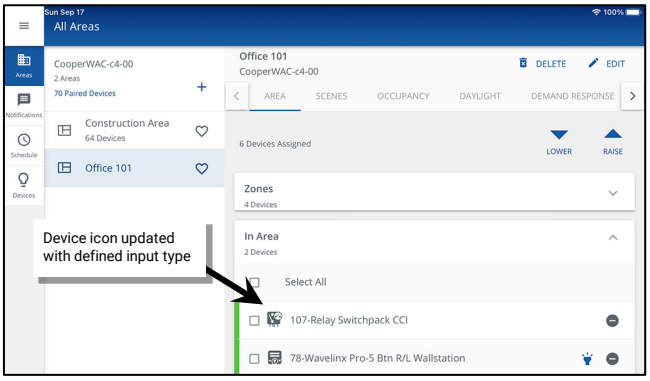
Occupancy Sensor Type

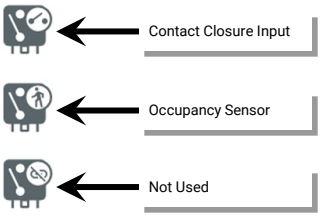


Contact Closure Input Type



If the input type has changed, the device icon in the **Devices in Area** or **Devices in Sub Area** section may update to reflect the new input type.





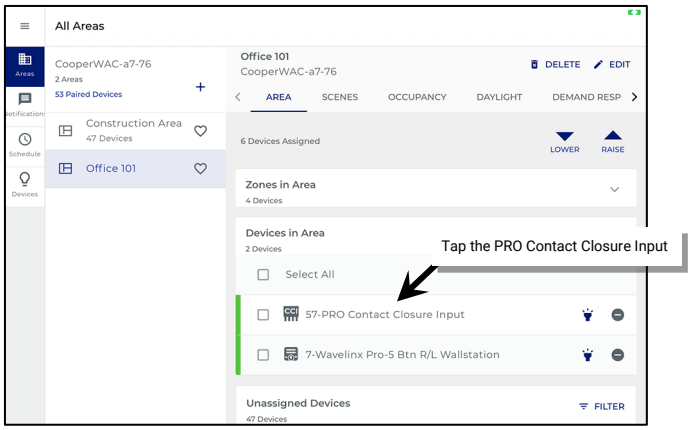
Step 7: Configure the WaveLinx PRO Contact Closure Input Module Mode

Skip this step if the site does not have WaveLinx PRO Contact Closure Input Modules.

The WaveLinx PRO Contact Closure Input Module will default to operating in **Contact Closure Mode**. If the device should operate in this mode, the type of contact and action will need to be defined for each input. If the WaveLinx PRO Contact Closure Input Module is connected to an occupancy sensor, perform the steps in this section to change the operation to **Sensor Interface Mode**.

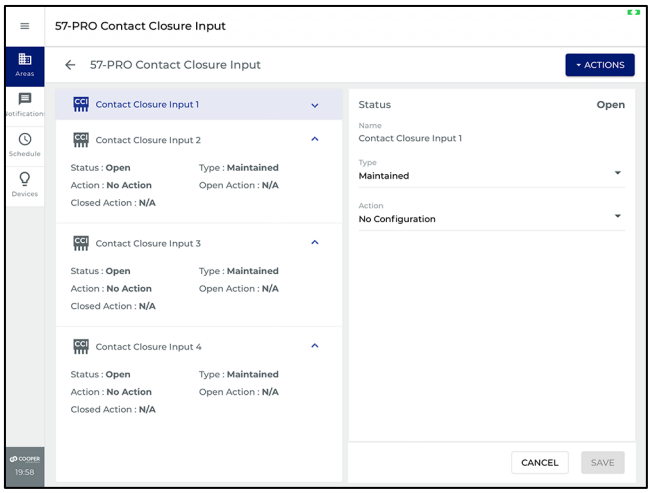
To configure the WaveLinx PRO Contact Closure Input Module:

1: In a standard area or partitioned sub area, locate the device in the **Devices in Area** or **Devices in Sub Area** section and then tap the Contact Closure Input Module to open it (the default name will appear as PRO Contact Closure Input).

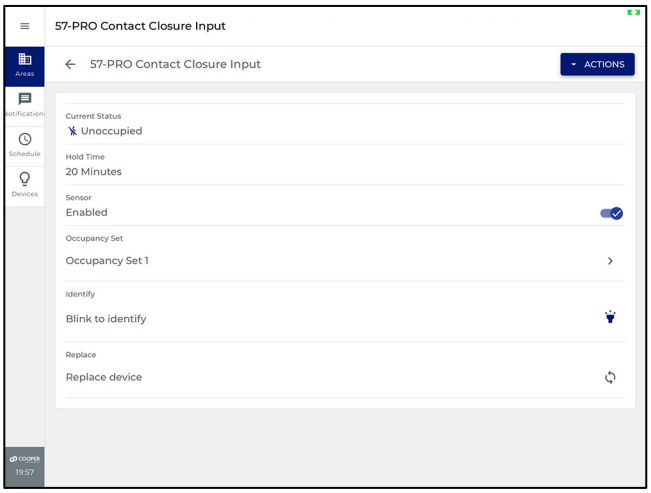


2: Verify that the device is set for the desired mode. If set for Contact Closure Mode, the screen will display four inputs. If set for Sensor Interface Mode, the screen will display occupancy sensor settings.

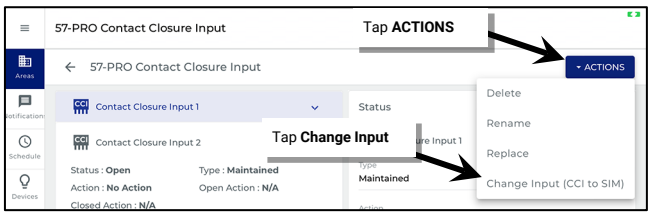
Contact Closure Mode

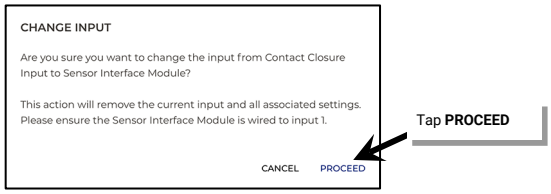


Sensor Interface Mode



3: If necessary, switch the mode. Tap **ACTIONS** and select **Change Input**. When prompted, tap **PROCEED**.

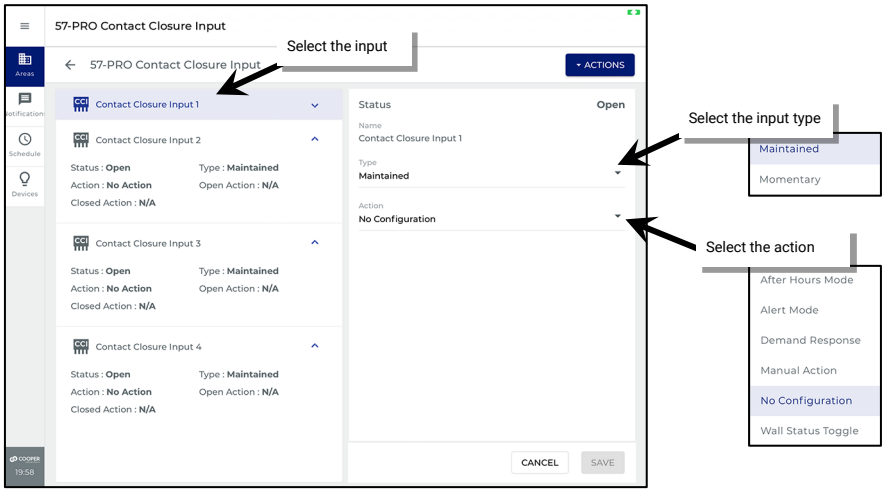




4: If the mode is set for:

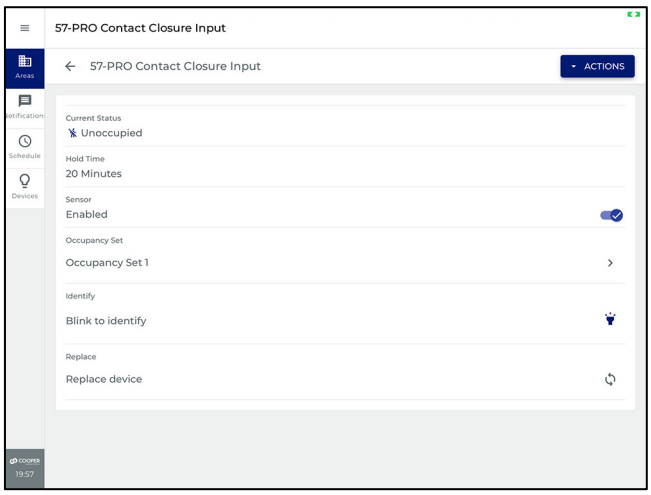
- **Contact Closure Mode**: the inputs will not operate until actions are configured. For each wired contact, select the type of input and assign the desired actions and then tap the back button to exit the screen. See “Configuring the Contact Input Actions for a WaveLinx PRO Contact Closure Input Module (model CCI-P-V)” on page 263 for further information on modifying the contact input behavior.

Contact Closure Mode

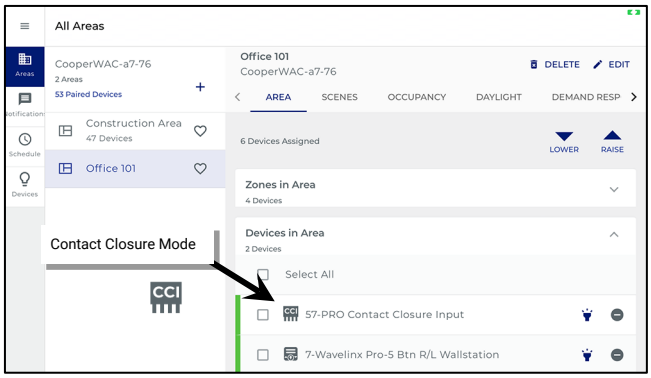


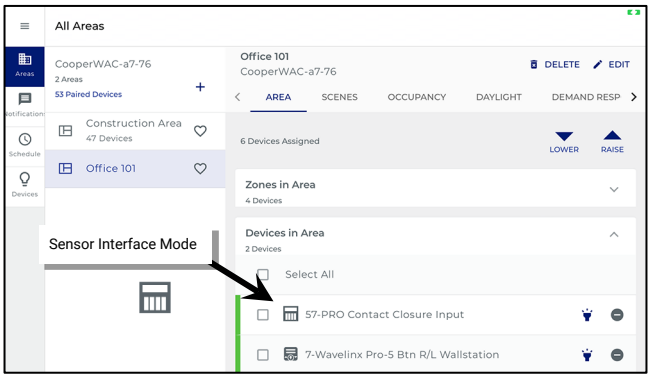
- **Sensor Interface Mode**: the occupancy sensor will automatically be added to the area’s occupancy set. No further configuration is necessary for default occupancy operation. Tap the back button to exit the switchpack screen.

Sensor Interface Mode



If the input type has changed, the device icon in the **Devices In Area** or **Devices in Sub Area** section may update to reflect the new input type.





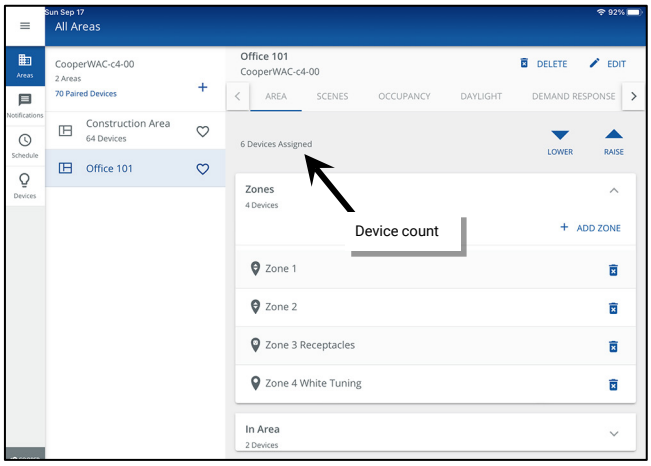
Step 8: Verify Area Assigned Device Types and Count

At this point, all the area's devices should be assigned. This step will walk through the process of verifying the total device count assigned to the area.

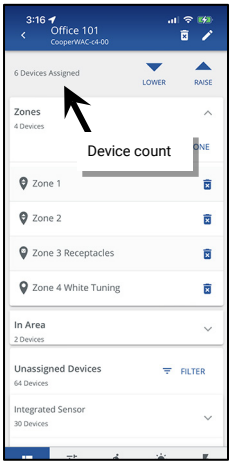
1: First, review the lighting plans and obtain an accurate count of the expected devices.

2: Verify that the area devices assigned count matches the lighting plan count.

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



3: Repeat steps 1 through 8 in this chapter for all areas until all devices are assigned.

Quick Links for Common Questions

- I am done assigning my devices to areas, but I still have devices showing in my unassigned device list. What should I do? See the answer on page 470.
- During configuration, I found a device that was not powered. How do I get the device to appear in the WaveLinx App so that I can assign it? See the answer on page 471.
- There is a device in the space that is not showing in the WaveLinx App. How do I get the device to appear so that I can assign it? See the answer on page 470.
- I am using a WaveLinx Universal Voltage Dimming Switchpack's contact closure input. My dimming switchpack does not have the additional icon showing in the **Devices in Area** section of the WaveLinx App or I do not see the option to set the input type. Why is this icon/input type not showing? See the answer on page 473.

Creating and Organizing Emergency Sets for Emergency Devices

This step is necessary only for WaveLinx PRO or WaveLinx CAT emergency devices. Skip this section of the site does not have these devices or is using other Emergency lighting options (non WaveLinx PRO or WaveLinx CAT emergency device).

Some WaveLinx PRO and CAT devices are UL924 approved for control of emergency fixtures. This allows the emergency fixtures to operate like any other fixture in the space unless there is an interruption of normal power. Upon detection of loss of normal power, the device enters Emergency Mode, forcing the emergency fixture to full brightness until normal power returns.[225]

Out-of-the-box, WaveLinx PRO and CAT emergency devices will remain in Emergency Mode where lighting is ON/100% and will remain in Emergency Mode indefinitely unless programmed into an **Emergency Set** using the WaveLinx App.

When programming an Emergency Set, there are two different devices involved:

- **NPS device**: NPS stands for Normal Power Sense. An NPS device is one that is connected to a normal power circuit and can sense power loss on the attached circuit within the required UL924 ten second period. When powered, an NPS device that is assigned to an Emergency Set sends a beacon signal to the EM Device(s). When it loses power, the beacon signal ends alerting the EM Device(s).
- **EM device**: EM devices are the UL924 approved emergency devices. EM devices are connected to emergency circuits. An EM device that is assigned to an Emergency Set will listen for the assigned NPS device beacons. If any assigned NPS device beacon is not detected, the EM device(s) will go to Emergency Mode. Once all NPS device beacons are detected again, the EM device(s) will go back to Normal mode.

An **Emergency Set** is made up of at least one NPS device (max. 3) and the EM devices (unlimited number) that need to respond to Emergency Mode if the NPS device(s) beacon signals stop. The NPS device maximum of three allows for one device from each of the three electrical phases to be monitored if desired. Once the Emergency Set is programmed, the EM devices will operate like any other device in normal circumstances allowing for WaveLinx command control.

Emergency Sets are not limited by user defined areas and zones. There are limits by the hardware category, i.e., **Wireless Emergency Sets** (WaveLinx PRO) and **Area Hub Emergency Sets** (WaveLinx CAT). See the rules for each hardware category as outlined below:

Wireless Emergency Set (WaveLinx PRO Devices)	Area Hub Emergency Set (WaveLinx CAT Devices)

• Each WaveLinx WAC can be **manually programmed** with up to 6 max. user defined Wireless Emergency Sets to be used with WaveLinx PRO devices. These user defined sets are separate from those used by WaveLinx CAT devices.
• Amongst all the Wireless Emergency Sets, a max. of 6 total WaveLinx PRO NPS devices can be assigned.
  • No more than 3 WaveLinx PRO NPS devices can be assigned to any Wireless Emergency Set. Possible configurations include:
  • 6 Emergency Sets each with 1 NPS device assigned
  • 3 Emergency Sets each with 2 NPS devices assigned
  • 2 Emergency Sets each with 3 NPS devices assigned
• There is no limit on how many Emergency devices can be assigned to an Emergency Set.
• WaveLinx PRO NPS and EM capable devices from any area and zone in the same WAC can be assigned to any Wireless Emergency Set.
• WaveLinx CAT NPS and EM capable devices cannot be assigned to a Wireless Emergency Set.
	• One Area Hub Emergency Set will be **created automatically** for each port on the Area Hub that has an emergency device connected to it during the Area Hub is discovery and import. The created Area Hub Emergency Set will not have devices assigned and requires setup.
	• One Area Hub can have up to 8 Area Hub Emergency Sets if all ports have an Emergency device attached.
	• The WaveLinx CAT NPS device(s) must be physically connected to the same CAT bus as the WaveLinx CAT EM device(s) on the Area Hub port for them to be assigned to the same Area Hub Emergency Set. Devices cannot be shared between Area Hub ports or with other Area Hubs.
	• No more than 3 WaveLinx CAT NPS devices can be assigned to any Area Hub Emergency Set.
	• There is no limit on how many Emergency devices can be assigned to an Area Hub Emergency Set.
	• WaveLinx CAT NPS and EM capable devices do not need to be in the same area or zone to be assigned to the Area Hub Emergency Set if they are physically wired to the same CAT bus.
	• WaveLinx PRO NPS and EM capable devices cannot be assigned to an Area Hub Emergency Set.

[225] WaveLinx Networked Relay Panels can be ordered for Emergency Mode. These devices handle UL924 emergency mode internal to the cabinet. It is not necessary to configure any additional settings through the WaveLinx Application. Refer to the installation instructions for the panel or to the item reference sheets in this user guide for details on the emergency panel operation.

Step 1: Create a Wireless Emergency Set (WaveLinx PRO Devices)

This step is only necessary for WaveLinx PRO Emergency devices. WaveLinx CAT device users may skip to "Step 2: Configure the Emergency Set(s)" on page 217.

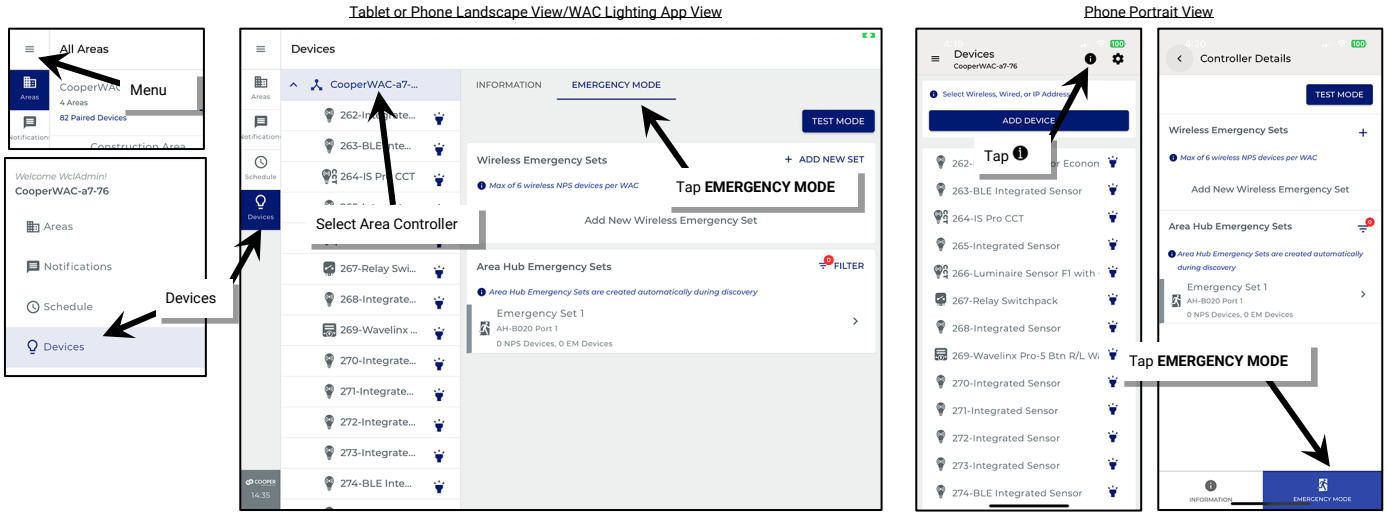
WaveLinx PRO Normal Power Sense (NPS) and Emergency (EM) devices require the creation of at least one Wireless Emergency Set to allow operation of the EM devices when normal power is present.

To create a Wireless Emergency Set:

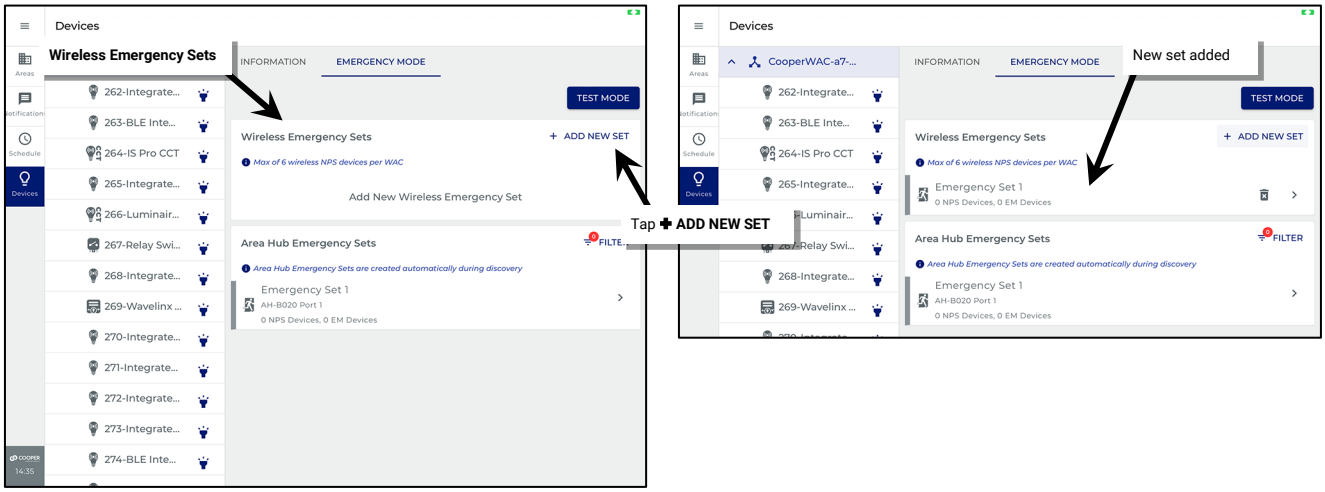
1: From the **menu** ≡, select **Devices**.

2: Open the **Emergency Mode** screen:

- For tablet users in landscape view, In the **Devices** list, locate and select the WaveLinx Area Controller. Tap the **Emergency Mode** tab.
- For smaller devices in portrait view, at the top of the device list tap ❶. At the bottom of the screen, tap the **Emergency Mode** tab.



3: In the **Wireless Emergency Sets** section, tap ✚ **ADD NEW SET** or ✚. The new set will be added to the **Wireless Emergency Set** list.



Step 2: Configure the Emergency Set(s)

Use these steps to configure a Wireless Emergency Set or an Area Hub Emergency Set.

Note: If using WaveLinx PRO devices, first ensure that the Wireless Emergency Set has been created (see page 216).

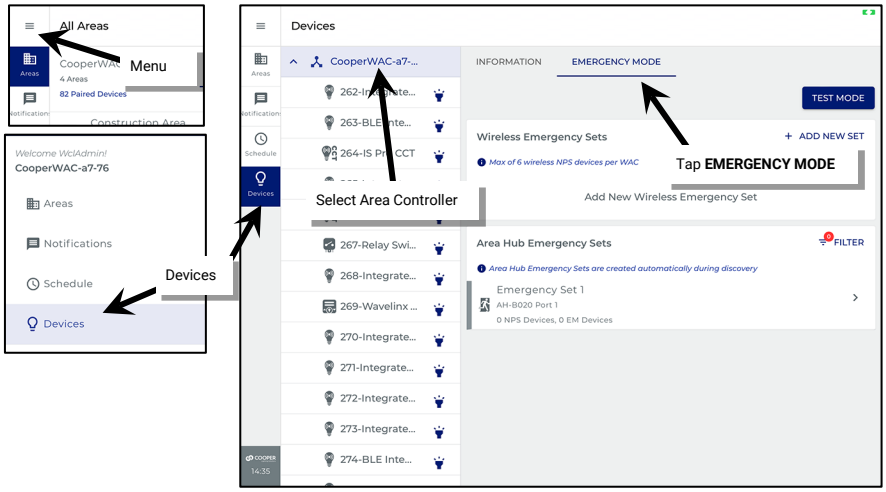
To configure an Emergency Set:

1: From the **menu** ≡, select **Devices**.

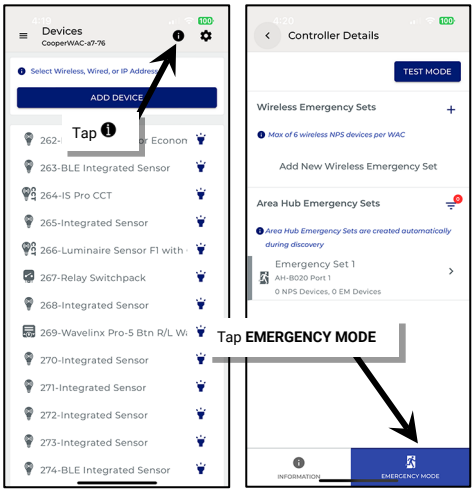
2: Open the **Emergency Mode** screen:

- For tablet users in landscape view, In the **Devices** list, locate and select the WaveLinx Area Controller. Tap the **Emergency Mode** tab.
- For smaller devices in portrait view, at the top of the device list tap ❶. At the bottom of the screen, tap the **Emergency Mode** tab.

Tablet or Phone Landscape View/WAC Lighting App View

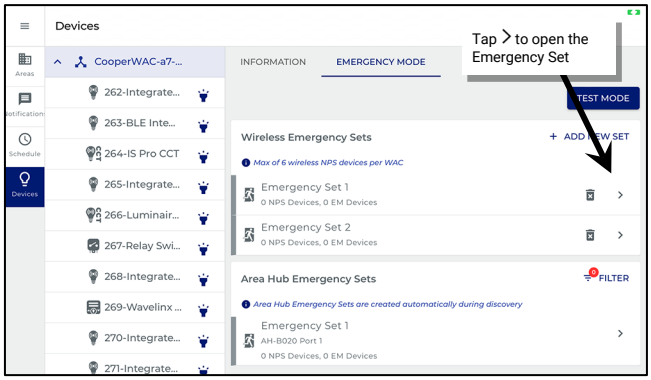


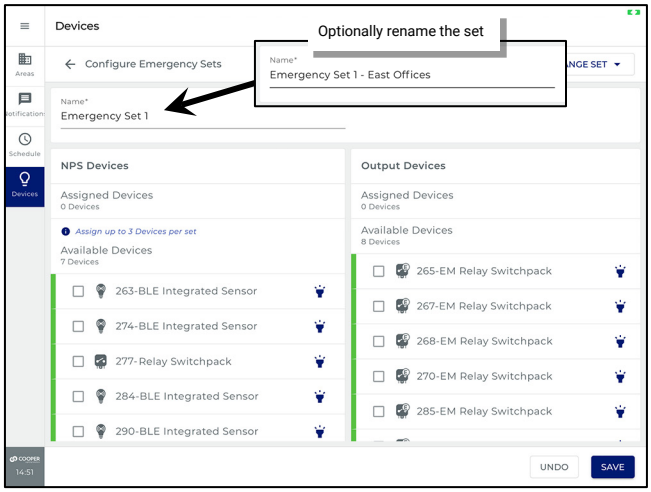
Phone Portrait View



3: Locate the desired Emergency Set in either the Wireless or Area Hub Emergency Set lists. Tap > to open the configuration screen.

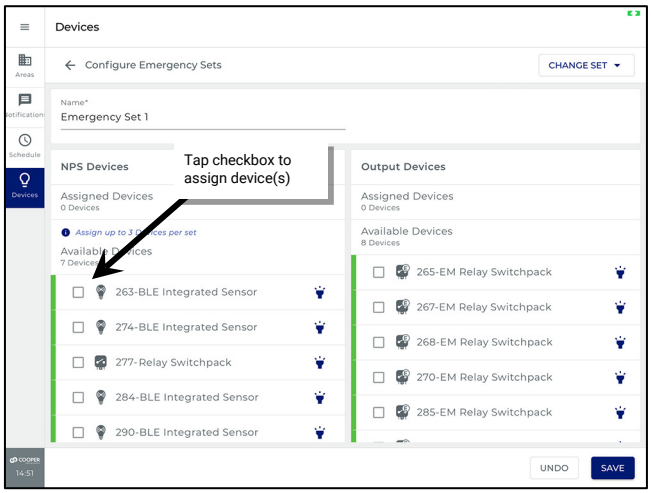
4: Optionally enter a new **name** for the Emergency Set to distinguish it from other sets.

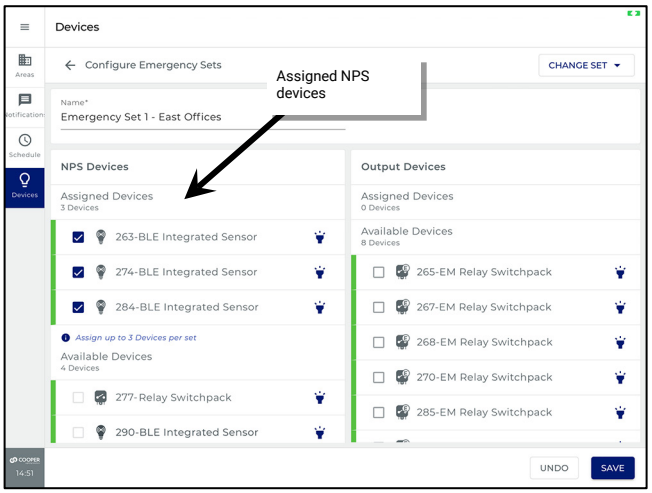




5: Assign up to 3 **NPS Devices** (Normal Power Sense) that will send the normal power signal beacons to the Emergency devices. Tap to use **Blink to Identify** if needed to locate the correct device(s). Tap to place a **checkmark** next to the device(s) which will automatically move the device(s) to the Assigned Devices section.

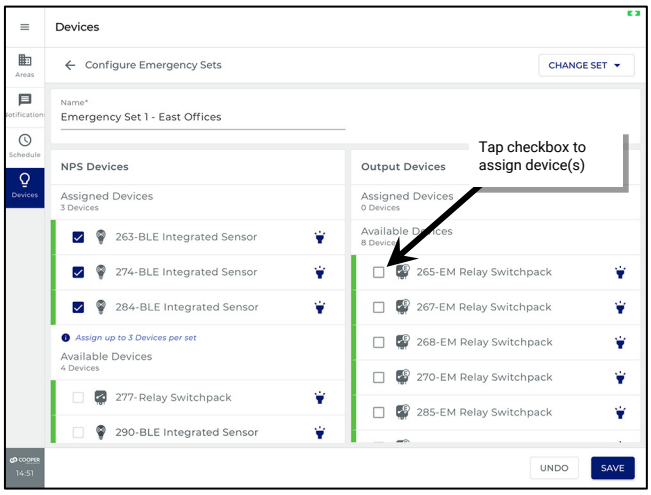
Note: Only NPS compatible devices will be shown in the list. If monitoring more than one phase of power, make certain that the selected devices are wired to the desired phases.

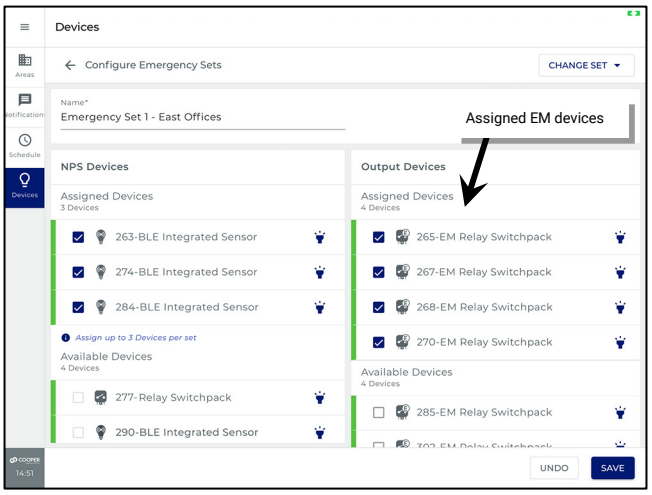




6: Next, assign the **Output Devices** (Emergency Devices) that will respond to the NPS devices in this set. Tap to use **Blink to Identify** if needed to locate the correct device(s). Tap to place a **checkmark** next to the device(s) to move them to the Assigned Devices section.

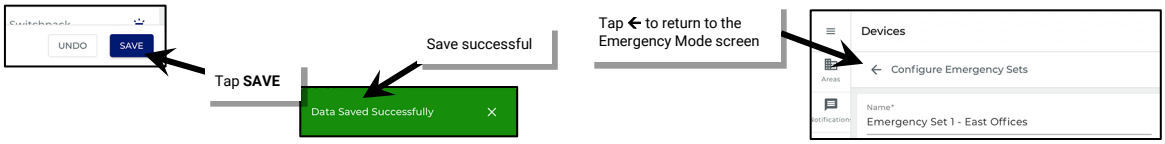
Note: Only EM compatible devices will be shown in the list.





7: Once the NPS and EM devices are assigned, tap **SAVE**. The WaveLinx Area Controller will send the NPS and EM device settings to all the assigned devices. This may take some time to process depending on the number of devices in the Emergency Set. Wait for the process to be completed successfully.

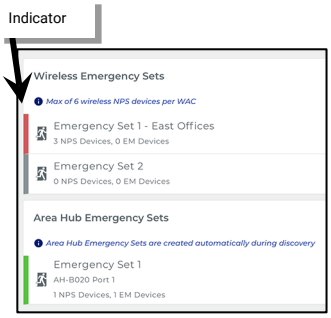
8: Tap ← **CONFIGURE EMERGENCY SETS** to return to the main Emergency Mode screen.

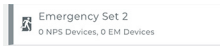
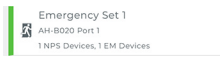
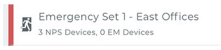


9: Repeat these steps for any additional Emergency Sets until all sets are configured.

Understanding the Emergency Set Color Indicator

The WaveLinx Wireless Emergency Sets and Area Hub Emergency Sets have a colored indicator bar at the beginning of the Emergency Set Row. The colored indicator bar can be gray, red, or green. These colors can indicate different conditions:



Icon	Description
	**Gray:** The Emergency Set has been created but there are no NPS or EM devices assigned. Configure the Emergency Set for proper operation.
	**Green:** The green indicator can have two meanings: • The Emergency Set has been configured properly with NPS and EM devices assigned. • The Emergency Set has been configured properly and is in Normal Mode.
	**Red:** The red indicator can have two meanings: • The Emergency Set has been partially configured but is not complete. Either the NPS devices or the EM devices have not been assigned. Complete the configuration for proper operation. • The Emergency Set has been configured properly and is in Emergency Mode.

Additional Emergency Set Configuration Changes and Test Options

For additional Emergency Set Configuration changes or to perform Emergency Set Tests, refer to “Modifying Emergency Sets and Testing Emergency Mode Operation“ on page 340.

Understanding WaveLinx Area Controller Default Operation

Once devices are assigned to their appropriate areas and zones and, if necessary, Emergency Sets are configured, the area will operate per the default area programming. For WaveLinx version 17.0 (previous versions may have different operation), the default programming for a user created area is as described in the following section.

Default Operation in Standard Areas

- All occupancy sensors assigned to the area, including WaveLinx PRO integrated fixture mounted sensors, WaveLinx PRO Tilemount sensors, WaveLinx CAT Occupancy Sensors, battery powered WaveLinx PRO Ceiling Sensors, and external occupancy sensors connected to the contact input of a WaveLinx PRO Universal Voltage Dimming Switchpack, WaveLinx PRO Contact Closure Input Modules, or to a WaveLinx CAT Sensor Input Module are grouped into an occupancy set to control all loads assigned to the dimmable, non-dimmable, and receptacle zones in the area.
  - Upon receiving an occupied signal from any sensor in the group, dimmable lighting will turn ON automatically to a 50% light level and controlled receptacles and non-dimmable loads (relays) will turn ON.
  - Manually Created Standard Areas:
    - Lighting, non-dimmable loads (relays) and receptacles[226] will turn OFF automatically after 20 minutes of vacancy.[227]
  - Standard Areas Created Automatically during WaveLinx CAT Device Import:
    - A 20-minute total hold time will be applied.[227] After 10 minutes of vacancy, lighting will go to 25%. After 10 additional minutes of vacancy, controlled zones will turn OFF.
- Tunable white loads will assume a warm white color temperature (approximately 3500K).[228]
- Closed loop daylighting will not operate until configured within the WaveLinx App. This includes all fixtures with Integrated or Tilemount Sensors.
- Open loop daylighting will not operate until configured within the WaveLinx App. This includes battery powered WaveLinx Ceiling Sensors, WaveLinx Outdoor Lighting Control Modules, as well as Integrated and Tilemount Sensors designated for open loop control.
- WaveLinx Wallstations will operate the controlled lighting and receptacle zones in their assigned area according to their default button configuration.[226] See the wallstation reference sheets for details on the default button commands.
- Contact closure inputs connected to a WaveLinx Universal Voltage Dimming Switchpacks (WSP-CA-010 model only) or to WaveLinx PRO Contact Closure Input Modules will not operate until they are fully configured the WaveLinx App.
- Contact closure inputs connected to a WaveLinx CAT Contact Closure Module will not operate until programmed in the WaveLinx App.
- All scene commands will default to the following light levels:

Scene	Dimmable Zone Response	Non-Dimmable Zone Response	Receptacle Response	White Tuning Response
Scene 0	0%	OFF (0%)	OFF	3500K[228]
Scene 1	100%	ON (100%)	ON	3500K[228]
Scene 2	70%	ON (100%)	ON	3500K[228]
Scene 3	50%	ON (100%)	ON	3500K[228]
Scene 4	30%	ON (100%)	ON	3500K[228]
Scene 5	10%	ON (100%)	ON	3500K[228]
Scene 6	1%	ON (100%)	ON	3500K[228]
Scene 7 through 15	Not programmed[229]	Not programmed[229]	Not programmed[229]	Not programmed[229]

- Demand Response behavior is assigned to all dimmable lighting zones. By default, if a demand response signal or test is received, all dimmable loads will reduce by 20% light output. Non-dimmable, receptacle and white tuning zones are automatically exempted from demand response and will not be affected with demand response signals.
- Once assigned to an Emergency Set, upon loss of any assigned Normal Power Sense device beacon signal, Emergency Devices will respond ON to 100% and will ignore all commands until all assigned Normal Power Sense device beacon signals are received again.[230]

[226] Receptacles must be assigned to a receptacle zone to respond to default operation.

[227] If the contact closure input of a switchpack is connected to a Greengate sensor, set the Greengate sensor onboard configuration switches to a 5-minute hold time to prevent interference with WaveLinx hold-time settings.

[228] The actual Kelvin temperature assumed by fixture will depend on the fixture's supported Kelvin range. Number provided is for approximate reference.

[229] Scenes 7 through 15 are not programmed and hidden from general users by default. The administrator must activate and then enable the zones and programming for each zone if they are required for an application.

[230] The Emergency device must be assigned to an Emergency Set with assigned NPS devices. If not assigned to an Emergency Set, the Emergency device will remain in Emergency Mode (ON/100%) indefinitely.

Default Operation in Partitioned Areas

- Demand response commands will issue as defined regardless of wall position.
- All occupancy sensors assigned in each sub area, including WaveLinx PRO integrated fixture mounted sensors, WaveLinx PRO Tilemount sensors, WaveLinx CAT Occupancy Sensors, battery powered WaveLinx PRO Ceiling Sensors, and external occupancy sensors connected to the contact input of a WaveLinx PRO Universal Voltage Dimming Switchpack, WaveLinx PRO Contact Closure Input Modules, or to a WaveLinx CAT Sensor Input Module are grouped into an occupancy set to control all loads assigned to the dimmable, non-dimmable, and receptacle zones in the sub area.

  When Partition Walls are CLOSED

  - Upon receiving an occupied signal from any sensor in the sub area's group, the sub area dimmable lighting will turn ON automatically to a 50% light level and controlled receptacles and non-dimmable loads (relays) will turn ON.
  - The sub area lighting, non-dimmable loads (relays) and receptacles[231] will turn OFF automatically after 20 minutes of vacancy (all sensors in the sub area group must sense vacancy for 20 minutes).[232]

  When Partition Walls are OPENED

  - Upon receiving an occupied signal from any sensor in any of the joined sub area groups, the joined sub areas' dimmable lighting will turn ON automatically to a 50% light level and controlled receptacles and non-dimmable loads (relays) will turn ON.
  - The joined sub areas' lighting, non-dimmable loads (relays) and receptacles[231] will turn OFF automatically after 20 minutes of vacancy (all sensors in the joined sub areas must sense vacancy for 20 minutes).[232]
- WaveLinx Wallstations will operate the controlled lighting and receptacle zones according to their default button configuration.[231] See the wallstation reference sheets for details on the default button commands.

  When Partition Walls are CLOSED:

  - The wallstation button command will only affect its own sub area.

  When Partition Walls are OPENED

  - The wallstation button command will affect the joined sub areas.
- Tunable white loads will assume a warm white color temperature (approximately 3500K).[233]
- Closed loop daylighting will not operate until configured within the WaveLinx App. This includes all fixtures with Integrated or Tilemount Sensors.
- Open loop daylighting will not operate until configured within the WaveLinx App. This includes battery powered WaveLinx Ceiling Sensors, WaveLinx Outdoor Lighting Control Modules, as well as Integrated and Tilemount Sensors designated for open loop control.
- Contact closure inputs connected to a WaveLinx Universal Voltage Dimming Switchpacks (WSP-CA-010 model only) or to WaveLinx PRO Contact Closure Input Modules will not operate until they are fully configured the WaveLinx App.
- Contact closure inputs connected to a WaveLinx CAT Contact Closure Module will not operate until programmed in the WaveLinx App.
- All scene commands will default to the following light levels:

Scene	Dimmable Zone	Non-Dimmable Zone	Receptacle	White Tuning
Scene 0	0%	OFF (0%)	OFF	3500K[233]
Scene 1	100%	ON (100%)	ON	3500K[233]
Scene 2	70%	ON (100%)	ON	3500K[233]
Scene 3	50%	ON (100%)	ON	3500K[233]
Scene 4	30%	ON (100%)	ON	3500K[233]
Scene 5	10%	ON (100%)	ON	3500K[233]
Scene 6	1%	ON (100%)	ON	3500K[233]
Scene 7 through 32	Not programmed[234]	Not programmed[234]	Not programmed[234]	Not programmed[234]

- Demand Response behavior is assigned to all dimmable lighting zones. By default, if a demand response signal or test is received, all dimmable loads will reduce by 20% light output. Non-dimmable, receptacle and white tuning zones are automatically exempted from demand response and will not be affected with demand response signals.
- Once assigned to an Emergency Set, upon loss of any assigned Normal Power Sense device beacon signal, Emergency Devices will respond ON to 100% and will ignore all commands until all assigned Normal Power Sense device beacon signals are received again.[235]

[231] Receptacles must be assigned to a receptacle zone to respond to default operation.

[232] If the contact closure input of a switchpack is connected to a Greengate sensor, set the Greengate sensor onboard configuration switches to a 5-minute hold time to prevent interference with WaveLinx hold-time settings.

[233] The actual Kelvin temperature assumed by fixture will depend on the fixture's supported Kelvin range. Number provided is for approximate reference.

[234] Scenes 7 through 32 are not programmed and hidden from general users by default. The administrator must activate and then enable the zones and programming for each zone if they are required for an application.

[235] The Emergency device must be assigned to an Emergency Set with assigned NPS devices. If not assigned to an Emergency Set, the Emergency device will remain in Emergency Mode (ON/100%) indefinitely.

Finalizing WaveLinx Area Controller Setup

Once all devices are added, areas created and devices assigned, finalize the WaveLinx Area Controller setup. This section walks through removing unassigned devices from the Construction Area and the final recommended procedures that should be performed on site.

Step 1: Remove Unassigned Devices from the Construction Area

Once all devices are assigned to areas, if there are unassigned devices still in the Construction Area follow the below instructions for the type of WaveLinx Area Controller to remove unassigned devices:

WaveLinx Area Controller

- If this is the only WaveLinx Area Controller in the facility, a device has been missed or has been added that was not shown on the plans. Place the device into **Blink to Identify** mode to assist with locating the device.[236] Once found, assign the device to the proper area.
- If there are other WaveLinx Area Controllers in the facility, the device(s) may have paired with the incorrect WaveLinx Area Controller. For the device(s) to be able to pair with the correct WaveLinx Area Controller, they must be removed from the Construction Area.

To quickly remove all unassigned devices in the Construction Area, press and hold the PAIR button on the WaveLinx Area Controller for 4 seconds, and then release. The devices still in the Construction Area will be unpaired from the WaveLinx Area Controller. It may take several minutes for the command to fully process if there are multiple devices being disconnected. This command will not affect devices that have been assigned to areas other than the Construction Area.

- WaveLinx Area Controller, the blue 802.15.4 LED will flash rapidly until unassigned devices have been commanded to leave the network.

For WaveLinx Area Controller version 11.0.5.x and higher, if a device does not confirm that it successfully left the WaveLinx Area Controller's network, the device will remain in the WaveLinx App's construction area with a red indicator next to the device to show it is not communicating. These devices may need a manual factory reset to restore them to the out-of-the-box state. Once this is done, delete the device from the WaveLinx App.

If the WaveLinx Area Controller is not in an accessible location, devices can be manually deleted using the WaveLinx Mobile App or WaveLinx WAC Lighting App[237] (see page 229) or the devices can be removed from the construction area using a feature on the WaveLinx Area Controller's internal debug webpage. For instructions, see page 393.

WaveLinx Outdoor Area Controller

- If this is the only WaveLinx Area Controller in the facility, a device has been missed or has been added that was not shown on the plans. Place the device into **Blink to Identify** mode to assist with locating the device.[236] Once found, assign the device to the proper area.
- If there are other WaveLinx Area Controllers in the facility, the device(s) may have paired with the incorrect WaveLinx Area Controller. For the device(s) to be able to pair with the correct WaveLinx Area Controller, they must be removed from the Construction Area.

For the WaveLinx Outdoor Area Controller, devices still in the Construction Area can be manually deleted using the WaveLinx Mobile App or WaveLinx WAC Lighting App[237] (see page 229) or the devices can be removed from the Construction Area all at once. See "Removing Devices in the Construction Area Using the Debug Page" on page 393 for instructions on using this feature.

Step 2: Final Recommended Procedures

The following steps are recommended to ensure the best system operation. Please refer to the specified section for further information.

1: Update the WaveLinx Area Controller software and firmware. Follow the steps in "Updating the Firmware/Software of the WaveLinx Area Controller" on page 384.

2: Update WaveLinx Device Firmware. See "Updating the Firmware of WaveLinx Devices" on page 386 for this procedure.

3: Once all programing is complete, perform a system backup. See "Performing a System Backup" on page 380 for this procedure.

[236] Battery powered WaveLinx Ceiling Sensors, WaveLinx WB and WWB Series Battery Powered Wallstations do not have the option to blink to identify.

[237] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Customizing Programming

While many applications will operate as desired with the built-in programming, some applications may require some customization. This section of the user manual will discuss how to make changes to the programming. This includes:

- Modifying area, zones, and their devices
- Modifying scene settings and response
- Modifying wallstation button response
- Modifying contact closure input response
- Modifying occupancy sensor response, controlled zones, assigned sensors, using associated occupancy sets and deleting occupancy sets
- Modifying daylight sensor operation including setup and calibration of open and closed loop daylight control
- Adding schedule events
- Changing and testing demand response behavior
- Understanding white tuning application programming
- Modifying Emergency Sets and testing Emergency operation

Modifying Areas, Zones, and Devices

This section discusses how to modify standard areas, zones, and devices and how to modify partitioned areas, zones, and devices.

Modifying Standard Areas and their Zones and Devices

Standard areas and their zones and devices can all be modified after initial setup. This includes:

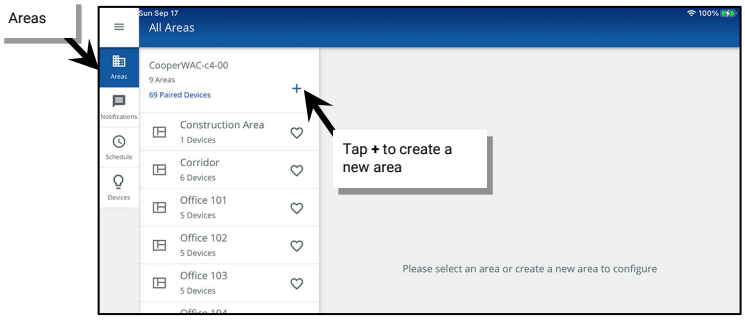
- Adding standard areas and zones
- Removing, adding, and moving devices
- Renaming areas, zones, and devices
- Deleting areas, zones, and devices

Adding a Standard Area

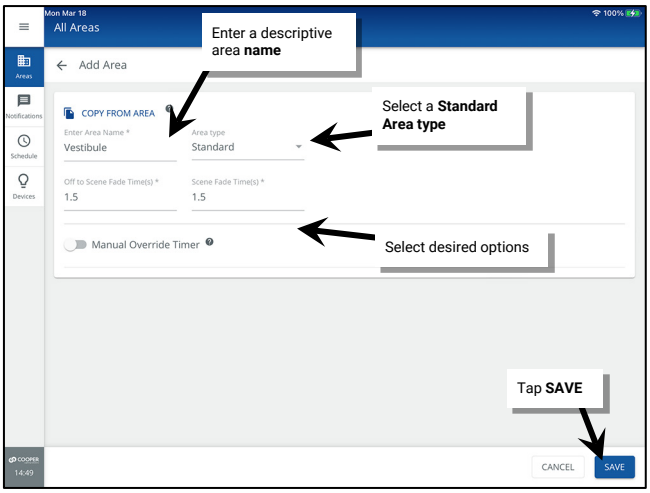
Standard Area: A **Standard Area** is a space within the facility with devices that operate separately from other spaces. Think of an area as a room within the facility. Devices will be assigned to areas as part of bringing the system online. Each WaveLinx Area Controller allows the creation of multiple areas.

To add a standard area:

1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator. In the **Areas** option, tap **+** to create a new area.

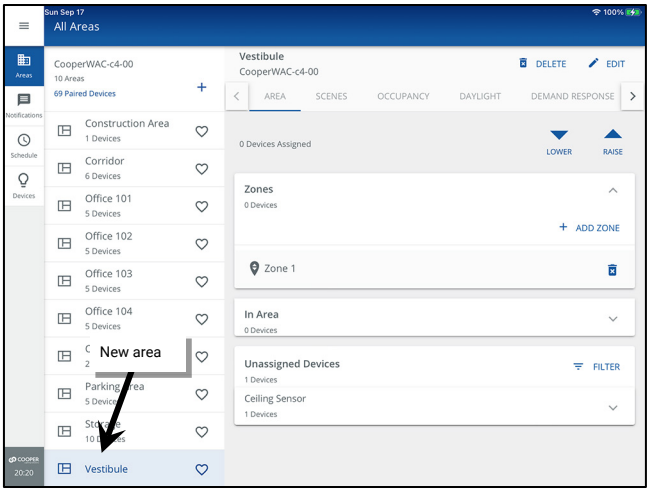


2: Enter a descriptive name for the area, select the **Standard Area** type and select any necessary options (see “Understanding and Modifying Area Settings” on page 245 for option details). Tap **SAVE** to create the new area.

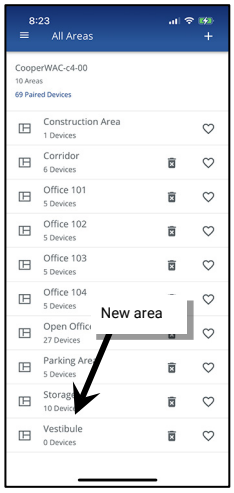


The new area will appear in the **All Areas** list.

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



Adding a Zone in a Standard Area

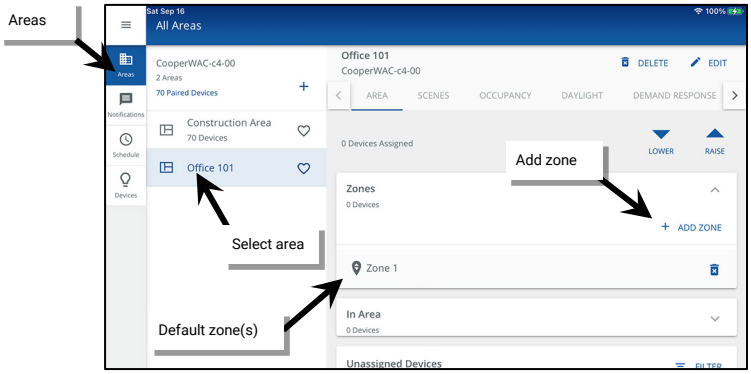
- **Zone**: A **Zone** is a collection of load devices within an area that operate together. For instance:
  - Fixtures in the same row may be grouped into a dimmable zone to allow for uniform operation.
  - Relays controlling the same portion of a space may be grouped in a non-dimmable zone for easy group control.
  - Controlled WaveLinx PRO Receptacles or receptacles operated from WaveLinx PRO or CAT Switchpacks are placed in a receptacle zone to allow easy control capability.
  - White tunable devices may be separated to allow for separate control of color tuning from the ON/OFF and dimming functionalities of the fixtures.

There are four different types of zones that can be created in an area:

- **Dimmable Zone**: May contain any dimmable load connected to a dimmable WaveLinx device.
- **Receptacle Zone**: May contain switched controlled receptacle devices.
- **Non-Dimmable Zone**: May contain non-dim load (switched load) devices.
- **White Tuning Zone**: May contain white tuning control devices.

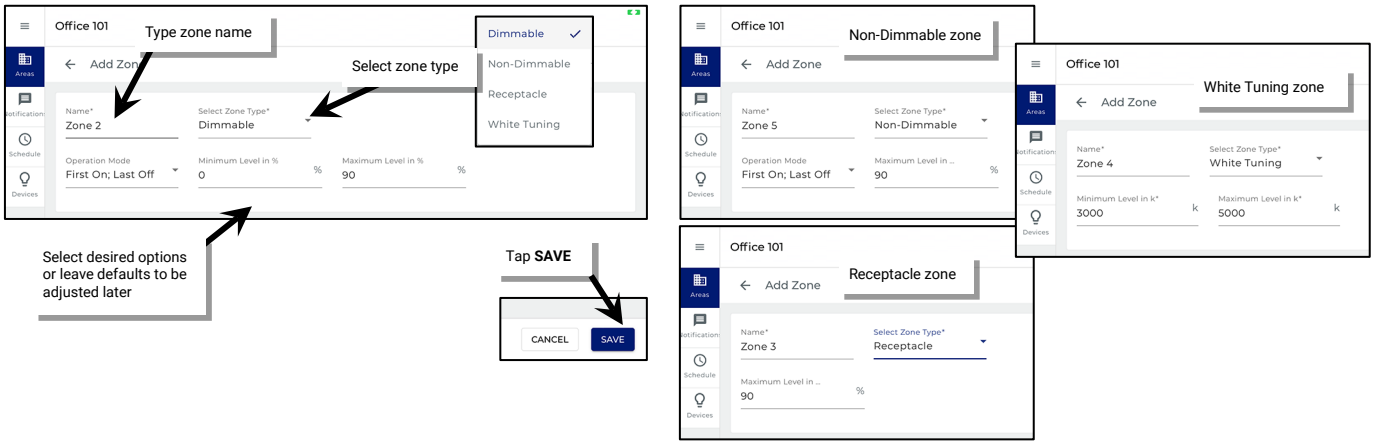
1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator. In the **All Areas** list, tap the area name.

2: In the zone section, review the current zones/zone types. Tap **+** to create a new zone if necessary.



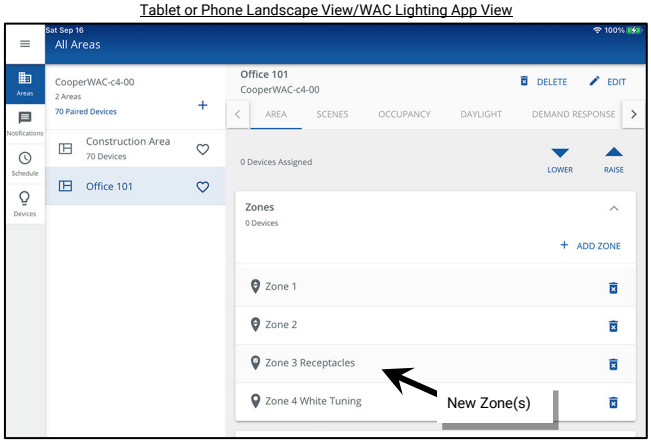
3: Type a descriptive name for the zone, and then select the zone type (dimmable, non-dimmable [switched], receptacle, or white tuning). **Zone type cannot be changed after initial setup**.

Make parameter selections or leave defaults in place to be adjusted later (see “Understanding and Modifying Zone Settings” on page 248 for explanation). For White Tuning zones, the max and min level fields should match a Kelvin temperature range that all the white tuning fixtures support (refer to the fixture information for the supported ranges). Tap **SAVE**.

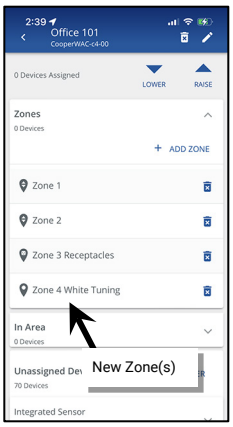


Once the zone is created, the new zone should appear in the area’s zone list.

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



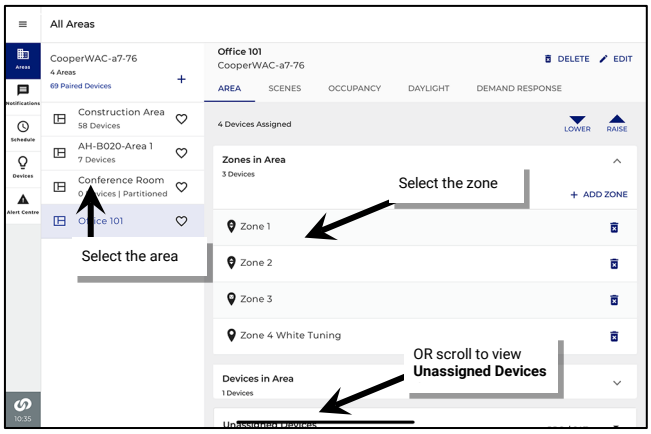
IMPORTANT: Newly created dimmable, non-dimmable and receptacle zones are automatically assigned to the default occupancy set. To change this automatic assignment, see “Adjusting Occupancy Set Controlled Zones” on page 284.

Adding Devices to a Zone or Standard Area

To add devices to a zone or standard area after the initial setup, follow the steps below.

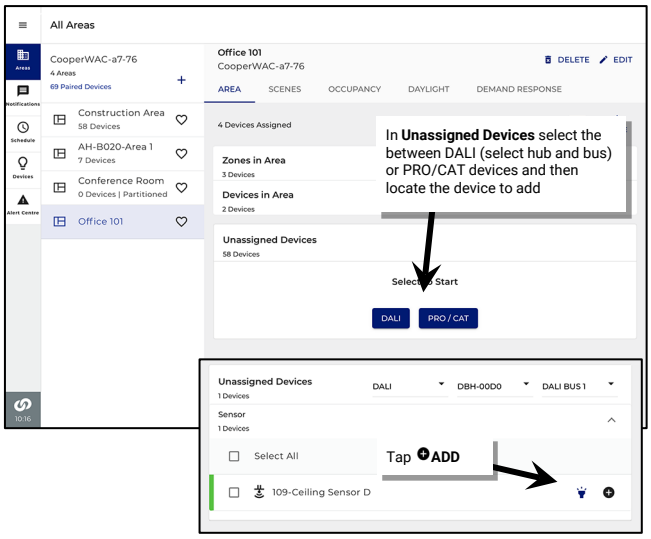
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[238] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area to be modified. If the device should be in the **area**, scroll down to the **Unassigned Devices.** If the device should be in a **zone**, then tap a zone to open it.

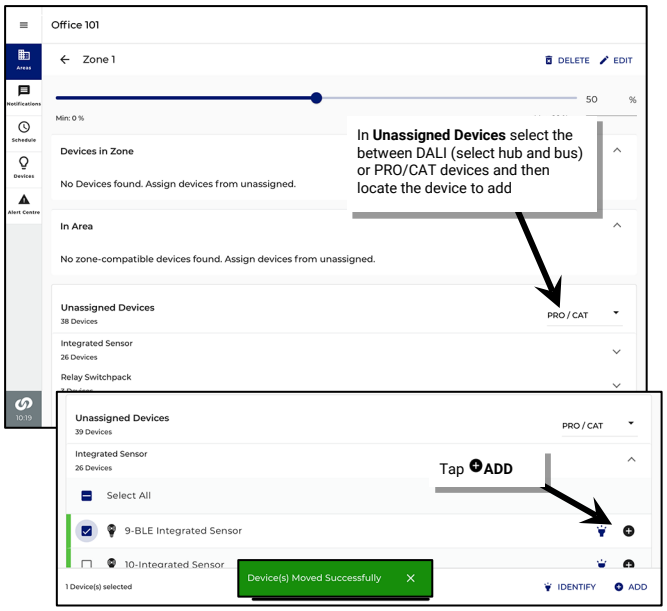


3: In the **Unassigned Devices** section, select from either a DALI or PRO/CAT device and then identify and then select the desired device(s). Tap ⊕ **ADD** to move the device(s) into the zone or area.

Add Devices to an Area



Add Devices to a Zone



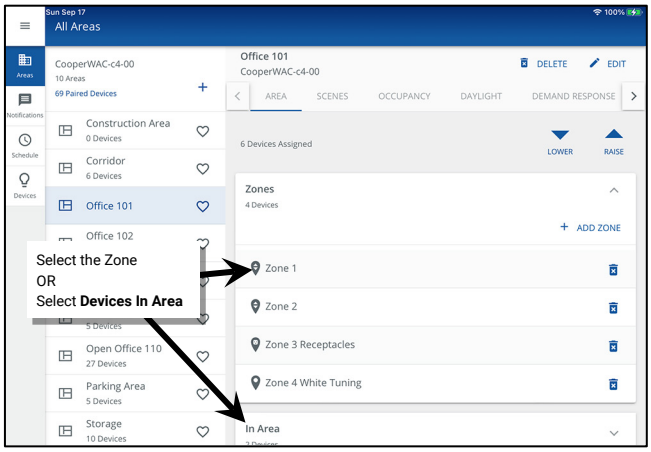
[238] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Removing Devices from a Zone or Standard Area

To remove devices from a zone after the initial setup, follow the steps below.

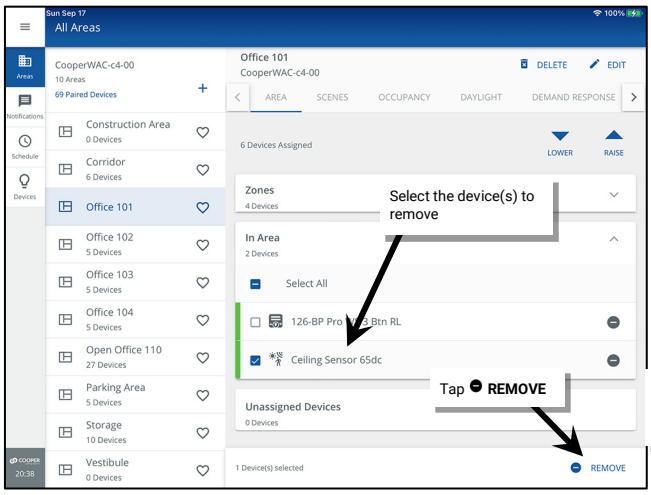
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[239] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area to be modified, and then tap on the desired zone or locate the device in the **Devices in Area** section.

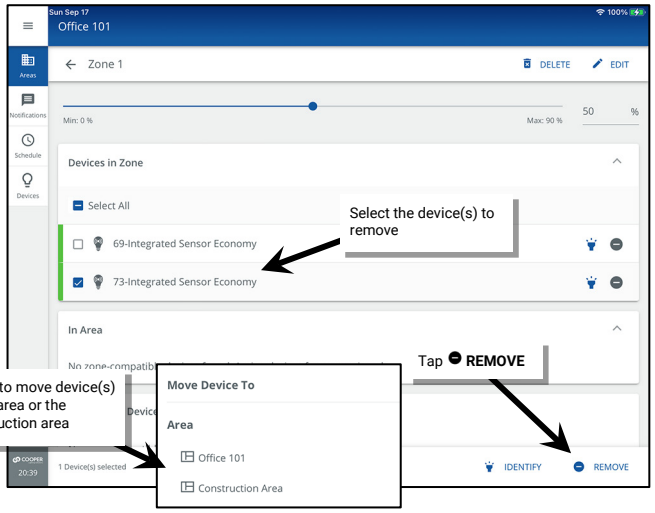


3: Select the desired device(s), and then tap ⊖ **REMOVE**. If removed from the **Devices in Area** section, the devices will automatically be moved to the Construction Area removing it from the user defined area. If removed from a zone, choose between moving the device into the **Devices in Area** section (ready to assign to another zone in the same area) or to the Construction Area removing it from the user defined area. Notifications will be displayed regarding the move.

Remove Devices from an Area



Remove Devices from a Zone



[239] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Moving a Device from One Zone/Standard Area to Another Area

To move a device from one zone or area to another, simply remove the device from where it is currently assigned and then add it to the desired location. For step-by-step instructions:

- First remove the device. See “Removing Devices from a Zone or Standard Area” on page 227.
- Then add the device. See “Adding Devices to a Zone or Standard Area” on page 226.

Renaming Standard Areas, Zones, and Devices

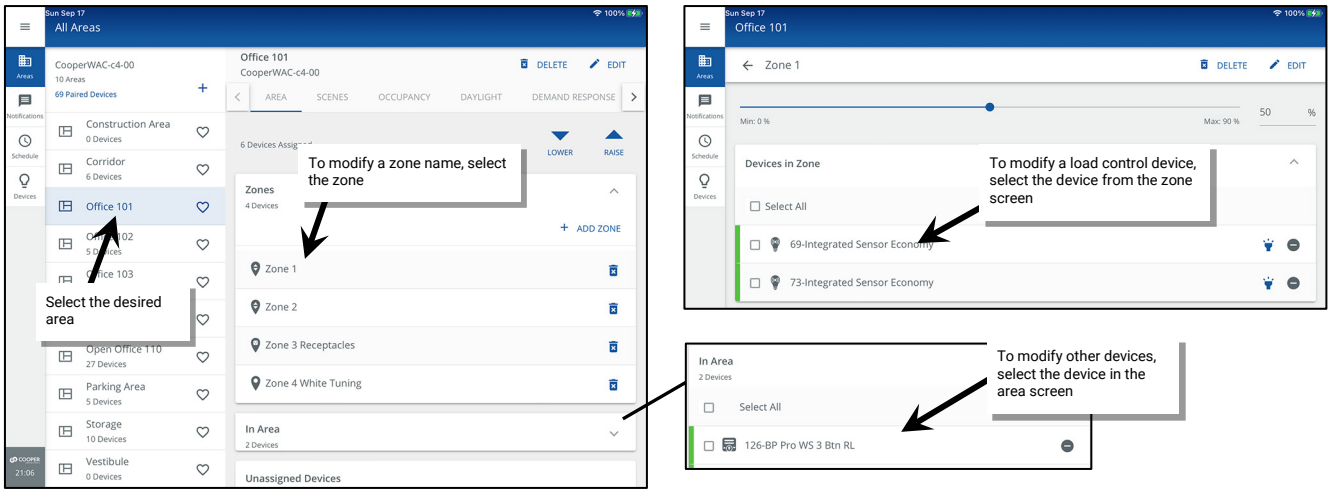
Generic names will be assigned to the default zones and to devices during the configuration process. It is recommended, but not required, that the default names of areas, zones and devices be updated for easy identification. This is done using **EDIT** ✎.

To modify the name of an area, zone, or device:

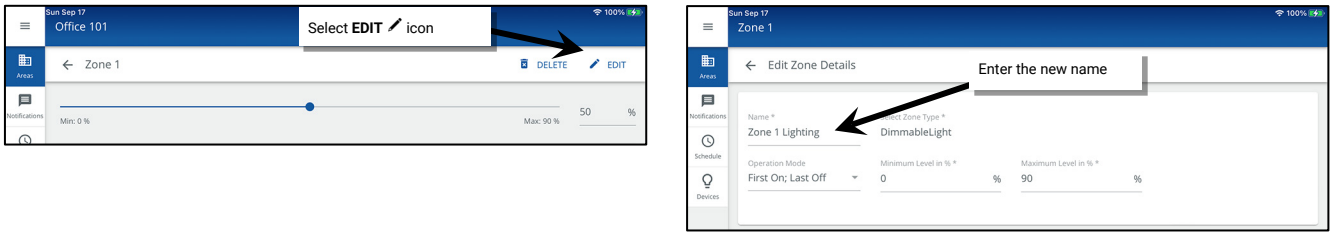
1: Using the WaveLinx Mobile App or the WaveLinx WAC Lighting App[240], login to the WaveLinx Area Controller as the administrator user.

2: Select the item to be changed:

- Area: In the **All Areas** list, select the area that will be modified.
- Zone: Select the zone in the area screen.
- Device: Select a device that directly controls a load in its assigned zone screen. Select other devices in the area screen’s **Devices in Area** section.



3: Select **EDIT** ✎ within the item’s screen. Tap the name field and type a unique name for the item (no more than 20 characters). Select **SAVE** to apply the change.



[240] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Deleting Standard Areas, Zones, and Devices

Areas, zones, and devices can be deleted at any time.

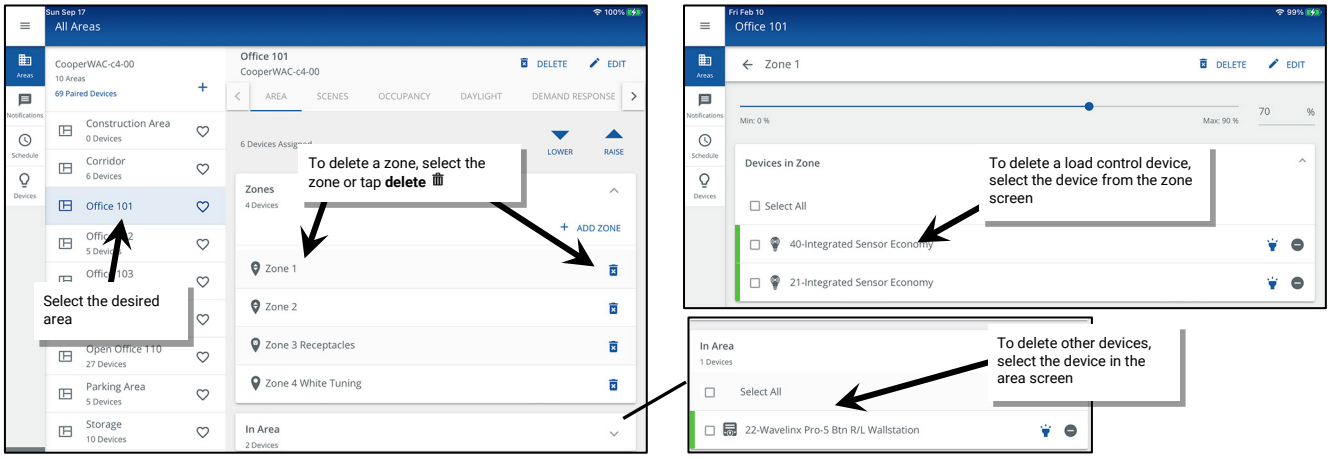
- A device that is deleted will return to its out-of-the-box, unpaired state. If it is a WaveLinx PRO or WaveLinx LV device, it will need to be paired as a new device. If it is a WaveLinx CAT device, it will need to be re-added through the Area Hub's device details page by running a rescan.
- When a zone is deleted, any devices still assigned to the zone will be moved into the **Devices in Area** section of the zone's assigned area.
- When an area is deleted, all devices assigned to the area will be moved to the construction area.

To delete an area, zone, or device:

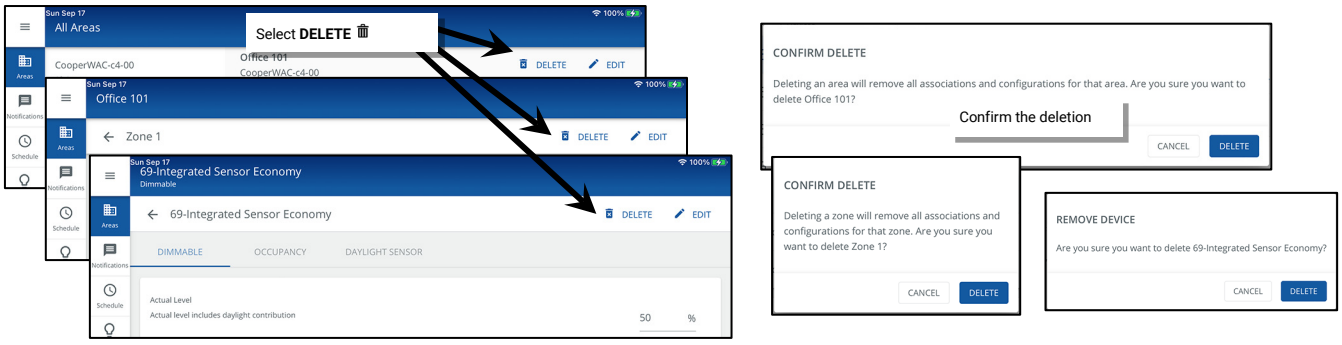
1: Using the WaveLinx Mobile App or the WaveLinx WAC Lighting App[241], login to the WaveLinx Area Controller as the administrator user.

2: Select the item to be changed:

- Area: In the **All Areas** list, select the area that will be modified.
- Zone: Select the zone in the area screen.
- Device: Select a device that directly controls a load in its assigned zone screen. Select other devices in the area screen's **Devices in Area** section.



3: Select **DELETE** 🗑 within the item's screen and then confirm the deletion.

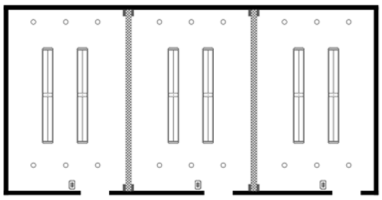


[241] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

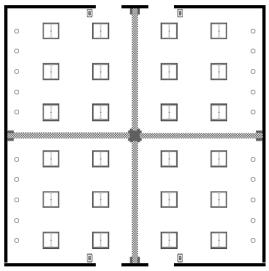
Modifying Partitioned Areas and their Zones and Devices

The WaveLinx Area Controller version 17.0 allows creation of **two** partitioned areas per WaveLinx Area Controller. A **partitioned area** is a space within the facility that may have moveable divider walls to allow creation of one large space or several smaller spaces called **sub areas**. Devices in the space may need to operate independently for a single sub area when divider walls are closed or may need to operate a combination of sub areas when walls are opened.

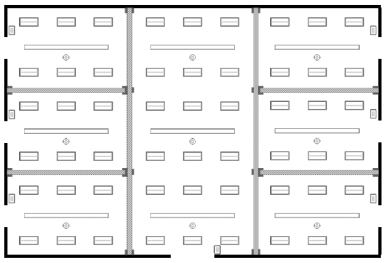
A partitioned area can have a maximum of **10 sub areas** and/or **10 divider walls**. This allows for accommodation of many different partitioning layouts such as those pictured below:



Example 1: 3 Sub Areas, 2 Partitions



Example 2: 4 Sub Areas, 4 Partitions



Example 3: 7 Sub Areas, 10 Partitions

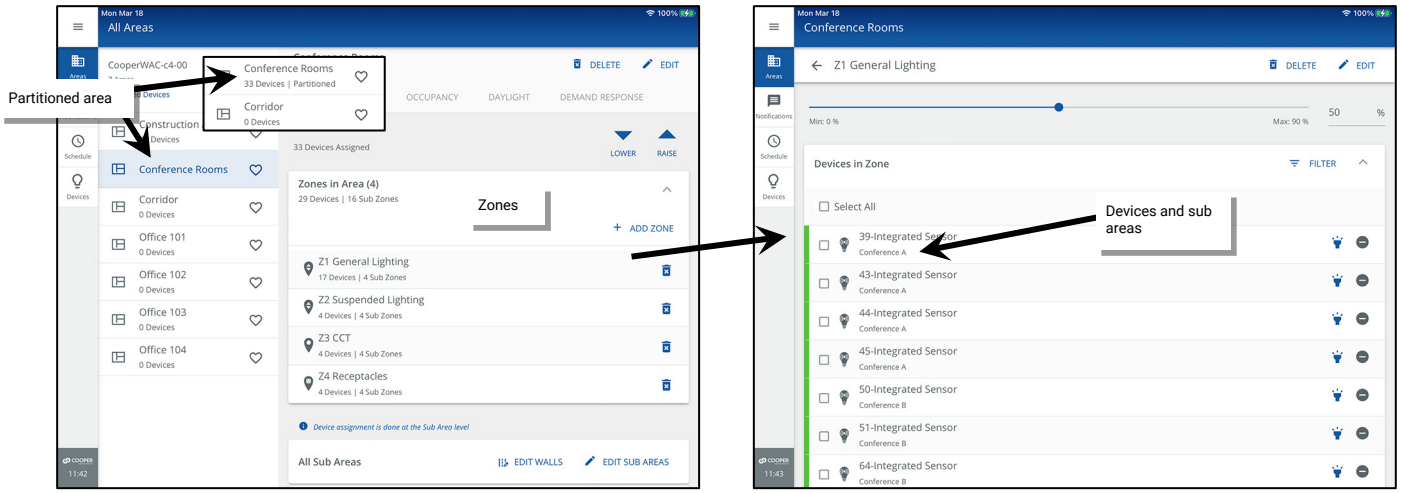
A partitioned area does allow some modification after initial setup. This section includes details on:

- Understanding basic navigation in the partitioned area screens
- Adding a partitioned area and zones
- Assigning/removing sub zones from a partitioned area's sub area
- Removing, adding, and moving devices
- Renaming areas, sub areas, zones, partition walls, and devices
- Deleting areas, zones, and devices
- Change the partition wall sub area selections
- Changing the partition wall open close signal input

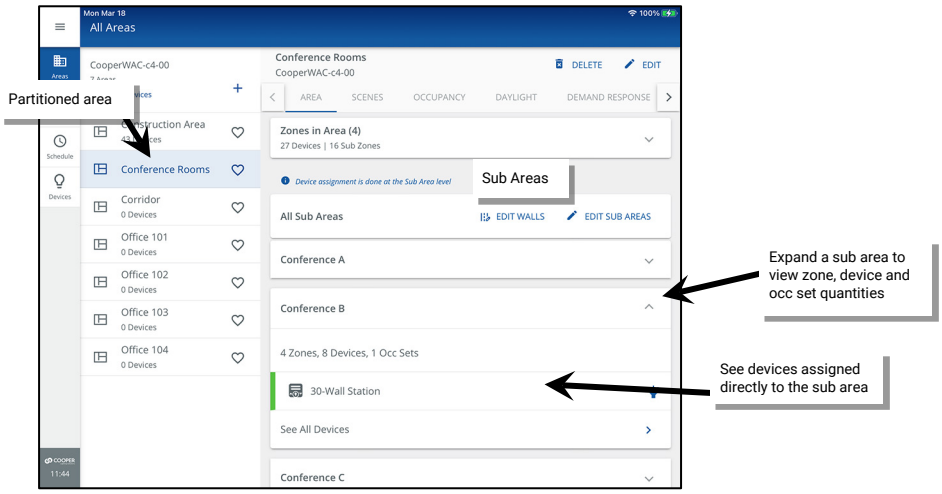
Understanding Basic App Navigation in a Partitioned Area

The screen layout of a partitioned area differs from a standard area. This section discusses the basics of navigation within a partitioned area.

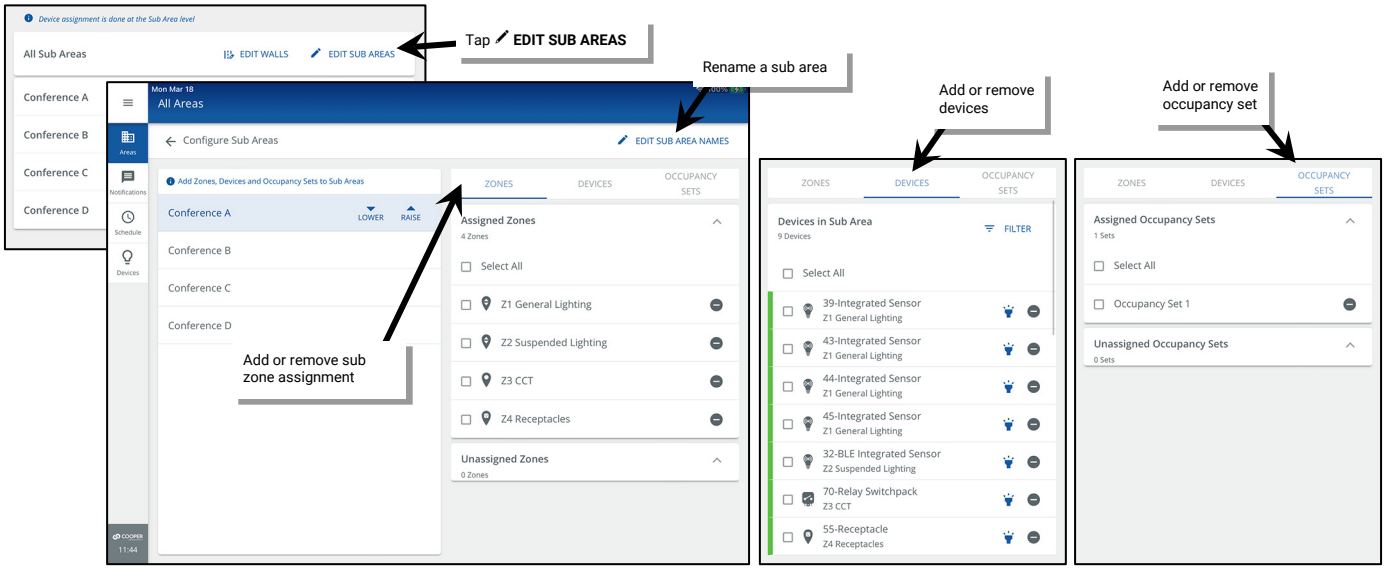
In the **All Areas** list, the partitioned areas will show the word "**Partitioned**" in the area list next to the quantity of assigned devices. Select the **partitioned area** to open it. The partitioned area will open to the main area screen. At the top of the screen are the area's zones. Tap any zone to see the devices assigned to the zone. In a partitioned area, the devices will also show which sub area they are assigned to.



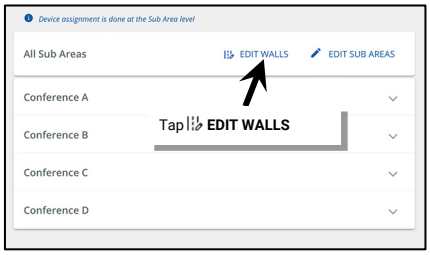
At the bottom of the main area screen are the area's sub areas. Expand any sub area to view the devices that are assigned directly to the sub area (typically wallstations, ceiling sensors and other input devices) and the quantity of sub zones, devices and occupancy sets that are assigned to that sub area.

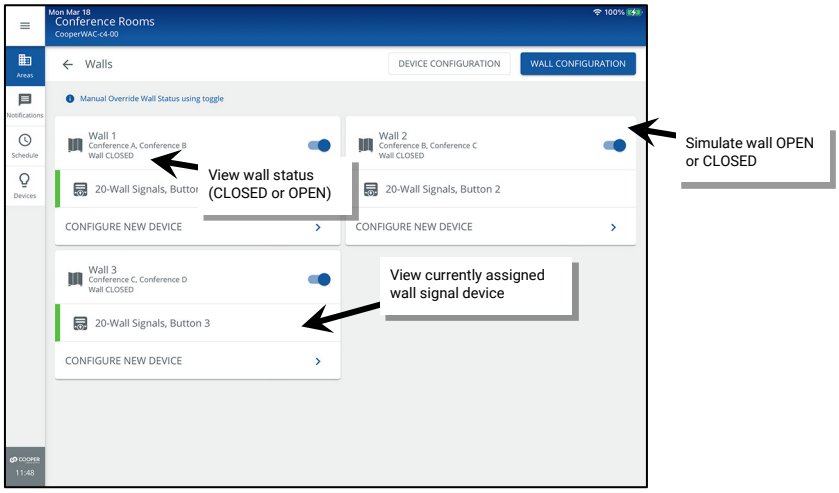


In the sub area section, tap on ✎ **EDIT SUB AREAS** to view configuration screens for the sub areas. Change the name of the sub areas or in each sub area, view and change sub zone assignments, view or change device assignment, and view or change occupancy set assignments.

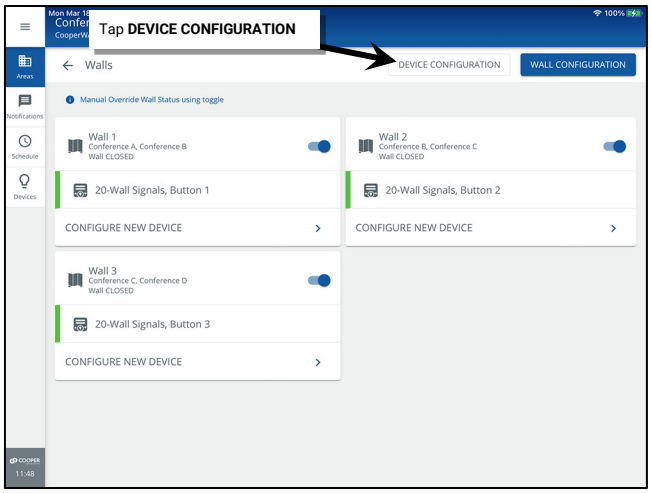


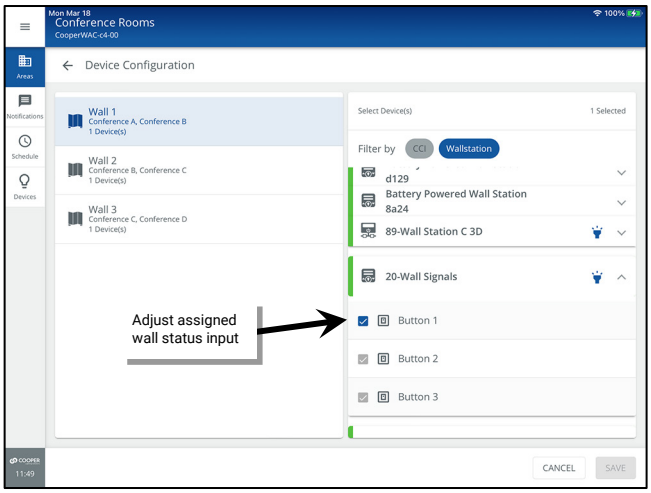
Back at the main area screen, at the top of the sub areas, tap **EDIT WALLS** to open the main wall dashboard. This screen allows you to view the current open or closed wall status or issue the open and closed command from the WaveLinx App to simulate the wall closure input (The onscreen button to simulate wall closure will not operate if a CAT Contact Closure Module input is being used for wall open and close signal). It also allows quick identification of the device currently mapped to each wall to provide the wall signal to the WaveLinx system.



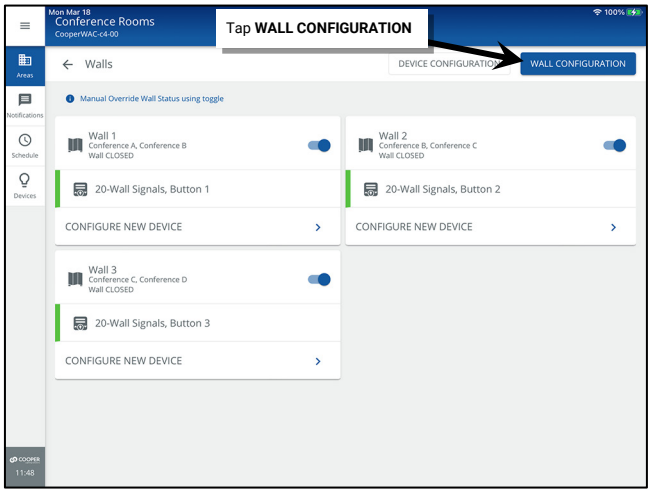


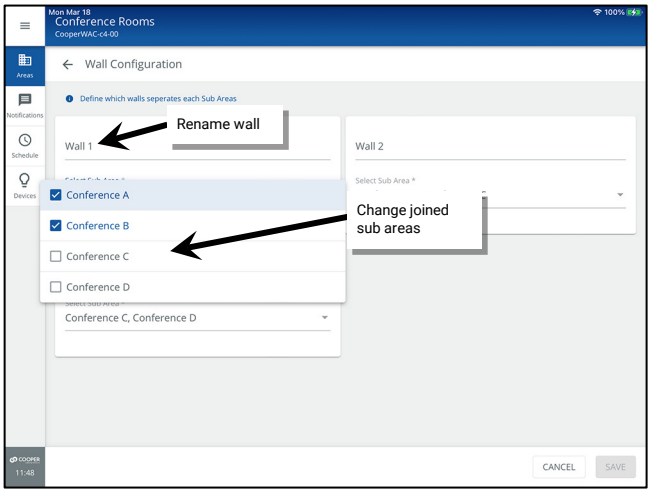
Tap **DEVICE CONFIGURATION** to change the device currently mapped to each wall.





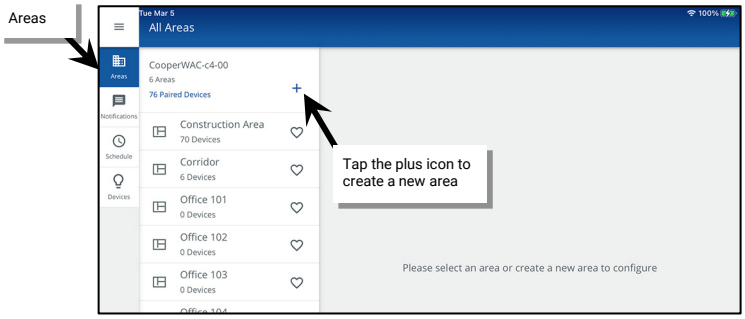
Tap **WALL CONFIGURATION** to change the name of partition walls or to modify the joined sub areas.





Adding a Partitioned Area

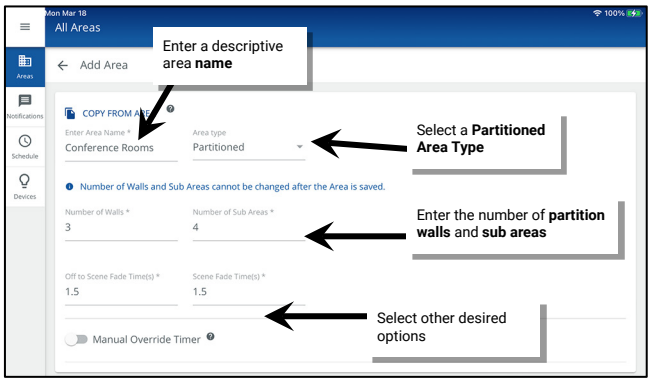
1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator. In the **Areas** option, tap **+** to create a new area.

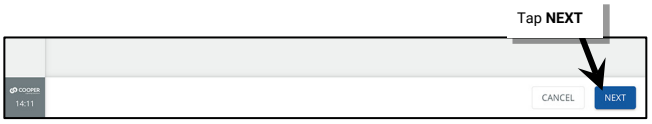


2: Enter a descriptive **name** for the partitioned area and then select the **Partitioned** Area Type.

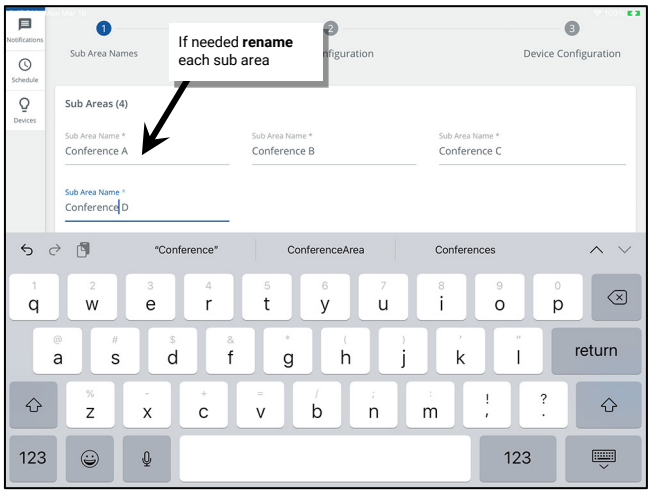
3: Enter the **number of partition walls** and **number of sub areas** in the partitioned area and then select any additional necessary options "Understanding and Modifying Area Settings" on page 245 for option details). Tap **NEXT** to create the new area and advance to the next screen.

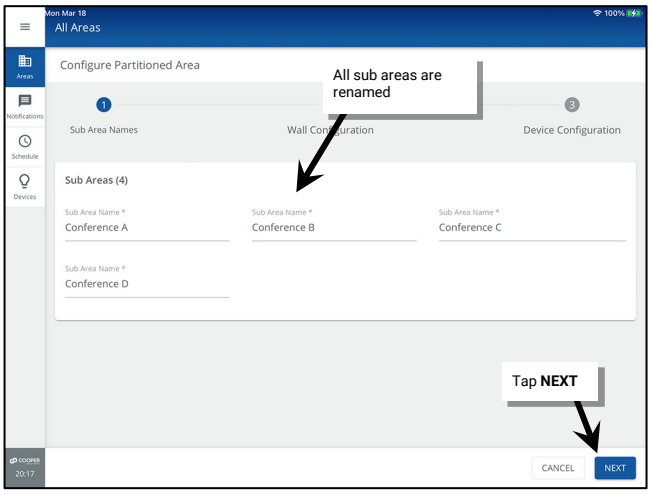
The number of walls and sub areas cannot be changed after the area is created. If the walls or sub areas are incorrect, delete the partitioned area and recreate it with the correct quantities of walls and sub areas.



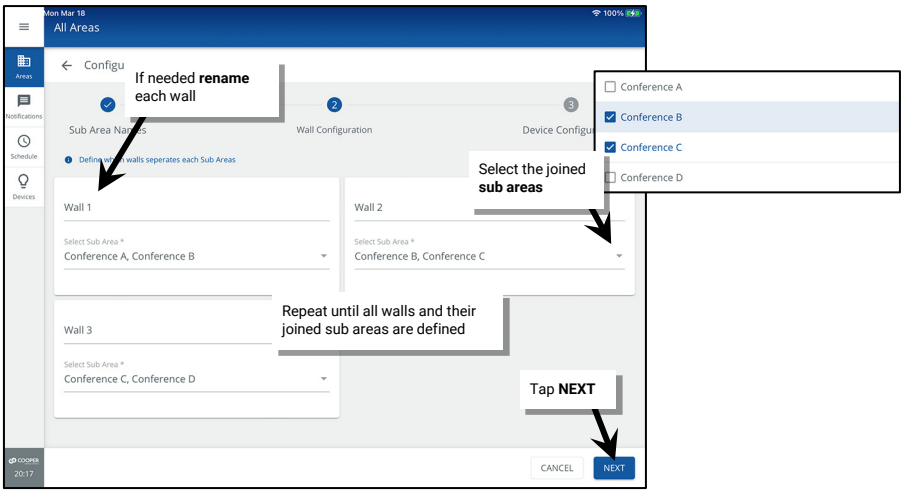


4: If needed, adjust the default **Sub Area Names**. Tap a name and change to the desired name, repeating for each sub area. Tap **NEXT** once all sub area names are correct.





5: Perform the **Wall Configuration**. Tap any **Wall Name** to change the default name and then use the drop down to **select the sub areas** that the wall joins. Repeat until all wall names and sub areas are defined. Tap **NEXT** to move on to the next step.

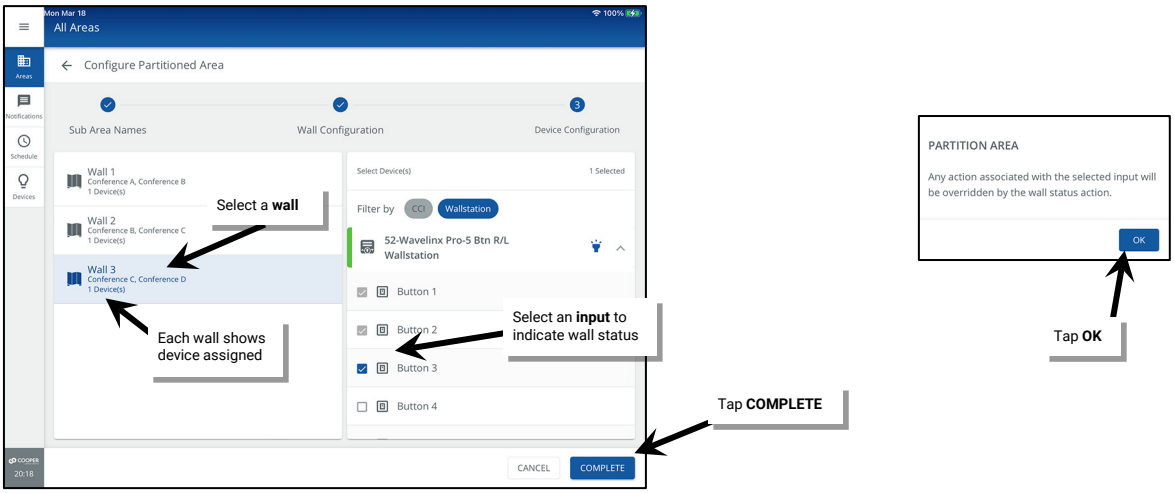


6: Perform the **Device Configuration** to select the input that will indicate that each wall is open or closed. Tap a **wall**. Compatible input devices will be displayed in the **Select Device(s)** list. Once the correct device is located, **check the input** that will be associated with this wall.

- The compatible device list will include CCI (contact closure input) and wallstation devices regardless of the area they are assigned to.
- Use the filter to streamline the view to **CCI** (contact closure input) devices or **wallstations**.
- For devices that support identification, select to place a device into **Blink to Identify** mode to aid in identifying the device.

7. Repeat step 6 for each wall until an input is selected for each wall. Note that inputs that report to other walls will be selected and grayed out. Tap **COMPLETE.**

8: When prompted, tap **OK** to acknowledge that the defined input action will be replaced with the wall status action.



IMPORTANT: The device(s) that contains the inputs being assigned to the wall action WILL NOT be moved from their previously assigned area. If the devices are left in the construction area, there is risk of them being removed when devices are cleared from the construction area. To avoid this, make certain to assign the wall input device(s) to one of the partitioned sub areas.

Adding a Zone in a Partitioned Area

Once the partitioned area is created, create the necessary zones for the application. The partitioned area contains one **Zone** (Zone 1) by default. Additional zones can be created as needed. In a partitioned area, **zones** are created at the main **Partitioned Area** screen. To maximize the number of zones available for other areas, the zones are then assigned as **sub zones** if they are needed in the **sub areas**.

A **zone** is a group of devices that will be controlled together in the exact same way. In a partitioned area, devices in each sub area that should operate together when partition walls are open should be assigned to the same zone number in each sub area creating **sub zones** which allow for a uniform response in the joined area.

- If each sub area contains fixtures that should operate together when all walls are opened/all sub areas joined, then the fixtures will need to be assigned to the same zone number in each sub area.
- Controlled receptacles in the sub areas might be placed in the same receptacle zone in each sub area so they switch ON and OFF together when the room is joined.
- A zone might also be used to separate the color temperature control of tunable white devices from the ON/OFF and dimming control functionalities, again with the same zone being assigned to each sub area to allow for uniform control in a joined room.

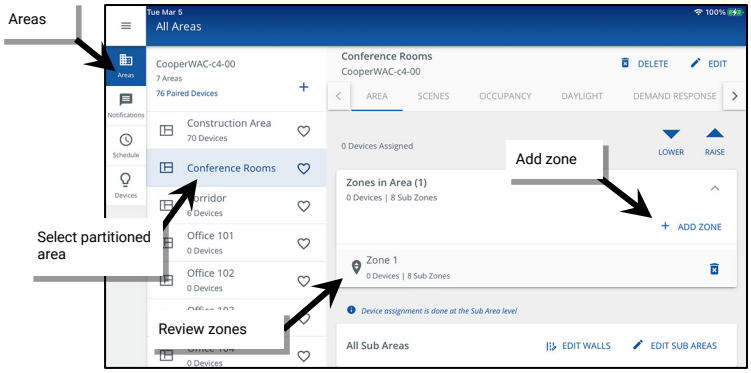
There are four different types of zones that can be created in an area:

- Dimmable Zone: May contain any dimmable load connected to a dimmable WaveLinx device.
- Receptacle Zone: May contain switched controlled receptacle devices.
- Non-Dimmable Zone: May contain non-dim load (switched load) devices.
- White Tuning Zone: May contain white tuning control devices.

To add zones to a partitioned area and assign the zone to sub areas (sub zone):

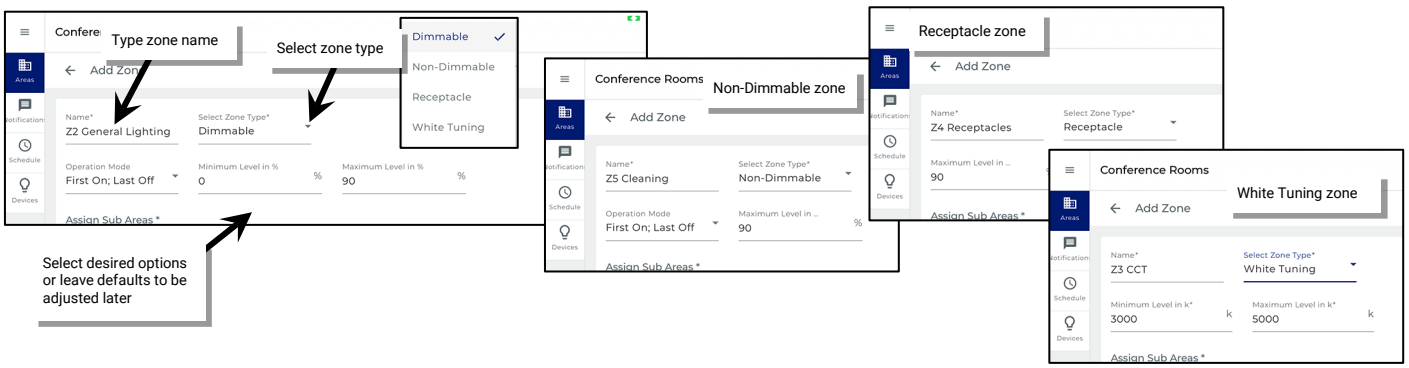
1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator. In the **All Areas** list, tap the partitioned area name.

2: In the zone section, review the current zones/zone types. Tap **+** to add a new zone if necessary.

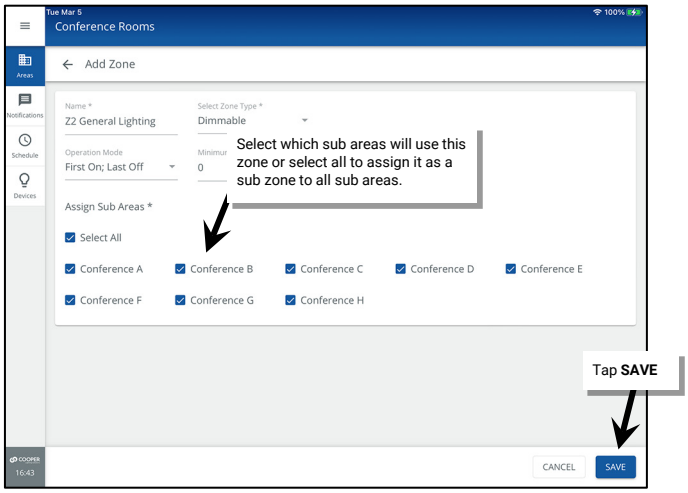


3: Type a descriptive name for the zone, and then select the zone type (dimmable, non-dimmable [switched], receptacle, or white tuning). **Zone type cannot be changed after initial setup**.

Make parameter selections or leave defaults in place to be adjusted later (see “Understanding and Modifying Zone Settings” on page 248 for explanation). For White Tuning zones, the max and min level fields should match a Kelvin temperature range that all the white tuning fixtures support (refer to the fixture information for the supported ranges).



4: **Assign the Zone to the Sub Areas (sub zone)** that will have devices operating in it. Tap **Select All** or individually select the sub areas if the zone will not be used in some sub areas. For instance, if each sub area contains lighting fixtures that will need to operate together when the room is joined, use **Select All** to assign the sub zone to all sub areas. If only some sub areas have fixtures that operate together and other sub areas will operate separately, select only the sub areas that need have fixtures that will be assigned to this zone to maximize the number of zones available for other areas. Tap **SAVE**.



Add or Remove Sub Zone Assignments from a Sub Area

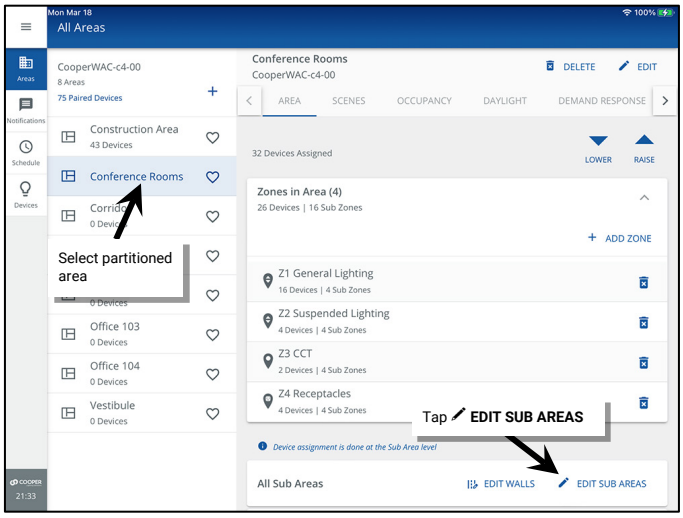
The WaveLinx Area Controller allows the creation of up to 200 zones total. This number includes sub zones in partitioned area. For instance, if the partitioned area has four zones which are assigned to four sub areas, this uses a total of 16 of the allowed zones. To maximize the quantity of zones available for other areas, sub zones should be assigned only to the sub areas that have devices to be assigned to those sub zones.

Sub zones are typically assigned to sub areas as part of creating a new zone. Before performing the procedures in this section, make sure that all the needed zones are created in the partitioned area.

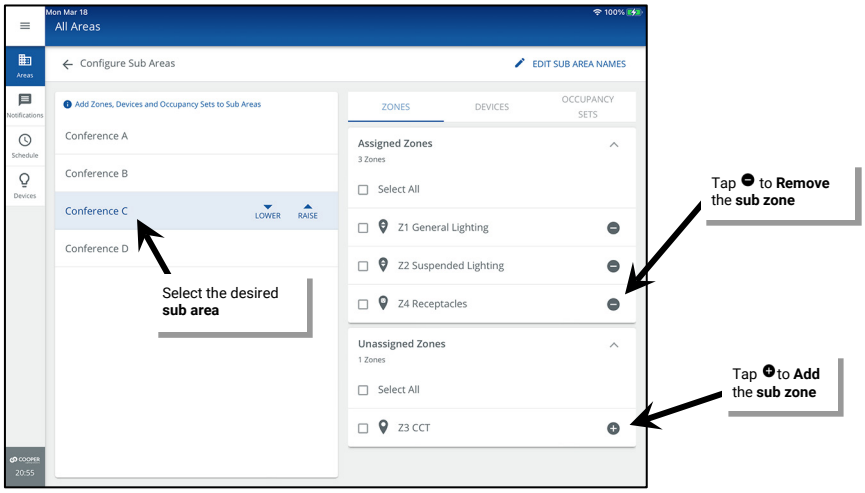
To add or remove a sub zone assignment from a partitioned area:

1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator. In the **All Areas** list, tap the partitioned area name.

2: In the **All Sub Area** section, tap ✎ **EDIT SUB AREAS**.



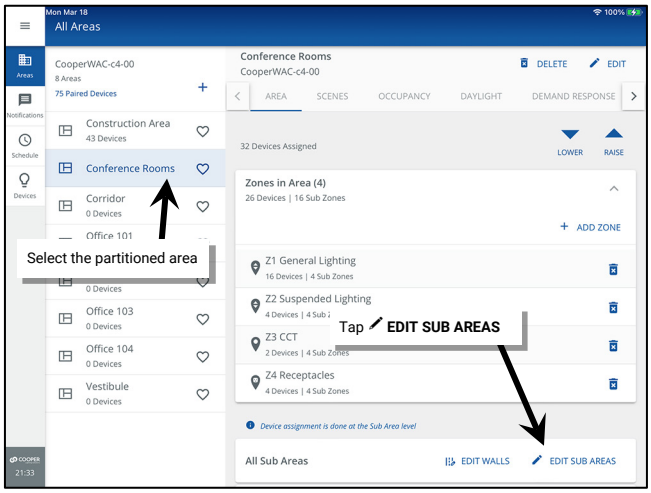
3: Select the sub area to adjust and select the Zones tab. Tap ⊕ **Add** to assign a sub zone to the sub area. Tap ⊖ **Remove** to unassign a sub zone to the sub area.



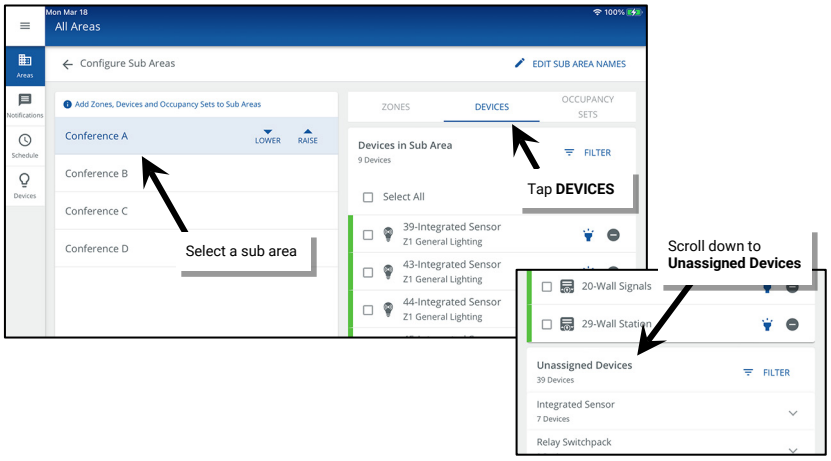
Adding Devices to a Sub Area or Sub Zone in a Partitioned Area

1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

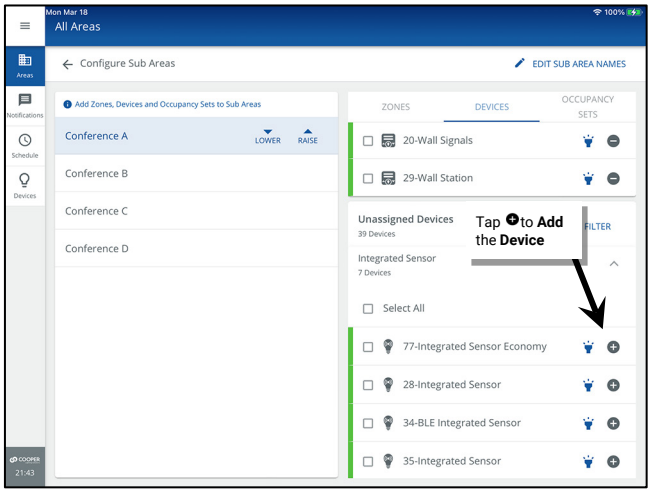
2: In the **All Areas** list, select the **partitioned area** created for this space and then tap on ✎ **EDIT SUB AREAS**.

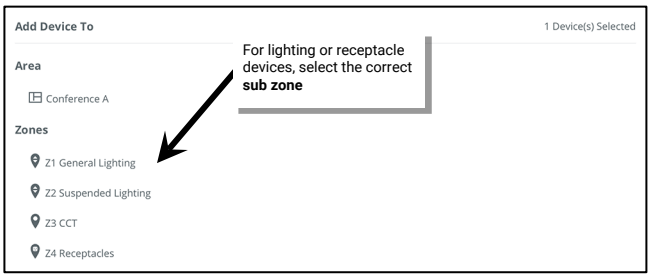


3: Select the **sub area** and tap on **DEVICES**. Choose between adding a DALI (select DALI Hub and Bus) or PRO/CAT device and then scroll down and view the **Unassigned Devices** section.



4: In the **Unassigned Devices** section, identify and then select the desired device(s). Tap ⊕ **Add.** For load control devices, when prompted select the **sub zone**.

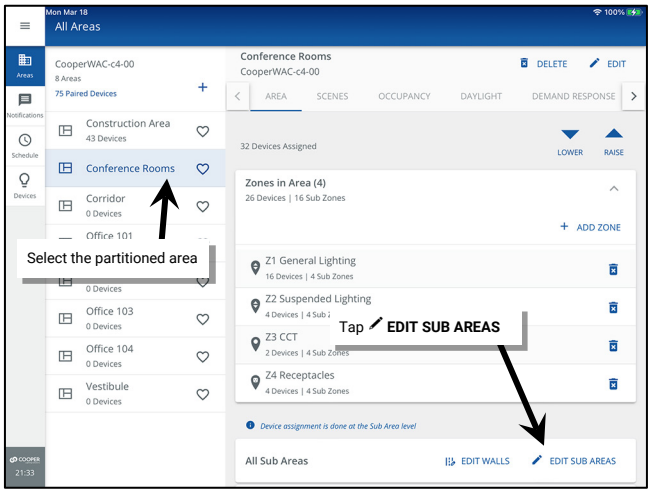




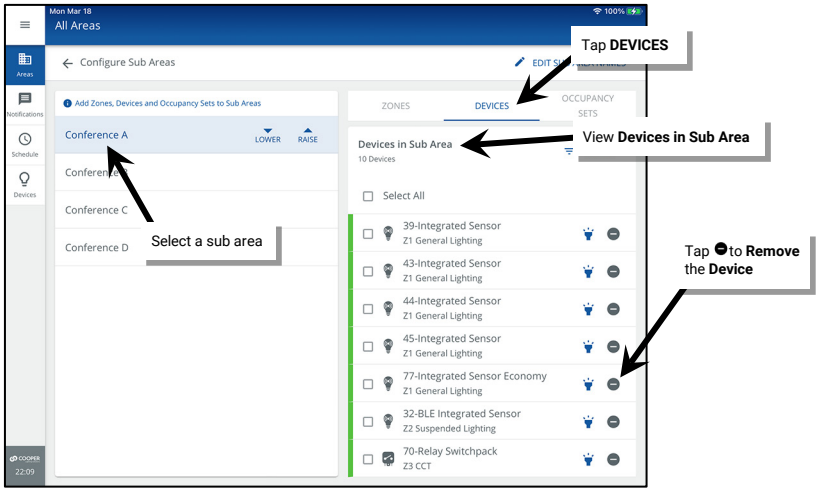
Remove Devices from a Sub Area or Sub Zone

1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

2: In the **All Areas** list, select the **partitioned area** created for this space and then tap on ✎ **EDIT SUB AREAS**.



3: Select the **sub area** and tap on **DEVICES** to view the **Devices in Sub Area**. Identify and select the desired device(s) and tap ⊖ **Remove.** The device(s) will be moved to the Construction Area.



Moving a Device from on Sub Zone or Sub Area to Another

To move a device from one sub zone or sub area to another, simply remove the device from where it is currently assigned and then add it to the desired location. For step-by-step instructions:

- First remove the device. See “Remove Devices from a Sub Area or Sub Zone” on page 238.
- Then add the device. See “Adding Devices to a Sub Area or Sub Zone in a Partitioned Area” on page 237.

Renaming Areas, Sub Areas, Zones, Partition Walls, and Devices

Generic names will be assigned to the default zones and to devices during the configuration process. It is recommended, but not required, that the default names of areas, zones and devices be updated for easy identification. Sub areas and partition wall names can also be renamed if not done during the initial setup process.

To modify the name of a partitioned area or zone in the partitioned area:

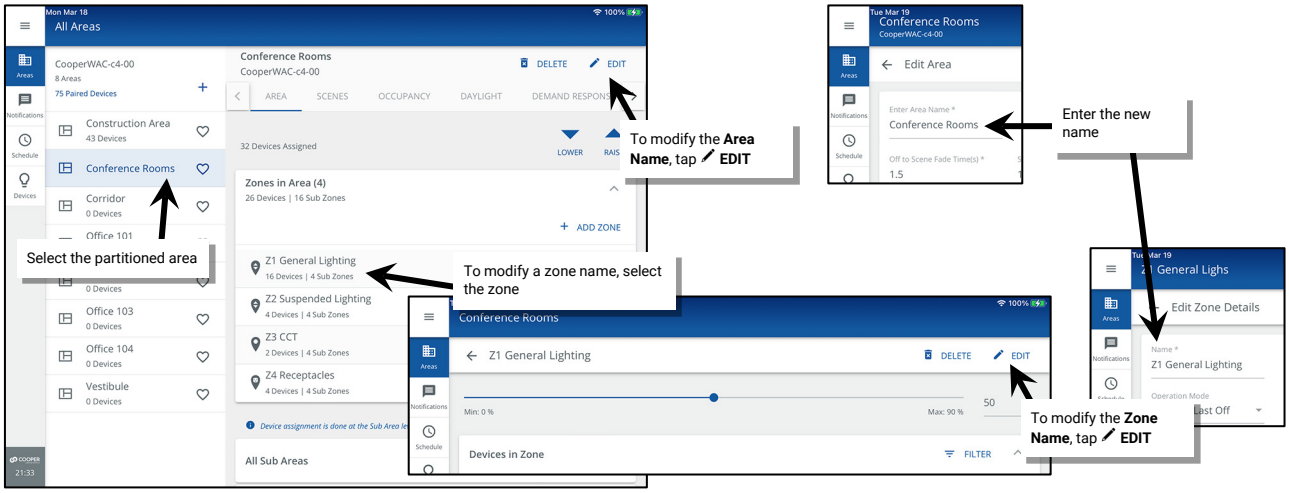
1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

2: In the **All Areas** list, select the **partitioned area.**

3: Select the item to be changed:

- **Area**: In the **All Areas** list, select the area that will be modified.
- **Zone**: Select the zone in the area screen.

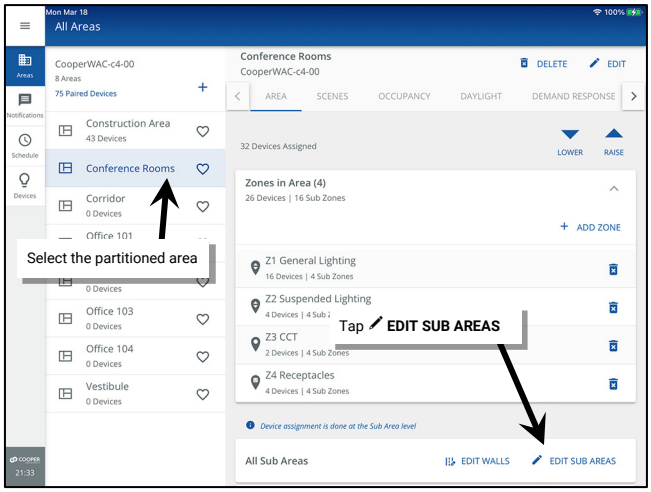
4: Select ✎ **EDIT** within the area or zone screen. Tap the name field and type a unique name for the item (no more than 20 characters). Select **SAVE** to apply the change.



To modify the name of a device in a partitioned area:

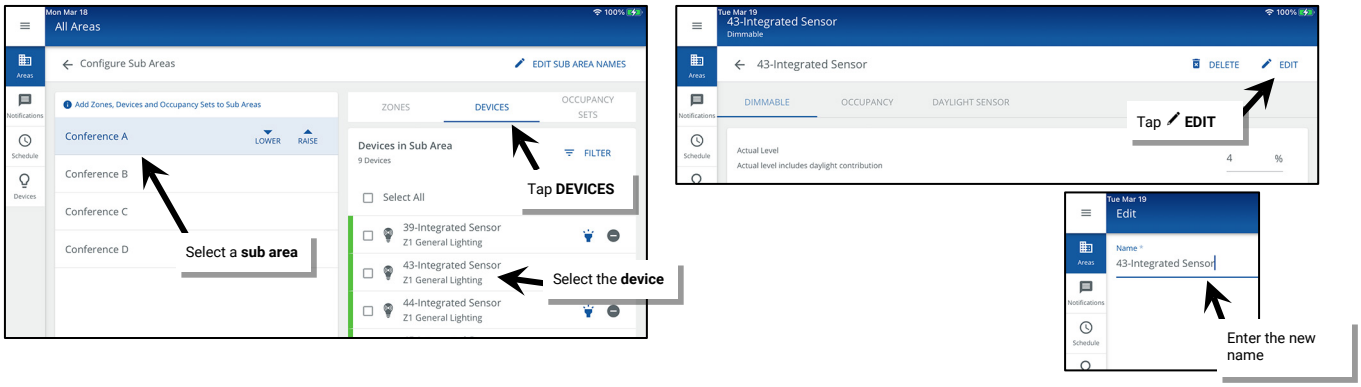
1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

2: In the **All Areas** list, select the **partitioned area** created for this space and then tap on ✎ **EDIT SUB AREAS**.



3: Select the **sub area** and tap on **DEVICES**. Locate the desired device and tap it to open the device screen.

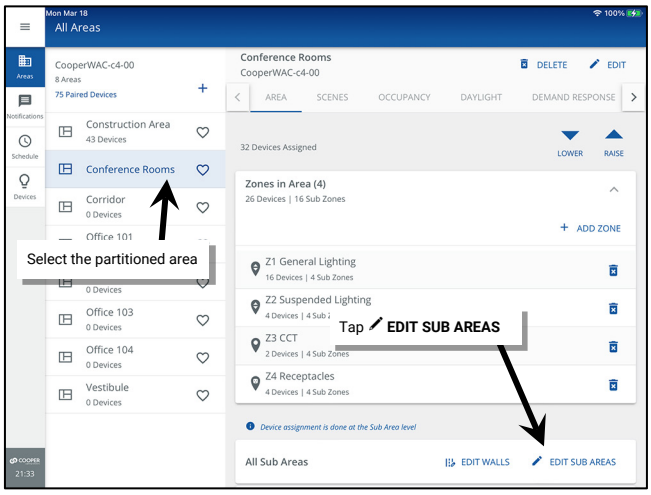
4: Select ✎ **EDIT** within the device screen. Tap the name field and type a unique name for the item (no more than 20 characters). Select **SAVE** to apply the change.



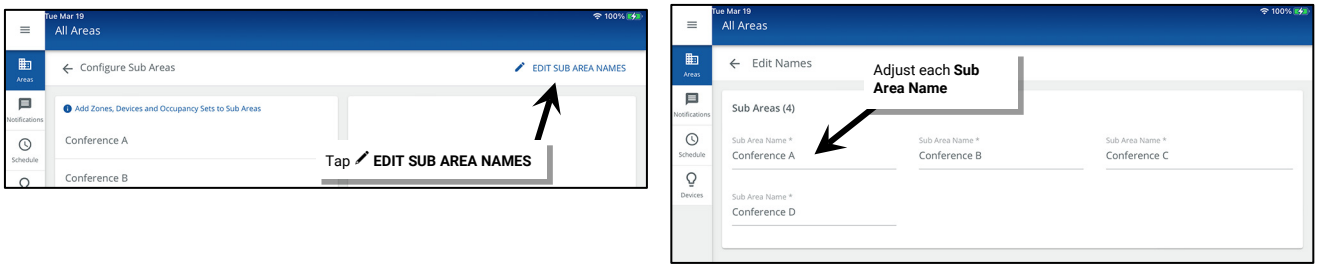
To modify the name of a sub area:

1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

2: In the **All Areas** list, select the **partitioned area** created for this space and then tap on ✎ **EDIT SUB AREAS**.



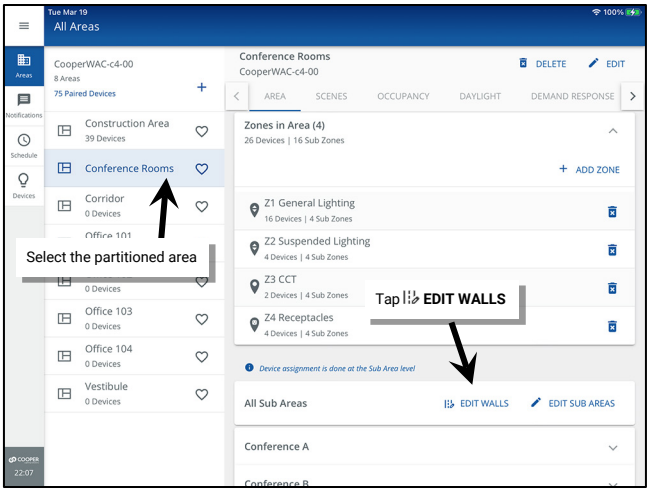
3: At the top of the screen, select ✎ **EDIT SUB AREA NAMES**. Edit each **Sub Area Name** and then tap **SAVE**.



To modify the name of a partition wall:

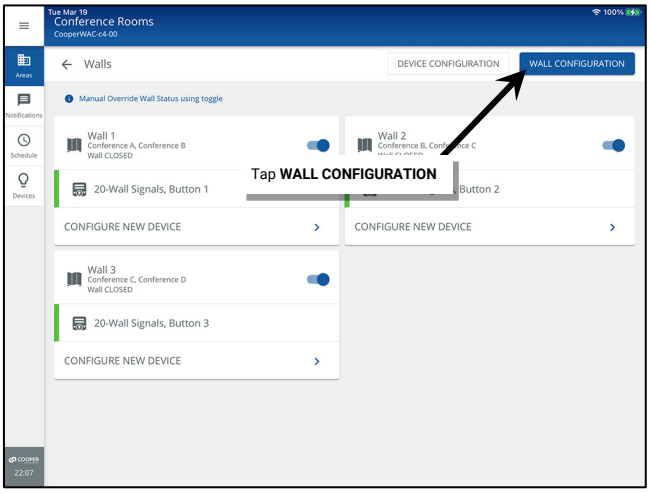
1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

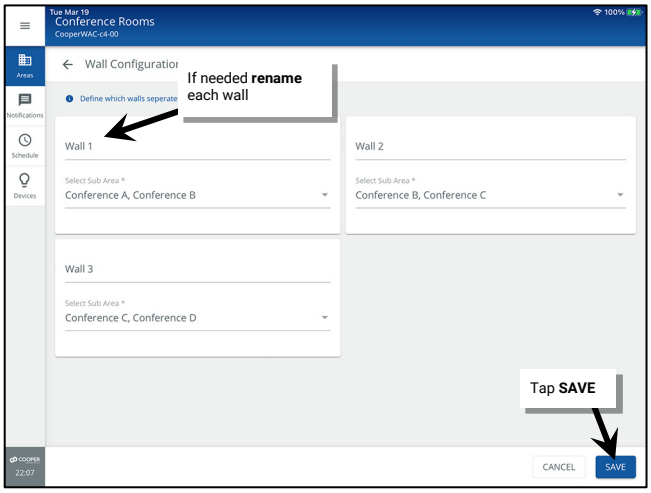
2: In the **All Areas** list, select the **partitioned area** created for this space and then tap on **EDIT WALLS**.



3: In the **Walls** screen, tap **WALL CONFIGURATION**.

4: Tap any **Wall Name** and change it to the desired name. Tap **SAVE**.





Deleting Partitioned Areas, Zones, and Devices

Sub areas and partition walls cannot be deleted after the area is created. If the quantity of sub areas or partition walls changes, delete the entire area and recreate it with the correct number of sub areas and walls.

The partitioned area, zones, and devices can be deleted at any time.

To delete a partitioned area or zone

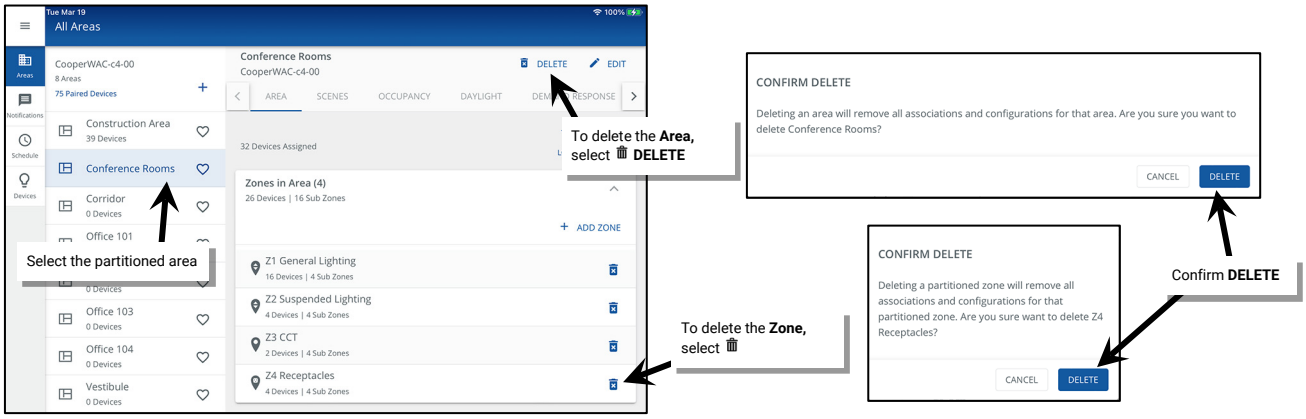
- When a **zone** is deleted, any devices still assigned to the zone will be moved into **Devices In Area**, without zone assignment.
- When an **area** is deleted, all devices assigned to the area will be moved to the construction area.

1: Using the WaveLinx Mobile App or the WaveLinx WAC Lighting App[242], login to the WaveLinx Area Controller as the administrator user.

2: Select the item to be changed:

- Area: In the **All Areas** list, select the area that will be modified.
- **Zone**: Select the zone in the area screen.

3: Select **DELETE** 🗑 within the item's screen and then confirm the deletion.

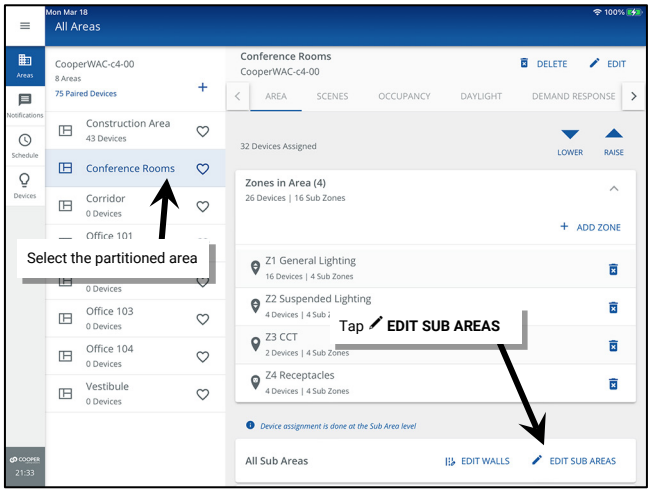


To delete device in a partitioned area:

A **device** that is deleted will return to its out-of-the-box, unpaired state. If it is a WaveLinx PRO or WaveLinx LV device, it will need to be paired as a new device. If it is a WaveLinx CAT device, it will need to be re-added through the Area Hub's device details page by running a rescan.

1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

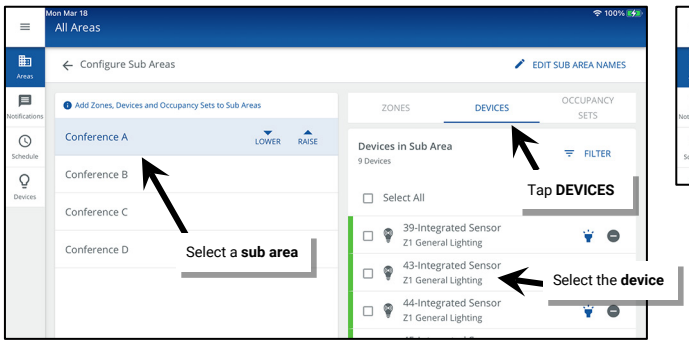
2: In the **All Areas** list, select the **partitioned area** created for this space and then tap on ✎ **EDIT SUB AREAS**.

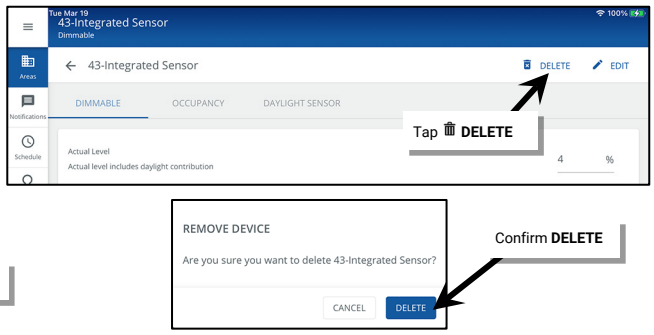


[242] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

3: Select the **sub area** and tap on **DEVICES**. Locate the desired device and tap it to open the device screen.

4: Select ✎ **EDIT** within the device screen. Tap 🗑 **DELETE** and then confirm the deletion.



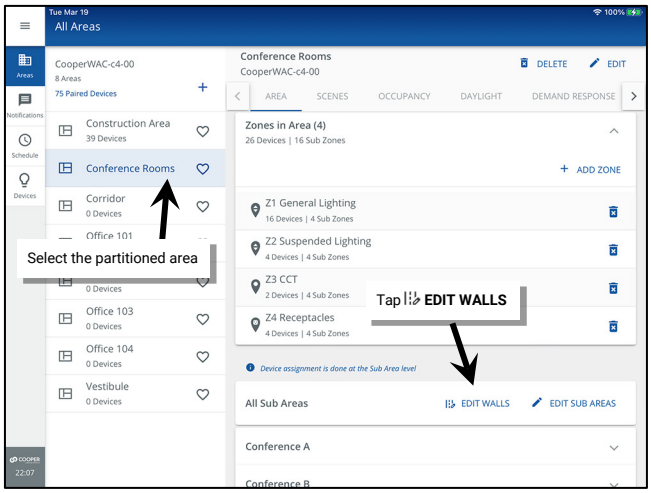


Modifying the Sub Areas that a Partition Wall Joins

To make modifications to the sub areas that a partition wall joins:

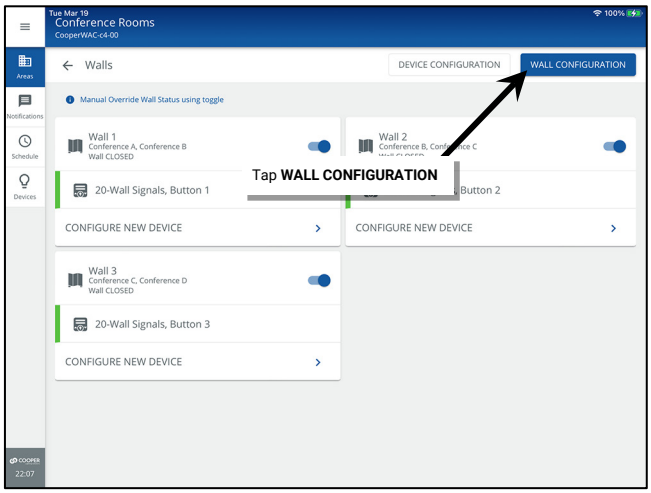
1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

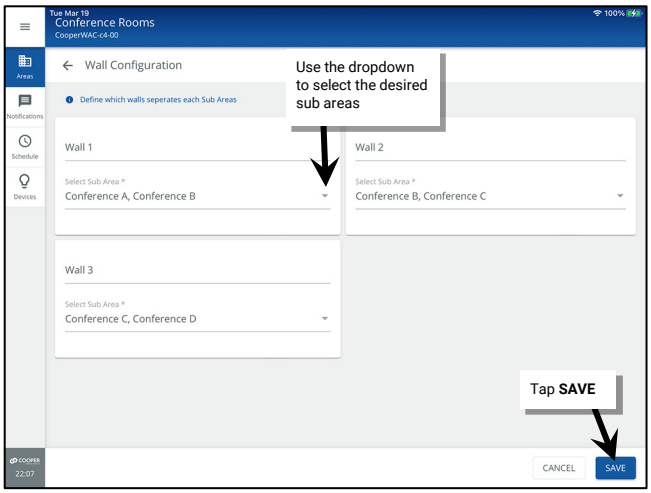
2: In the **All Areas** list, select the **partitioned area** created for this space and then tap on **EDIT WALLS**.



3: In the **Walls** screen, tap **WALL CONFIGURATION**.

4: Use the **Select Sub Area** dropdown to select the desired sub areas. Repeat for any additional walls and then tap **SAVE**.



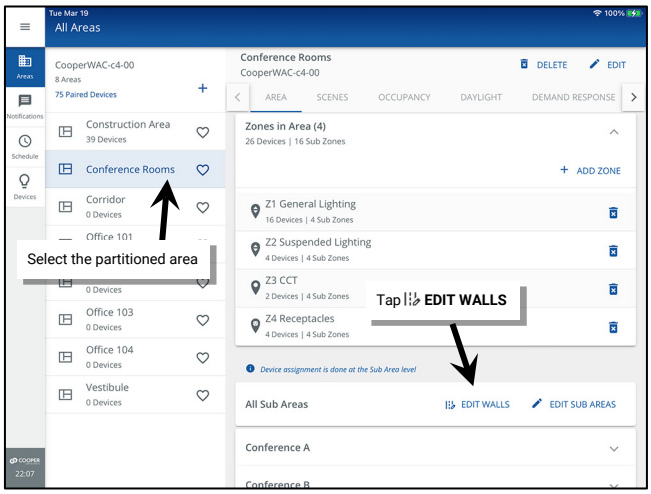


Modifying the Partition Wall Open/Closed Signal Input

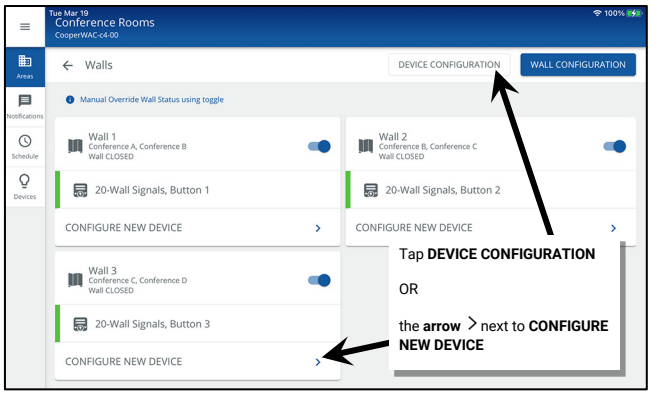
To make modifications to the input that issues the wall open/close signal:

1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

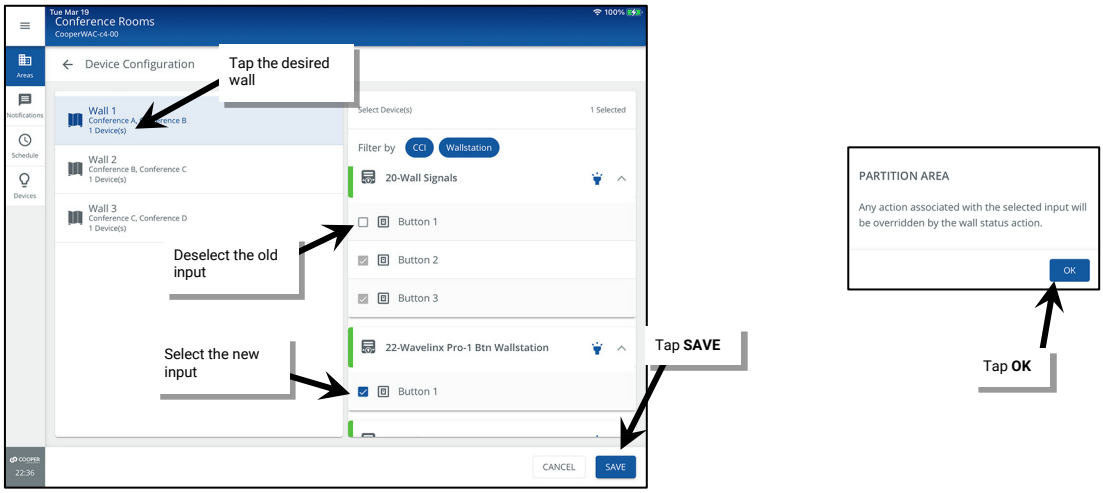
2: In the **All Areas** list, select the **partitioned area** created for this space and then tap on **EDIT WALLS**.



3: In the **Walls** screen, tap **DEVICE CONFIGURATION** or the **arrow** > next to **CONFIGURE NEW DEVICE**.



4: Select the desired wall and locate the currently assigned input. Uncheck the input and then check the new input to assign. Repeat for other walls as needed and then tap **SAVE**. Tap **OK** when prompted.



Understanding and Modifying Area Settings

Both standard and partitioned areas have additional area features including:

- Adjustable default fade time
- Manual override timers for areas that do not have occupancy sensors to meet automatic shutoff requirements
- After Hours Occupancy Mode assignment

Adjusting Area Fade Times:

A fade time is the length of time it takes to transition from one light level to another. There are two options at the area level to allow for a quicker transition when the lighting is OFF and a slower transition when lighting is ON.

- **Off to Scene Fade Time(s)**: Use the default of 1.5 sec. or enter how quickly lighting should transition from OFF to the selected scene or level. The accepted range is .02 seconds to 7200 seconds (120 minutes)
- **Scene Fade Times**: Use the default of 1.5 sec. or enter how quickly lighting should transition if already ON from scene to scene or level to level. The accepted range is .02 seconds to 7200 seconds (120 minutes).

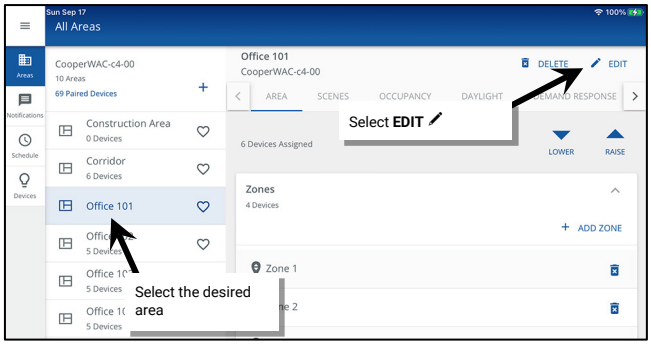
The area fade time settings create the default fade time for wallstation button actions, occupancy sensor or other input actions, and schedule events. A custom fade time can be assigned to a specific input action if the input needs to have a customized fade time. A change made to the area fade time will affect all inputs that use the area fade time.

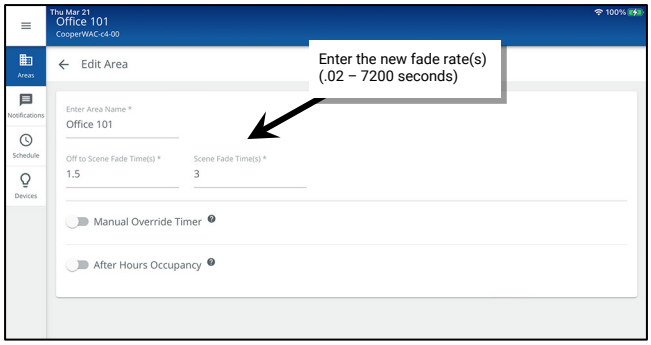
To adjust the area fade times:

1: Using the WaveLinx Mobile App or the WaveLinx WAC Lighting App[243], login to the WaveLinx Area Controller as the administrator user.

2: Select the area and then tap **EDIT** ✎.

3: Enter the new area fade time(s) and then tap **SAVE** (fade time can be .02 – 7200 seconds).





Activating the Manual Override Timer Feature:

If zones in an area are not going to be controlled by occupancy sensors, manual override timers can be used to meet automatic shutoff requirements. If the manual override timer feature is activated, any manual action to the area (wallstation button press, manual command from the WaveLinx Mobile App, WaveLinx WAC Lighting App or WaveLinx CORE system) will begin the duration timer countdown. When the countdown expires, any lighting in zones that are not controlled by occupancy sensors will blink warn (if selected) and then turn OFF.[244, 245]

There are two selection options for the manual override timer:

- **Blink Warn**: (Default **Disabled**) If selected, once the duration timer expires, the lighting will blink OFF and then turn ON to the previous light level for an additional 5 minutes and then turn OFF. If not selected, at the end of the duration timer, the lighting will turn OFF.[245]
- **Duration** (Default **55 min**.) Enter a duration time from 1 to 115 minutes. This is the amount of time lighting zones that are not controlled by occupancy sensors will remain ON after a manual action is received.

[243] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

[244] If another manual action is issued when the duration timer is active or after the blink warn has occurred, the duration timer will restart.

[245] WaveLinx Networked Relay Panels: Relays will not blink warn.

To activate the manual override timer:

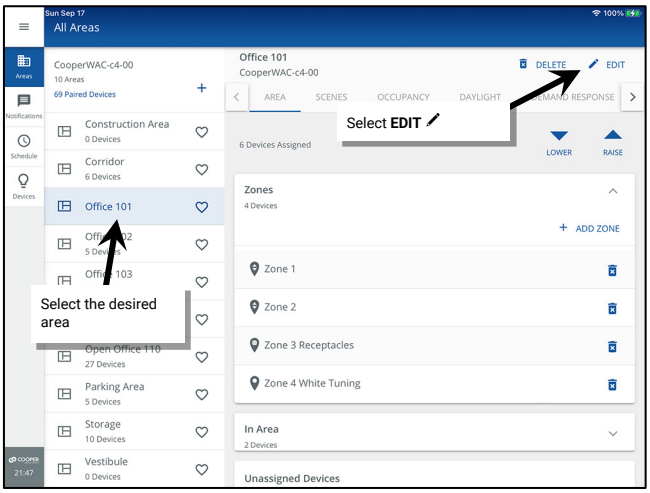
1: Using the WaveLinx Mobile App or WaveLinx WAC Lighting App[246], login to the WaveLinx Area Controller as the administrator user.

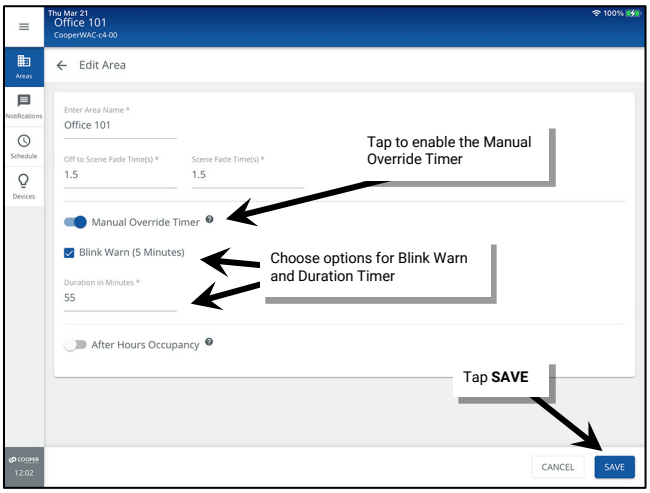
2: Select the area and then tap **EDIT** ✎.

3: Tap the slider to enable the **Manual Overrider Timer**.

4: **Disable** (blank) or **enable** (checkmark) the Blink Warn as preferred. [247]

5: Enter the desired timer duration (1 to 115 minutes allowed).

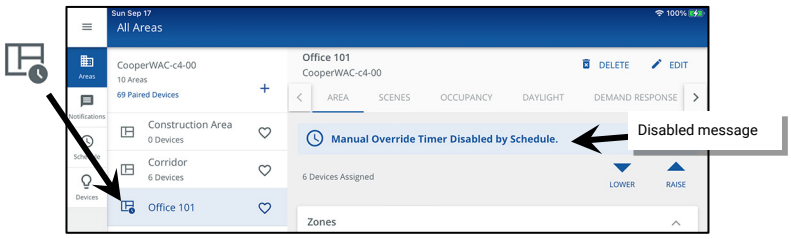




Only zones that are not assigned to occupancy sets will respond to the manual override timer. Make sure to remove zones that should respond to the manual override timer from the occupancy set assignment.

Additional Details on Manual Override Timer Operation:

- If the area contains no zones controlled by an occupancy set, the entire area will operate from the manual override timer.
- If the area contains some zones that are controlled by an occupancy set and other zones that are not, only the zones that are not occupancy set control will respond to the manual override timer. The zones that are controlled by the occupancy set will ignore the manual override timer and remain under occupancy set control.
- If another manual action is issued when the duration timer is active or after the blink warn has occurred, the duration timer will restart.
- If lighting is turned OFF manually during the duration timer the lighting will remain OFF and will not blink warn when the timer expires.
- If the WaveLinx Area Controller reboots before a manual override timer has expired, the manual override timer will restart once the WaveLinx Area Controller reboots and the devices reconnect.
- If the WaveLinx Area Controller reboots after a manual override timer has expired, if the load remains connected, the lighting will remain OFF. If the load also has encountered a communications disconnection, the load may turn ON until it connects to the WaveLinx Area Controller after which it will turn OFF.
- The manual override timer can be ignored during specified times of day by using **Enable/Disable Manual Timer** schedule events. If the manual override timer is disabled, the WaveLinx Application will display a clock icon in the area list and a message in the area display. The icon and message will clear once an enable manual override timer event occurs.[248]



[246] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

[247] WaveLinx Networked Relay Panels: Relays will not blink warn.

[248] The schedule event action **Enable/Disable Manual Timer** is available on WaveLinx Area Controller minimum software version 12.x.x.x and higher.

After Hours Occupancy Mode

Each area has the capability of being enabled for **After Hours Occupancy Mode**.[249] This allows the unoccupied command for the occupancy sensor set to issue a different command from what is in the occupancy set programming when After Hours Occupancy Mode is activated. When After Hours Occupancy Mode is deactivated, the unoccupied command will return to what is programmed in the area's occupancy set. After Hours Occupancy Mode is activated and deactivated from a WaveLinx Time Schedule action or from an external time clock closure into a WaveLinx CAT Contact Closure Module or WaveLinx PRO Contact Closure Input Module. Only areas that are programmed for the After Hours Occupancy Mode will respond.

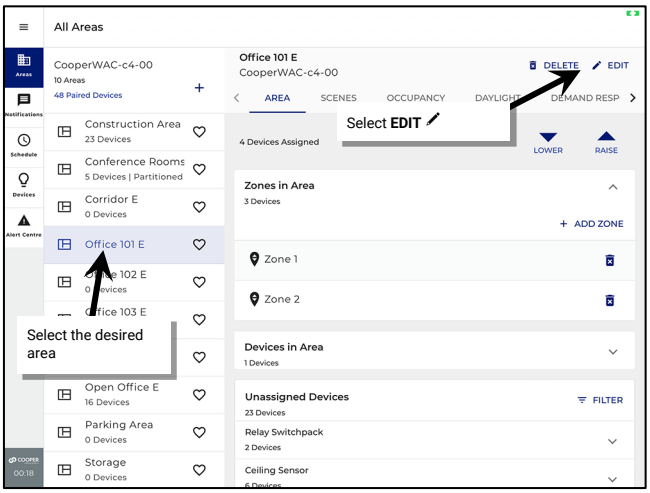
To enable the area's After Hours Occupancy Mode:

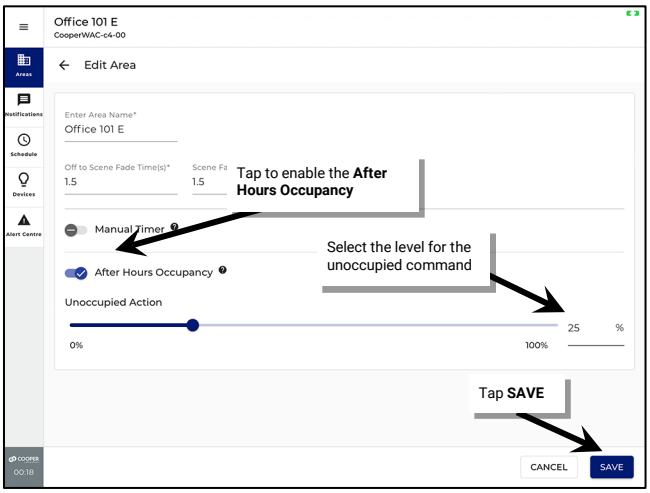
1: Using the WaveLinx Mobile App or WaveLinx WAC Lighting App[250], login to the WaveLinx Area Controller as the administrator user.

2: Select the area and then tap **EDIT** ✎.

3: Tap the slider to enable **After Hours Occupancy**.

4: Use the adjustment slider or percentage entry field to adjust the **Unoccupied Action** level. This is the command level that will be issues when an occupancy set issues an unoccupied command when After Hours Occupancy Mode is enabled. Tap **SAVE**.

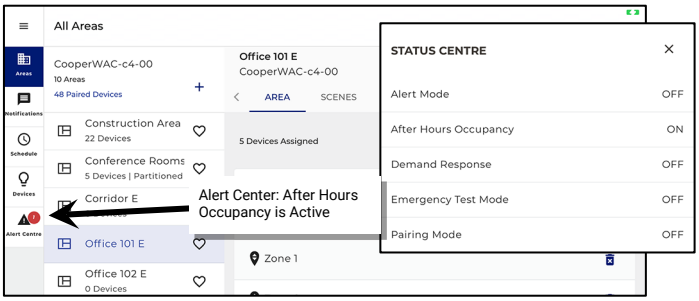




For After Hours Occupancy Mode to operate, there must be an After Hours Occupancy action programmed to enable and disable this mode.

- To program a Time Schedule Event to issue the After Hours Occupancy actions, see "Enable/Disable After Hours Occupancy Action" on page 324.
- To program a WaveLinx PRO Contact Closured Input Module input to issue the command, see "Configuring the Contact Input Actions for a WaveLinx PRO Contact Closure Input Module (model CCI-P-V)" on page 263.
- To program a WaveLinx CAT Contact Closure Module input to issue the command, see "Configuring the Contact Input Actions for a WaveLinx CAT Contact Closure Module" on page 266.

The **Alert Center** will display when **After Hours Occupancy Mode** is activated.



[249] **After Hours Occupancy Mode** will only show in WaveLinx Area Controller version 14.1.x.x firmware and higher.

[250] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Understanding and Modifying Zone Settings

Zone settings may be modified by changing the default maximum and minimum Kelvin levels for white tuning zones, and by changing the default maximum and minimum light levels (high- and low-end trims) and operational mode default First ON/Last OFF behavior for other zone types. If the area is a partitioned area, sub zones will automatically follow the settings at the main zone level.

Modifying Minimum and Maximum Kelvin Levels (White Tuning Zones)

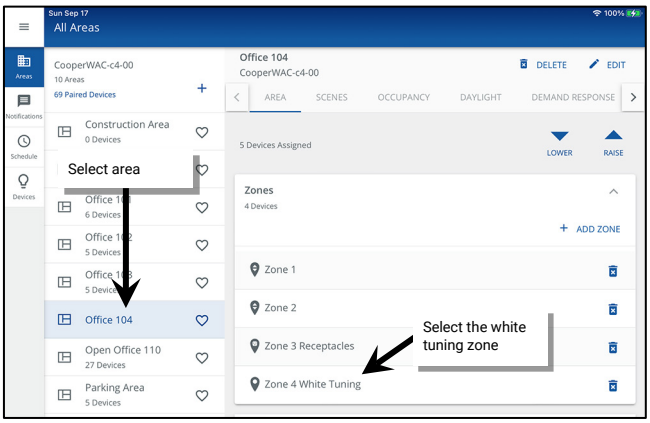
A white tuning zone allows adjustment of the minimum and maximum Kelvin levels for the associated devices. In most cases, the range should match the fixture's defined correlated color temperature (CCT) range. Review the fixture details for what color temperature range the fixture(s) supports and set the minimum and maximum levels to match.

In some instances, the minimum and maximum Kelvin levels may be set differently from the published range for the fixture(s). This allows the administrator to limit white tuning operation to the specified range even if the fixture itself supports a wider range. This can be useful if the facility wants to prevent users from adjusting the lighting to very warm or very cool color temperatures for aesthetic reasons. This feature is also helpful if there are devices in the same space that support different color temperature ranges. For instance, if one device supports 2700K-6500K, and another device supports 2700K-5000K, the white tuning zone could be set to a 2700K -5000K range to limit the response to the mutually supported range, preventing them from being adjusted to dissimilar color temperatures.[251,252]

To modify minimum and maximum Kelvin levels for the white tuning zone:

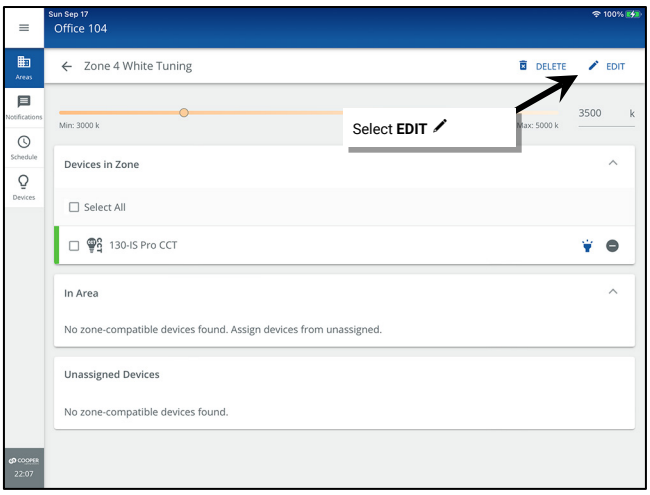
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[253] and establish a connection with the WaveLinx Area Controller as the administrator user.

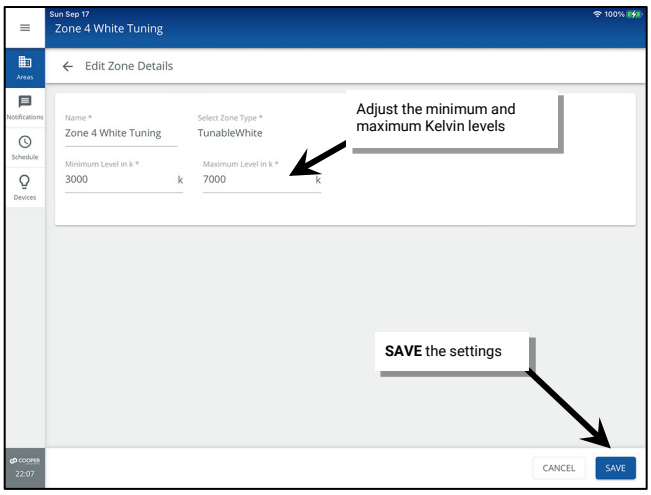
2: In the **All Areas** list, select the area to be modified, and then tap on the previously created white tuning zone.



3: Tap **EDIT** ✎.

4: Enter the new minimum and/or maximum Kelvin levels and then tap **SAVE**.



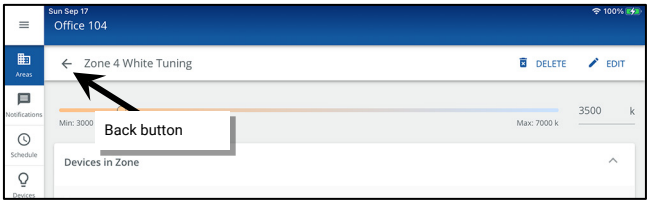


[251] Fixtures with different supported color temperatures being controlled through switchpacks should be connected to different switchpacks for white tuning control to avoid variances in color temperature.

[252] Color temperature values shown are approximate. Color temperature may differ dependent on the type of fixture and supported range for the tunable white lighting.

[253] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

5: Select the back button at the top of the screen to navigate back to the area. Modify additional zones as needed.



Modifying Minimum and Maximum Levels (High- and Low-End Trims)

For use with zone types other than white tuning zones,[254] the WaveLinx App's minimum and maximum level settings combined with the fixture's native driver or ballast range determines the total dimming range of the luminaire from the WaveLinx system. If minimum and maximum levels (trims) are set for a zone, dimming commands to the zone will not be able raise or lower the level beyond the levels defined. This is often referred to as setting minimum and maximum levels or setting a high-end or low-end trim. Commands to the affected zone that are above the maximum level or below the minimum level will result in the zone remaining at or going to the levels defined (Exception: zones will still turn OFF when commanded to 0% regardless of the minimum level).

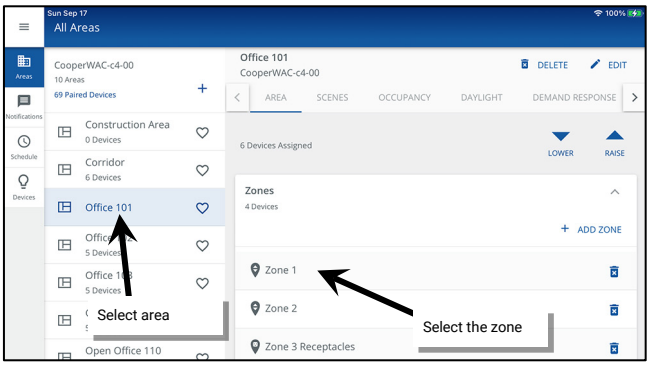
Typically, trims are used either to save energy or to provide a desired aesthetic. Lowering the maximum level (high-end trim) can result in energy savings. Raising the minimum level (low-end trim), while not typical, can help match dissimilar fixtures to the same cutoff level. For instance, if there is a mixture of fixtures in the same space, some with Integrated Sensors and others that are 0-10V loads controlled with WaveLinx Universal Voltage Dimming Switchpacks, the fixtures may dim to different minimum levels. The driver in the fixtures with Integrated Sensors may support dimming down to a 1% level while the 0-10V load driver may support dimming down to a 5% level. In this instance, the minimum level (low-end trim) for the 1% fixtures can be raised to match the response of the fixtures more closely. To make this adjustment, the integrated fixtures would need to be assigned to a different zone than the 0-10V fixtures.

By default, the WaveLinx system starts with all dimmable zones set to a minimum level of 0% and a maximum level of 90%. These settings may be changed at any time by the administrator user.

To modify minimum and maximum levels for all fixtures in the zone:

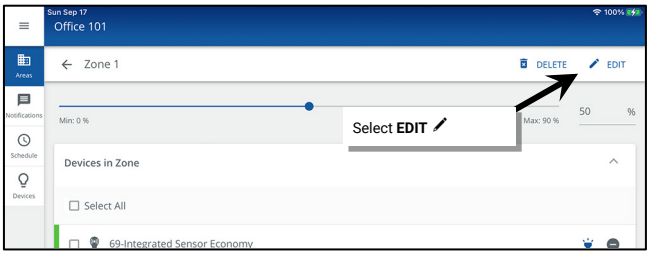
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[255] and establish a connection with the WaveLinx Area Controller as the administrator user.

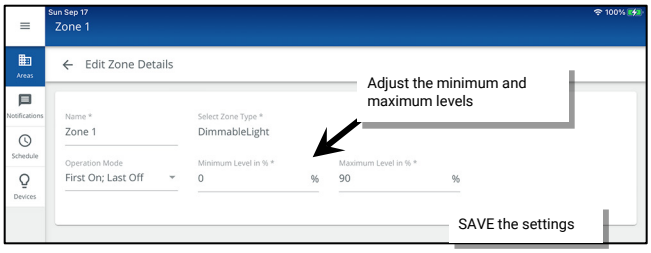
2: In the **All Areas** list, select the area to be modified, and then tap on the desired zone.



3: Tap **EDIT** ✎.

4: Enter the new minimum and/or maximum levels (high- and low-end trims) and then tap **SAVE**.

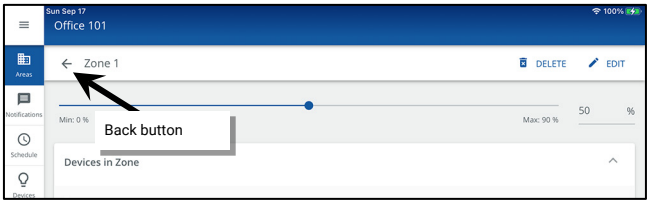




[254] It is possible to assign a dimmable fixture to a non-dimmable zone to allow it to act like a switched load. In this instance, a maximum level may be set to set a high-end trim. The dimmable fixture will turn ON to the defined maximum level when commanded to any level of 1% or higher when left in the default First On/Last Off operation mode.

[255] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

5: Select the back button at the top of the screen to navigate back to the area. Modify additional zones as needed.



Modifying Zone Operational Mode

The Zone Operation Mode is used for zone types other than white tuning zones to adjust the switching behavior of a load in response to the dimmer level.

It is rare to adjust the zone operation mode from the First On/Last Off behavior default. One example of when it might be adjusted is in locations where dimming fixtures and non-dimming (switched) loads are in the same space and need to operate together in the same lighting zone. In this circumstance, the operational mode setting determines how the switched and dimmed load should operate in relation to the dimming level.

For instance, if a dimmable zone has both switched loads and dimmable loads assigned, it may be desirable to have the switched load turn OFF when the dimmable loads begin to dim, preventing the switched load from continuing to be ON at full brightness while other loads in the zone are dimming. It may also be desirable to have the switched load turn ON last so that dimmable loads in the zone can fade gradually to the chosen light level before the switched loads turn ON. This requires adjustment of the zone's default operational mode First ON/Last OFF behavior.[256]

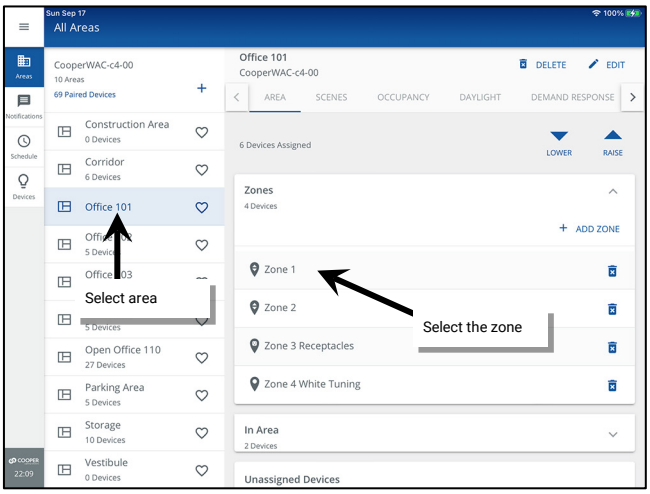
To modify the default operational mode:

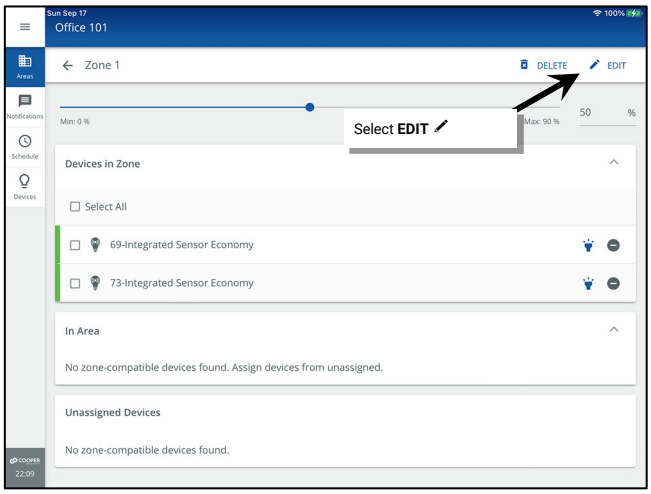
Before proceeding, assign the switched load and the dimmable loads to the same dimmable zone.

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[257] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area to be modified, and then tap on the desired zone.

3: Tap **EDIT** ✎.

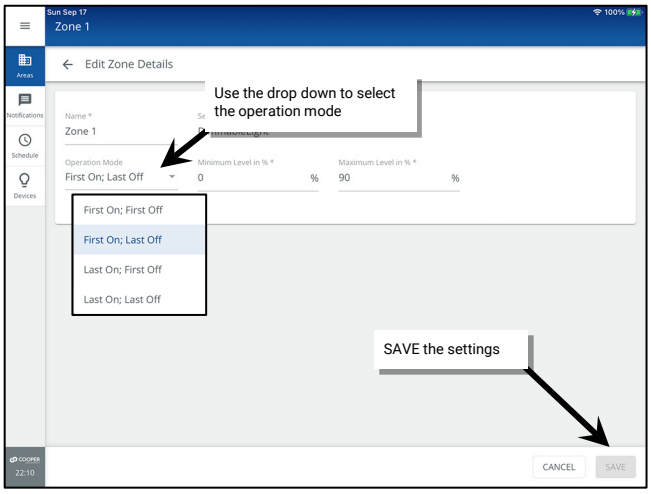




[256] Adjustment of the operational mode affects only the switched load assigned to the dimmable zone. The dimmable loads in the zone will not be affected by the change in operation mode.

[257] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

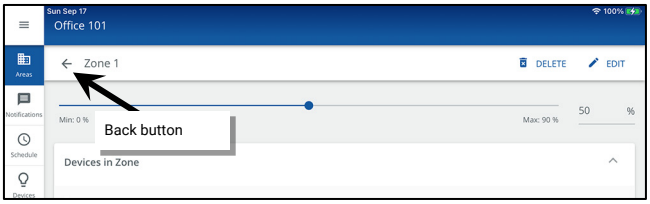
4: Select the desired operation mode from the drop down (see the parameter details regarding the available options and resulting behavior) and then tap **SAVE**.



Zone Operational Mode Parameter Details:

- **First On/Last Off:** If the zone is OFF, switched loads in the zone will respond ON when any command level other than 0% is received. If the zone is ON, switched loads within the zone will turn OFF when the zone reaches a 0% (OFF) light level.
- **First On/First Off:** If the zone is OFF, switched loads in the zone will respond ON when any command level other than 0% is received. If the zone is ON, switched loads in the zone will turn OFF when a command lower than the current zone level is received.
- **Last On/First Off:** If the zone is OFF, switched loads in the zone will respond ON when any command at or above the defined maximum level (high-end trim) is received. If the zone is ON, switched loads in the zone will turn OFF when a command lower than the current zone level is received.
- **Last On/Last Off:** If the zone is OFF, switched loads in the zone will respond ON when any command at or above the defined maximum level (high-end trim) is received. If the zone is ON, switched loads in the zone will turn OFF when the zone reaches a 0% (OFF) light level

5: Select the back button at the top of the screen to navigate back to the area. Modify additional zones as needed.



Modifying Scene Settings and Response

The WaveLinx system allows for sixteen programmable scenes per standard area and thirty-two programmable scenes per partitioned area. These scenes are labeled scene 0 through scene 15 (standard) or 0 through scene 31 (partitioned). Each scene is pre-programmed for light levels, ON/OFF responses, or white tuning levels to allow for functionality from occupancy sensors and wallstations once devices have been paired in the construction group or assigned to an area. Scenes may also be assigned to schedule events or to contact closure inputs once these items are programmed.

Default Scene Response

Scene	Dimmable Light Zone Response	Non-Dimmable Zone Response	Receptacle Response	White Tuning Response
Scene 0	0%	OFF (0%)	OFF	3500K[258]
Scene 1	100%	ON (100%)	ON	3500K [258]
Scene 2	70%	ON (100%)	ON	3500K [258]
Scene 3	50%	ON (100%)	ON	3500K [258]
Scene 4	30%	ON (100%)	ON	3500K [258]
Scene 5	10%	ON (100%)	ON	3500K [258]
Scene 6	1%	ON (100%)	ON	3500K [258]
Scene 7 through 15	Not programmed[259]	Not programmed[259]	Not programmed[259]	Not programmed[259]
Scene 16 through 31[260]	Not programmed[260]	Not programmed[260]	Not programmed[260]	Not programmed[260]

[258] The actual Kelvin temperature assumed by fixture will depend on the fixture's supported Kelvin range. Number provided is for approximate reference.

[259] Scenes 7 through 15 are not programmed and hidden from general users by default. The administrator must activate and then enable the zones and programming for each zone if the scenes are required for an application.

[260] Scenes 16 through 31 are displayed only in partitioned areas. These scenes are not programmed and hidden from general users by default. The administrator must activate and then enable the zones and programming for each zone if the scenes are required for an application.

The scene defaults can be modified to respond in a different manner. Be aware that multiple devices in the space may use the same scene number (wallstation buttons, occupancy sensor commands, and schedule events). Modification of the scene levels will result in a changed response for all devices that use that scene.

Hidden scenes will not show for users logged in that are defined as **tenant** users (personal control users) but still may be viewed, issued, and assigned to programming by a user who has administrator access. It may be helpful to rename scenes to allow **tenant** users to identify scene functionality more easily. If WaveLinx Touchscreens are used in the system, hidden scenes will not be displayed. The scene names that appear on the touchscreen will be the names defined for the scenes in the WaveLinx App.

To change the scene settings and response:

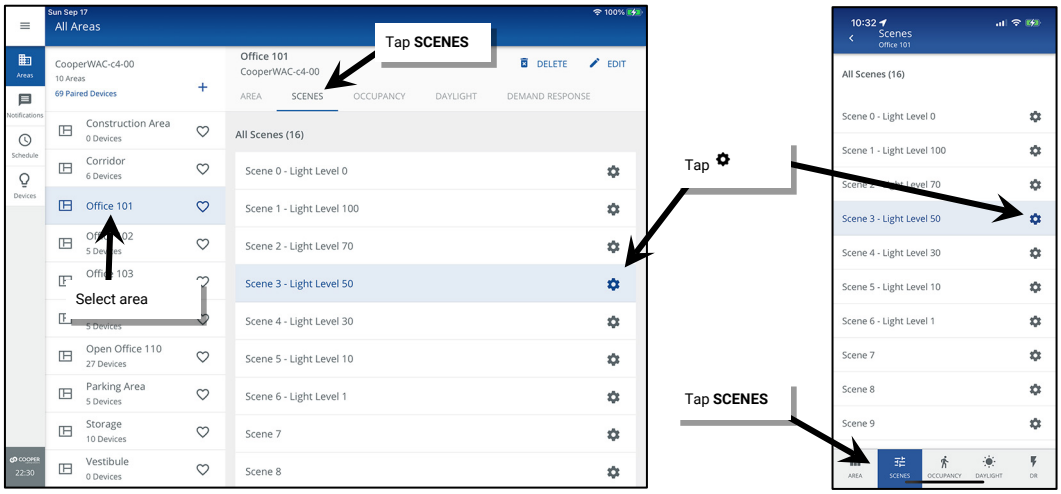
1: Using the WaveLinx Mobile App or the WaveLinx WAC Lighting App[261], login to the WaveLinx Area Controller as the administrator user.

2: Select the area and then tap **SCENES**.

3: Tap **settings** ⚙ in the row of the desired scene.

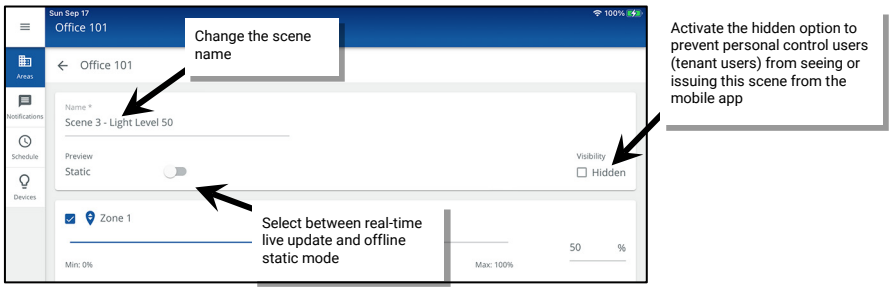
CAUTION: If the row is tapped in another location other than the **settings** ⚙ icon, the WaveLinx App will issue the scene command.

Tablet or Phone Landscape View/WAC Lighting App View



4: First, set the scene attribute options:

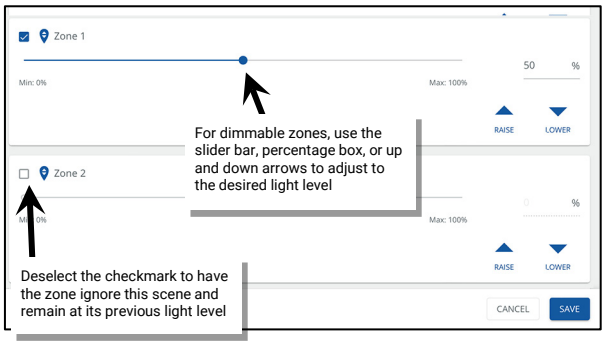
- (Optional) Change the name of the scene. Tap the scene name and enter the desired name. If personal control users or touchscreens are being used to issue the commands, this can be helpful to identify the scene functionality.
- (Optional) Select the option to hide the scene from **tenant** users (personal control users or touchscreens) by selecting the hidden option. Deselect the hidden option to make the scene visible to all user accounts.
- (Optional) Select whether to adjust **live** to see changes in real-time or **static** if light levels should not change during the modification. This option is temporary during the scene's adjustment and is not stored as part of the scene.

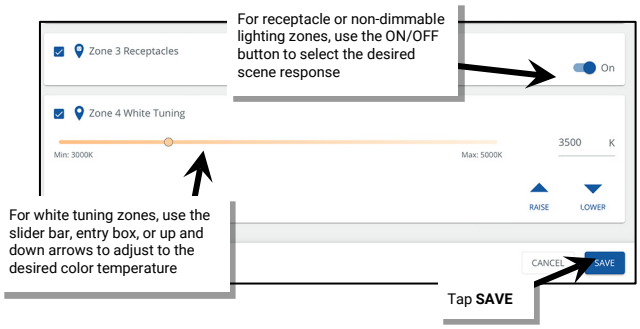


[261] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

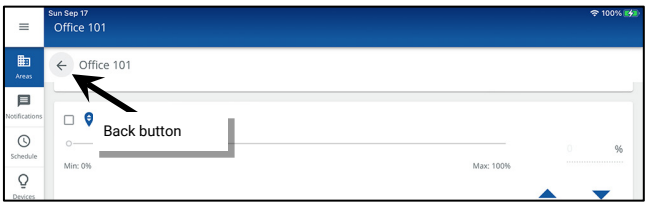
5: Next, assign the desired operation for each zone (see details below) and then tap **SAVE**.

- Ensure that zones that should operate in the scene are checked. If a zone should not operate in the selected scene, uncheck the zone to ignore it. The ignored zone will stay at its previous light level when this scene is triggered. While this scene is active any zone command that is programmed for **AFFECTED** zones will not operate the ignored (unchecked) zones.
- Use the adjustment tools within each zone to modify the scene response. Once complete, tap **SAVE**. A confirmation message will briefly be displayed.
  - Adjust the percentage for dimmable zones
  - Select ON or OFF for non-dimmable or receptacle zones
  - Adjust the color temperature for tunable white zones.





6: Select the back button at the top of the screen to navigate back to the scene list or area. Modify additional scenes as needed.



Modifying Wallstation Button Response

Once assigned to their controlled area, WaveLinx Wallstations operate with default functionality. See the device reference sheets for details on default operation.

- “WaveLinx PRO W-Series Wallstation Reference Sheet” on page 94
- “WaveLinx PRO WW-Series Wallstation Reference Sheet“ on page 96
- “WaveLinx PRO WB-Series Battery Powered Wallstation Reference Sheet” on page 98
- “WaveLinx PRO WWB-Series Battery Powered Wallstation Reference Sheet” on page 100
- ”WaveLinx CAT WST-C Series Wallstation Reference Sheet” on page 114.
- “WaveLinx DALI-2 WST-D2 Series Wallstation Reference Sheet” on pate 124.

This section discusses how to customize the wallstation button operation and how to copy programming from one wallstation to another.

Changing Default Button Response

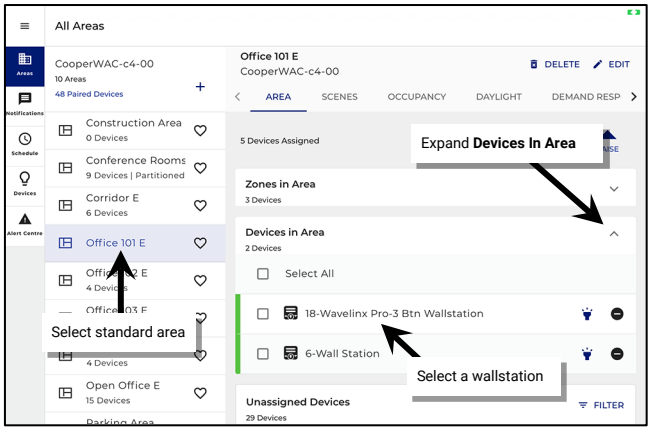
Each wallstation button's default response may be modified to customize operation. To change the response of a wallstation button:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[262] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area to be modified and locate and select the device.

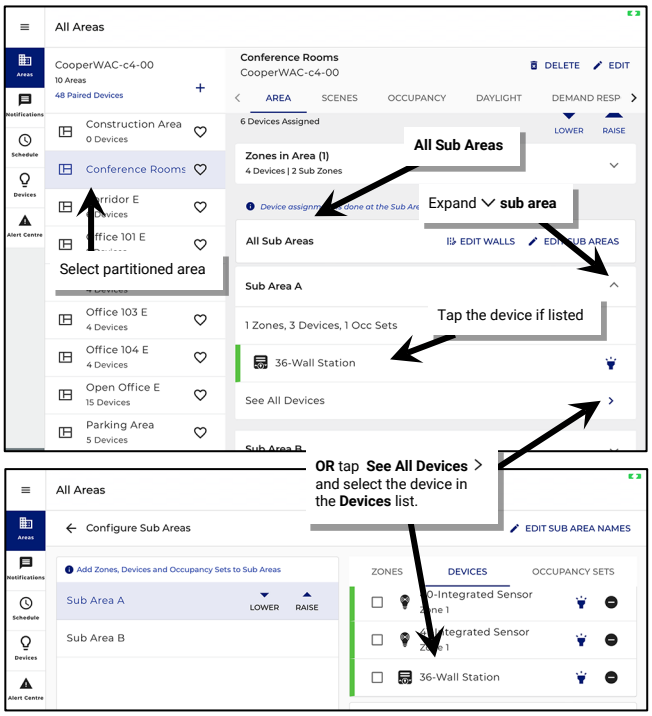
Accessing the Wallstation in a Standard Area

Expand ∨ the **Devices in Area** section and tap the device.



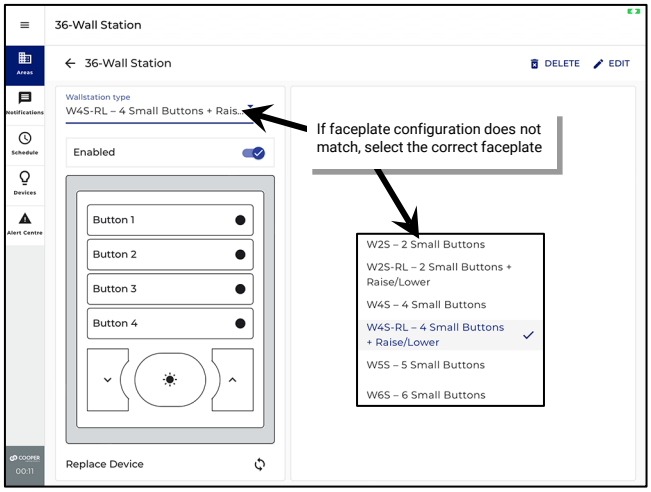
Accessing the Wallstation in a Partitioned Area

Scroll down to view **All Sub Areas**. Tap **expand** ∨ to open the **sub area.** Tap the device if it is displayed there or tap **See All Devices** and in the **Devices** list, tap the device.



3: **For WaveLinx PRO W-Series and WaveLinx DALI-2 WST-D2 Wallstations only:** Make sure that the faceplate configuration on the screen matches the installed wallstation. If necessary, select the correct configuration from the drop-down. Other wallstation types will automatically show the correct configuration and will not have the drop down.[263]

W-Series Wallstation



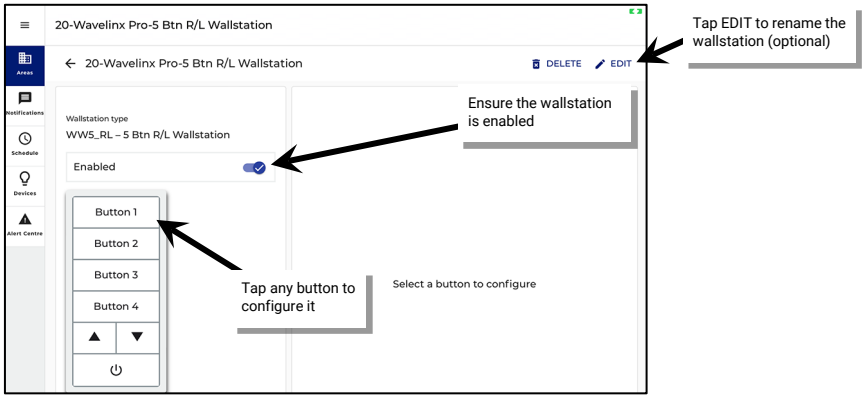
[262] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

[263] Battery powered wallstations will also show the current battery status: green icon = battery good, yellow icon = battery medium, red icon = battery low.

5: (Optional) Tap **EDIT** ✎ and rename the wallstation.

6. Make certain that the wallstation is **enabled**.

7: Tap on one of the pictured wallstation buttons to modify it.



8: Select the **action** for the button (see descriptions below) and choose the desired behavior for the chosen action.

9: Next, checkmark the **target area(s)** that the button should command.[264]

10: Once selections are complete, tap **SAVE**.

Tip: Use the provided **search** 🔍 icon to simplify the selection of the target areas.

- **Search** 🔍: Tap 🔍 and type part of or the whole area name. Tap 🔍 again to display areas that contain that text.

In WaveLinx version 16.1 and higher, if the WaveLinx Area Controller(s) are connected through a WaveLinx CORE system, the CORE programming screen will allow selection of **target areas** from any WaveLinx Area Controller in the same building. This allows for Cross-WAC Sharing. For more details on this feature, see “Appendix C: Cross-WAC Sharing in WaveLinx CORE” on page 487.

[264] As of WAC version 16.1 and higher, a button command can be sent to multiple standard areas (non-partitioned), not just the area that the wallstation reports to. If part of a WaveLinx CORE system, the input can control standard areas in any WAC that is administered in the CORE system.

Wallstation Parameter Definitions:

Scene Commands:

- **Select scene**: The button will issue the selected scene to the selected area(s) using either the default area fade rate, or a uniquely defined fade rate.
- **Push to save scene**: If pressed and released (less than 5 second press), the button will issue the designated scene command. If the button is held down for at least 5 seconds, the system will save the current light levels and color temperature levels to the designated scene. This allows users to adjust the levels and then save the modified levels for future recall. The 5 second time displayed is hard coded and cannot be changed.
- **Scene toggle**: The button will alternate between the two selected scenes for the selected area(s). If the dominant scene is not the current active scene in the space, the initial button press will issue the dominant scene on the first button press. Use either the default area fade rate or a uniquely defined fade rate.

Zone Commands:

- **Zone toggle**: The button will command the selected zone(s) in the selected area(s), alternating between the two defined levels. The initial button press will issue the dominant level. Use either the default area fade rate or a uniquely defined fade rate. Select a Target Zone type of **CUSTOM**, **ALL**, **AFFECTED**[265] or **White Tuning**.
- **Zone level**: The button will operate the selected zone(s) in the selected area(s) to the defined level. Use either the default area fade rate or a uniquely defined fade rate. Select a Target Zone type of **CUSTOM**, **ALL**, **AFFECTED**[265,] or **White Tuning.**
- **Raise level** or **Lower Level**: The button will gradually raise or lower the light level of the selected zone(s) in the selected area(s). Select a Target Zone type of **CUSTOM**, **ALL**, **AFFECTED**[265,] or **White Tuning.**

Target Zone Type

- ***CUSTOM****: Use the* ***Target Areas, Target Zones*** *section to choose the desired zone(s) from the desired area(s). The selected zone(s) will be adjusted when this button is used. White tuning zones are automatically excluded.*
- ***ALL Zones****: Use the* ***Target Areas*** *section to select the area(s) that should respond. All zones in the selected area(s) will be adjusted when this button is used. White tuning zones are automatically excluded.*
- ***AFFECTED Zones****: Use the* ***Target Areas*** *section to select the area(s) that should respond. The response of the zones in the selected area(s) will be based on the previous command. If the previous command was a scene, only the zones that are part of that scene will be adjusted (zones that have been ignored from the active scene will not respond). If the last command was a zone command, only the zone(s) commanded will be adjusted. White tuning zones are automatically excluded.*
- ***White Tuning****: Use the* ***Target Areas, Target Zones*** *selection boxes to choose the area(s) and the desired white tuning zone(s) that should respond. Only areas with white tuning zones will be displayed.*

Additional Commands:

- **No action**: The button will not perform any command if pressed.
- **Hold/Release Occupied**: The initial button press will lock out occupancy sensor commands in the selected area for a period of 60 minutes. If desired, the button can be pressed before the timer expires to return the system to normal function. The 60-minute time displayed is hard coded and cannot be changed.
- **Wall Status Toggle**: The button will alternate commands with each button press to issue an OPEN or CLOSE signal to the WaveLinx system for selected partition wall. This signal allows the WaveLinx Area Controller to join sub areas for control when the wall between them is open or to separate control when the wall is closed. The target area selection will only display partitioned areas. The wall selection will display the walls that are defined in the selected partitioned area.[266]
- **Network Action**: When used as part of the WaveLinx CORE system, this indicates that the button has been configured for a special function through WaveLinx CORE, typically for shade control. Please modify the button action through WaveLinx CORE.[267,268]

Quick Links for Common Questions

- My wallstation or occupancy sensor only works at night. Why is this occurring? See the answer on page 473.

[265] White tuning zones are automatically exempted from control if the **CUSTOM**, **ALL** or **AFFECTED** target zone type is selected to prevent inadvertent color temperature shifts when adjusting light levels. The white tuning zone will only respond to this command if it the **White Tuning** target zone type is selected.

[266] **Wall Status Toggle** will only show in WaveLinx Area Controller version 14.1.x.x firmware and higher.

[267] **Network Action** will only show in WaveLinx Area Controller version 10.0.x.x firmware and higher. WAC must be a configured part of a WaveLinx CORE platform to perform supported network actions.

[268] When programmed for a **Network Action**, if the wallstation is equipped with button LEDs, the LED on the assigned button will not change/indicate an issued command.

Enabling/Disabling Wallstations

Use the WaveLinx Applications to manually disable/enable wallstations or schedule an **Enable/Disable Wallstations** event using the WaveLinx Scheduling feature. Wallstations that are disabled will not issue commands when the buttons are pressed. When a button is pressed, the LED indicator either on the button or at the top of the wallstation will flash white for 1 sec. / OFF for 1 sec. and repeat for 10 seconds.[269]

Once enabled, the buttons will issue the programmed commands and the LED(s) will return to normal behavior.

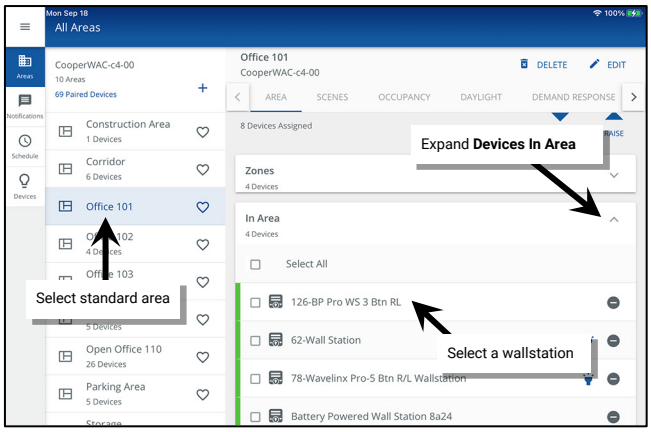
To manually enable/disable wallstations:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[270] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area to be modified and locate and select the device.

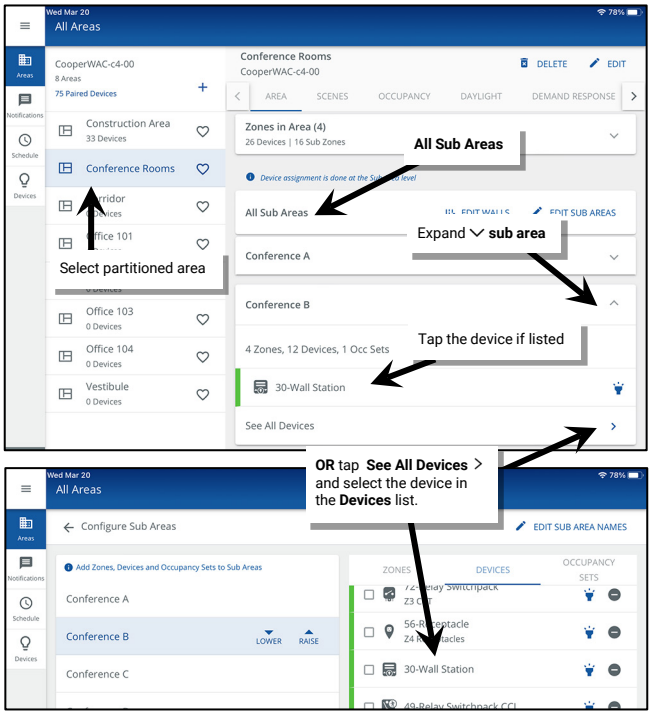
Accessing the Wallstation in a Standard Area

Expand ⌄ the **Devices in Area** section and tap the device.

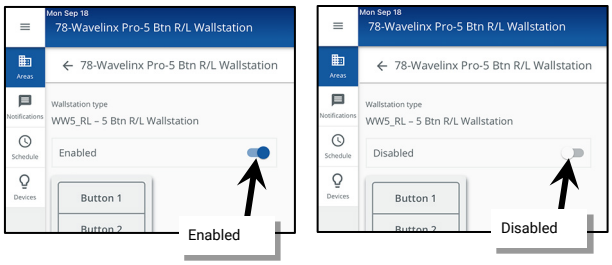


Accessing the Wallstation in a Partitioned Area

Scroll down to view **All Sub Areas**. Tap **expand** ⌄ to open the **sub area.** Tap the device if it is displayed there or tap **See All Devices** and in the **Devices** list, tap the device.



3: Tap the enable/disable slider to select the desired enabled or disabled behavior.

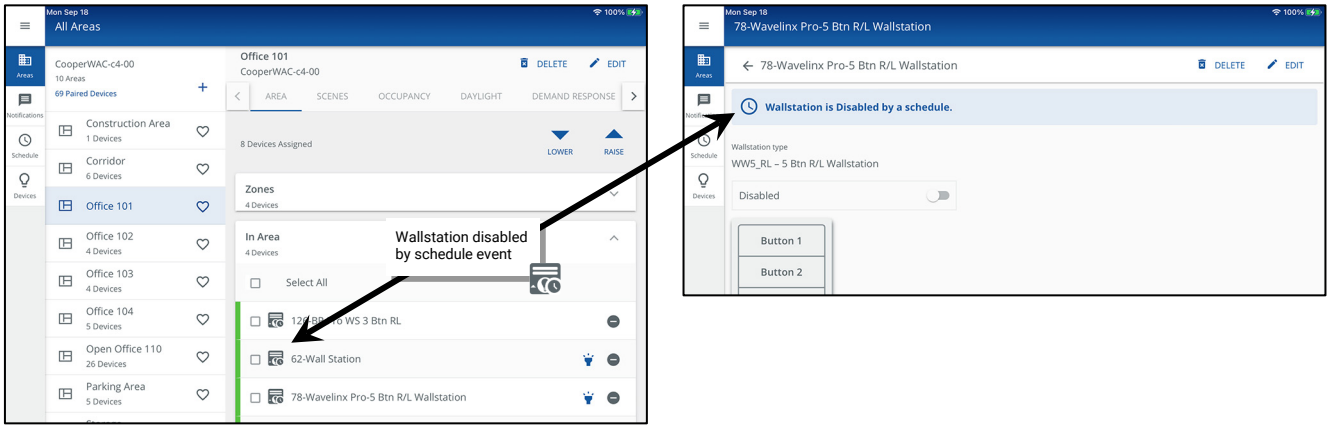


[269] The WaveLinx WB-Series Battery Powered Wallstation models WB2L, WB3L, WB5 and WB6, will not display the described LED behavior.

[270] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

To use a schedule event to disable/enable wallstations, see “Enable/Disable Wallstation Action” on page 325.

If a schedule event is currently disabling a wallstation, the WaveLinx Application will display a clock icon in the wallstation **Devices in Area** section of a standard area or in the **Devices** list in the **Configure Sub Area** screen in a partitioned area. A message will also appear in the wallstation display. The icon and message will clear once an enable manual override timer event occurs or if the wallstation is manually enabled.[271]



Copying Wallstation Programming to Other Wallstations

In many applications, wallstations within the same room may perform the same functions or wallstations in other areas may have the same behavior except for the area being controlled. The WaveLinx App makes it easy to copy wallstation programming to other wallstations.

To copy wallstation programming:

- The wallstations must be the same type and have the same faceplate configuration, i.e., if the original wallstation is a WaveLinx W-Series 4 small button with raise/lower, then the destination wallstation must be a WaveLinx W-Series 4 small button with raise/lower.
- The quantity and types of zones should match between areas.

Copied settings include the button actions and all defined parameters except the target area. During the copy process, the target area will automatically update to the area assigned to the new wallstation.

Before proceeding, make sure that the initial wallstation is programmed with all the desired settings and make note of the wallstation’s name.

[271] The schedule event action **Enable/Disable Manual Timer** is available on WaveLinx Area Controller minimum software version 12.x.x.x and higher.

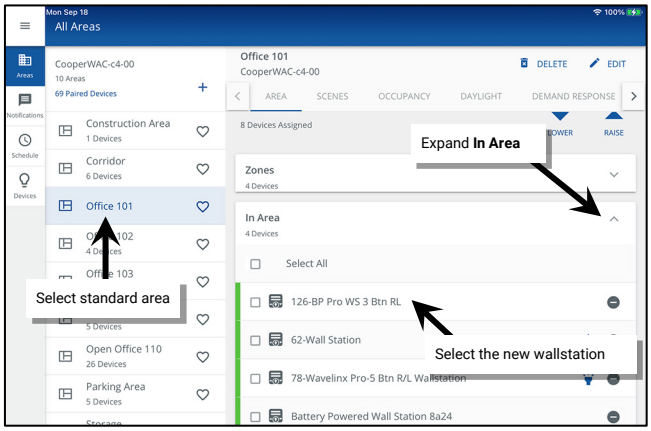
To copy the wallstation's programming to another wallstation:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[272] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that contains the wallstation that has not been programmed yet. Locate and select the device.

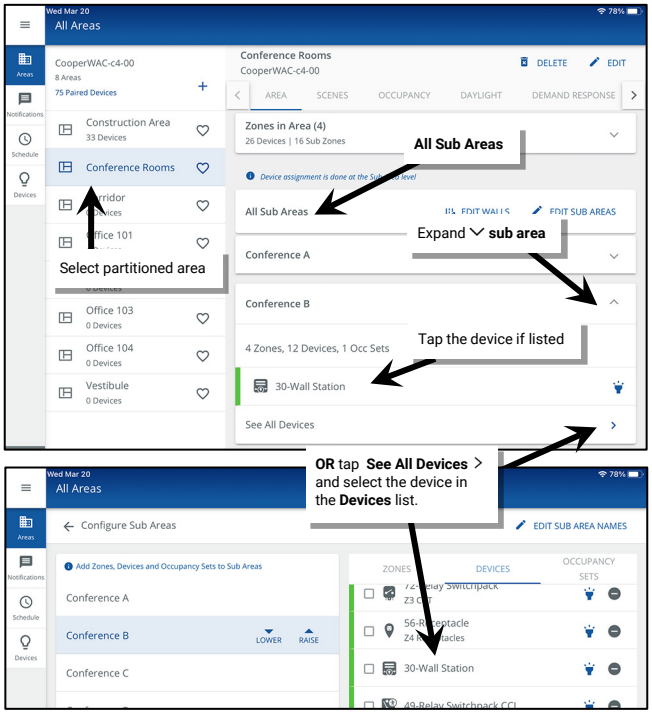
Accessing the Wallstation in a Standard Area

Expand ⌄ the **Devices in Area** section and tap the device.

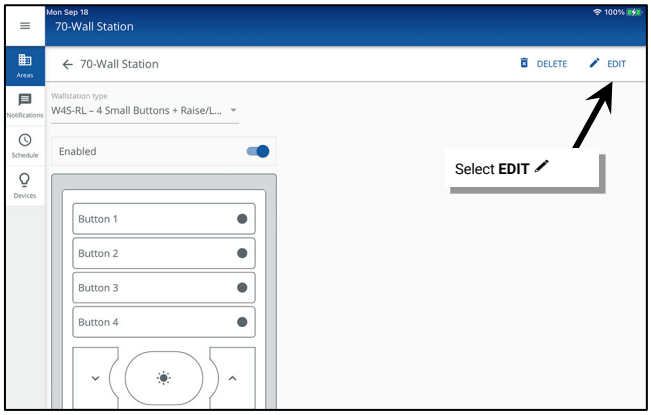


Accessing the Wallstation in a Partitioned Area

Scroll down to view **All Sub Areas**. Tap **expand** ⌄ to open the **sub area.** Tap the device if it is displayed there or tap **See All Devices** and in the **Devices** list, tap the device.

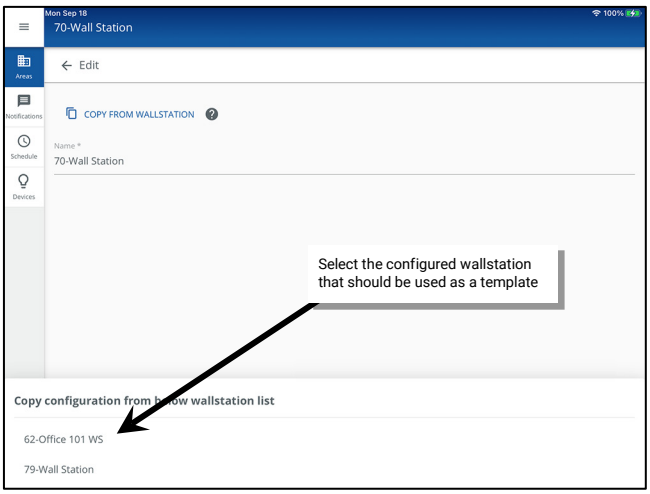


3: Tap **EDIT** ✎ and then select **COPY FROM WALLSTATION**.

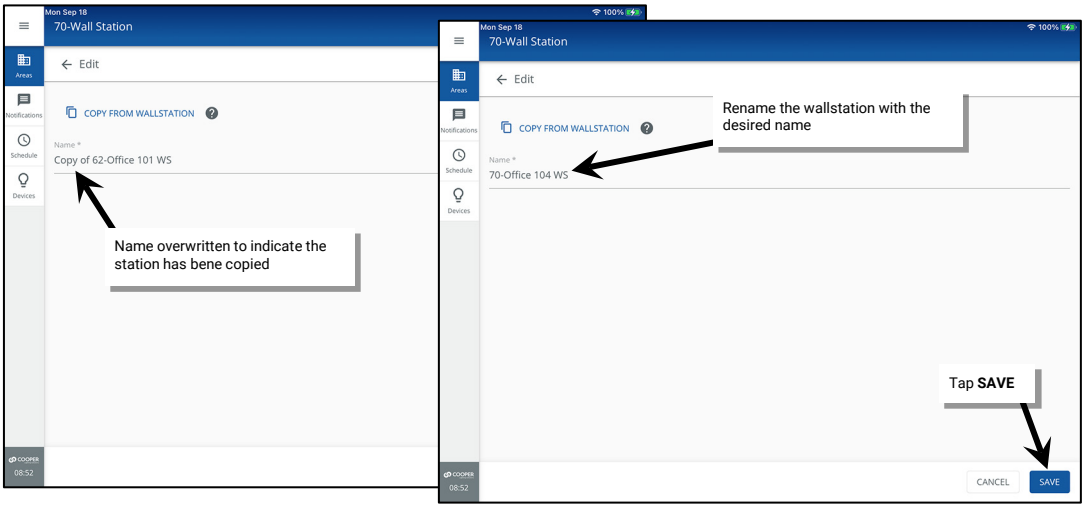


[272] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

4: Select the wallstation that has been programmed with the desired settings. The wallstation settings will be copied.



5: During the copy, the existing wallstation name will be overwritten with the copied wallstation name. Edit the name and then tap **SAVE**.



6: Repeat for additional areas or wallstations as needed.

Modifying Contact Closure Input Response

The WaveLinx PRO Universal Voltage Dimming Switchpack (model WSP-CA-010), the WaveLinx PRO Contact Closure Input Module, and the WaveLinx CAT Contact Closure Input Module support the connection to external contact closure(s).

- The WSP-CA-010 model of the WaveLinx Universal Voltage Dimming Switchpack supports connection to an external maintained contact closure. The contact closure input allows for:
  - Connection to supported Greengate occupancy sensors.
  - Connection from an external system or device that can provided a dry (no voltage) maintained closure from a contact with a contact resistance of less than 1K Ohm.

    When used with a Greengate occupancy sensor, the occupancy sensor will respond as part of the area's occupancy set. For details on adjusting the occupancy set programming, see "Modifying Occupancy Sensor Response" on page 269.
- The WaveLinx CAT Contact Closure Input Module supports connection of up to four external maintained or momentary contact closure devices. Note: It can also be placed in a special Sensor Interface Mode to connect to an external occupancy sensor. For details on adjusting occupancy sensor programming, see "Modifying Occupancy Sensor Response" on page 269.
- The WaveLinx PRO Contact Closure Input Module supports connection of up to four external maintained or momentary contact closure devices.

When used with a contact closure, the contact closure input(s) needs to have an action associated with contact's operation. This section discusses how to configure the actions for these device types.

Configuring the Contact Input Actions for a WaveLinx Universal Voltage Dimming Switchpack (model WSP-CA-010)

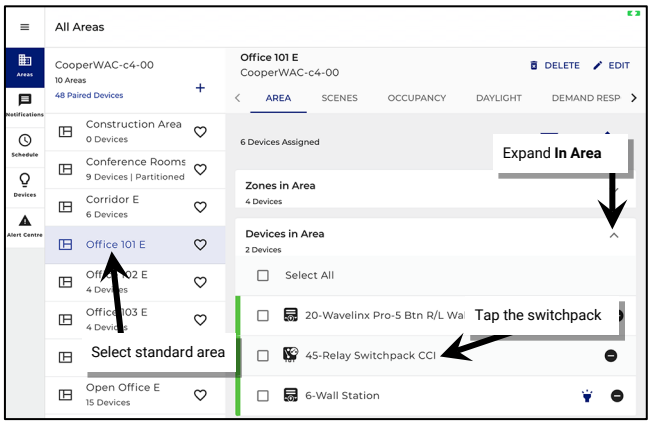
Before proceeding with the following steps, make certain that the contact closure input has been identified, assigned to the area, and set for the contact closure input type. Refer to the instructions in “Step 2: Identify and Assign Devices to the Areas and Zones” on page 200 and “Step 6: Configure Contact Closure Devices Connected to WaveLinx Universal Voltage Dimming Switchpacks” on page 209.

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[273] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area to be modified and locate and select the device.

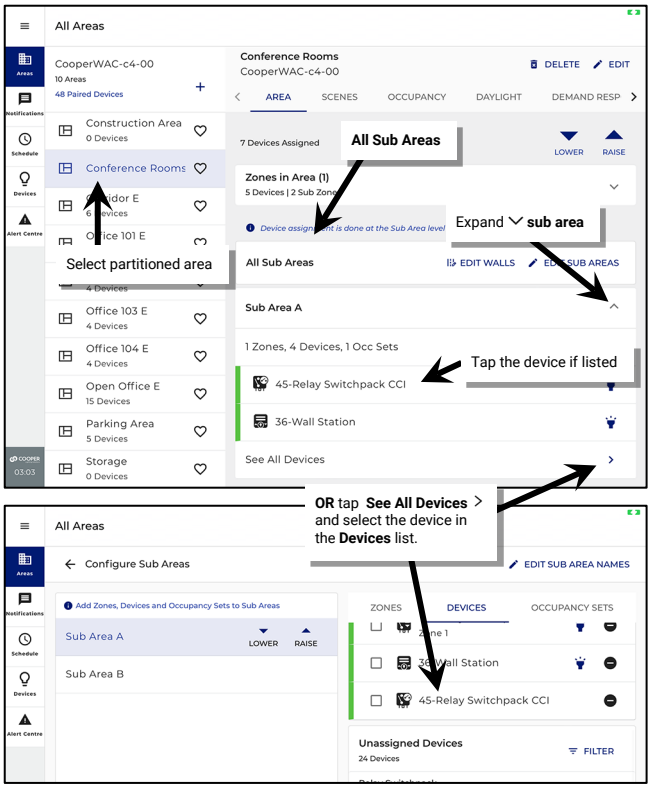
Accessing the Switchpack CCI in a Standard Area

Expand ⌄ the **Devices in Area** section and tap the device.



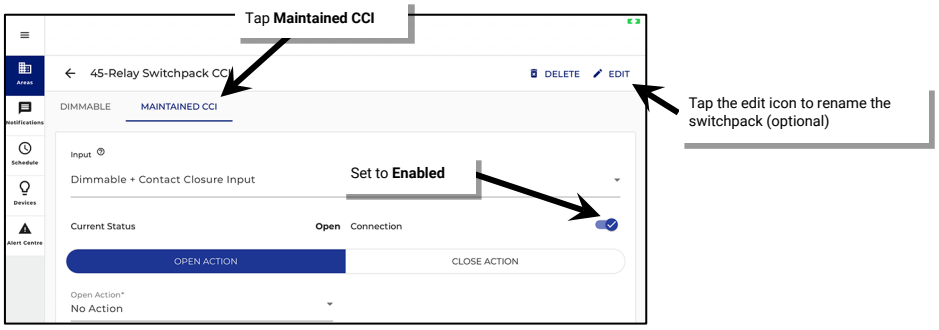
Accessing the Switchpack CCI in a Partitioned Area

Scroll down to view **All Sub Areas**. Tap **expand** ⌄ to open the **sub area.** Tap the device if it is displayed there or tap **See All Devices** and in the **Devices** list, tap the device.



3: Select the **Maintained CCI** tab and verify that the **Connection** field is set to **Enabled**.[274]

4: (Optional), Tap **EDIT** ✎ and rename the switchpack. This will rename it for both the contact input and dimmable output.



[273] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

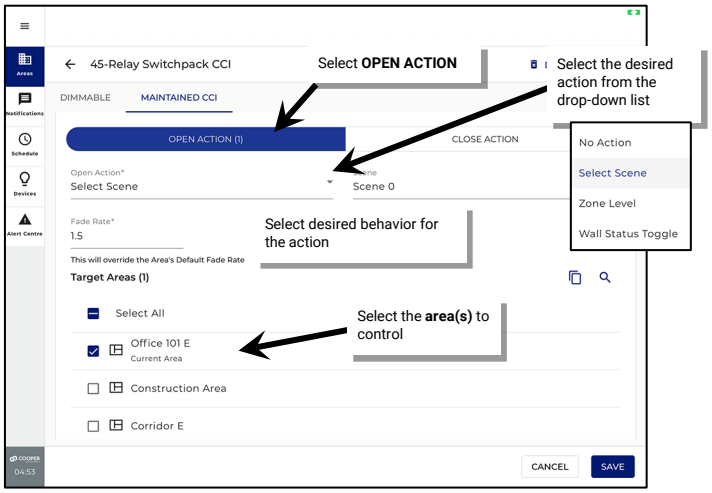
[274] If the **Maintained CCI** tab is not displayed, make sure that the optional input is set for either the **Dimmable + Contact Closure Input** or **Contact Closure Input** type.

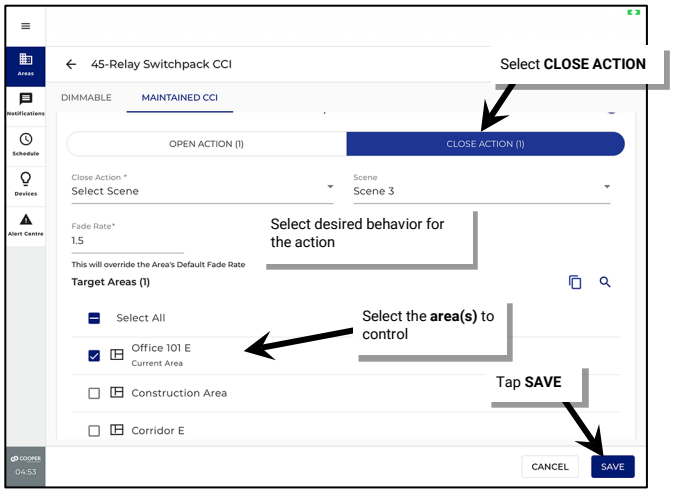
5: Next, in the **OPEN ACTION** screen, set the desired **action** and **parameters**.

6: Checkmark the **target area(s)** that the input should command.[275]

7: Tap **CLOSE ACTION** and repeat to set the **action**, **parameters** and **target area(s)**. (Note: Only the open action needs to be defined if using a Wall Status Toggle action).

8: Once selections are complete, tap **SAVE**.





Tip: Use the provided **copy** or **search** icons to simplify the selection of the target areas.

- **Search**: Tap and type part of or the whole area name. Tap again to display areas that contain that text.
- **Copy**: Once the target areas are selected for the OPEN ACTION, go to the CLOSE ACTION. Define the action and parameters and then tap to copy the same target area(s) from the open action to the closed action.

In WaveLinx version 16.1 and higher, if the WaveLinx Area Controller(s) are connected through a WaveLinx CORE system, the CORE programming screen will allow selection of **target areas** from any WaveLinx Area Controller in the same building. This allows for Cross-WAC Sharing. For more details on this feature, see “Appendix C: Cross-WAC Sharing in WaveLinx CORE” on page 487.

Open and Closed Action Parameter Definitions:

- **No action**: The input will not perform any command if opened or closed.
- **Select scene**: The input will issue the selected scene the selected area(s) using either the default area fade rate, or a uniquely defined fade rate.
- **Zone level**: The input will operate the selected zone in the device’s area to the defined level. Use either the default area fade rate or a uniquely defined fade rate. Selections for zones include the ability to choose a **target zone**, **ALL zones**, or **AFFECTED zones**.[276]
  - **Target Zone**: Choose the desired zone(s) from the desired area(s). The selected zone(s) will be adjusted when this input is used.. If assigned to a white tuning zone, the input will adjust the color temperature to the specified level.
  - **ALL Zones**: Use the Target Areas section to select the area(s) that should respond. All zones in the selected area(s) will be adjusted when this input is used. White tuning zones are automatically excluded.
  - **AFFECTED Zones: Use the Target Areas section to select the area(s) that should respond. The response of the zones in the selected area(s) will be based on the previous command. If the previous command was a scene, only the zones that are part of that scene will be adjusted (zones that have been ignored from the active scene will not respond). If the last command was a zone command, only the zone(s) commanded will be adjusted. White tuning zones are automatically excluded.**
- **Wall Status Toggle**[277]: The connected device will issue commands to issue an OPEN or CLOSE signal to the WaveLinx system for selected partition wall. When the maintained contact is OPEN the signal will indicate an open partition wall. When the maintained contact is CLOSED, the signal will indicate a closed partition wall. The target area selection will only display partitioned areas. The wall selection will display the walls that are defined in the selected partitioned area. Assign the **Wall Status Toggle** to the **Open Action.** The **Close Action** will be grayed out and left at No Action.

[275] As of WAC version 16.1 and higher, an input command can be sent to multiple standard areas (non-partitioned), not just the area that the input reports to. If part of a WaveLinx CORE system, the input can control standard areas in any WAC that is administered in the CORE system.

[276] White tuning zones are automatically exempted from control if the **ALL** or **AFFECTED** zone is selected to prevent inadvertent color temperature shifts when adjusting light levels. The white tuning zone will only respond to this command if it is the only zone selected.

[277] **Wall Status Toggle** will only show in WaveLinx Area Controller version 14.1.x.x firmware and higher.

Quick Links for Common Questions

- I am using the WaveLinx Universal Voltage Dimming Switchpack's contact closure input. My dimming switchpack does not have the **Optional Input** or **Maintained CCI** tab and I do not see the option to set the input type. Why is this happening? See the answer on page 473.

Configuring the Contact Input Actions for a WaveLinx PRO Contact Closure Input Module (model CCI-P-V)

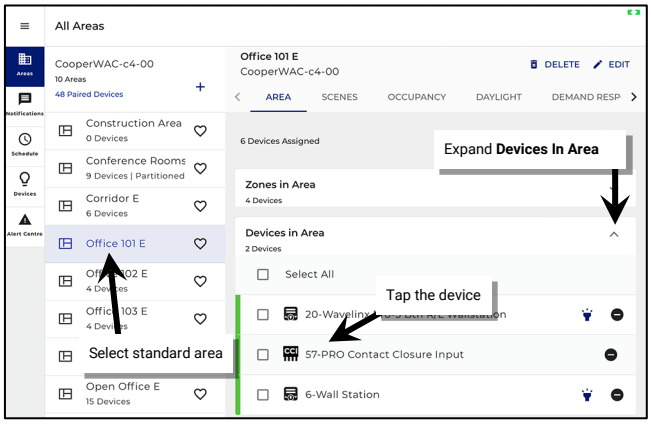
Before proceeding with the following steps, make certain that the WaveLinx PRO Contact Closure Input Module has been identified, assigned to the area and configured for **Contact Closure Mode**. has been identified, assigned to the area, and set for the contact closure input type. Refer to the instructions in "Step 2: Identify and Assign Devices to the Areas and Zones" on page 200 and "Step 7: Configure the WaveLinx PRO Contact Closure Input Module Mode" on page 211.

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[278] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area to be modified and locate and select the device.

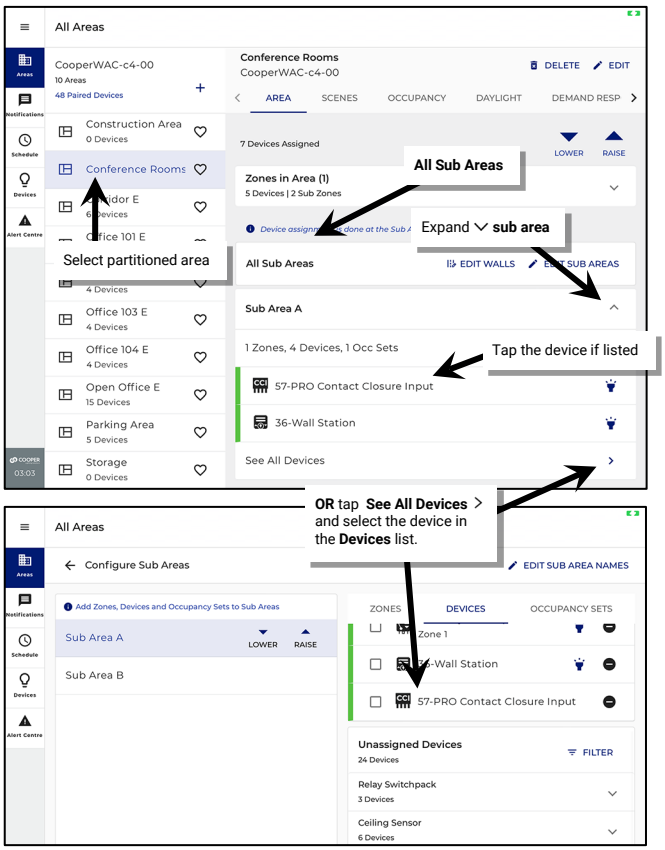
Accessing the WaveLinx PRO Contact Closure Input Module in a Standard Area

Expand ⌄ the **Devices in Area** section and tap the device.



Accessing the WaveLinx PRO Contact Closure Input Module in a Partitioned Area

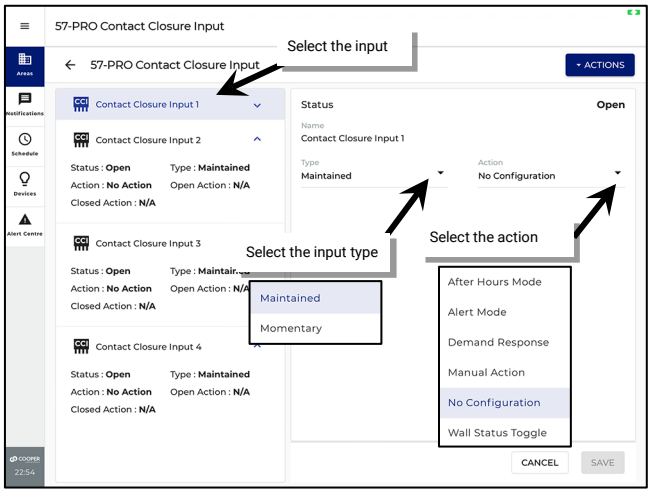
Scroll down to view **All Sub Areas**. Tap **expand** ⌄ to open the **sub area.** Tap the device if it is displayed there or tap **See All Devices** and in the **Devices** list, tap the device.



[278] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

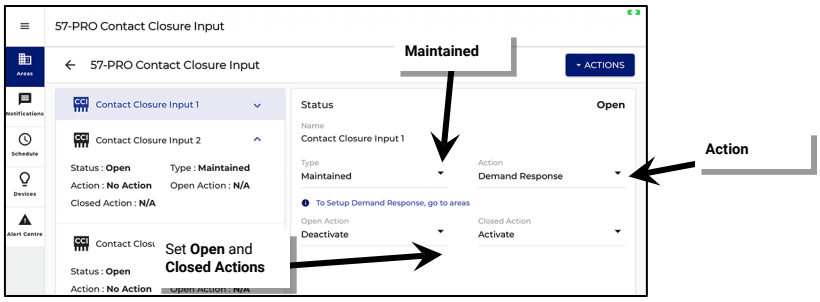
3: Tap the desired Contact Closure Input (1-4), select the connected input **type** (**Maintained** or **Momentary**), and then tap the **Action** dropdown and select the desired **Action Type**. Note that momentary input types will automatically have the manual action type assigned and will have a limited selection of action types available.

Contact Closure Mode



- **After Hours Mode:**[279] The input will issue an After Hours Mode command to the WaveLinx Area Controller. Areas that are programmed for After Hours Occupancy Mode will adjust occupancy set unoccupied commands to the programmed level until After Hours Mode is deactivated.
- **Alert Mode**:[279] The input will activate Alert Mode for all devices paired/added to this WaveLinx Area Controller. Alert Mode is a high priority command. During Alert Mode, all lighting devices will turn ON to 100% and all commands will be ignored. Once the input is deactivated, lighting will return to normal operation after a 5 minute delay with a blink warn when the delay begins and then 1 minute before returning to normal mode.[280]
- **Demand Response**:[279] The input will activate the programmed Demand Response dimming response for all lighting devices paired/added to this WaveLinx Area Controller to reduce energy consumption. Once the input is deactivated, the lighting will return to normal operation.
- **No Configuration**: The input will not perform any command if opened or closed.
- **Manual Action:** Select whether the input activates **Scene** or **Zone Level** commands to the chosen area(s). If the device type is momentary, the option for **Scene Toggle** and **Zone Toggle** will also be available.
  - For **Scene/Scene Toggle** commands, select what **Target Area(s)** will be affected.
  - For **Zone Level/Zone Toggle** commands, select the Target Area type:
    - **BLANK**: Use the Target Areas, Target Zones section to choose the desired zone(s) from the desired area(s). White tuning zones are automatically excluded.
    - **ALL** Zones: Use the Target Areas section to select the area(s) that should respond. All zones in the selected area(s) will be adjusted when this button is used. White tuning zones are automatically excluded.
    - **AFFECTED** Zones: Use the Target Areas section to select the area(s) that should respond. The response of the zones in the selected area(s) will be based on the previous command. If the previous command was a scene, only the zones that are part of that scene will be adjusted (zones that have been ignored from the active scene will not respond). If the last command was a zone command, only the zone(s) commanded will be adjusted. White tuning zones are automatically excluded.
- **Wall Status Toggle:**[279] The connected device will issue commands to issue an OPEN or CLOSE signal to the WaveLinx system for selected partition wall. When the maintained contact is OPEN the signal will indicate an open partition wall. When the maintained contact is CLOSED, the signal will indicate a closed partition wall. The target area selection will only display partitioned areas. The wall selection will display the walls that are defined in the selected partitioned area. The Open Action and Closed Action settings are irrelevant as the input signals are hard coded.

4: For **maintained** contacts that are NOT setup for a **Manual Action** type, tap on the **Open Action**. Set the desired command and parameters and then tap **SAVE**. Repeat to set the **Close Action**. Note: For the Wall Status Toggle action, leave the actions at default. The input function is hardcoded for this action type.



[279] This function available for maintained input type only.

[280] WaveLinx Networked Relay Panels: Relays will not blink when exiting Alert Mode.

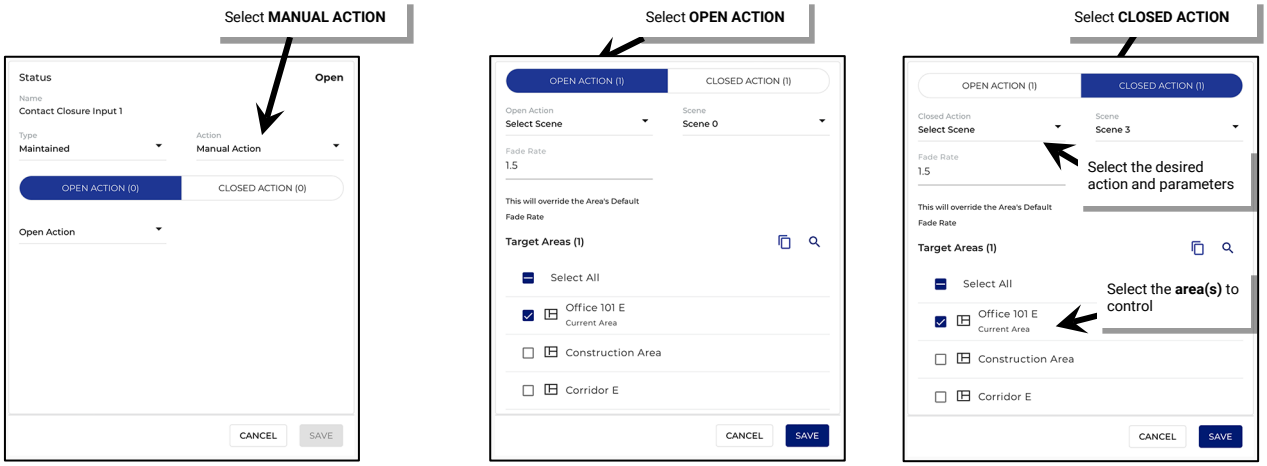
5: For inputs that are setup for a **Manual Action** type, select the desired **action** and any **parameters**.

- For **momentary** inputs, there will be a single action screen.
- For **maintained** inputs, define the **OPEN ACTION** first.

6: Checkmark the **target area(s)** that the input should command.[281]

7: For **maintained** inputs, tap **CLOSE ACTION** and repeat to set the **action**, **parameters** and **target area(s)**.

8: Once selections are complete, tap **SAVE**.



Tip: Use the provided **copy** or **search** icons to simplify the selection of the target areas.

- **Search**: Tap and type part of or the whole area name. Tap again to display areas that contain that text.
- **Copy**: Once the target areas are selected for the OPEN ACTION, go to the CLOSE ACTION. Define the action and parameters and then tap to copy the same target area(s) from the open action to the closed action.

In WaveLinx version 16.1 and higher, if the WaveLinx Area Controller(s) are connected through a WaveLinx CORE system, the CORE programming screen will allow selection of **WaveLinx Area Controllers** or **target areas** from any WaveLinx Area Controller in the same building. This allows for Cross-WAC Sharing. For more details on this feature, see “Appendix C: Cross-WAC Sharing in WaveLinx CORE” on page 487.

[281] As of WAC version 16.1 and higher, an input command can be sent to multiple standard areas (non-partitioned), not just the area that the input reports to. If part of a WaveLinx CORE system, the input can control standard areas in any WAC that is administered in the CORE system.

Configuring the Contact Input Actions for a WaveLinx CAT Contact Closure Module

The WaveLinx CAT Contact Closure Input Module supports connection of up to four external contact closure devices. A maintained contact closure is recommended. Most functions are supported when a maintained contact closure is used. Momentary contact closures may be used for limited functions such as scene and zone commands. The WaveLinx CAT Contact Closure Input Module is supported in WaveLinx Area Controller Version 14.x.x.x and higher.

Distributed Mode default configuration for the WaveLinx CAT Contact Closure Module will be overwritten by the Networked Mode programmed settings made in the WaveLinx Mobile App.

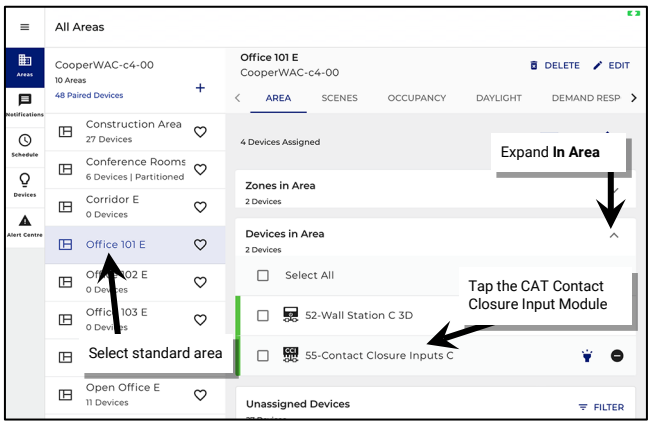
Before proceeding with the following steps, make certain that the WaveLinx CAT Area Hub has been discovered and the connected devices added to the WaveLinx Area Controller. "Discover the WaveLinx CAT Area Hub and Add CAT Devices" on page 171. Determine which created area is the correct area for the Area Hub port that the WaveLinx CAT Contact Closure Input Module is connected to.

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[282] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area to be modified and locate and select the device.

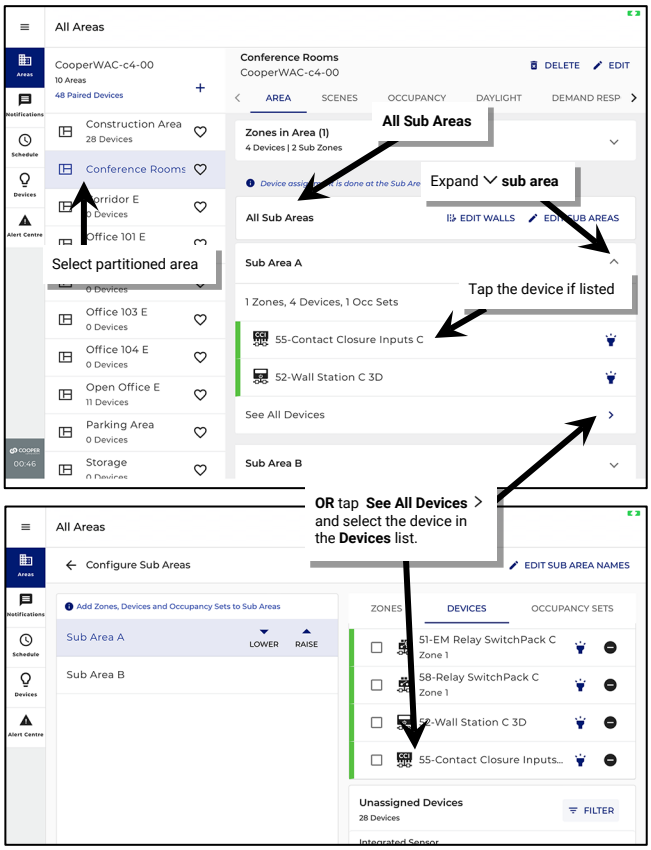
Accessing the WaveLinx CAT Contact Closure Module in a Standard Area

Expand ∨ the **Devices in Area** section and tap the device.



Accessing the WaveLinx CAT Contact Closure Module in a Partitioned Area

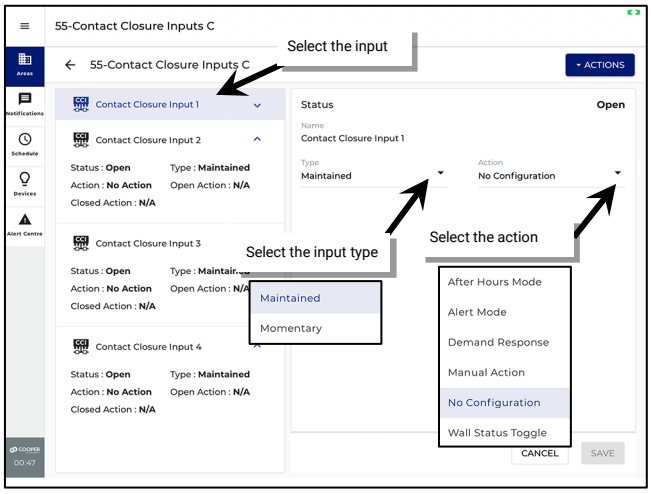
Scroll down to view **All Sub Areas**. Tap **expand** ∨ to open the **sub area.** Tap the device if it is displayed there or tap **See All Devices** and in the **Devices** list, tap the device.



[282] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

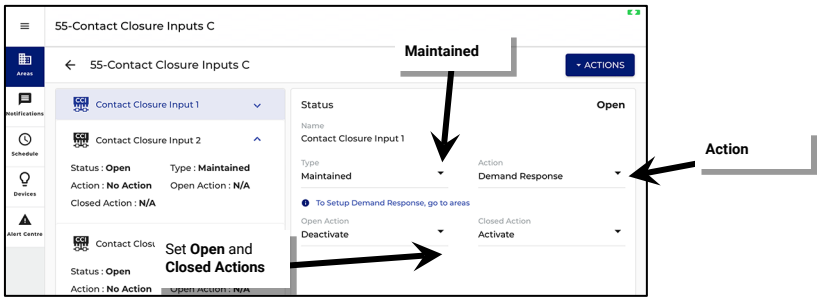
3: Tap the desired Contact Closure Input (1-4), select the connected input **type** (**Maintained** or **Momentary**), and then tap the **Action** dropdown and select the desired **Action Type**. Note that momentary input types will automatically have the manual action type assigned and will have a limited selection of action types available.

Contact Closure Mode



- **After Hours Mode:**[283] The input will issue an After Hours Mode command to the WaveLinx Area Controller. Areas that are programmed for After Hours Occupancy Mode will adjust occupancy set unoccupied commands to the programmed level until After Hours Mode is deactivated.
- **Alert Mode**:[283] The input will activate Alert Mode for all devices paired/added to this WaveLinx Area Controller. Alert Mode is a high priority command. During Alert Mode, all lighting devices will turn ON to 100% and all commands will be ignored. Once the input is deactivated, lighting will return to normal operation after a 5 minute delay with a blink warn when the delay begins and then 1 minute before returning to normal mode.[284]
- **Demand Response**: [283] The input will activate the programmed Demand Response dimming response for all lighting devices paired/added to this WaveLinx Area Controller to reduce energy consumption. Once the input is deactivated, the lighting will return to normal operation.
- **No Configuration**: The input will not perform any command if opened or closed.
- **Manual Action:** Select whether the input activates **Scene** or **Zone Level** commands to the chosen area(s). If the device type is momentary, the option for **Scene Toggle** and **Zone Toggle** will also be available.
  - For **Scene/Scene Toggle** commands, select what **Target Area(s)** will be affected.
  - For **Zone Level/Zone Toggle** commands, select the Target Area type:
    - **BLANK**: Use the Target Areas, Target Zones section to choose the desired zone(s) from the desired area(s). White tuning zones are automatically excluded.
    - **ALL** Zones: Use the Target Areas section to select the area(s) that should respond. All zones in the selected area(s) will be adjusted when this button is used. White tuning zones are automatically excluded.
    - **AFFECTED** Zones: Use the Target Areas section to select the area(s) that should respond. The response of the zones in the selected area(s) will be based on the previous command. If the previous command was a scene, only the zones that are part of that scene will be adjusted (zones that have been ignored from the active scene will not respond). If the last command was a zone command, only the zone(s) commanded will be adjusted. White tuning zones are automatically excluded.
- **Wall Status Toggle:** [283] The connected device will issue commands to issue an OPEN or CLOSE signal to the WaveLinx system for selected partition wall. When the maintained contact is OPEN the signal will indicate an open partition wall. When the maintained contact is CLOSED, the signal will indicate a closed partition wall. The target area selection will only display partitioned areas. The wall selection will display the walls that are defined in the selected partitioned area. The Open Action and Closed Action settings are irrelevant as the input signals are hard coded.

4: For **maintained** contacts that are NOT setup for a **Manual Action** type, tap on the **Open Action**. Set the desired command and parameters and then tap **SAVE**. Repeat to set the **Close Action**. Note: For the Wall Status Toggle action, leave the actions at default. The input function is hardcoded for this action type.



[283] This function available for maintained input type only.

[284] WaveLinx Networked Relay Panels: Relays will not blink when exiting Alert Mode.

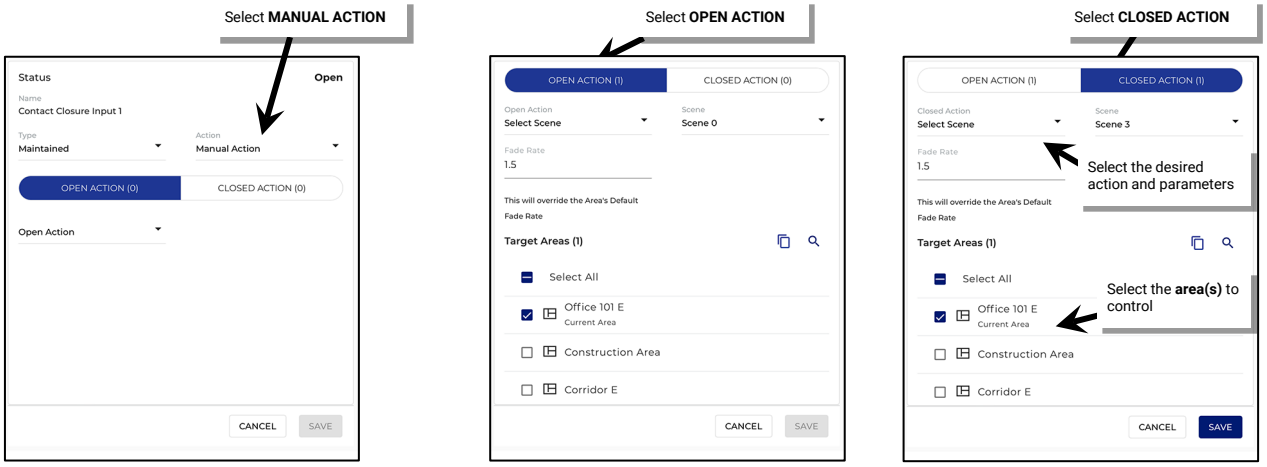
5: For inputs that are setup for a **Manual Action** type, select the desired **action** and any **parameters**.

- For **momentary** inputs, there will be a single action screen.
- For **maintained** inputs, define the **OPEN ACTION** first.

6: Checkmark the **target area(s)** that the input should command.[285]

7: For **maintained** inputs, tap **CLOSE ACTION** and repeat to set the **action**, **parameters,** and **target area(s)**.

8: Once selections are complete, tap **SAVE**.



Tip: Use the provided **copy** or **search** icons to simplify the selection of the target areas.

- **Search**: Tap and type part of or the whole area name. Tap again to display areas that contain that text.
- **Copy**: Once the target areas are selected for the OPEN ACTION, go to the CLOSE ACTION. Define the action and parameters and then tap to copy the same target area(s) from the open action to the closed action.

In WaveLinx version 16.1 and higher, if the WaveLinx Area Controller(s) are connected through a WaveLinx CORE system, the CORE programming screen will allow selection of **WaveLinx Area Controllers** or **target areas** from any WaveLinx Area Controller in the same building. This allows for Cross-WAC Sharing. For more details on this feature, see “Appendix C: Cross-WAC Sharing in WaveLinx CORE” on page 487.

[285] As of WAC version 16.1 and higher, an input command can be sent to multiple standard areas (non-partitioned), not just the area that the input reports to. If part of a WaveLinx CORE system, the input can control standard areas in any WAC that is administered in the CORE system.

Modifying Occupancy Sensor Response

The WaveLinx App allows modification of some occupancy sensor functions at the individual sensor level and other functions at a grouped level called an occupancy set. Most occupancy sensor modifications will be done to the occupancy set, not at the individual sensors

Adjusting or Viewing Individual Sensor Settings (Based on Sensor Type)

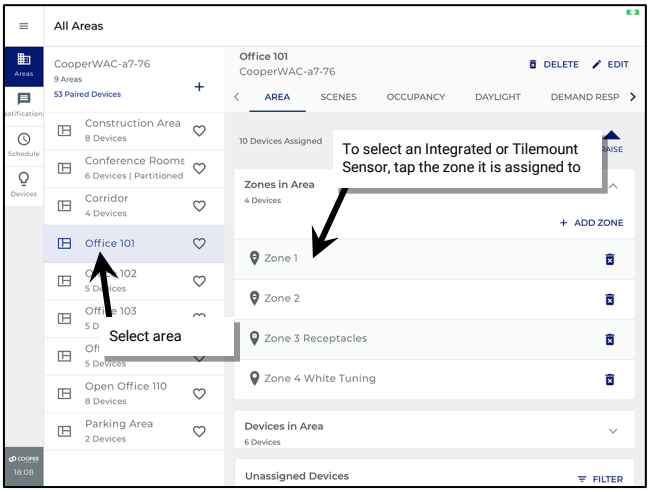
While most sensor settings will be assigned in the occupancy set, specific settings are available at the individual sensor level in the **Device Details** page. Regardless of the sensor type, the individual sensor settings will be accessed in a similar way.

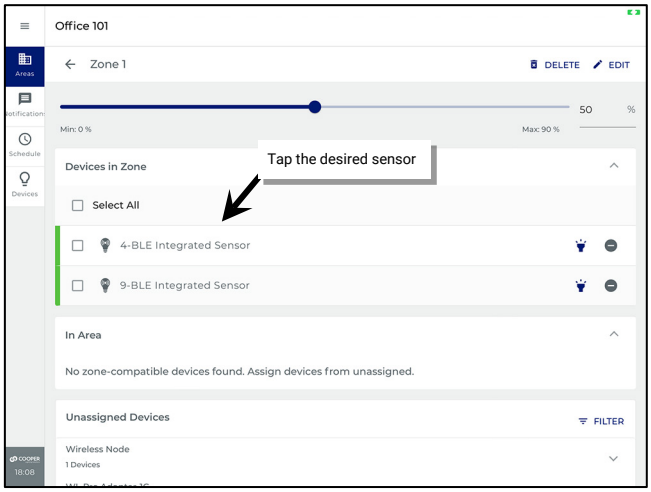
To view or adjust the individual sensor's settings:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[286] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that contains the occupancy sensor device and then locate the desired device. Tap the desired device to open the configuration screen.

- WaveLinx PRO and LV Fixture Integrated or WaveLinx PRO Tilemount Sensors will appear within the fixture's assigned zone in both standard and partitioned areas.



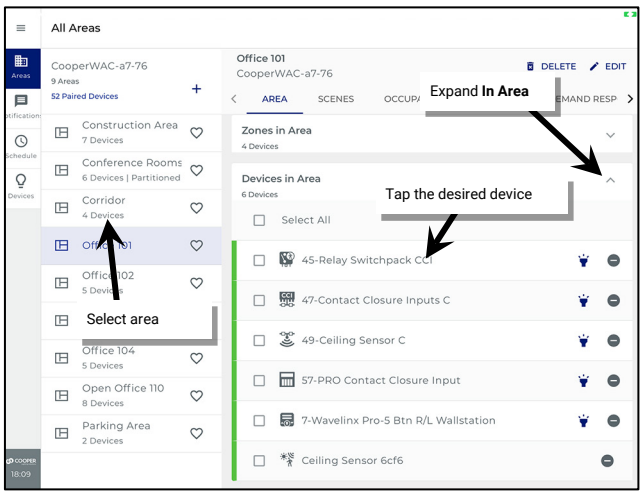


[286] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

- To locate WaveLinx PRO, CAT and DALI Ceiling Sensors and external sensors connected to WaveLinx PRO Universal Voltage Dimming Switchpacks, WaveLinx PRO Contact Closure Input Modules, or to WaveLinx CAT Sensor Input Modules.
  - 1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[287] and establish a connection with the WaveLinx Area Controller as the administrator user.
  - 2: In the **All Areas** list, select the area to be modified and locate and select the device.

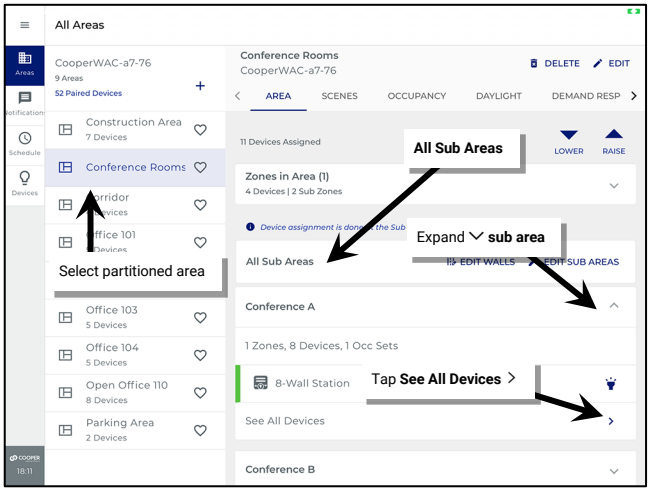
Accessing the Sensor in a Standard Area

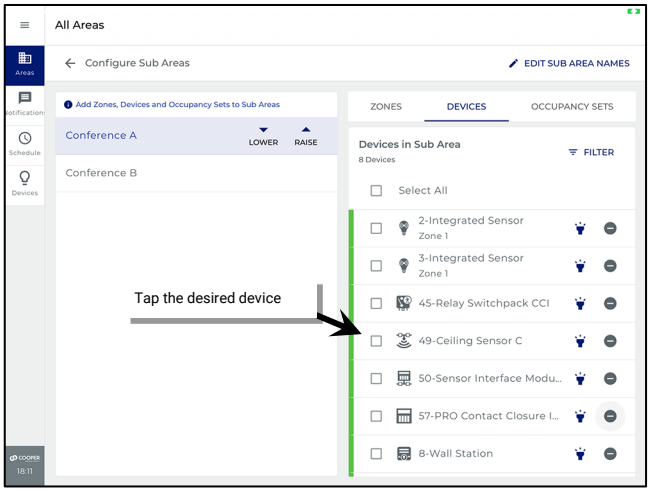
Expand ∨ the **Devices in Area** section and tap the device.



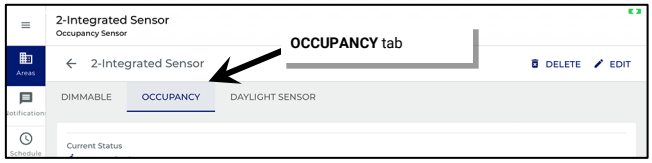
Accessing the Sensor in a Partitioned Area

Scroll down to view **All Sub Areas**. Tap **expand** ∨ to open the **sub area** and then tap **See All Devices**. In the **Devices** list, tap the device.





- 3: If the device has more than one tab, in the **Device Details** screen, select the **OCCUPANCY** tab.[288] Modify or view the desired settings within the sensor screen.

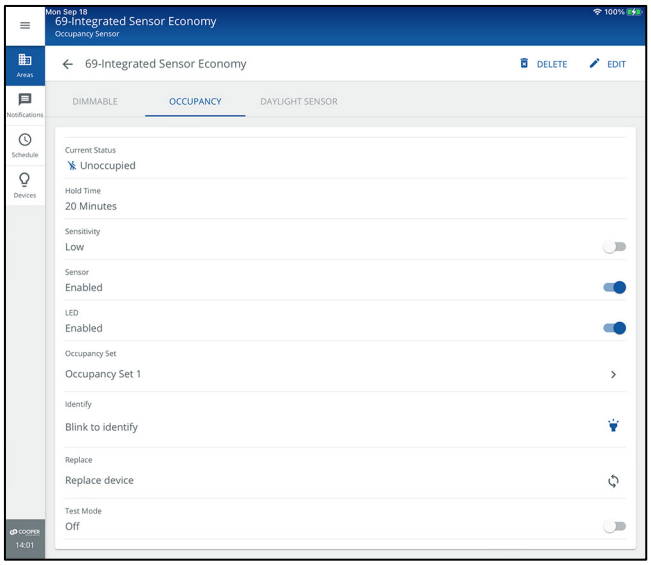


[287] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

[288] External sensors connected to WaveLinx CAT Sensor Input Modules or WaveLinx PRO Contact Closure Input Modules will automatically open to the **Occupancy** view. Greengate sensors connected to WaveLinx PRO Universal Voltage Dimming Switchpacks will automatically open to the **Occupancy** tab if the input type is set for **Occupancy Sensor** only.

WaveLinx PRO and LV Integrated and WaveLinx PRO Tilemount Sensor Settings

The WaveLinx PRO Integrated and WaveLinx PRO Tilemount Sensors will display the following details. WaveLinx LV Integrated Sensors will have similar options. See the chart below for details on the available settings.



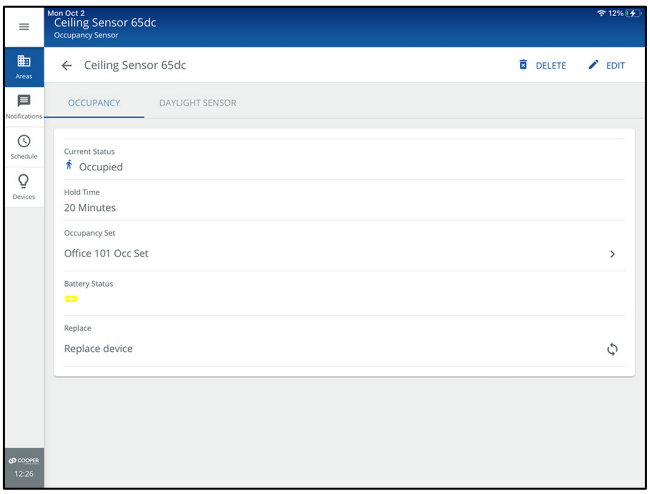
Setting	Default	Description
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied.
Hold Time	20 Minutes	This area of the display shows the Occupancy Set's programmed hold time. It is for informational purposes only and cannot be adjusted at the individual sensor level.
Sensitivity	Low	Slide the switch to low sensitivity if a sensor is detecting motion outside of the desired coverage area. Switch to high to regain the full motion sensing range.[289]
Sensor	Enabled	Slide the switch to disable the occupancy sensor for this device. This can be helpful if a sensor is false-triggering due to challenging placement (examples: near air vents or doorways) or for a sensor that is being used solely for daylighting.
LED	Enabled	Disabling the LED is not recommended as it is often used to determine if the sensor is operational. If the sensor LED flash is a major distraction, set to disabled.
Occupancy Set	Occupancy Set 1	Displays the occupancy set that the sensor is assigned to. Tap on the right arrow > to navigate directly to the occupancy set configuration.
Blink to Identify	N/A	Tap on to cause the connected fixture to flash ON and OFF for a 15 second period. The sensor LED will flash magenta for the 15 second period. To cancel **Blink to Identify** before the timer expires, tap again.
Replace device	N/A	If the sensor has been replaced, this option may be used to associate the new device to the previous sensor's programming. See "Replacing WaveLinx Devices" on page 449 for further information.
Test Mode	N/A	If test mode is activated (slide switch to activate), the sensor will be placed in test mode for 45 minutes. During test mode, the occupancy sensor will operate with a 10 second hold time.[290]

[289] The WaveLinx PRO IR Remote can also be used for adjusting this feature. Refer to the WaveLinx PRO IR Remote User Guide for details on using this feature.

[290] If more than one occupancy sensor reports to the occupancy set, use test mode at the occupancy set level to limit interference from other sensors in the area. For sensors that support the use of the WaveLinx PRO IR Remote, use the occupancy sensor **Occ Test** function to reliably test an individual sensor's function. Refer to the WaveLinx PRO IR Remote User Guide for details on using this feature.

WaveLinx PRO Ceiling Sensor Settings

The WaveLinx PRO Ceiling Sensors will display the following details. See the chart below for details on the available settings.

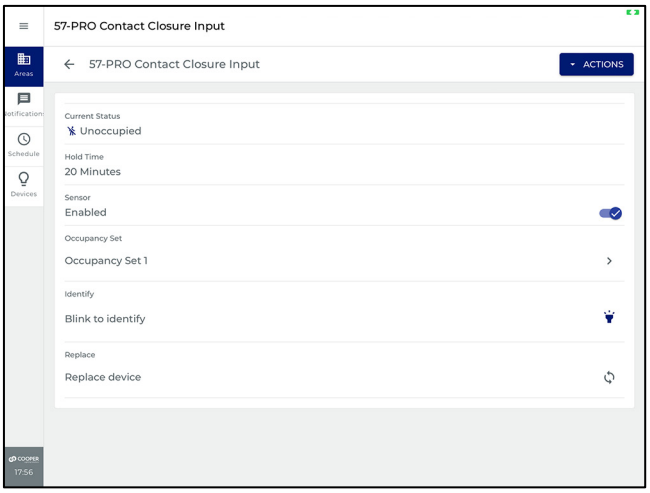


Setting	Default	Description
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied.
Hold Time	20 Minutes	This area of the display shows the Occupancy Set's programmed hold time. It is for informational purposes only and cannot be adjusted at the individual sensor level.
Occupancy Set	Occupancy Set 1	Displays the occupancy set that the sensor is assigned to. Tap on the right arrow > to navigate directly to the occupancy set configuration.
Battery Status	N/A	Battery powered WaveLinx Ceiling Sensors will show an indication of the current battery status. The icon will be green if the battery voltage measures full, yellow if measuring partial voltage and blink red when at an extremely low voltage indicating that the batteries need to be changed. • Battery good: >2.6V • Battery medium: <= 2.6V – 2.4V • Battery low: <2.4V
Replace device	N/A	If the sensor has been replaced, this option may be used to associate the new device to the previous sensor's programming. See "Replacing WaveLinx Devices" on page 449 for further information.

WaveLinx PRO Contact Closure Input Module Connected to an External Sensor

For proper operation, ensure the external sensor's Form C relay is connected to input 1 on the contact closure module and make sure that the mode is set to Sensor Interface Mode. See "Step 7: Configure the WaveLinx PRO Contact Closure Input Module Mode" on page 211 for details.

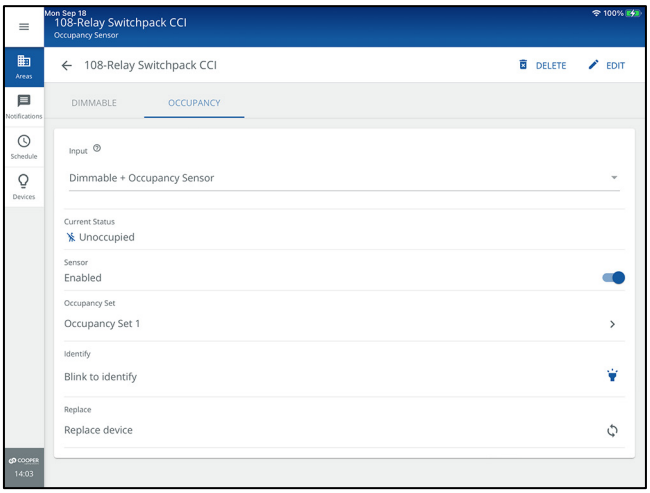
The WaveLinx PRO Contact Closure Input Module will display the following details. See the chart below for details on the available settings.



Setting	Default	Description
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied.
Hold Time	20 Minutes	This area of the display shows the Occupancy Set's programmed hold time. It is for informational purposes only and cannot be adjusted at the individual sensor level.
Sensor	Enabled	Slide the switch to disable the occupancy sensor for this device. This can be helpful if a sensor is false-triggering due to challenging placement (examples: near air vents or doorways) or for a sensor that is being used solely for daylighting.
Occupancy Set	Occupancy Set 1	Displays the occupancy set that the sensor is assigned to. Tap on the right arrow > to navigate directly to the occupancy set configuration.
Blink to Identify	N/A	Tap on to cause the LED on the Contact Input Module to flash magenta ON and OFF for a 15 second period. To cancel **Blink to Identify** before the timer expires, tap again.
Replace device	N/A	If the Contact Closure Input Module has been replaced, this option may be used to associate the new device to the previous device's programming. See "Replacing WaveLinx Devices" on page 449 for further information.

WaveLinx PRO Universal Voltage Dimming Switchpack Connected to a Greengate Occupancy Sensor

A Greengate Occupancy Sensor connected to a WaveLinx PRO Universal Voltage Dimming Switchpack will display the following details when programmed with an input type of **Dimmable + Occupancy Sensor** or **Occupancy Sensor**. See the chart below for details on the available settings.

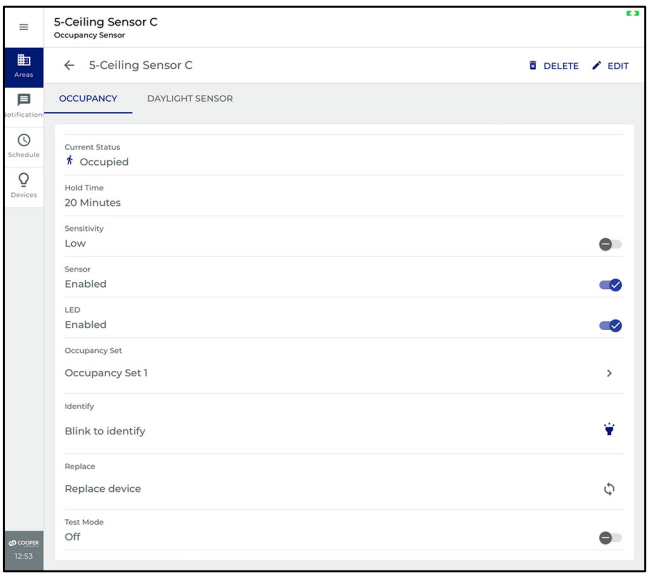


Setting	Default	Description
Input	Dimmable	Must be set to **Occupancy Sensor** or **Dimmable + Occupancy Sensor** to operate properly when connected to a Greengate Occupancy Sensor.
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied.
Sensor	Enabled	Slide the switch to disable the occupancy sensor for this device. This can be helpful if a sensor is false-triggering due to challenging placement (examples: near air vents or doorways) or for a WaveLinx Ceiling Sensor that is being used solely for daylighting.
Occupancy Set	Occupancy Set 1	Displays the occupancy set that the sensor is assigned to. Tap on the right arrow > to navigate directly to the occupancy set configuration.
Blink to Identify	N/A	Tap on to start **Blink to Identify** mode. The Universal Dimming Switchpack will cycle power to the Greengate sensor, causing the sensor to flash its LEDs during the powerup cycle to allow it to be identified. [291] The sensor will also issue an occupied command. The **Blink to Identify** mode cannot be manually cancelled and will time out on its own after a 1-minute period.
Replace device	N/A	If replacing a Greengate occupancy sensor, simply replace the sensor. No WaveLinx App reconfiguration is necessary. If replacing the connected WaveLinx Universal Voltage Dimming Switchpack that connects to the occupancy sensor, use **Replace Device** to associate the new device to the previous Switchpack's programming. See "Replacing WaveLinx Devices" on page 449 for further information.

[291] Greengate sensors not approved for use with WaveLinx or not directly connected for power from the WaveLinx Universal Voltage Dimming Switchpack may not exhibit the described behavior.

WaveLinx CAT PIR Occupancy Ceiling Sensor Settings

The WaveLinx CAT PIR Occupancy Ceiling Sensor will display the following details. See the chart below for details on the available settings.



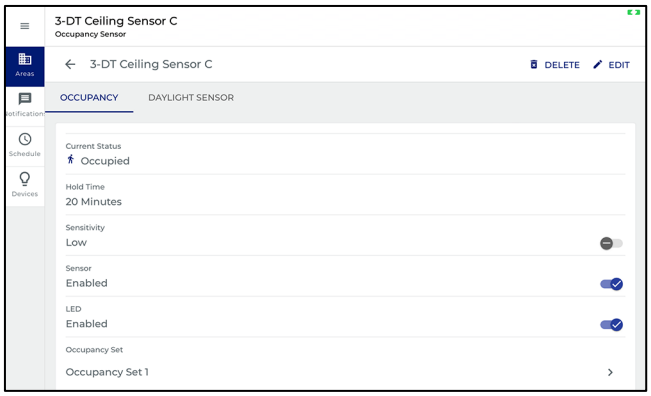
Setting	Default	Description
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied.
Hold Time	20 Minutes	This area of the display shows the Occupancy Set's programmed hold time. It is for informational purposes only and cannot be adjusted at the individual sensor level.
Sensitivity	Low	Slide the switch to low sensitivity if a sensor is detecting motion outside of the desired coverage area. Switch to high to regain the full motion sensing range.[292]
Sensor	Enabled	Slide the switch to disable the occupancy sensor for this device. This can be helpful if a sensor is false-triggering due to challenging placement (examples: near air vents or doorways) or for a Ceiling Sensor that is being used solely for daylighting.
LED	Enabled	Disabling the LED is not recommended as it is often used to determine if the sensor is operational. If the sensor LED flash is a major distraction, set to disabled.
Occupancy Set	Occupancy Set 1	Displays the occupancy set that the sensor is assigned to. Tap on the right arrow > to navigate directly to the occupancy set configuration.
Blink to Identify	N/A	Tap on to cause the sensor LED to flash magenta ON and OFF for a 15 second period. To cancel **Blink to Identify** before the timer expires, tap again.
Replace device	N/A	If the sensor has been replaced, this option may be used to associate the new device to the previous sensor's programming. See "Replacing WaveLinx Devices" on page 449 for further information.
Test Mode	N/A	If test mode is activated (slide switch to activate), the sensor will be placed in test mode for 45 minutes. During test mode, the occupancy sensor will operate with a 10 second hold time.[293]

[292] The WaveLinx PRO IR Remote can also be used for adjusting this feature. Refer to the WaveLinx PRO IR Remote User Guide for details on using this feature.

[293] If more than one occupancy sensor reports to the occupancy set, use test mode at the occupancy set level to limit interference from other sensors in the area. For sensors that support the use of the WaveLinx PRO IR Remote, use the occupancy sensor **Occ Test** function to reliably test an individual sensor's function. Refer to the WaveLinx PRO IR Remote User Guide for details on using this feature.

WaveLinx CAT Dual Tech Occupancy Ceiling Sensor Settings

The WaveLinx CAT Dual Tech Occupancy Ceiling Sensor will display the following details. See the chart below for details on the available settings.



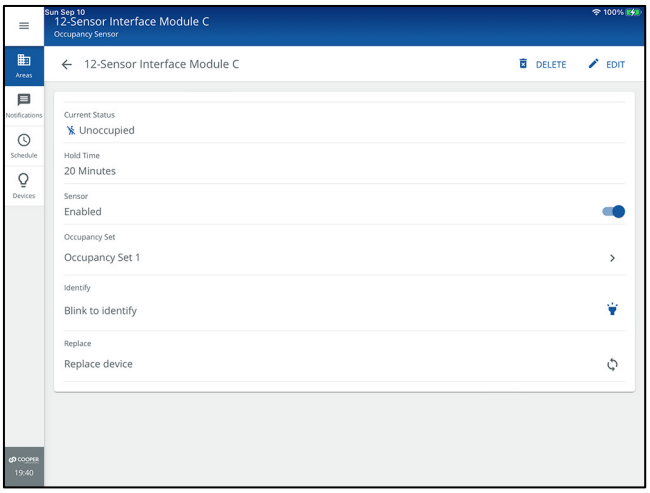
Setting	Default	Description
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied.
Hold Time	20 Minutes	This area of the display shows the Occupancy Set's programmed hold time. It is for informational purposes only and cannot be adjusted at the individual sensor level.
Sensitivity	Low	Use to adjust the PIR sensitivity. Slide the switch to low sensitivity if a sensor is detecting motion outside of the desired coverage area. Switch to high to regain the full motion sensing range.[294]
Sensor	Enabled	Slide the switch to disable the occupancy sensor for this device. This can be helpful if a sensor is false-triggering due to challenging placement (examples: near air vents or doorways) or for a Ceiling Sensor that is being used solely for daylighting.
LED	Enabled	Disabling the LED is not recommended as it is often used to determine if the sensor is operational. If the sensor LED flash is a major distraction, set to disabled.
Occupancy Set	Occupancy Set 1	Displays the occupancy set that the sensor is assigned to. Tap on the right arrow > to navigate directly to the occupancy set configuration.
Blink to Identify	N/A	Tap on to cause the sensor LED to flash magenta ON and OFF for a 15 second period. To cancel **Blink to Identify** before the timer expires, tap again.
Acoustic Sensor	Enabled	The acoustic sensor will operate with the PIR sensor after the PIR sensor has signaled occupancy. Both technologies will operate together to determine if motion is still present to keep lighting on. To operate only from the PIR technology, switch acoustics to **DISABLED**. To operate from both technologies, switch to **ENABLED**.
Acoustic Sensitivity	High	Use the acoustic sensitivity drop down to select how sensitive the acoustic detection should be. Choose between **VERY HIGH**, **HIGH**, **MEDIUM**, **LOW**, and **VERY LOW**.
Replace device	N/A	If the sensor has been replaced, this option may be used to associate the new device to the previous sensor's programming. See "Replacing WaveLinx Devices" on page 449 for further information.
Test Mode	N/A	If test mode is activated (slide switch to activate), the sensor will be placed in test mode for 45 minutes. During test mode, the occupancy sensor will operate with a 10 second hold time.[295]

[294] The WaveLinx PRO IR Remote can also be used for adjusting this feature. Refer to the WaveLinx PRO IR Remote User Guide for details on using this feature.

[295] If more than one occupancy sensor reports to the occupancy set, use test mode at the occupancy set level to limit interference from other sensors in the area. For sensors that support the use of the WaveLinx PRO IR Remote, use the occupancy sensor **Occ Test** function to reliably test an individual sensor's function. Refer to the WaveLinx PRO IR Remote User Guide for details on using this feature.

WaveLinx CAT Sensor Input Module Connected to a Greengate Sensor

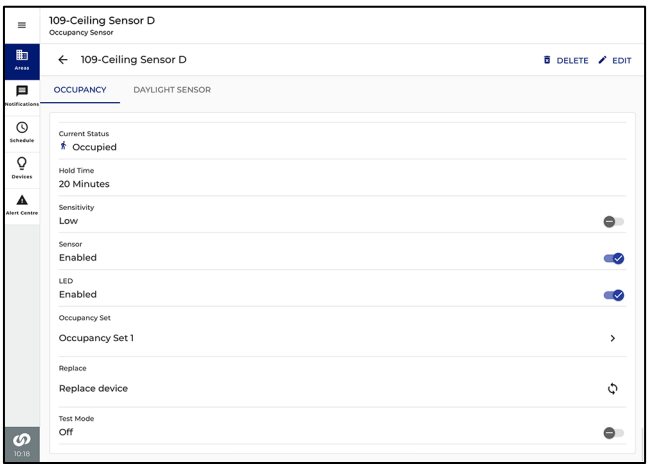
The WaveLinx CAT Sensor Input Module connected to a Greengate Sensor will display the following details. See the chart below for details on the available settings.



Setting	Default	Description
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied.
Hold Time	20 Minutes	This area of the display shows the Occupancy Set's programmed hold time. It is for informational purposes only and cannot be adjusted at the individual sensor level.
Sensor	Enabled	Slide the switch to disable the occupancy sensor for this device. This can be helpful if a sensor is false-triggering due to challenging placement (examples: near air vents or doorways) or for a sensor that is being used for solely for daylighting.
Occupancy Set	Occupancy Set 1	Displays the occupancy set that the sensor is assigned to. Tap on the right arrow > to navigate directly to the occupancy set configuration.
Blink to Identify	N/A	Tap on to cause the LED on the Sensor Input Module to flash magenta ON and OFF for a 15 second period. To cancel **Blink to Identify** before the timer expires, tap again.
Replace device	N/A	If the sensor input module has been replaced, this option may be used to associate the new device to the previous module's programming. See "Replacing WaveLinx Devices" on page 449 for further information.

WaveLinx DALI Occupancy Ceiling Sensor Settings

The WaveLinx DALI PIR Occupancy Ceiling Sensor will display the following details. See the chart below for details on the available settings.



Setting	Default	Description
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied.
Hold Time	20 Minutes	This area of the display shows the Occupancy Set's programmed hold time. It is for informational purposes only and cannot be adjusted at the individual sensor level.
Sensitivity	Low	Slide the switch to low sensitivity if a sensor is detecting motion outside of the desired coverage area. Switch to high to regain the full motion sensing range.
Sensor	Enabled	Slide the switch to disable the occupancy sensor for this device. This can be helpful if a sensor is false-triggering due to challenging placement (examples: near air vents or doorways) or for a Ceiling Sensor that is being used solely for daylighting.
LED	Enabled	Disabling the LED is not recommended as it is often used to determine if the sensor is operational. If the sensor LED flash is a major distraction, set to disabled.
Occupancy Set	Occupancy Set 1	Displays the occupancy set that the sensor is assigned to. Tap on the right arrow > to navigate directly to the occupancy set configuration.
Replace device	N/A	If the sensor has been replaced, this option may be used to associate the new device to the previous sensor's programming. See "Replacing WaveLinx Devices" on page 449 for further information.
Test Mode	Off	If test mode is activated (slide switch to activate), the sensor will be placed in test mode for 45 minutes. During test mode, the occupancy sensor will operate with a 10 second hold time.

Adjusting Occupancy Set Settings

An **occupancy set** is a group of occupancy sensors that operate together to control a group of devices. Any sensor in the group sensing motion will refresh its occupied command at continuous intervals. When the WaveLinx Area Controller no longer receives occupied signals from any of the sensors in the occupancy set, it will begin transitioning through its assigned hold time to the energy saver action (if enabled and the sensor type supports this) and then transition to the unoccupied action. With this logic, ANY sensor in the occupancy set can command the group to the occupied light level, but ALL sensors in the occupancy set need register an unoccupied state before lighting can transition to the hold time period and ultimately to the unoccupied command.

The Occupancy Set has an automatic **Grace Period**. If occupancy is sensed within 30 seconds after the hold time expires and the unoccupied action is issued, the lighting/receptacles will resume the light level/status they were in prior. If occupancy is sensed after the 30 second grace period, the occupied action will be issued.

When a standard or partitioned area is created, any occupancy sensor assigned to the area (sub area in a partitioned area) is automatically grouped into a default occupancy set to control the loads in the area (sub area). This includes fixture mounted WaveLinx sensors, WaveLinx Ceiling Sensors, and external occupancy sensors connected to the contact input of WaveLinx Contact Input device.

- **In a standard area**, the occupancy set defines the behavior of the occupancy sensors assigned to it.
- **In a partitioned area**, the occupancy set at the main level defines the behavior of the occupancy sub sets assigned at the sub area level. When all the partitions are open (creating one large space) the joined occupancy sub sets will operate as one large occupancy set for the entire joined space. When partitions are closed, the occupancy sub sets operate their sub area independently.

The default behavior of any **User Created Standard or Partitioned Area** occupancy set is:

- **Mode**: Occupancy
- **Hold Time**: 20 minutes
- **Occupied Action**: Select Scene 3 (50%)
- **Energy Saver:** Disabled
- **Unoccupied Action**: Select Scene 0 (0%)

The default behavior of any **Imported WaveLinx CAT Area** occupancy set is:

- **Mode**: Occupancy
- **Hold Time**: 20 minutes
- **Occupied Action**: Zone Level ALL ZONES (50%)
- **Energy Saver:** Enabled, Zone Level ALL ZONES (25%)
- **Unoccupied Action**: Zone Level ALL ZONES (0%)

Note: If a WaveLinx CAT device is moved from the imported area to a user created area, it will take on the programmed settings of the occupancy set in the new area.

IMPORTANT: The occupancy set will control the dimmable, non-dimmable, and receptacle zone(s) in the area. The default behavior can be changed to meet other requirements. This section discusses how to implement the changes.

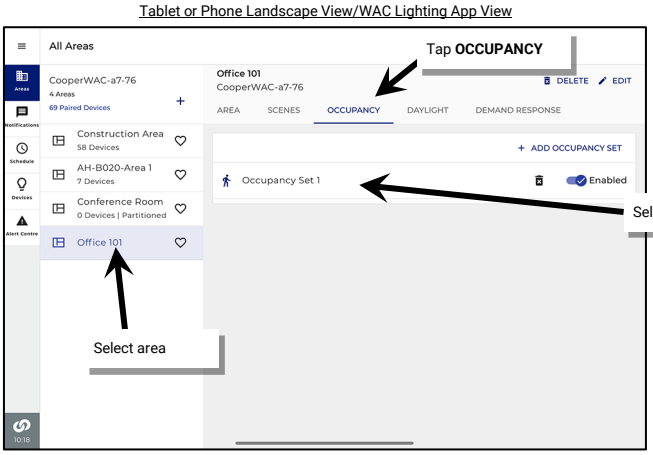
To modify the occupancy set response:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[296] and establish a connection with the WaveLinx Area Controller as the administrator user.

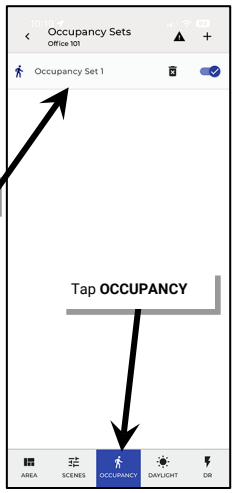
2: In the **All Areas** list, select the area that contains the occupancy sensor set, then tap on the **OCCUPANCY** option.

3: Select the desired occupancy set.

Tablet or Phone Landscape View/WAC Lighting App View

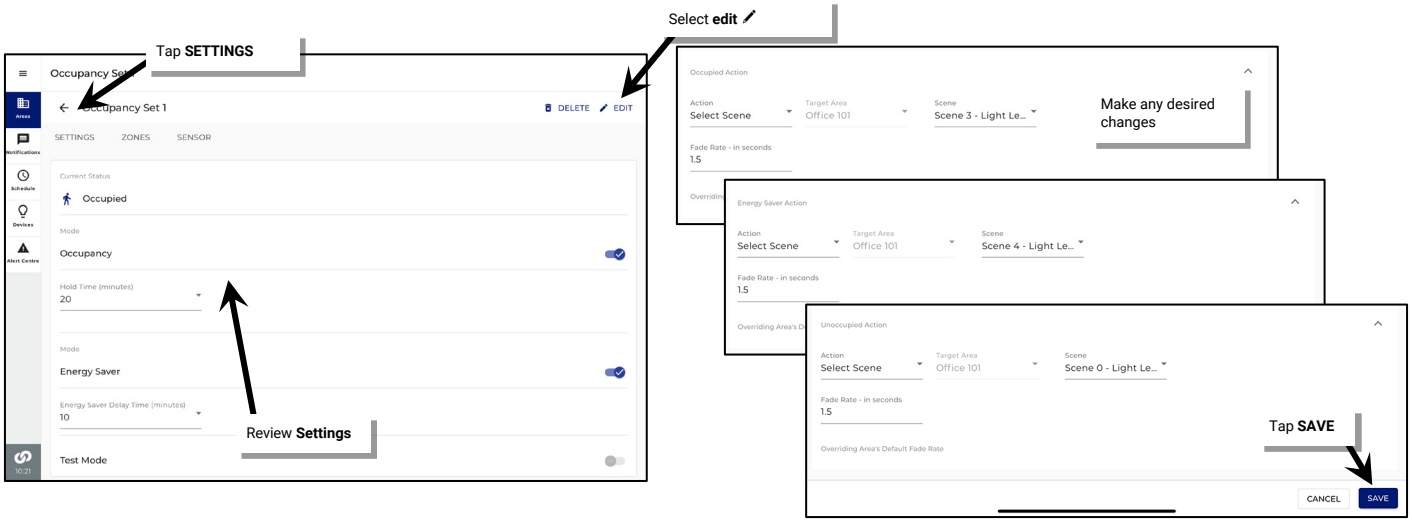


Phone Portrait View



[296] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

4. In the **SETTINGS** tab, review the current settings. To change the settings, tap **EDIT** ✎ and then change the desired settings.



Setting	Default	Description
Current Status	N/A	Displays the status of the occupancy set, either occupied or unoccupied.
Mode	Occupancy	Slide the switch to change between occupancy or vacancy mode. • **Occupancy mode**: The defined occupied action will occur when any sensor in the group detects initial motion. • **Vacancy mode**: The sensors will not perform any action upon initial motion detection. The occupant must turn ON loads manually using other WaveLinx controls in the space.[297] For both modes, the lighting will start transitioning to the unoccupied level when motion is no longer detected by <u>any</u> sensor in the occupancy set and after the defined hold time expires.
Hold Time	20 minutes	Tap on the button to choose additional hold times or to define a custom one (1 to 120 min.). The hold time determines how long the system will wait to issue the unoccupied action once all sensors no longer detect occupancy.[298]
Energy Saver Mode*	User created area: • Disabled Imported WaveLinx CAT area: • Enabled	Use the slider to enable or disable energy saver mode. • If **disabled**, once the occupancy set registers vacancy the hold time countdown begins. Once it expires, the occupancy set will issue the unoccupied command. • If **enabled**, once the occupancy set registers vacancy, the hold time countdown/energy saver mode countdown begins. If vacancy continue, once the time defined for energy saver mode expires, the occupancy set will issue the energy saver command. If vacancy continues, after the hold time expires, the occupancy set will issue the unoccupied command. Example: If the hold time is 20 minutes, and the Energy Saver Mode is set for 10 minutes, the Energy Saver command occurs after 10 minutes of no occupancy. After an additional 10 minutes, the unoccupied command is issued (10min+10min=20min hold time). * **Note:** (if Energy Saver Mode is enabled) Energy Saver Mode is not supported in older version WaveLinx sensors: WaveLinx PRO CWPD-1500 or a sensor connected to a WaveLinx PRO WSP-CA-010. If one of these devices is assigned to an occupancy set where Energy Saver Mode is enabled, the message "Important Note: Sensor type is not compatible with energy saver mode." Having these sensors assigned to an occupancy set that uses Energy Saver Mode may reduce the effectiveness of the Energy Saver Mode but will not completely prevent it from operating.

[297] Not all sensors support vacancy mode. WaveLinx Outdoor Integrated Sensors will continue to operate in occupancy mode if vacancy mode is set.

[298] For occupancy sets that contain WaveLinx Universal Voltage Dimming Switchpacks connected to a Greengate Occupancy Sensor, please see page 251 for information on how hold time operates with these sensors.

Setting	Default	Description
Energy Saver Delay Time (minutes)	½ of the defined Hold Time	If Energy Saver Mode is enabled, and vacancy occurs, this is the amount of time that the occupancy set will wait before issuing the Energy Saver Action. The delay time will default to half of the defined hold time. Use the drop down to adjust the energy saver delay time. Important Notes: • The Energy Saver Delay Time cannot exceed the defined hold time. • If the Energy Saver Delay Time is set for 0, when the space becomes occupied, the occupancy set will immediately transition to the Energy Saver action (occupied action will never be used). • If the Energy Saver Delay Time is equal to the hold time, the light level will remain at the occupied level for the duration of the hold time and will never transition to the Energy Saver action.
Test Mode	Disabled	See “Using Occupancy Set Test Mode” on page 286 for information on using this feature.

Occupied Action
(will not show for vacancy mode)
	User created area:
	• Select Scene: Scene 3 (50%)
	Imported WaveLinx CAT area:
	• Zone Level: ALL 50%
		Tap on the drop down to select a different occupied action.
		• **No action**: No command sent when the occupied action occurs.
		• **Return to Level**: When the occupied action occurs, controlled lighting and controlled devices will return to the level it would have been had it always been occupied (level prior to the last unoccupied action).
		• **Select scene**: The occupied command will issue the selected scene using either the default area fade rate, or a uniquely defined fade rate.
		If using scenes, ensure that all the lighting and receptacle zones are included in the selected scene or they will not respond when the space is occupied..
		• **Zone level:** The occupied command will issue the defined zone level to the selected zone(s) in this area using either the default area fade rate or a uniquely defined fade rate. Select:
		  • **ALL** Zones: All zones in the selected area(s) will be issued the occupied action. White tuning zones are automatically excluded.[299]
		  • **AFFECTED** Zones: The response of the zones in the selected area(s) will be based on the previous command. If the previous command was a scene, only the zones that are part of that scene will be adjusted (zones that have been ignored from the active scene will not respond). If the last command was a zone command, only the zone(s) commanded will be adjusted. White tuning zones are automatically excluded.[299]
		  • **Specific Zone**: Select a specific zone in the area. The occupied action will only affect the selected zone.

Energy Saver Action	User created area:
	• Select Scene: Scene 4 (30%)
	Imported WaveLinx CAT area:
	• Zone Level: ALL 25%
		Tap on the drop down to select a different Energy Saver action.
		• **Select scene**: The energy saver action issues the selected scene using either the default area fade rate, or a uniquely defined fade rate.
		If using scenes, ensure that all the lighting and receptacle zones are included in the selected scene or they will not respond when the energy saver action occurs.
		• **Zone level:** The energy saver action will issue the defined zone level to the selected zone(s) in this area using either the default area fade rate or a uniquely defined fade rate. Select:
		  • **ALL** Zones: All zones in the selected area(s) will be issued the energy saver action. White tuning zones are automatically excluded. [299]
		  • **AFFECTED** Zones: The response of the zones in the selected area(s) will be based on the previous command. If the previous command was a scene, only the zones that are part of that scene will be adjusted (zones that have been ignored from the active scene will not respond). If the last command was a zone command, only the zone(s) commanded will be adjusted. White tuning zones are automatically excluded. [299]
		  • **Specific Zone**: Select a specific zone in the area. The energy saver action will only affect the selected zone.

[299] White tuning zones are automatically exempted from control if the **ALL** or **AFFECTED** zone is selected to prevent inadvertent color temperature shifts when adjusting light levels. The white tuning zone will only respond to this command if it is the only zone selected.

Setting	Default	Description

Unoccupied Action	User created area:
	• Select Scene: Scene 0 (0%)
	Imported WaveLinx CAT area:
	• Zone Level: ALL 0%
		Tap on the drop down to select a different Unoccupied action.
		• **Select scene**: The unoccupied action issues the selected scene using either the default area fade rate, or a uniquely defined fade rate.
		If using scenes, ensure that all the lighting and receptacle zones are included in the selected scene or they will not respond when the unoccupied action occurs.
		• **Zone level:** The Unoccupied action will issue the defined zone level to the selected zone(s) in this area using either the default area fade rate or a uniquely defined fade rate. Select:
		  • **ALL** Zones: All zones in the selected area(s) will be issued the unoccupied action. White tuning zones are automatically excluded.[300]
		  • **AFFECTED** Zones: The response of the zones in the selected area(s) will be based on the previous command. If the previous command was a scene, only the zones that are part of that scene will be adjusted (zones that have been ignored from the active scene will not respond). If the last command was a zone command, only the zone(s) commanded will be adjusted. White tuning zones are automatically excluded.[300]
		  • **Specific Zone**: Select a specific zone in the area. The unoccupied action will only affect the selected zone.

Hold Times for External Occupancy Sensors Connected to WaveLinx PRO Universal Voltage Dimming Switchpacks

If an occupancy set contains external occupancy sensors that are connected to WaveLinx PRO Universal Voltage Dimming Switchpacks the hold time setting for the occupancy set may be affected by the external occupancy sensor's configuration setting. For optimal results:

- Ensure that the external occupancy sensor configuration is set for a 5-minute or less hold time. Refer to the sensor's instructions for details on how to adjust the hold time for that sensor model.
- Do not assign a hold time of less than 5 minutes to the occupancy set in the WaveLinx App.
- The WaveLinx system has been designed such that when the external sensor issues an occupied command through a WaveLinx PRO Universal Voltage Dimming Switchpack, the occupancy set begins to monitor its assigned hold time.
  - If all sensors in the occupancy set become unoccupied prior to the hold time timer expiring, the lighting will remain ON until the WaveLinx occupancy set hold time expires.
  - If the occupancy set hold time expires, and only external sensors connected to WaveLinx PRO Universal Dimming Switchpacks are still in the occupied state, the lighting will remain ON until external sensors issue the unoccupied signal. At this time, because the occupancy set's hold time has already expired, the occupancy set will immediately issue the unoccupied command.

This means that when external sensors are used with WaveLinx PRO Universal Dimming Switchpacks, the hold time will be determined by whichever hold time setting is longest. Setting the external sensor configuration to 5 minutes or less offers the most flexibility to be able to change programming to different hold time settings without the need to make physical sensor configuration adjustments.

See the chart below for clarification:

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7
External Sensor Onboard Hold Time	5 min.	10 min	30 min	20 min	5 min	5 min	5 min
WaveLinx Occupancy Set Hold Time	3 min	5 min	10 min	30 min	30 min	10 min	5 min
Final Unoccupied Hold Time Delay for External Sensors connected to: • WaveLinx PRO Universal Dimming Switchpack	5 min	10 min	30 min	30 min	30 min	10 min	5 min

[300] White tuning zones are automatically exempted from control if the **ALL** or **AFFECTED** zone is selected to prevent inadvertent color temperature shifts when adjusting light levels. The white tuning zone will only respond to this command if it is the only zone selected.

Hold Times for External Occupancy Sensors Connected to WaveLinx PRO Contact Closure Input Modules/WaveLinx CAT Sensor Input Modules

If an occupancy set contains external occupancy sensors that are connected to WaveLinx PRO Contact Closure Input Modules or to WaveLinx CAT Sensor Input Modules, the hold time setting for the occupancy set will be affected by the external occupancy sensor's configuration setting. For optimal results:

- Ensure that the external occupancy sensor configuration is set for a 5-minute or less hold time. Refer to the sensor's instructions for details on how to adjust the hold time for that sensor model.
- The WaveLinx system has been designed such that when the external sensor is connected through a WaveLinx PRO Contact Closure Input Module (in sensor input mode) or a WaveLinx CAT Sensor Input Module, the occupancy set begins its hold time count down after the external sensor's own hold-time has expired (i.e. when the sensor enters vacancy/contact opens).
- This means that when external sensors are used with a WaveLinx PRO Contact Closure Input Module (in sensor input mode) or a WaveLinx CAT Sensor Input Module, the total hold time will be an aggregate of the sensor's onboard hold time plus the occupancy set hold time. Setting the external sensor configuration to 5 minutes or less offers the most flexibility to be able to change programming to different hold time settings without the need to make physical sensor configuration adjustments.

See the chart below for clarification:

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7
External Sensor Onboard Hold Time	5 min.	10 min	30 min	20 min	5 min	5 min	5 min
WaveLinx Occupancy Set Hold Time	3 min	5 min	10 min	30 min	30 min	10 min	5 min
Final Unoccupied Hold Time Delay for External Sensors connected to: • WaveLinx PRO Contact Closure Input Module (SIM Mode) • WaveLinx CAT Sensor Input Module	8 min	15 min	40 min	50 min	35 min	15 min	10 min

Adjusting Occupancy Set Controlled Zones

The occupancy set will automatically be set to control any dimmable, non-dimmable, or receptacle zones in the area, and in the partitioned sub areas. This section describes how to add or remove zones from occupancy set control.

USE WITH CAUTION. Removing zones from an occupancy set may have an undesired effect.

If zones are removed from occupancy set control:

- They will not respond to occupied, energy saver, or unoccupied actions set to issue a Scene, even if they belong to the scene.
- They will not respond to occupied, energy saver or unoccupied actions set to issue an ALL or AFFECTED Zone Level command.

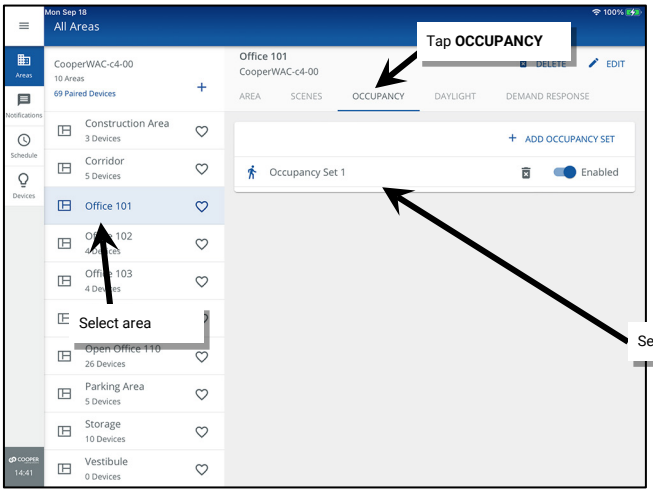
To add or remove controlled zones:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[301] and establish a connection with the WaveLinx Area Controller as the administrator user.

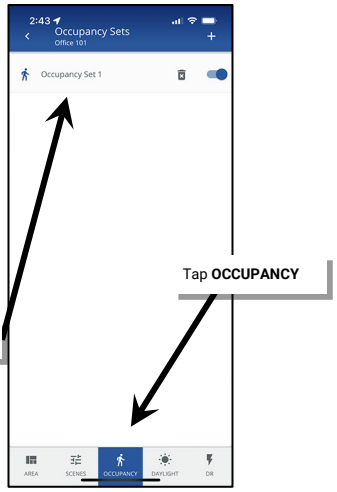
2: In the **All Areas** list, select the area that contains the occupancy sensor set, then tap on the **OCCUPANCY** option.

3: Tap the desired occupancy set.

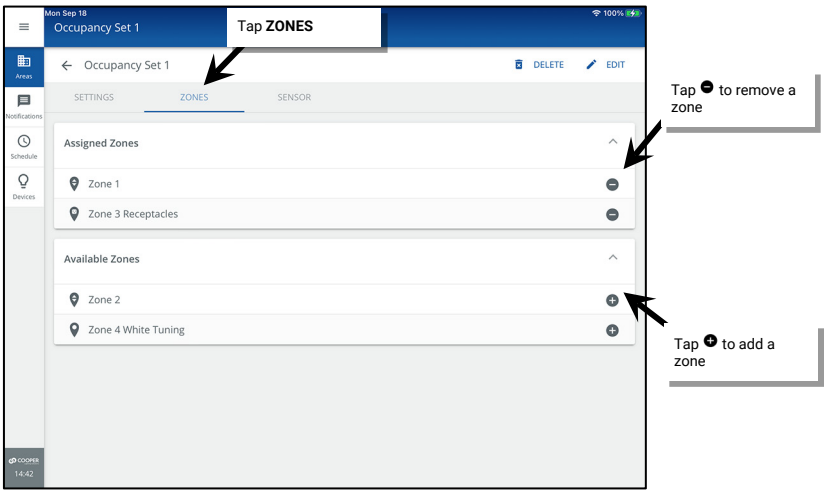
Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



4. Tap the **ZONES** tab. The **Assigned Zones** section will show the zones that operate from the occupancy set while other zones in the area will be in the **Available Zones** area. Tap on **remove** ⊖ to remove a zone or tap on **add** ⊕ to add a zone.[302]



[301] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

[302] White tuning zones can be assigned to an occupancy set to have tunable white devices respond to specified color temperatures when occupancy command occur. If not included in an occupancy set, white tuning zones color temperature will not be affected by occupancy sensor commands.

Adjusting Occupancy Set Assigned Sensors

Any occupancy sensors assigned to the area including WaveLinx PRO and LV Integrated Sensors, PRO Tilemount Sensors, PRO and CAT Ceiling Sensors and external occupancy sensors connected to WaveLinx Universal Voltage Dimming Switchpacks, WaveLinx PRO Contact Closure Input Modules, or CAT Sensor Interface Modules will automatically be assigned to the occupancy set. WaveLinx PRO and CAT Ceiling Sensors and external occupancy sensors connected to WaveLinx Universal Voltage Dimming Switchpacks, WaveLinx PRO Contact Closure Input Modules, or CAT Sensor Interface Modules can be added or removed from the occupancy set. PRO and LV Integrated Sensors and PRO Tilemount Sensors cannot be removed from an occupancy set if the occupancy set controls their attached fixture's zone. This section describes how to add or remove sensors (if allowed) from being part of the occupancy set.

Note: (if Energy Saver Mode is enabled) Energy Saver Mode is not supported in older version WaveLinx sensors: WaveLinx PRO CWPD-1500 or a sensor connected to a WaveLinx PRO WSP-CA-010. If one of these devices is assigned to an occupancy set where Energy Saver Mode is enabled, the message "Important Note: Sensor type is not compatible with energy saver mode." Having these sensors assigned to an occupancy set that uses Energy Saver Mode may reduce the effectiveness of the Energy Saver Mode but will not completely prevent it from operating.

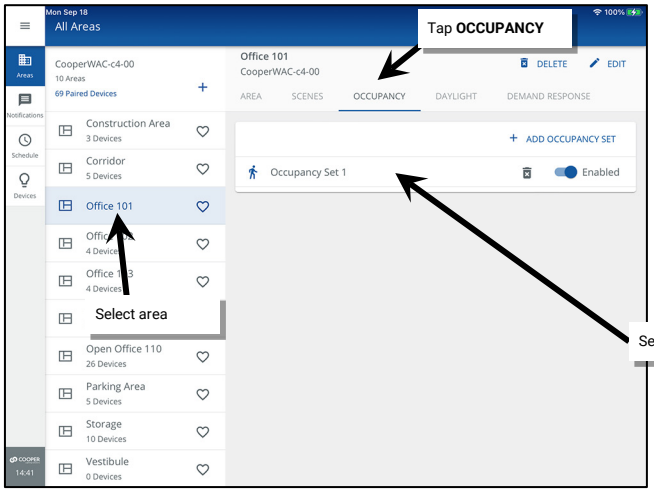
To add or remove occupancy sensors:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[303] and establish a connection with the WaveLinx Area Controller as the administrator user.

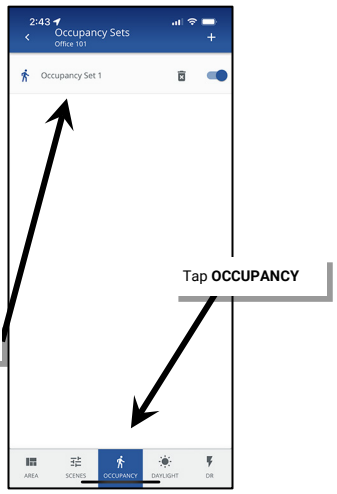
2: In the **All Areas** list, select the area that contains the occupancy sensor set, then tap on the **OCCUPANCY** option.

3: Tap the desired occupancy set.

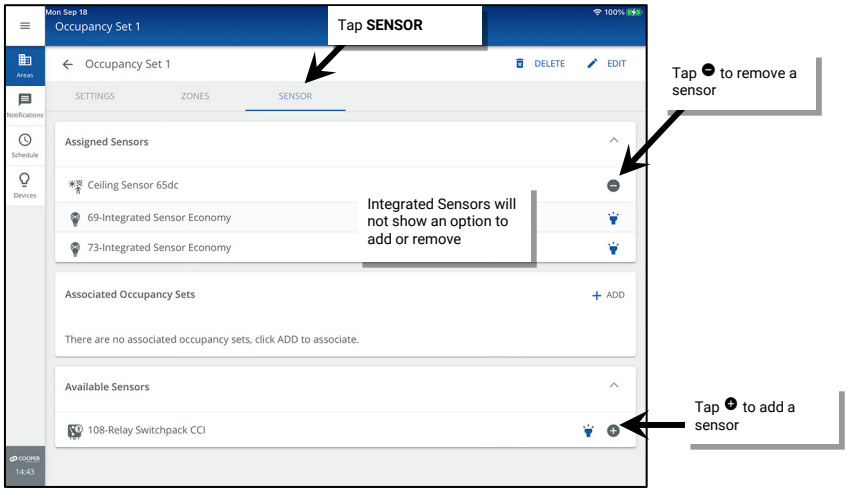
Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



4. Tap the **SENSOR** tab. The **Assigned Sensors** section will show the sensors that operate in the occupancy set. Sensors that are in the area but not assigned to any occupancy set will be in the **Available Sensors** area. Tap **remove** ⊖ to remove a sensor or tap on **add** ⊕ to add a sensor.



[303] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Enabling/Disabling Occupancy Sets

WaveLinx occupancy set can be enabled or disabled manually through the WaveLinx Applications or routinely through an **Enable/Disable Occupancy Detection** schedule event. Disabling an occupancy set will prevent occupancy sensors from operating the assigned zones. When the occupancy set is disabled, the LEDs on the sensors will indicate that they are disabled, flashing white for 1 sec. / OFF for 1 sec. repeatedly until the sensors are enabled.[304],[305]

Make sure that the occupancy set is enabled again either manually or through a schedule event. Once enabled, the occupancy set will issue the programmed commands and the sensor LED(s) will return to normal behavior.

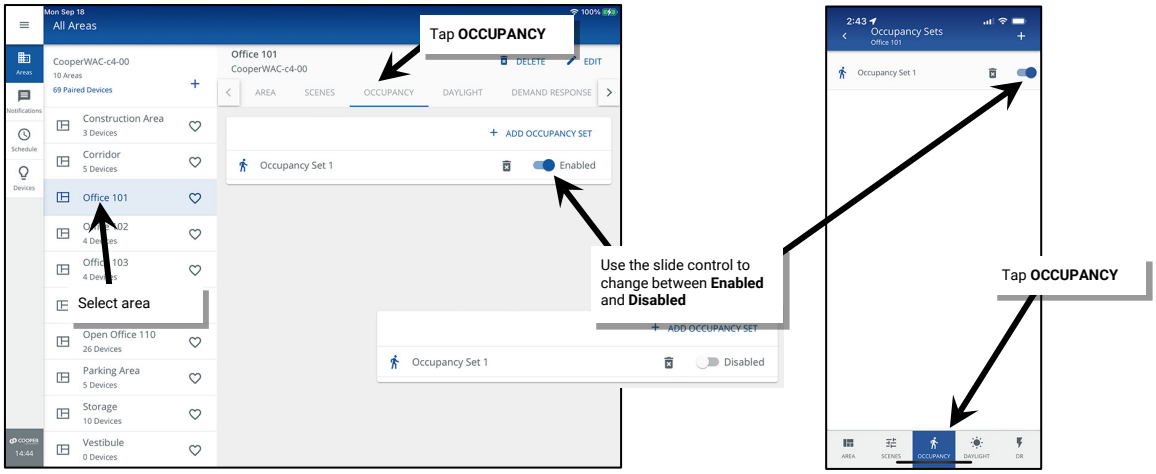
To manually enable/disable occupancy set(s):

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[306] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that contains the occupancy sensor set, then tap on the **OCCUPANCY** option.

3: Locate the desired occupancy set and then use the slide switch to change between **Enabled** and **Disabled**.

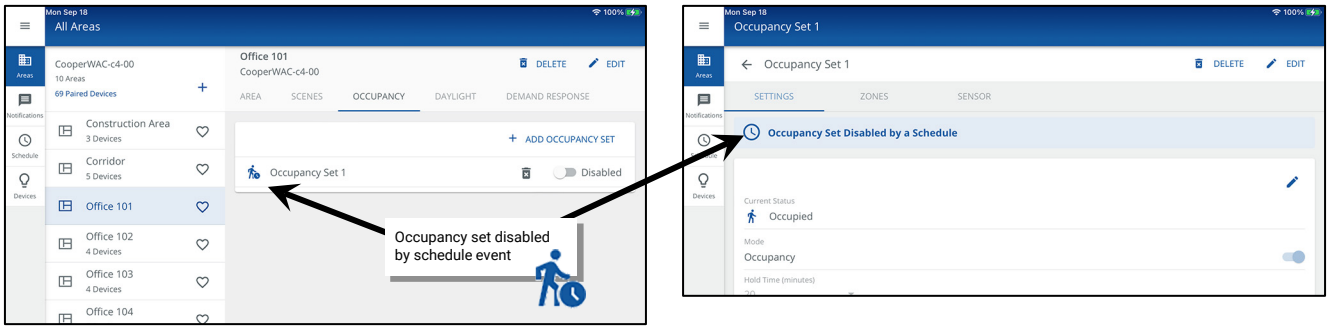
Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View

To use a schedule event to disable/enable occupancy sets, see “Enable/Disable Occupancy Detection Action” on page 323.

The WaveLinx Application will indicate the occupancy set is currently disabled by displaying a clock icon in the occupancy set list and a banner message in the occupancy set screen. The icon and message banner will clear once an enable occupancy detection event occurs or if the occupancy set is manually enabled.[307]



Using Occupancy Set Test Mode

The occupancy set may be placed into a temporary test mode to verify sensor response.[308] If test mode is activated, all WaveLinx PRO and LV Integrated sensors, PRO Tilemount Sensors, and CAT Ceiling Sensors in the occupancy set will be placed in test mode for 45 minutes. During test mode these sensors will operate with a 10 second hold time. If the occupancy set is using Energy Saver Mode, in test mode the occupancy set will issue the occupied action for the first half of the hold time and then will issue the energy saver action for the second half of the hold time.

[304] The SWPD1 (IS) ambient integrated sensor will not display the disabled LED behavior described.

[305] If a closed loop daylight sensor has dimmed lighting to OFF, the LED will flash white for 700ms / yellow for 300ms / OFF for 1 second and then repeat.

[306] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

[307] The schedule event action **Enable/Disable Occupancy Detection** is available on WaveLinx Area Controller minimum software version 12.x.x.x and higher.

[308] Test mode at the occupancy set will place all sensors in the occupancy set into test mode. If needed, for sensors that support the use of the WaveLinx PRO IR Remote, use the occupancy sensor **Occ Test** function to reliably test an individual sensor’s function. Refer to the WaveLinx PRO IR Remote User Guide for details on using this feature.

Battery powered WaveLinx PRO Ceiling Sensors or external occupancy sensors connected to WaveLinx PRO Universal Switchpacks, WaveLinx PRO Contact Closure Input Modules, and CAT Sensor Input Modules will not respond to test mode and will be ignored during the test period to prevent interference with the test of other sensors in the occupancy set.

Occupancy Set Test mode will automatically revert to normal operation after a 45-minute period or may be manually disabled prior to the 45-minute expiration through the WaveLinx App.

To test occupancy sensors:

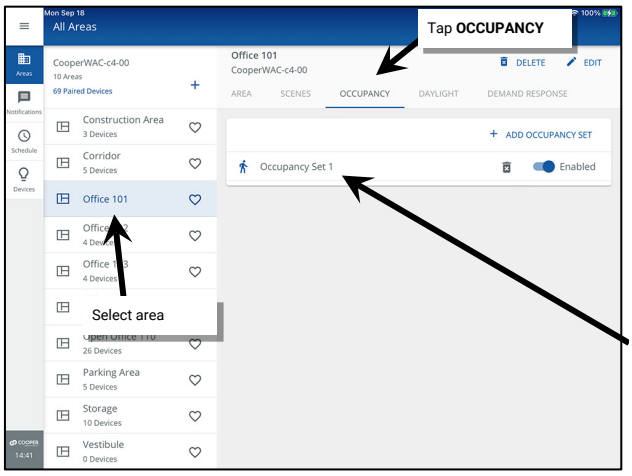
Before proceeding, make sure to test during a time when there is little motion occurring in the area.

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[309] and establish a connection with the WaveLinx Area Controller as the administrator user.

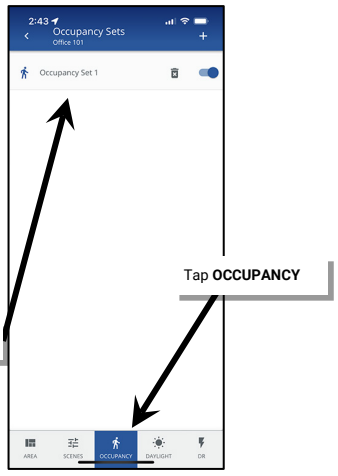
2: In the **All Areas** list, select the area that contains the occupancy sensor set, then tap on the **OCCUPANCY** option.

3: Tap the desired occupancy set.

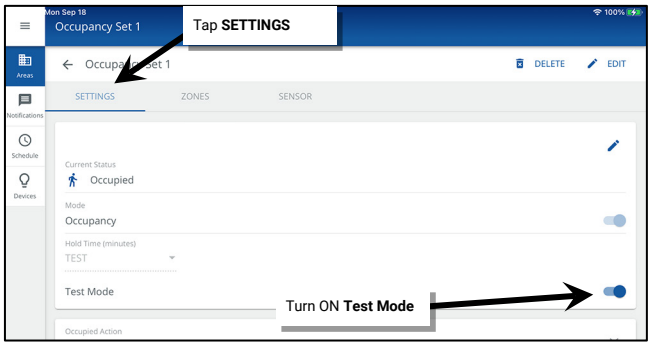
Tablet or Phone Landscape View/WAC Lighting App View

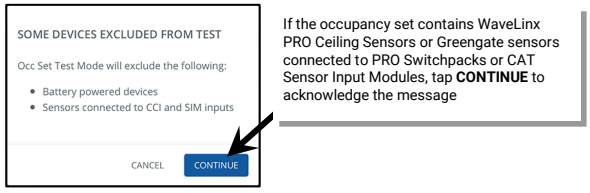


Phone Portrait View



4. In the **SETTINGS** tab, slide the **Test Mode** switch to the ON position. If the occupancy set has WaveLinx Ceiling Sensors or Greengate/external connected sensors, acknowledge the reminder that Ceiling Sensors and Greengate/external connected sensors will be ignored.





5: If lighting is ON, stand still. Lighting should transition to the unoccupied level after 10 seconds of no activity on any sensor.

6: Move to verify that the lighting goes back to the occupied level.

7: Continue this process at each sensor location to verify individual sensor operation. If the sensor sensitivity needs to be adjusted, see page 269.

8: Allow the 45-minute test period to automatically expire or slide the **Test Mode** switch to the OFF position.

Quick Links for Common Questions

- My wallstation or occupancy sensors only work at night. Why is this occurring? See the answer on page 473.
- I am using a WaveLinx Universal Voltage Dimming Switchpack's contact closure input. My dimming switchpack does not have the additional icon showing in the **Devices in Area** section of the WaveLinx App or I do not see the option to set the input type. Why is this icon/input type not showing? See the answer on page 473.

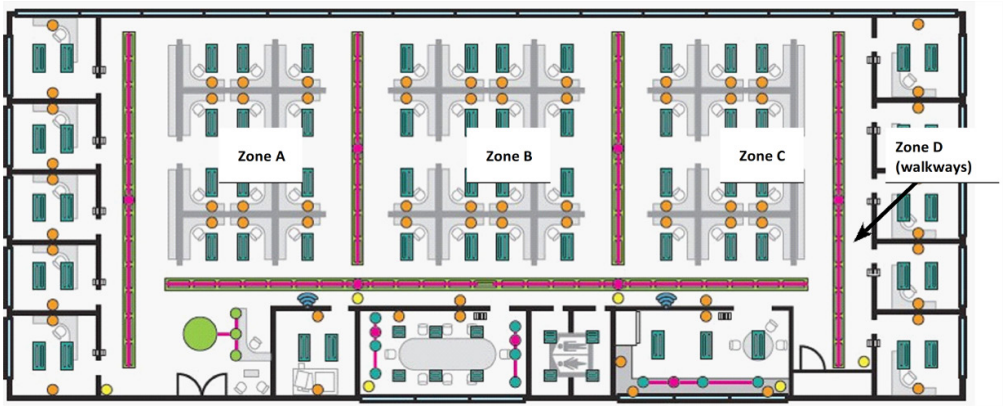
[309] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Creating Additional Occupancy Sets in Standard Areas

Although it is not typical of most applications, one area may require more than one occupancy set. Use additional occupancy sets only when necessary to meet the intended application.

A standard area example application that highlights the use of multiple occupancy sets is an open office area. While the open office is defined as a single area for wallstation control, in this example, the owners desire greater granularity for occupancy sensor control. Occupancy sensor response is to be limited to specific zones within the open office space.

In the given application, light fixtures are grouped into unique zones to achieve the desired occupancy sensor operation. Occupancy sets need to be created for each of these unique zones

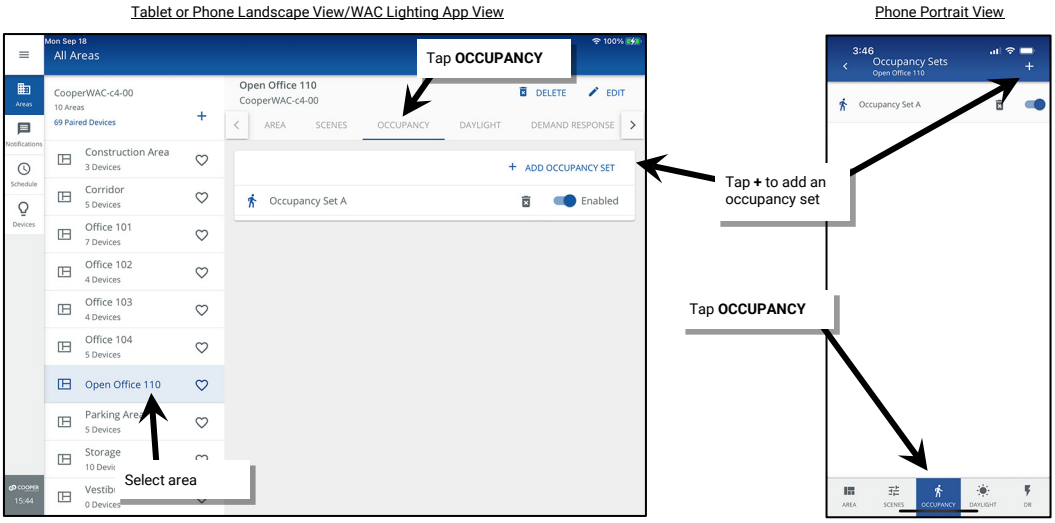


To create a new occupancy set:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[310] and establish a connection with the WaveLinx Area Controller as the administrator user.

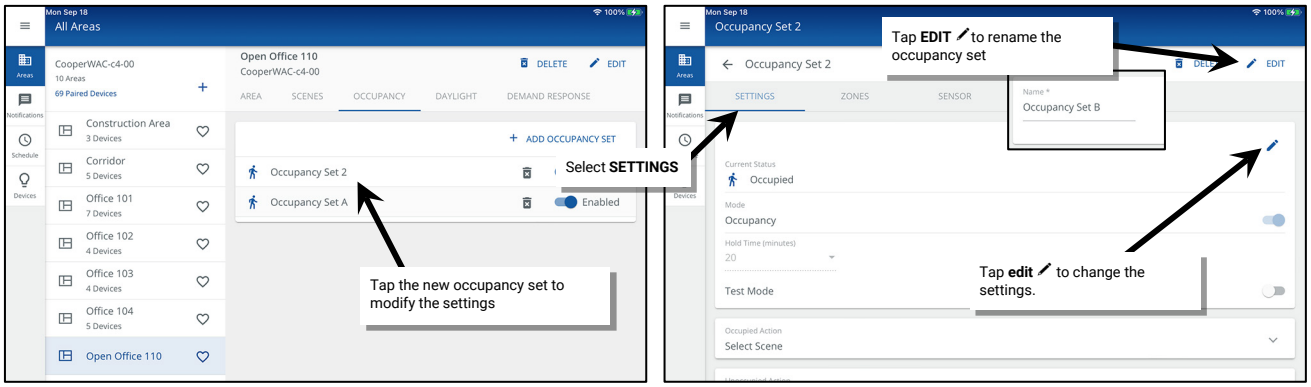
2: In the **All Areas** list, select the area and then tap on the **OCCUPANCY** option. Before proceeding, ensure that the existing occupancy set has the correct configuration, controlled zone(s), and assigned sensor(s). It is helpful also to rename the occupancy set for easy identification.

3: Next, tap **+** to add an occupancy set.

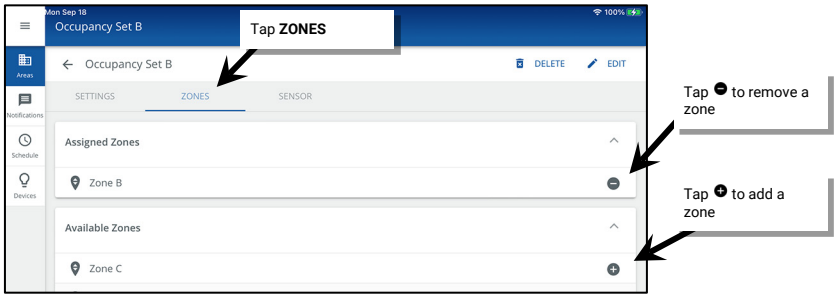


[310] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

4. Tap the new occupancy set to open it for configuration.
5: (Optional) Tap **EDIT** ✎ at the top of the screen to rename the occupancy set.
6: Make sure the **SETTINGS** tab is selected. Define the settings for the occupancy set. See page 269 for an explanation of each of the available settings.

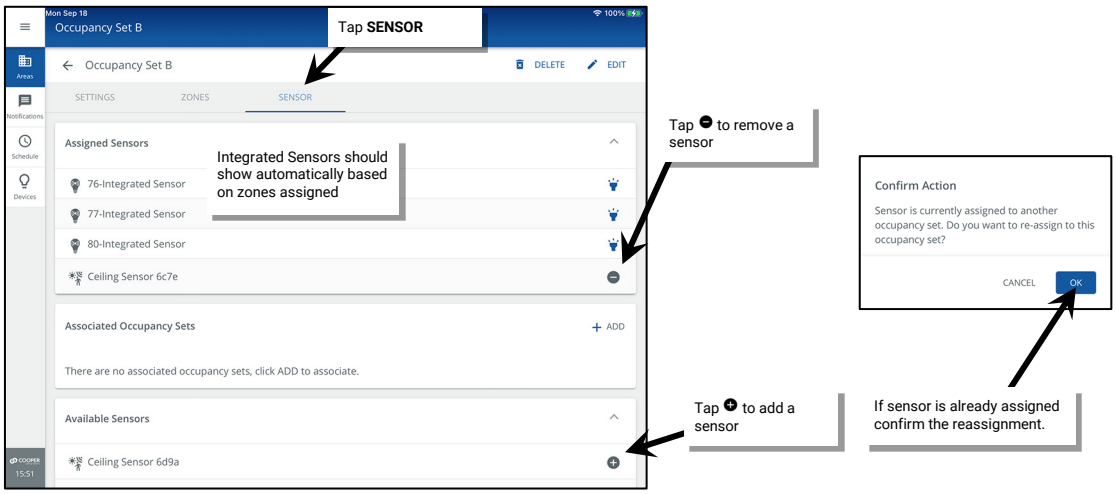


7: Tap the **ZONES** tab. Tap on **remove** ⊖ or **add** ⊕ to select the controlled zone(s).[311]



8: Next, tap the sensors icon. Verify that the displayed assigned sensors are correct. If the assigned zones consist of fixtures with Integrated Sensors, the sensors from the controlled zone will automatically be displayed. WaveLinx PRO and CAT Ceiling Sensors and external occupancy sensors connected to WaveLinx PRO Universal Switchpacks, WaveLinx PRO Contact Closure Input Modules, and WaveLinx CAT Sensor Input Modules may need to be manually assigned.

To add a sensor, expand the **Available Sensors** which will display any sensors in the area that are available to assign (integrated sensors will not have the option to add). Once the correct sensor is located, tap on **add** ⊕ to add a sensor or tap **remove** ⊖ to remove a sensor from the occupancy set.[312]



The occupancy set configuration is now complete.

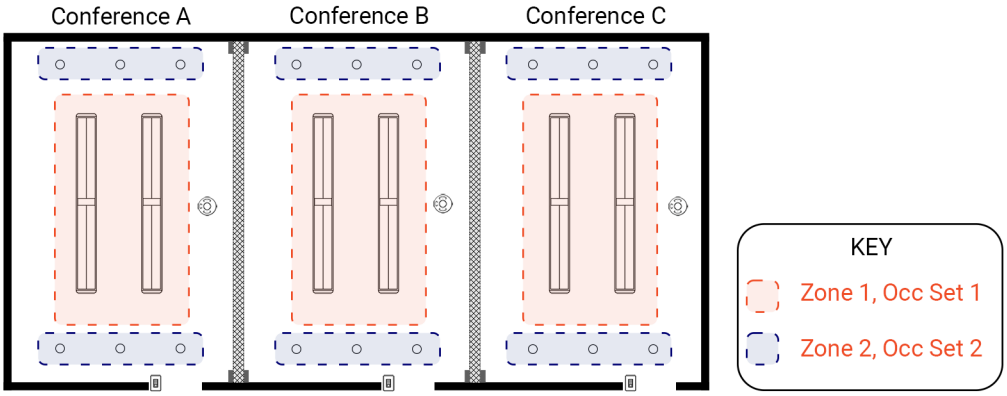
[311] White tuning zones can be assigned to an occupancy set if desired. If not included in an occupancy set, white tuning zones color temperature will not be affected by occupancy sensor commands.
[312] Assign sensors to only one occupancy set to avoid confusion.

Creating Additional Occupancy Sets in Partitioned Areas

In partitioned areas, careful thought should be used when using additional occupancy sets. In most cases, a partitioned area should use only one occupancy set. Use additional occupancy sets only when necessary to meet the intended application.

An example application that highlights the use of more than one occupancy sets in a partitioned space is shown below. In this partitioned space, the owner would like suspended lighting to turn OFF after 10 minutes of the space becoming unoccupied. The recessed lighting (zone 1) should remain ON for an additional 5 minutes and turn OFF.

In the given application, a partitioned area is created with three sub areas and two walls. Two zones are created, one for the suspended fixtures and one for the recessed lighting. Two occupancy sets are created, one for each zone. Zones 1 and 2 and Occupancy Set 1 and 2 are assigned to each sub area.



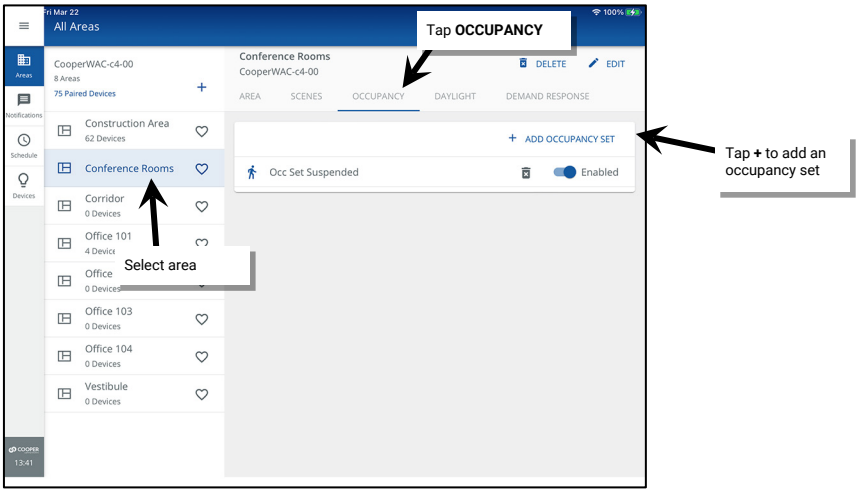
To create a new occupancy set in partitioned area and verify that they are properly assigned to the sub area(s):

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[313] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area and then tap on the **OCCUPANCY** option. Before proceeding, ensure that the existing occupancy set has the correct settings, controlled zone(s), and assigned sensor(s). It is helpful also to rename the occupancy set for easy identification.

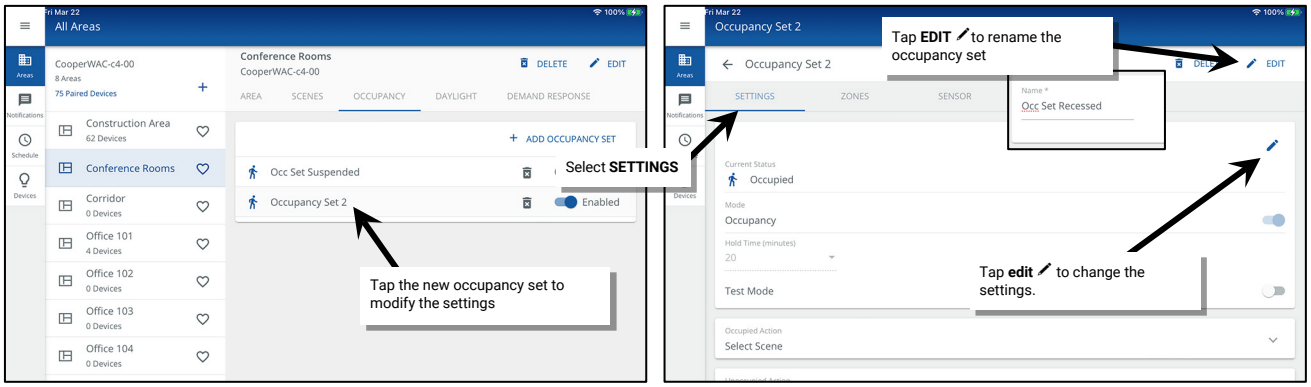
3: Next, tap **+** to add an occupancy set.

Tablet or Phone Landscape View/WAC Lighting App View

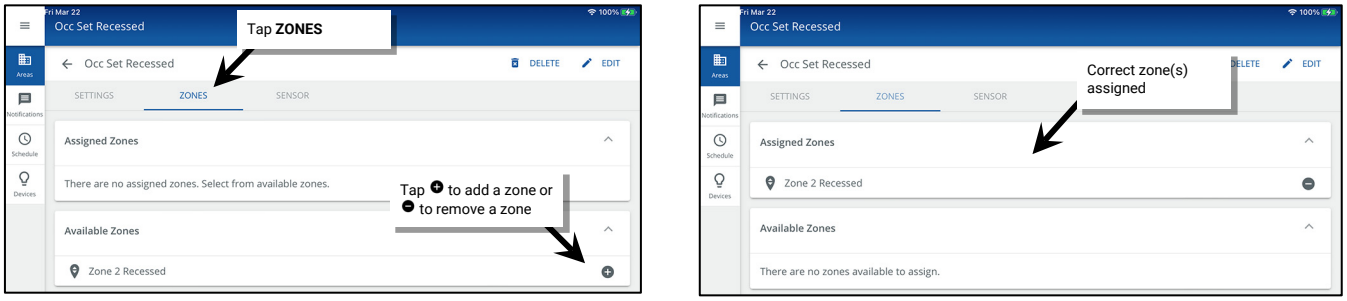


[313] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

4. Tap the new occupancy set to open it for configuration.
5: (Optional) Tap **EDIT** ✎ at the top of the screen to rename the occupancy set.
6: Make sure the **SETTINGS** tab is selected. Define the settings for this occupancy set. See page 269 for an explanation of each of the available settings.

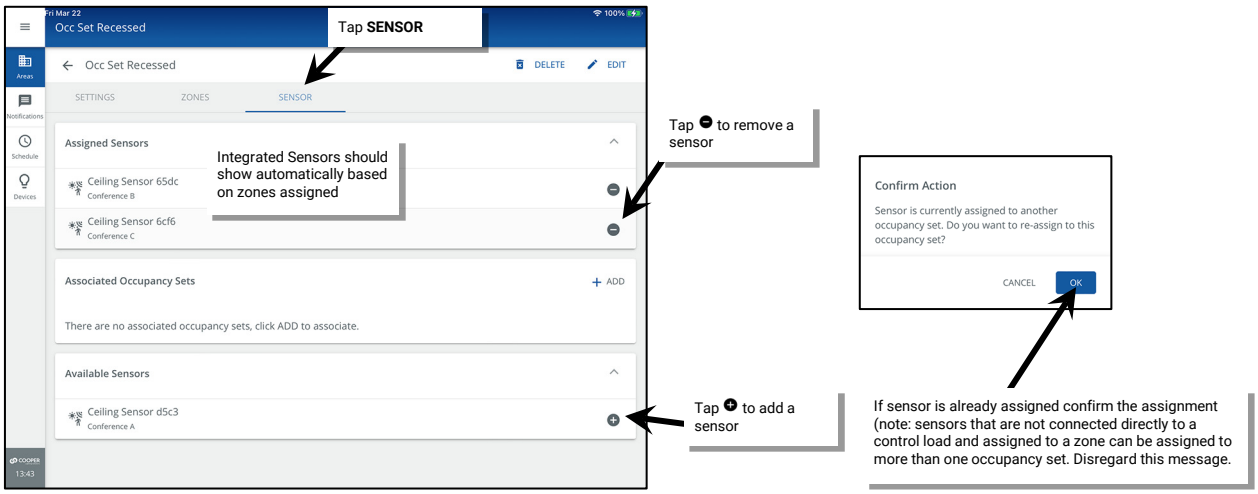


7: Tap the **ZONES** tab. Tap on **remove** ⊖ or **add** ⊕ to select the controlled zone(s) until the controlled zones are showing in **Assigned Zones**.[314]



8: Next, tap the sensors icon. Verify that the displayed assigned sensors are correct. If the assigned zones consist of fixtures with Integrated Sensors, the sensors from the controlled zone will automatically be displayed. WaveLinx PRO and CAT Ceiling Sensors and external occupancy sensors connected to WaveLinx PRO Universal Switchpacks, WaveLinx PRO Contact Closure Input Modules, and WaveLinx CAT Sensor Input Modules may need to be manually assigned.

To add a sensor, expand the **Available Sensors** which will display any sensors in the area that are available to assign (integrated sensors will not have the option to add). Once the correct sensor is located, tap on **add** ⊕ to add a sensor or tap **remove** ⊖ to remove a sensor from the occupancy set.[315]



Verify that all sub areas have the correct Occupancy Sets assigned. See “Assigning Occupancy Sets to Partitioned Sub Areas” on page 292.

[314] White tuning zones can be assigned to an occupancy set if desired. If not included in an occupancy set, white tuning zones color temperature will not be affected by occupancy sensor commands.
[315] Assign sensors to only one occupancy set to avoid confusion.

Assigning Occupancy Sets to Partitioned Sub Areas

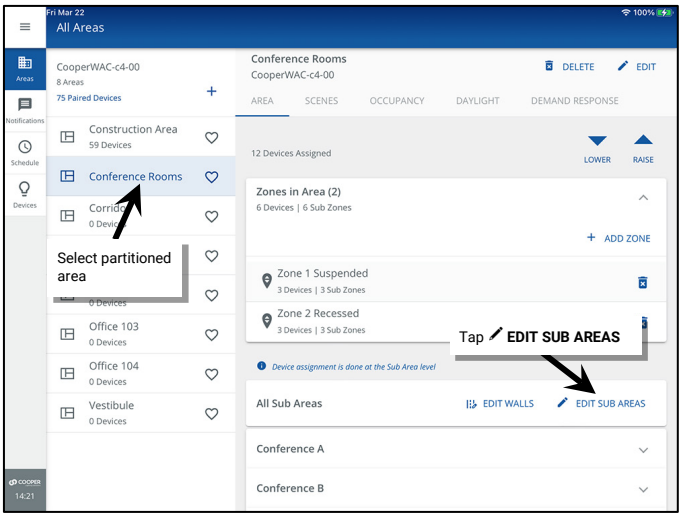
When the zone is assigned to an Occupancy Set in a partitioned area, if a sub area has a device assigned to that zone, the Occupancy Set is automatically assigned to the sub area. This creates an Occupancy Sub Set for the sub area . Each occupancy sub set controls the independent sub area when partitioned walls are closed. When the walls are open, the Occupancy Sub Sets join to operate the joined areas.

If an occupancy set assignment is removed from a sub area, the occupancy sensors in that sub area will not operate to control that sub area.

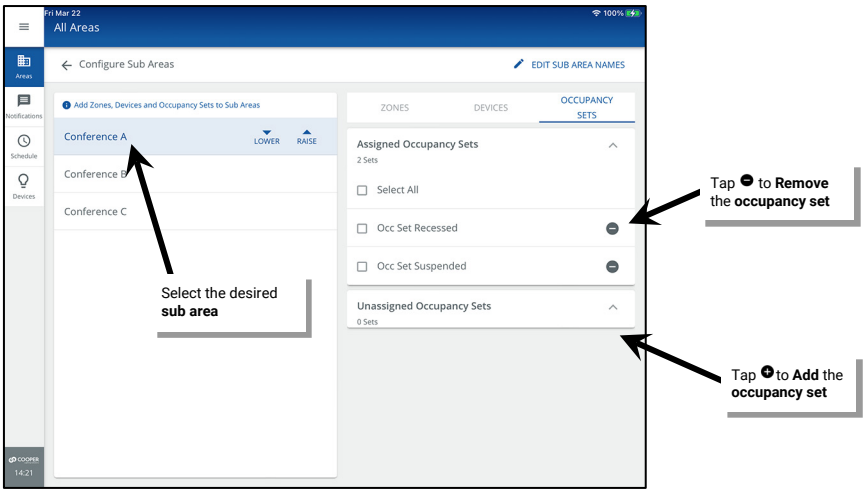
To make sure that used occupancy sets are assigned to the sub areas:

1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator. In the **All Areas** list, tap the partitioned area name.

2: In the **All Sub Area** section, tap ✎ **EDIT SUB AREAS**.



3: Select the sub area to adjust and select the **OCCUPANCY SETS** tab. Tap ⊕ **Add** to assign an occupancy set to the sub area. Tap ⊖ **Remove** to unassign an occupancy set from the sub area. Make sure that all used occupancy sets are showing in the **Assigned** section.



Associating Occupancy Sets for Overlapping or Cascading Control

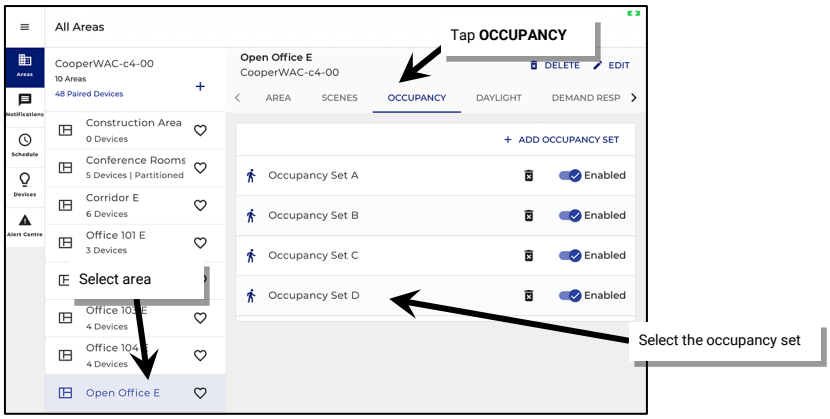
Associate an occupancy set with other occupancy sets to overlap or cascade control. This allows occupancy set commands to be shared to other areas or even to other WaveLinx Area Controllers if they are part of a WaveLinx CORE system.[316] This section will first show how to create an association. It then will present two examples of how an association might be used. Before proceeding, create all required occupancy sets, making sure to assign the controlled zone(s) and to assign the correct sensor(s).

To associate the occupancy set:

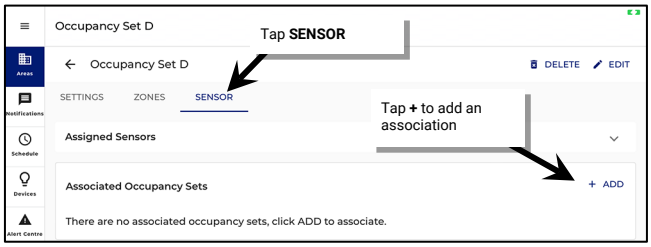
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[317] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that contains the occupancy sensor sets, then tap on the **OCCUPANCY** option.

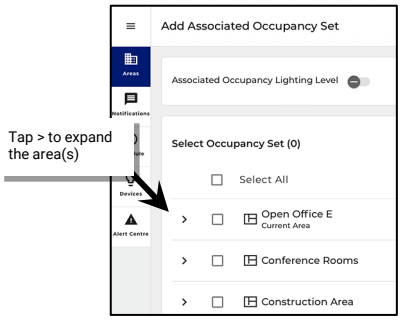
3: Tap the desired occupancy set. As a rule, start by modifying the occupancy set that needs to receive signals from other occupancy sets. For instance, if zone D needs to operate from sensors within its own occupancy set **and** from sensors in other occupancy sets, then modify occupancy set D.

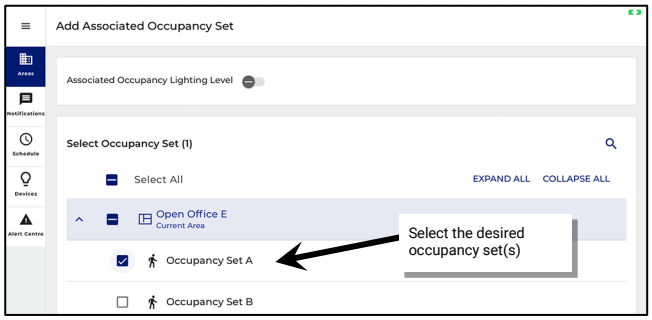


4. Tap the **SENSOR** tab. Tap **+ ADD** in the **Associated Occupancy Sets** section.



5: Locate the area(s) and tap > to expand the area(s) and show the occupancy sets. Select the occupancy set(s) that should pass commands to this one (for example, if zone D/occupancy set D needs to respond to commands from occupancy set A, select occupancy set A).





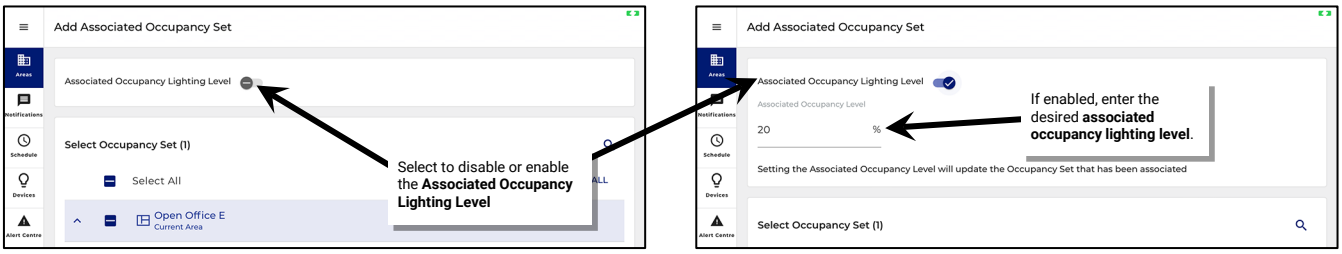
In WaveLinx version 16.1 and higher, if the WaveLinx Area Controller(s) are connected through a WaveLinx CORE system, the CORE programming screen will allow selection of **areas** and **occupancy sets** from any WaveLinx Area Controller in the same building. This allows for Cross-WAC Sharing. For more details on this feature, see “Appendix C: Cross-WAC Sharing in WaveLinx CORE” on page 487.

[316] As of WAC version 16.1 and higher, associated occupancy sets can be selected from any WAC that belongs to the same WaveLinx CORE system.

[317] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

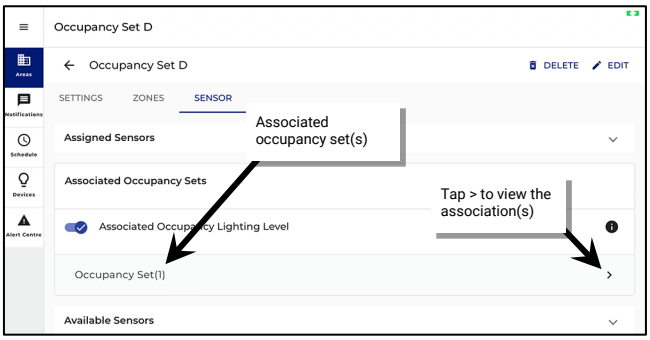
6: Next, choose the desired **Associated Occupancy Lighting Level** settings.[318] The **Associated Occupancy Lighting Level** is the light level that the controlled zone(s) should go to when triggered from an associated occupancy set. For instance, in this example we have associated occupancy set A to occupancy set D. If there is currently no motion being detected in occupancy set D but an occupancy sensor in occupancy set A senses motion:

- If the **Associated Occupancy Lighting Level** is **disabled and Energy Saver Mode is disabled on Occupancy set D**: Occupancy set D's controlled zones will go to the occupied light level/scene defined for the occupancy set (occupancy set D).
- If the **Associated Occupancy Lighting Level** is **disabled and Energy Saver Mode is enabled on Occupancy set D**: Occupancy set D's controlled zones will go to the Energy Saver light level/scene defined for the occupancy set (occupancy set D).
- If the **Associated Occupancy Lighting Level** is **enabled**: Enter the desired light level (default 20%). Occupancy set D's controlled zones will go to the defined **Associated Occupancy Lighting Level** rather than the light level/scene defined for occupancy set D.



7: Tap **SAVE.**

The associated occupancy set(s) should be referenced in the **Sensors** tab. Tap > to view or change the association(s).



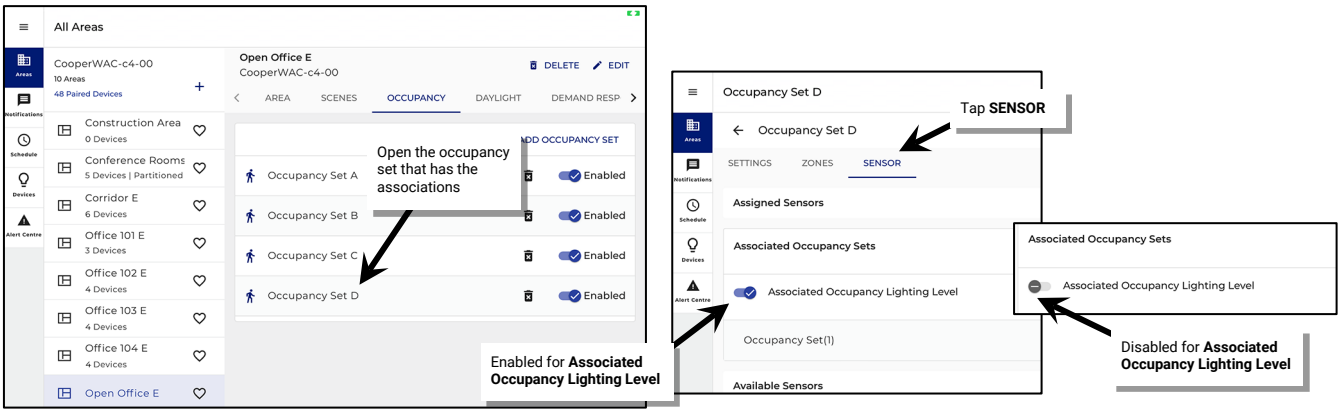
Note: The **Associated Occupancy Lighting Level** is a single entry. If the **Associated Occupancy Lighting Level** is enabled, all associated occupancy sets will issue the same light level when occupancy is detected. The light level defined when associating the first occupancy set will be the default level displayed during other associations. If the light level is changed during a subsequent association, a warning message will be displayed asking if the previously set level should be updated.[318]

[318] **Associated Occupancy Lighting Level** settings are available when using WaveLinx Area Controller firmware version 10.0.x.x and higher. This option is not available WAC2 firmware version 9.x.x.x. WAC2 firmware 9.x.x.x may be updated. If the WAC2 v9.x.x.x was using associated occupancy sets prior to the update, the associated occupancy lighting level will need to be programmed after the update is complete.

Enabling or Disabling the Associated Occupancy Lighting Level

Once an **Associated Occupancy Lighting Level** has been assigned, it can be easily changed between enabled or disabled. Open the area's occupancy set and then navigate to the **Sensor** tab. Use the enable/disable switch at the top of the **Associated Occupancy Sets** list to switch between enabling or disabling the **Associated Occupancy Lighting Level**.[319]

- If the Associated Occupancy Lighting Level is disabled and Energy Saver Mode is disabled, the occupancy set will issue its programmed occupied action if one of the associated occupancy sensors is occupied.
- If the Associated Occupancy Lighting Level is disabled and Energy Saver Mode is enabled, the occupancy set will issue its programmed Energy Saver action if one of the associated occupancy sensors is occupied.
- If the Associated Occupancy Lighting Level is enabled, the occupancy set will issue the **Associated Occupancy Lighting Level** that was assigned when adding the associated occupancy sets.



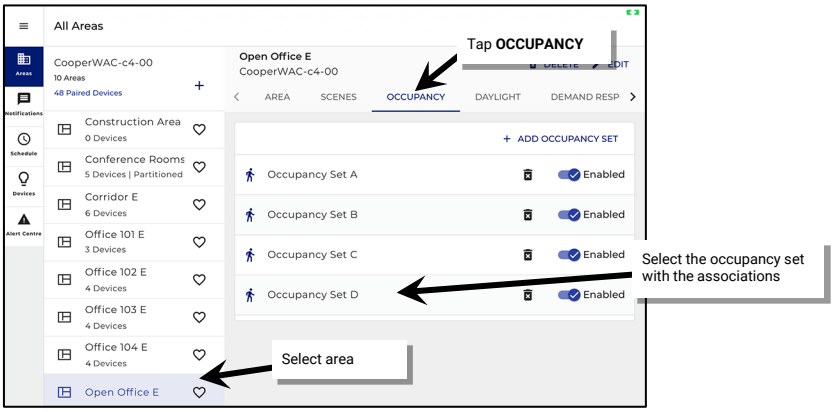
Changing the Associated Occupancy Lighting Level

Once an **Associated Occupancy Lighting Level**[319] has been assigned, it remains at that level unless a manual change is forced. To change the previously assigned **Associated Occupancy Lighting Level**:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[320] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that contains the occupancy sensor sets, then tap on the **OCCUPANCY** option.

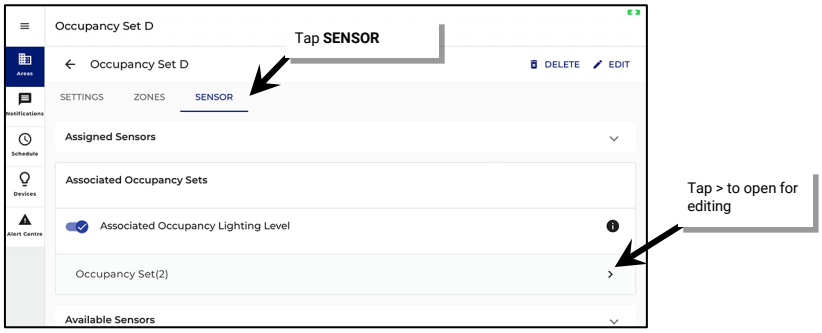
3: Select the occupancy set that has the association(s).



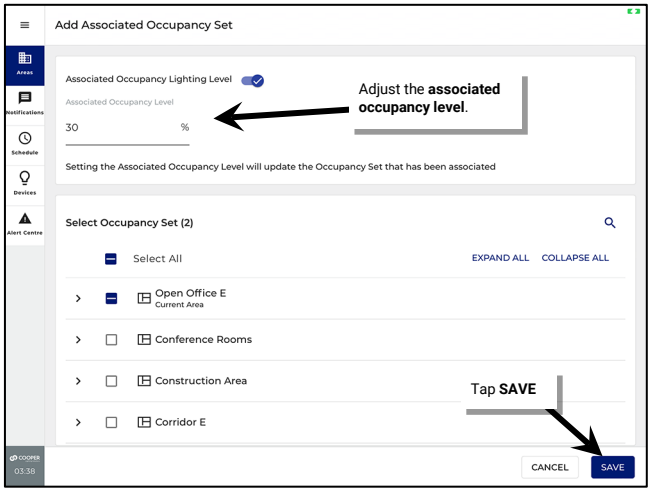
[319] **Associated Occupancy Lighting Level** settings are available when using WaveLinx Area Controller firmware version 10.0.x.x and higher. This option is not available in WAC2 firmware version 9.x.x.x. WAC2 firmware 9.x.x.x may be updated. If the WAC2 v9.x.x.x was using associated occupancy sets prior to the update, the associated occupancy lighting level will need to be programmed after the update is complete.

[320] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

4: Open the **SENSOR** tab and tap > next to the associated occupancy set(s) to open the association for editing.



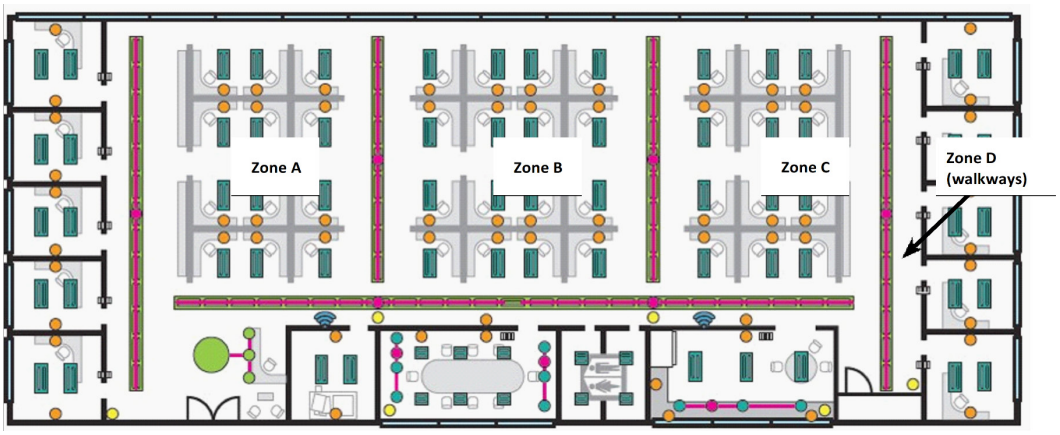
5: Adjust the **Associated Occupancy Level** to the desired level and then tap **SAVE**.



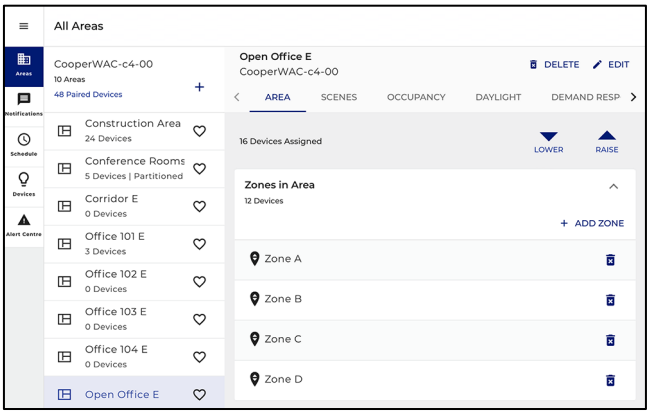
6: If the light level selected is different from the previously assigned level, confirm the change by tapping **YES I'M SURE**.

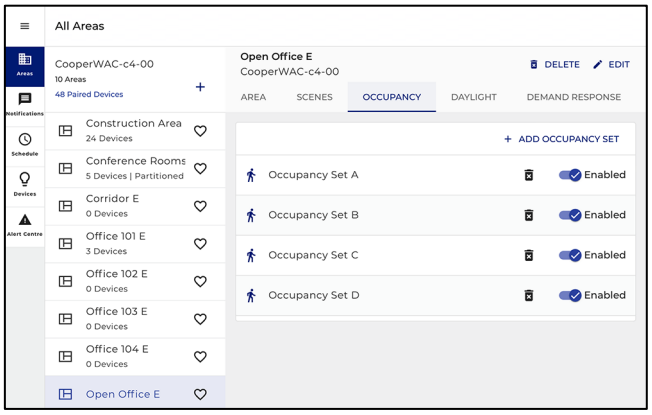
Application Example 1: Open Office

In this example, an open office has been segmented into distinct occupancy control zones. The walkway path has also been placed in a unique control zone. The walkway path zone should turn ON if anyone enters or remains in the walkway path. If the walkway path is not actively occupied but there are occupants in any zone A, B or C, the walkway path zone should remain ON but dim to a 20% light level.[321]

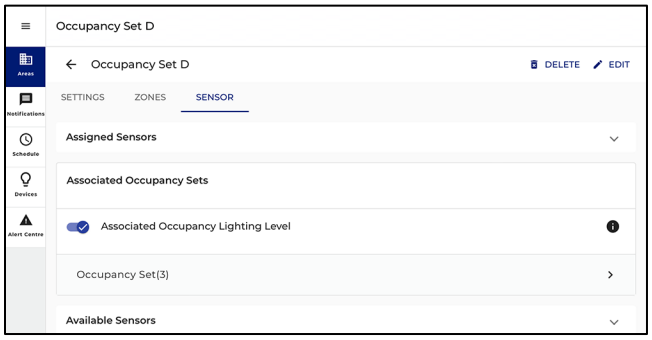


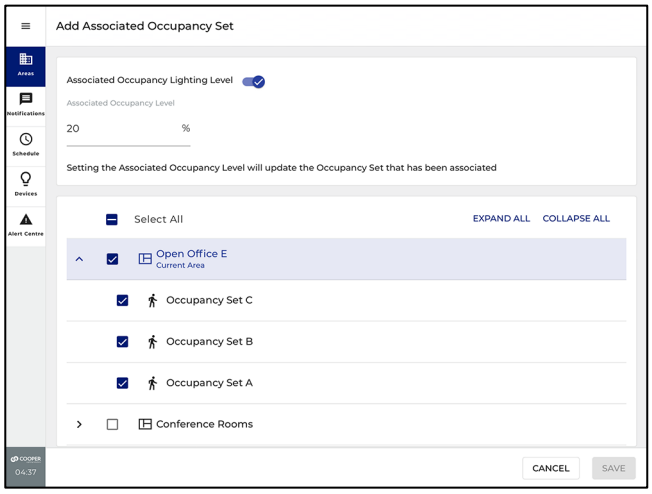
Unique occupancy sets have been programmed in the area for each of the zones shown.





Associations are made between the occupancy sets controlling zone A, B, and C, to the walkway occupancy set D. (Remember, the general rule is to modify the occupancy set that needs to receive signals from other occupancy sets.) In this example, occupancy set D is associated with the other sets. During the association, the **Associated Occupancy Lighting Level** is set to **Enabled** and defined for a level of 20%.[321]





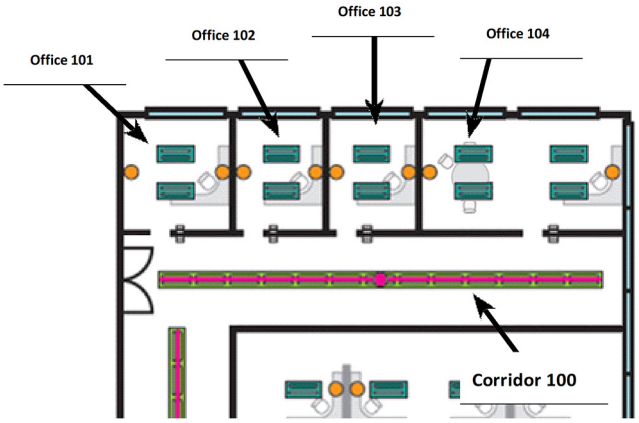
[321] **Associated Occupancy Lighting Level** settings are available when using WaveLinx Area Controller firmware version 10.0.x.x and higher.

With this programming, as an occupant enters the walkway zone D, only zone D will initially respond to its occupied command. As the occupant enters cubicle zone A, the lighting will respond in zone A. If the occupant remains in zone A and zone D is no longer sensing occupancy, zone A will remain in its occupied light level while zone D will dim to the **Associated Occupancy Lighting Level** of 20%. Zone D will remain at this light level unless:

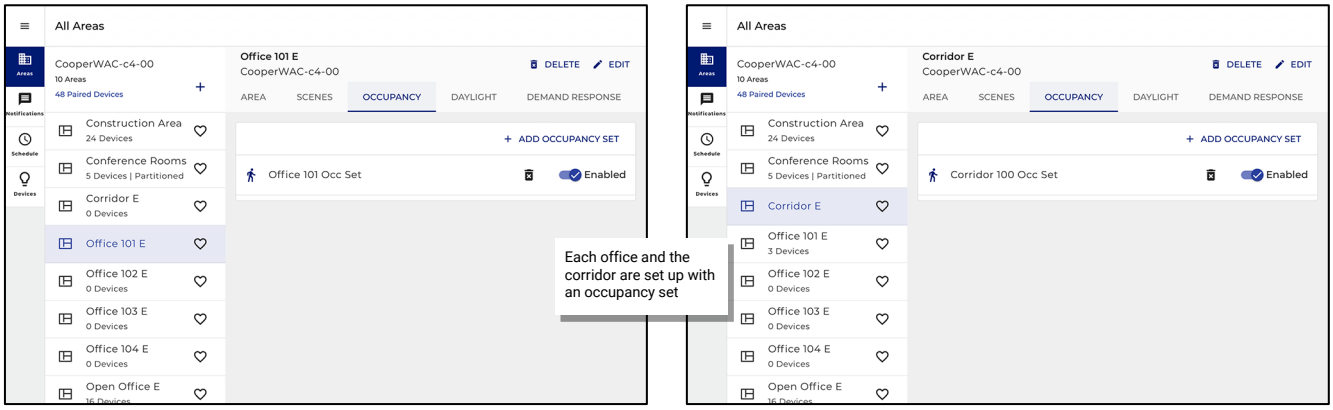
- occupancy is detected on zone D's occupancy sensors, triggering the occupied command for occupancy set D.
- all occupancy sensors in zone A, B, C and D are no longer detecting occupancy; triggering the unoccupied action for occupancy set D (and other occupancy sets).

Application Example 2: Common Area Hold-On Functionality

In this example, one area of the facility consists of private offices and a shared corridor. Each private office has been configured as an area and the shared corridor has been configured as a separate area. The corridor should turn ON if anyone enters the corridor and then should remain ON if there are occupants in any of the private offices. Optionally an **Associated Occupancy Lighting Level** could be applied to dim the corridor to a lower level if it is not actively occupied but occupants are present in the offices.[322]

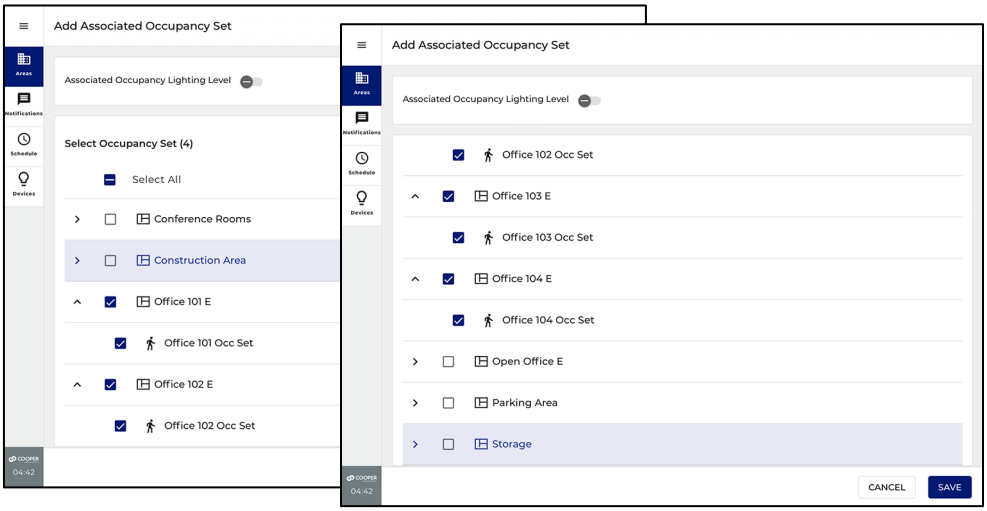


Areas have been created as shown. Each area contains one occupancy set that is defined with a scene command for occupied and unoccupied actions



[322] **Associated Occupancy Lighting Level** settings are available when using WaveLinx Area Controller firmware version 10.0.x.x and higher. Previous version WAC's will not show the **Associated Occupancy Lighting Level** option. If an association is made and an associated occupancy set issues a command, the lighting will respond with the programmed **occupied** action.

Associations are made between the occupancy sets controlling Offices 101, 102, 103, and 104, to the Corridor 100 occupancy set. (Remember, the general rule is to modify the occupancy set that needs to receive signals from other occupancy sets.) In this example, corridor 100's occupancy set will be associated with the others. Optionally, an **Associated Occupancy Lighting Level** could be enabled allowing the corridor to remain ON at a dimmed level if there is no direct occupancy in the corridor but there are occupants in the offices.



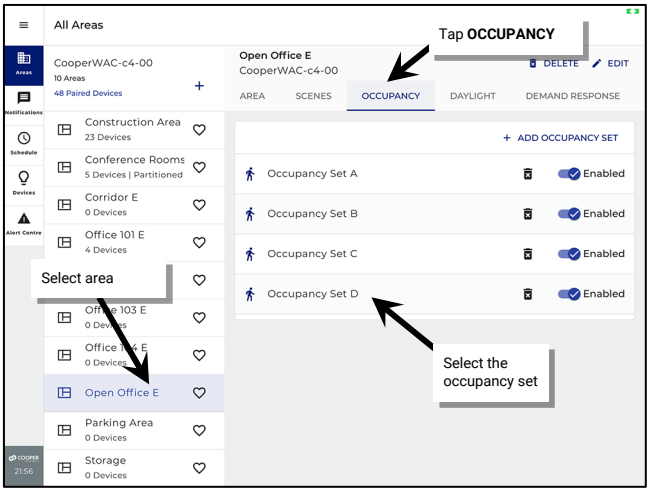
Removing Associated Occupancy Sets

To remove an associated occupancy set:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[323] and establish a connection with the WaveLinx Area Controller as the administrator user.

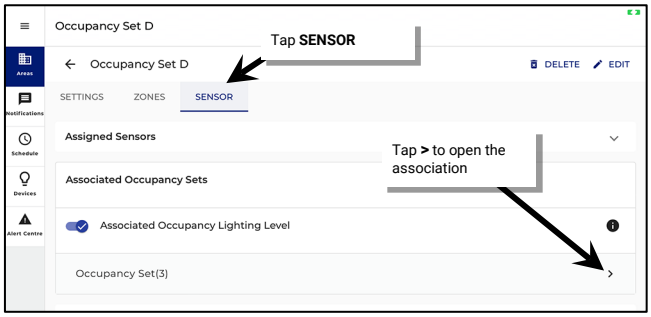
2: In the **All Areas** list, select the area that contains the occupancy sensor sets, then tap on the **OCCUPANCY** option.

3: Tap the occupancy set that has the associations.

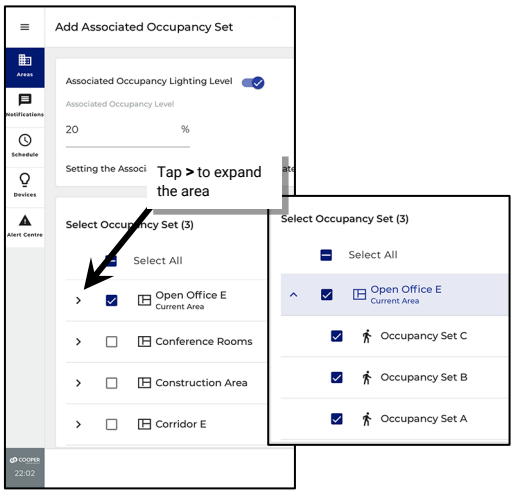


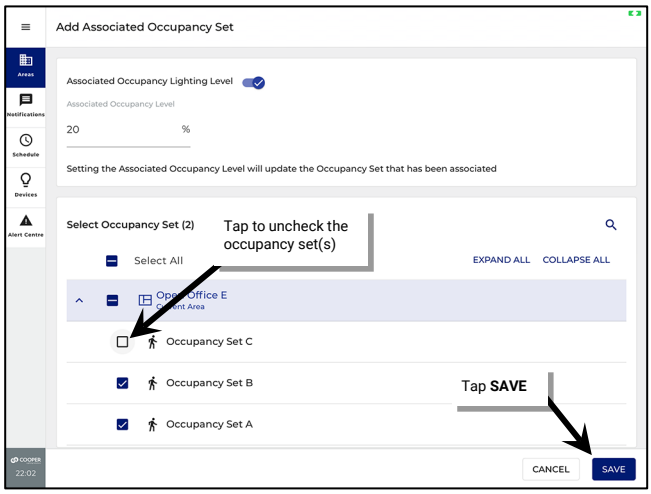
[323] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

4. Tap the **SENSOR** tab. In the **Associated Occupancy Sets** section tap > next to the occupancy set(s) to open the association.



5: Locate the area(s) with the associated occupancy set(s). Tap > to expand the area(s). Uncheck the occupancy set(s) that no longer needs to be associated and then tap **SAVE**.





Deleting Occupancy Sets

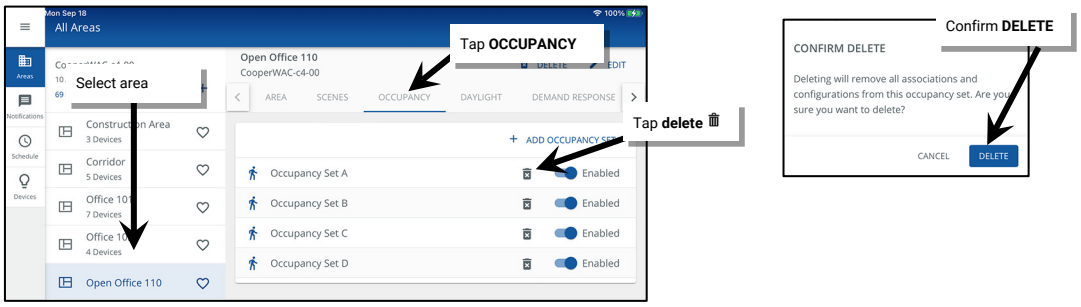
It is possible to delete an occupancy set. Areas that do not have zones assigned to occupancy sets will respond solely to other devices assigned, i.e., wallstation commands, schedule event commands, and daylight set commands. To temporarily remove occupancy sensor control from an area without deleting the occupancy set, the occupancy set can be disabled. See “Enabling/Disabling Occupancy Set” on page 286 for further information.

To delete an occupancy set:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[324] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that contains the occupancy sensor set, then tap on the **OCCUPANCY** option.

3: Locate the desired occupancy set and then tap **delete** 🗑. Confirm the deletion when prompted.



[324] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Modifying Light Levels for Daylight Sensors

The WaveLinx system supports daylight sensor control for both interior and exterior applications. For outdoor applications, the focus is typically on ensuring that the fixtures turn OFF at dawn and turn ON at dusk, in some cases interacting with motion sensors that adjust light levels after dusk based on motion activity. For indoor applications, the focus is typically on trying to maintain a consistent light level in occupied areas by adjusting the amount of electric light needed based on the amount of daylight present in the space.

In both scenarios, the daylighting functionality may be disabled for fixtures that are not located in daylight zones or for any devices where daylight operation is not desired. Tunable white zones/devices cannot be assigned for daylight control.

Daylighting filters or inhibits the fixture's response to other control commands. A command from a wallstation button or occupancy sensor to go to 100% level will adjust the electric light level output to meet the calibrated daylight level (calibrated light level = 100%). A command from a wallstation button or occupancy sensor to go to 50% will adjust the electric light level to meet 50% of the calibrated daylight level. The actual electric light level output with these commands will vary based on the available amount of daylight and how much electric light needs to be contributed to maintain the commanded target. If the electric light has daylight dimmed to the minimum light level or dimmed to OFF (requires **DIM to OFF** to be enabled), lighting will remain at the minimum level or OFF if occupancy or wallstation commands are received, preventing unnecessary energy waste when adequate daylight is present.

Daylighting operation is not affected by partition walls being opened or closed in a partitioned area and operates independently of partitioning logic.

The WaveLinx system supports two different daylighting approaches, closed loop, and open loop.

- **Closed Loop Daylighting:** With the closed loop approach, the sensor controls only its connected light fixture. A closed loop sensor reads the reflected light level from the surface directly below it including light contributed by the electric light and the daylight that falls within the sensor's view. As daylight contribution increases, the sensor dims the electric light to keep the light level on the surface as consistent as possible. By default, as of WAC version 12.x.x.x and higher, the **DIM to OFF** feature is disabled.[325,326] This means that the lighting will remain ON at the defined minimum dimming level if the surface light level is above the desired level. If the **DIM to OFF** feature is enabled and bright daylight causes the surface light level to be above the desired level even after the light level has been fully dimmed, after a period the fixture will dim to OFF.[327] As daylight contribution decreases and the surface light level lowers, the fixture will turn back ON/raise the amount of electric light accordingly. Most WaveLinx PRO and LV Integrated Sensors and WaveLinx PRO Tilemount Sensors can be used for closed loop daylight control.
- **Open Loop Daylighting:** WaveLinx PRO, WaveLinx CAT, and WaveLinx DALI Ceiling Sensors can be used for open loop control in interior spaces along with most WaveLinx PRO and LV Ambient, PRO Industrial Integrated Sensors and PRO Tilemount Sensors.[328] The WaveLinx PRO Outdoor Lighting Control Module and WaveLinx PRO Outdoor Integrated Sensors can be used for open loop daylight control in exterior spaces.[329] Sensor placement is critical with the open loop approach. With open loop daylight control, the sensor is placed in a spot that is optimal for sensing daylight contribution while minimizing the sensor's view of the electric light in the controlled area or self-calibrates during the setup process to learn to filter out the attached fixture's electric light output. A correlation is then made between the daylight level viewed by the sensor and the desired electric light level output, adjusting how much the sensor dims the electric light in response to daylight (adjusting the gain). The sensor adjusts the electric lighting as daylight contribution increases and decreases. By default, as of WAC version 12.x.x.x and higher, the **DIM to OFF** feature is disabled.[325,326] The lighting will remain ON at the defined minimum dimming level if the daylight is very bright. If the **DIM to OFF** feature is enabled and enough daylight is present, the lighting will turn OFF.[330].

  Because the sensor views or interprets daylight contribution and is less affected by changes in the electric light, the sensor can control multiple zones of fixtures. In interior applications, one sensor can control different zones at different light levels. This is a common approach where primary daylight zones next to the windows dim more aggressively than secondary daylight zones located further away. Assigning a zone to an open loop daylight set will automatically disable closed loop daylighting for any WaveLinx PRO and LV Integrated Sensors or WaveLinx PRO Tilemount Sensors that are connected to fixtures in that zone. If using open loop control in a partitioned space, ensure that the partition wall position does not cause shadow such that some fixtures in the daylight zone see diverse levels of daylight contribution. If this is an issue, divide into smaller daylight zones with a zone on each side of the partition with a sensor located within each partition space.

[325] WAC versions prior to version 12.x.x.x will not have the ability of disabling the **DIM to OFF** feature. **DIM to OFF** is automatic when daylighting is enabled.

[326] Ambient Integrated Sensor model SWPD1 (IS) and Low-Voltage Fixture Integrated Sensors (IS-LV) will automatically have **DIM to OFF** enabled and will not offer the ability to disable this feature.

[327] When the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will turn lighting OFF. Lighting will be turned back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated light level for longer than 30 seconds.

[328] WaveLinx Integrated Sensors, Low-Voltage Fixture Integrated Sensors and Tilemount Sensor use for open loop control is contingent on the use of WaveLinx Area Controller v10.0.x.x and higher firmware. Low-Voltage Integrated Sensors do not support this feature.

[329] WaveLinx Outdoor Integrated Sensors assignment for open loop control is contingent on the use of WaveLinx Area Controller v10.0.x.x and higher updated device firmware.

[330] For WaveLinx Integrated and Tilemount sensors, when the measured light exceeds 150% of the calibrated gain for more than 30 minutes, the sensor will turn lighting OFF. Lighting will be turned back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated gain for longer than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated gain for longer than 30 seconds.

For WaveLinx Outdoor Lighting Control Modules, Lighting will turn OFF if the light level has exceeded 65 lux for a period of 180 seconds (3 minutes). Lighting will turn ON if the light level falls below 16 lux for a period of 30 seconds.

Modifying Closed Loop Daylighting Control

This section focusses on the use of closed loop sensor control for WaveLinx PRO Ambient, Industrial, and Outdoor Integrated Sensors, WaveLinx LV Fixture Integrated Sensors, and WaveLinx PRO Tilemount Sensors. This includes details on how to:

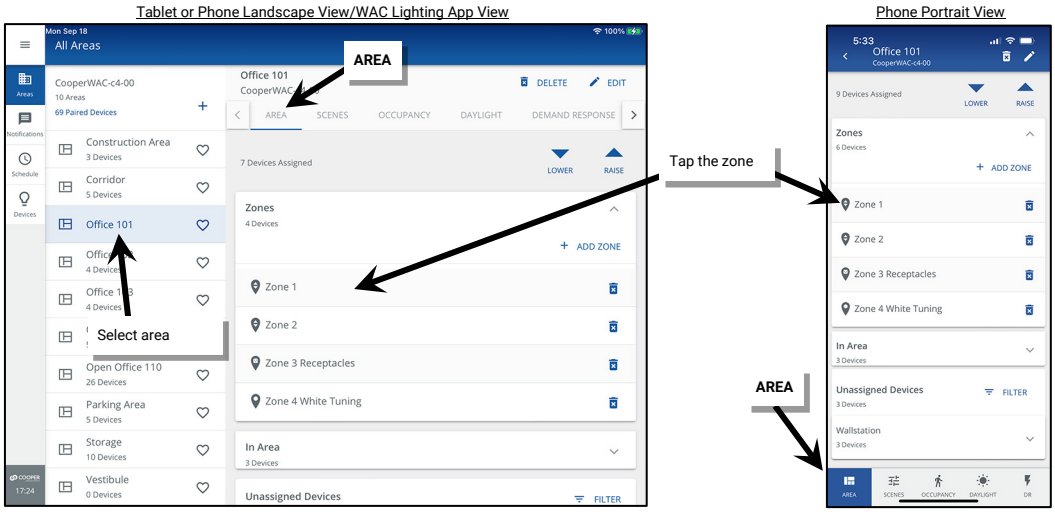
- Identify and rename the daylight set being used for a specific device
- Enable or disable daylighting for closed loop sensors
- Calibrate ALL closed loop sensors in the area
- Calibrate an individual closed loop sensor
- Enable or disable **DIM to OFF** for closed loop sensors

Identifying and Renaming the Daylight Set Being Used for a Specific Device

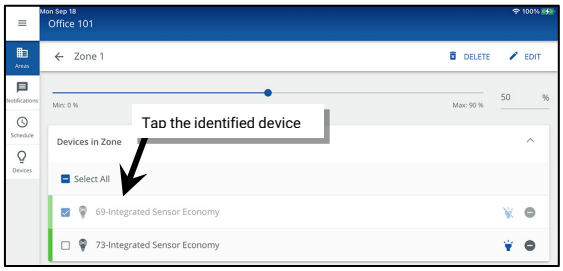
Before disabling or calibrating devices, make certain to identify the daylight set being used to control a specific device. The daylight set can be renamed to be easily identified in the WaveLinx App.

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[331] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that contains the device and then tap on the zone that the device is located within.

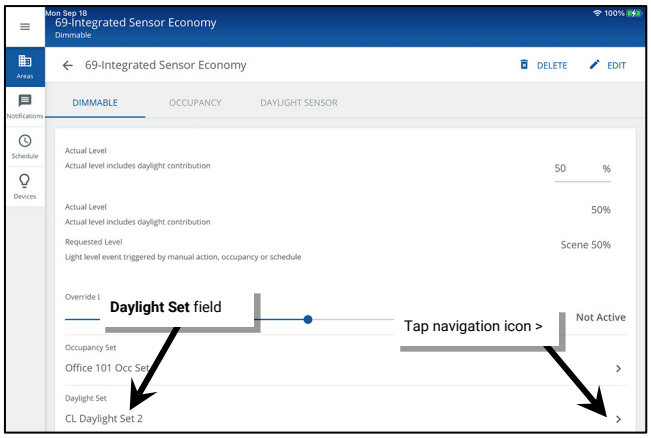


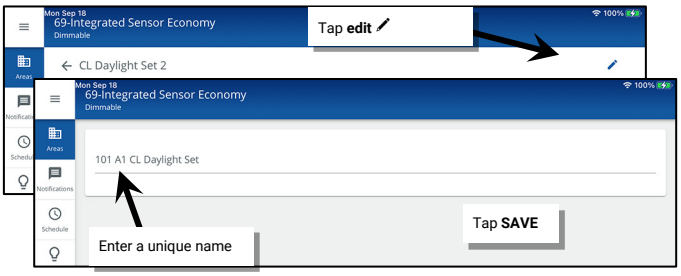
3: If there are multiple fixtures in the zone, identify the correct device using the device's identification method. For partitioned areas, the devices assigned sub area will be listed under the device name to help with identification. Refer to the device reference sheets starting on page 17 for details on the identification methods for that specific device. Once the device is identified, tap on the device to open it.



[331] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

4: In the device's settings page, tap the **Daylight Set** right arrow > to open the daylight set and then tap **EDIT** ✎ to rename the daylight set with a unique descriptive name (or note the current name). Tap **SAVE**.





5: Repeat for all closed loop daylight devices in the area.

Enabling or Disabling Daylighting for Closed Loop Sensors

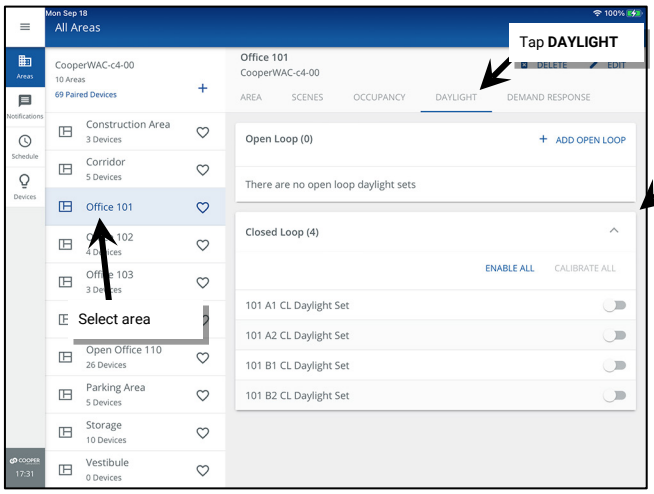
Daylighting can be enabled or disabled for closed loop sensors.[332] For a WAC Gen2 with version 15.x.x.x. the default programming disables closed loop daylighting until daylighting is configured. Manually enable the sensor's daylight set to allow daylight dimming to begin.

Before proceeding, identify each sensor's daylight set using the instructions starting on page 302.

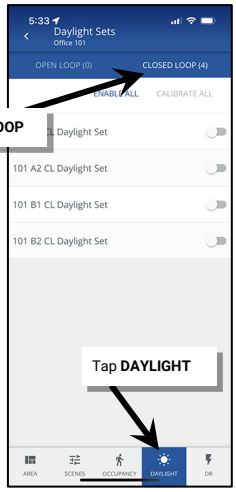
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[333] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the desired area, and then select the **DAYLIGHT** tab. Expand or tap the **CLOSED LOOP** section.

Tablet or Phone Landscape View/WAC Lighting App View



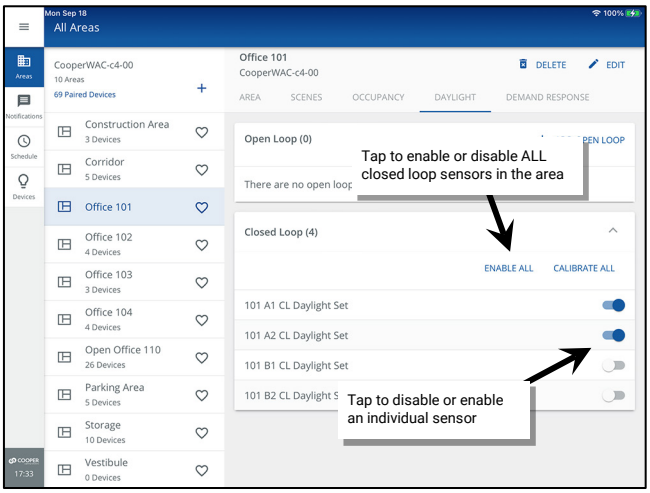
Phone Portrait View



[332] The WaveLinx PRO IR Remote can also be used for adjusting this feature. Refer to the WaveLinx PRO IR Remote User Guide for details on using this feature.

[333] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

3: In the list of closed loop sets, tap the slider next to the identified daylight set to switch between enabled (blue) and disabled (gray). If all closed loop sets should be affected use the **Disable All/Enable All** selection (this will automatically change to the **Disable All** function if all daylight sets are enabled).



Calibrating all Closed Loop Daylight Sensors in an Area

In the WaveLinx system, WaveLinx PRO Ambient, Industrial, and Outdoor Integrated Sensors, WaveLinx LV Fixture Integrated Sensors, and WaveLinx PRO Tilemount Sensors can use closed loop daylighting to directly control the physically connected load. Each daylight sensor is automatically assigned to a unique daylight set.

Each sensor has default factory settings that provide closed loop daylighting to a reasonable light level. Daylight sensor operation begins once the daylight set is enabled.

The default factory settings cannot account for all factors that affect the light level measured at the sensor. The sensor location is not at the surface but at the fixture and therefore its reading of reflected light levels is affected by many variables, including the mounting height and the reflective properties of the surface.

For many applications, no calibration is necessary. **Calibration of sensors is recommended only in the cases where the performance of factory set parameters is unacceptable including:**

- The light level at the surface is consistently too low or too high during periods of moderate daylight.
- The lighting does not turn OFF during periods of bright sunshine (sunrise for outdoor applications).
- The lighting does not turn ON during dark periods (sunset for outdoor applications).

To calibrate the sensors:

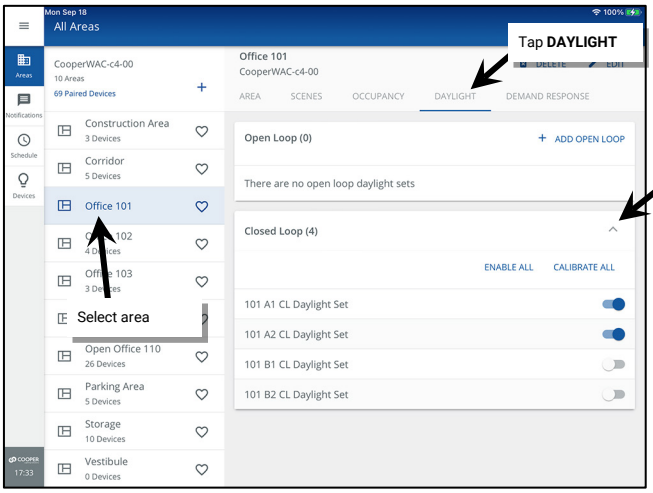
If calibration is necessary, **for best results, calibrate and adjust the target level of all the sensors within one area at the same time using the WaveLinx App's Calibrate All function**. In this method, all the sensors within the space (area) will be calibrated together, accounting for the possible effects of light overlap from adjacent fixtures. If necessary, individual sensor calibration can be used to fine-tune settings.[334]

IMPORTANT: Before calibration, review the recommendations for when and how daylight calibration should be performed for the device type being used. See the "WaveLinx Device Reference Sheets" beginning on page 17.

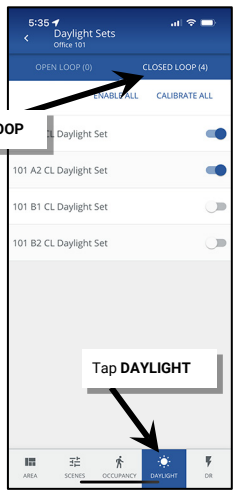
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[335] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that contains the daylight sets, and then select the **DAYLIGHT** tab. Expand or tap the **CLOSED LOOP** section.

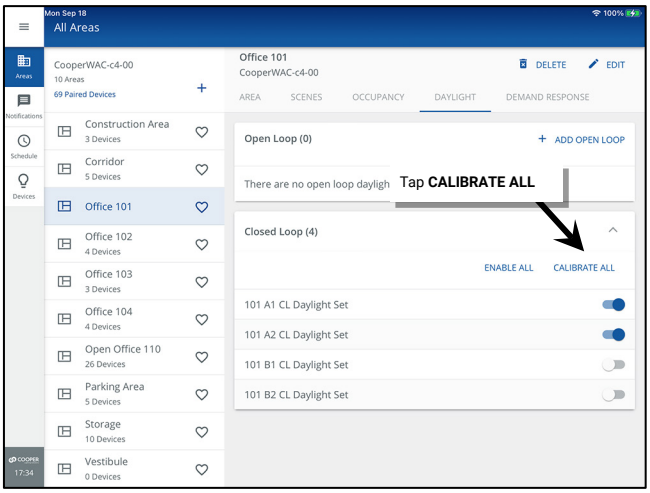
Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



3: Tap the option to **CALIBRATE ALL**. All **enabled** closed loop daylight set lighting devices will go to their brightest light output.



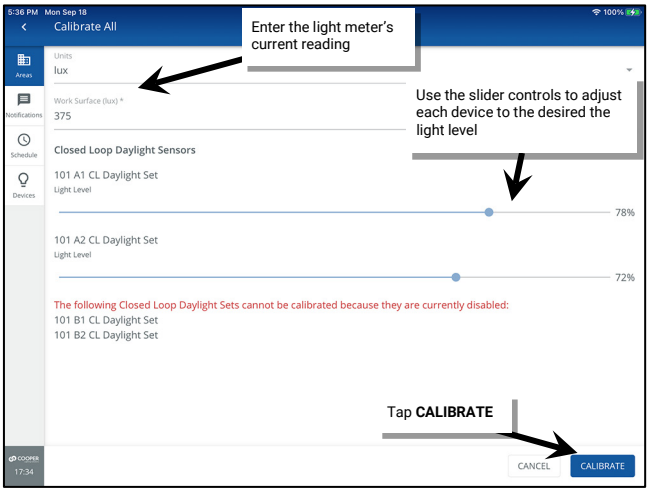
[334] The WaveLinx PRO IR Remote can also be used for adjusting this feature. Refer to the WaveLinx PRO IR Remote User Guide for details on using this feature.

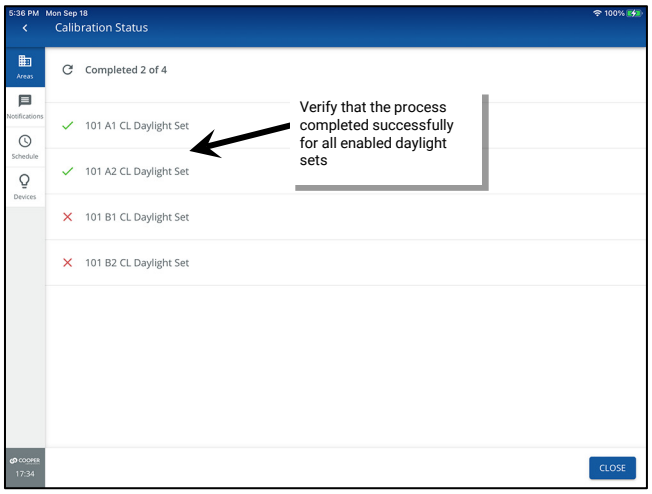
[335] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

4: Use the slider bars to adjust the electric light to the correct level for each controlled device as advised in the **Daylight Calibration Details** section of device's reference sheet.

5: Next, enter the light meter's average surface reading into the **Work Surface** field, changing the units to lux or foot-candles (fc) as needed (The reading should be similar under each fixture if fixtures are properly adjusted). This allows the WaveLinx App's displayed sensor reading to more closely approximate the values that would be read at the work surface.

6: Tap **CALIBRATE**. The WaveLinx App will show whether calibration was successful for all sensors. If failures are reported for sensors that are enabled, repeat the calibration procedure.





Calibrating a Single Closed Loop Daylight Sensor

It is also possible to fine-tune the closed loop settings for an individual sensor.[336]

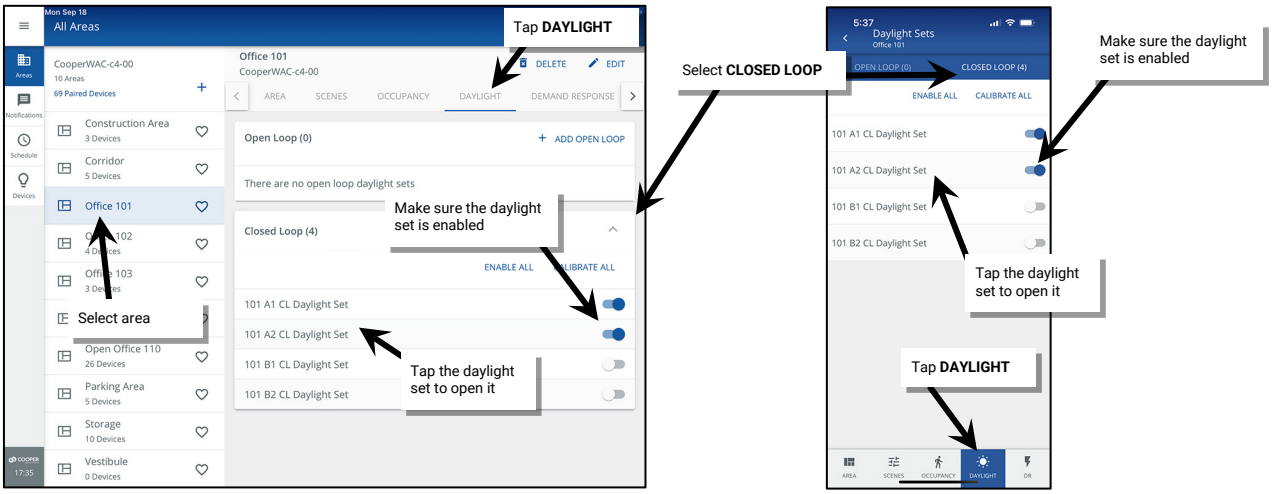
IMPORTANT: Before calibration, review the recommendations for when and how daylight calibration should be performed for the device type being used. See the "WaveLinx Device Reference Sheets" beginning on page 17.

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[337] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that contains the daylight set, and then select the **DAYLIGHT** tab. Open or tap on the **CLOSED LOOP** section, make certain that the daylight set is enabled, and then tap the row for the desired daylight set.

Tablet or Phone Landscape View/WAC Lighting App View

Phone Portrait View



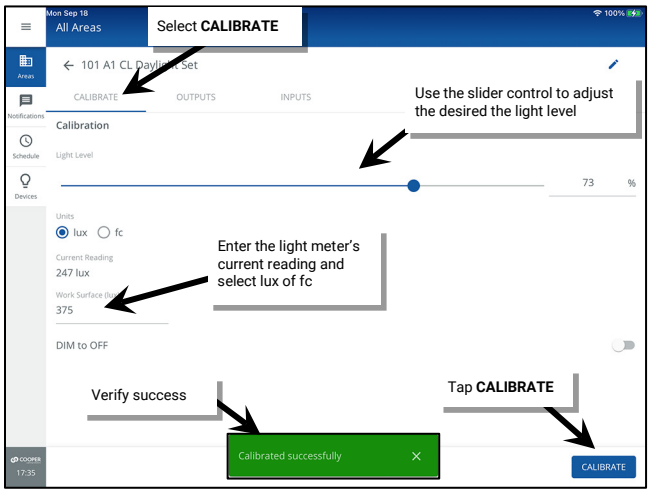
[336] The WaveLinx PRO IR Remote can also be used for adjusting this feature. Refer to the WaveLinx PRO IR Remote User Guide for details on using this feature.

[337] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

3: Use the slider bar to adjust the electric light to the correct level for the controlled device as advised in the **Daylight Calibration Details** section of device's reference sheet.

4: Next, enter the light meter's average surface reading into the **Work Surface** field, changing the units to lux or foot-candles (fc) as needed. This allows the WaveLinx App's displayed sensor reading to more closely approximate the values that would be read at the work surface. If desired, enable or disable the daylight set to **DIM to OFF** (see "Enabling/Disabling DIM to OFF Capability for Closed Loop Daylight Sets" on page 307 for further details). [338,339]

5: Tap **CALIBRATE**. The WaveLinx App should briefly display a success message.



Quick Links for Common Questions

- After I calibrated the sensors, I noticed that the light output is different for each fixture. Why is this occurring? See the answer on page 472.
- The lights over my desk appear to adjust to different dimming levels even though the daylight does not appear to change. Why is this happening? See the answer on page 472.
- My wallstation or occupancy sensor only seems to work at night. Why is this occurring? See the answer on page 473.
- My exterior lighting does not all respond ON or OFF at the same time. Why is this occurring? See the answer on page 473.

Enabling/Disabling DIM to OFF Capability for Closed Loop Daylight Sets

As of WaveLinx Area Controller version 12.x.x.x and higher, the ability for daylighting to **DIM to OFF** is selectable.[338,339] **DIM to OFF** is disabled by default. This means that the lighting will remain ON at the defined minimum dimming level if the light level is above the calibrated level.

If **DIM to OFF** is manually enabled and bright daylight causes the surface light level to be above the desired level even after the light level has been fully dimmed, after a period the fixture will dim to OFF.[340] As daylight contribution decreases and the surface light level lowers, the fixture will turn back ON/raise the amount of electric light accordingly.

The **DIM to OFF** feature can be enabled/disabled for any closed loop daylight set:

[338] WAC versions prior to version 12.x.x.x will not have the ability of disabling the **DIM to OFF** feature. **DIM to OFF** is automatic when daylighting is enabled.

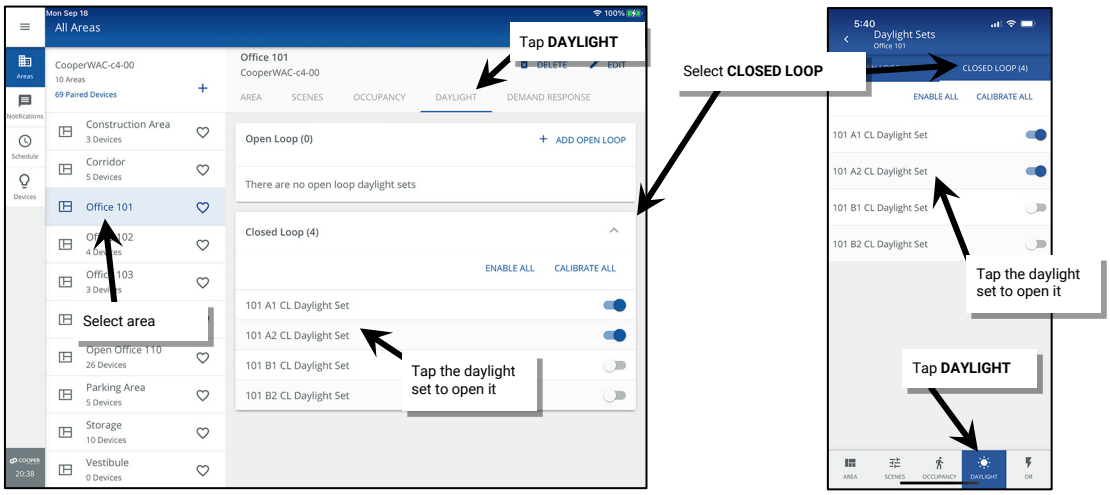
[339] Ambient Integrated Sensor model SWPD1 (IS) and Low-Voltage Fixture Integrated Sensors (IS-LV) will automatically have **DIM to OFF** enabled and will not offer the ability to disable this feature.

[340] When the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will turn lighting OFF. Lighting will be turned back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated light level for longer than 30 seconds.

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[341] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that contains the daylight set, and then select the **DAYLIGHT** tab. Open or tap on the **CLOSED LOOP** section, make certain that the daylight set is enabled, and then tap the row for the desired daylight set.

Tablet or Phone Landscape View/WAC Lighting App View

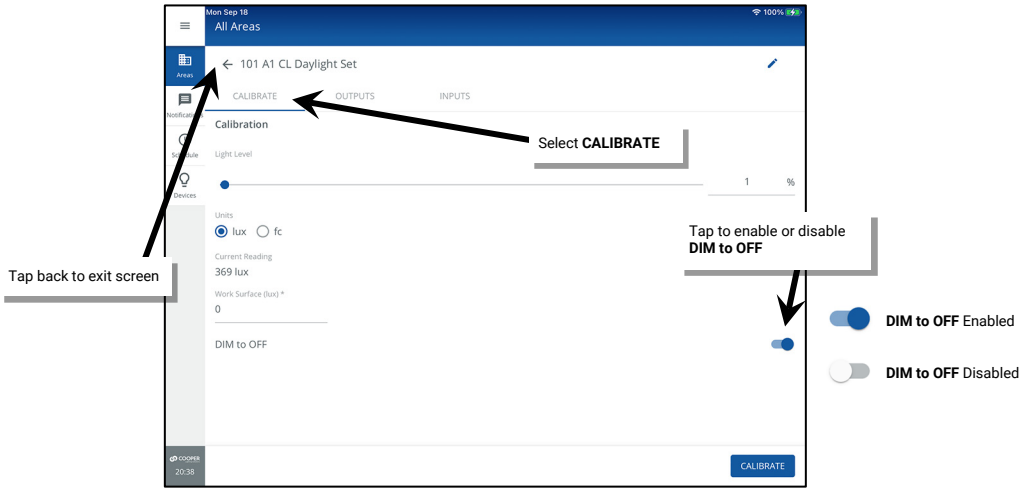


Phone Portrait View

3: At the bottom of the **CALIBRATE** screen, tap the **DIM to OFF** toggle button to enable (ON) or disable (OFF) the **DIM to OFF** capability.

4: Tap the back button at the top of the screen to exit the screen. The setting will be updated. Repeat for additional daylight sets if needed.

DO NOT TAP CALIBRATE UNLESS ALSO CALIBRATING THE SENSOR AT THIS TIME.



[341] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Configuring Open Loop Daylighting Control

This section focuses on the use of open loop daylighting control. In the WaveLinx system, open loop daylighting is not part of the default programming and must be specifically configured. This section focusses on the configuration of open loop control by WaveLinx PRO, WaveLinx DALI and WaveLinx CAT Ceiling Sensors, WaveLinx PRO Ambient, Industrial and Outdoor Integrated Sensors, WaveLinx PRO Tilemount Sensors and the WaveLinx PRO Outdoor Lighting Control Module.[342] This includes details on:

- Creating and naming an open loop daylight set
- Assigning the zones that should be controlled by the daylight set [343]
- Assigning the sensor to the open loop daylight set
- Adjusting the amount of lighting response
- Enable or disable **DIM to OFF** for an open loop daylight set
- Testing daylight sensor operation
- How to control zones at different light levels from the same daylight sensor

Step 1: Creating and Naming an Open Loop Daylight Set

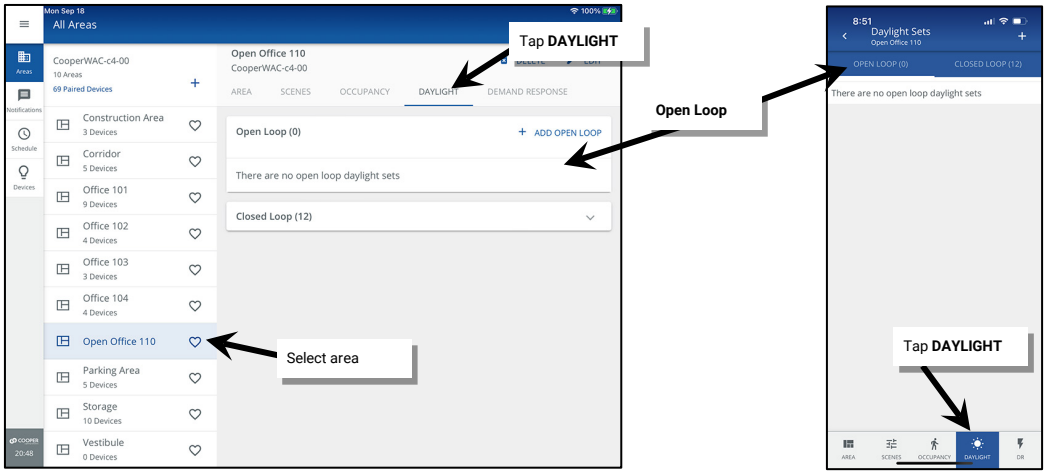
One area can have up to 6 open loop daylight sets. To use open loop daylight control, first create an open loop set.

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[344] and establish a connection with the WaveLinx Area Controller as the administrator user.

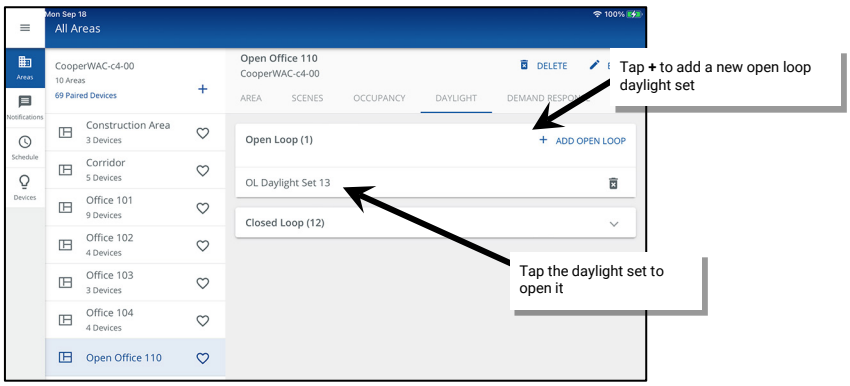
2: In the **All Areas** list, select the area that will be controlled by the open loop daylight set, and then select the **DAYLIGHT** tab and make sure the **Open Loop** section is visible.

Tablet or Phone Landscape View/WAC Lighting App View

Phone Portrait View



3: Tap **+** to add an open loop daylight set, and then tap the new daylight set to open it.

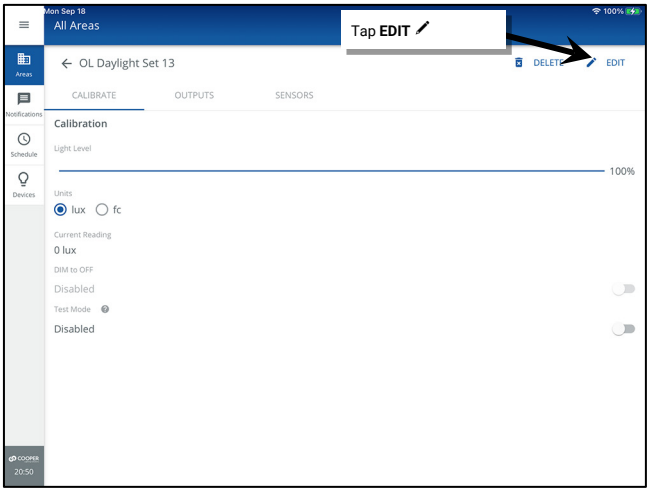


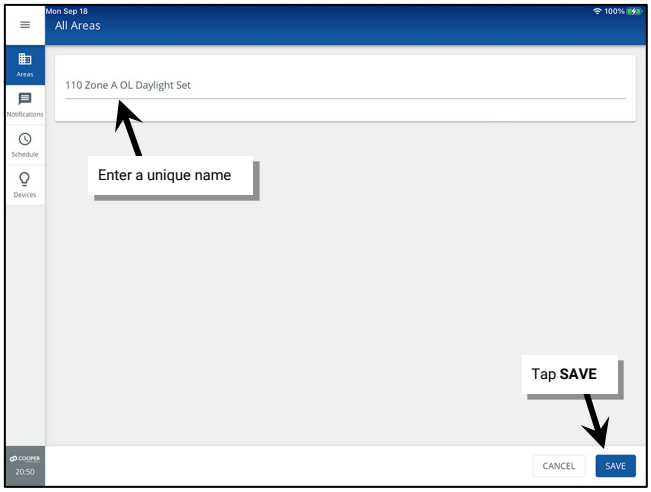
[342] WaveLinx Integrated Sensor and Tilemount Sensor assignment for open loop control is contingent on the use of WaveLinx Area Controller v10.0.x.x and updated device firmware. Low-Voltage Integrated Sensors do not support this feature.

[343] If fixtures in the zones that are assigned to open loop daylight sets contain Integrated or Tilemount Sensors, closed loop daylighting will automatically be disabled for these sensors. White tuning zones/devices cannot be assigned to an open loop daylight set.

[344] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

4: Tap **EDIT** to rename the daylight set with a unique descriptive name. Tap **SAVE**.





Continue to the next steps to assign the controlled zones, and to assign and adjust the lighting response to the sensor.

Step 2: Assigning the Zones to the Open Loop Daylight Set

Once the open loop daylight set is created, assign the zones that need to respond to the daylight signals. Although individual fixtures may be assigned, use the zones whenever possible to simplify programming. If dealing with a partitioned space, sub zones are not available for assignment. If the sub zone will be controlled by a different sensor or open loop daylight set than other sub area sub zones, the individual fixtures for the sub zone should be assigned.

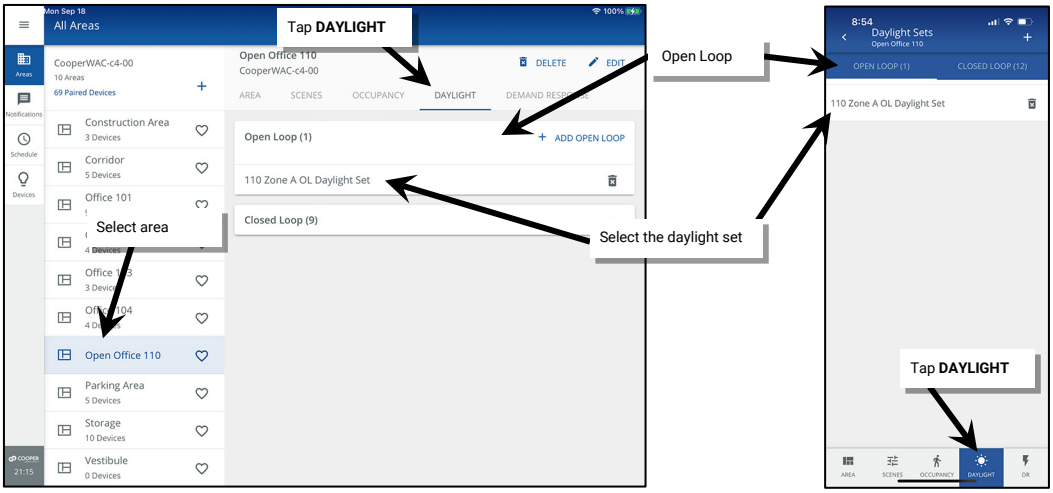
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[345] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that will be controlled by the open loop daylight set, and select the **DAYLIGHT** tab.

3: In the **Open Loop** section, select the previously created open loop daylight set.

Tablet or Phone Landscape View/WAC Lighting App View

Phone Portrait View

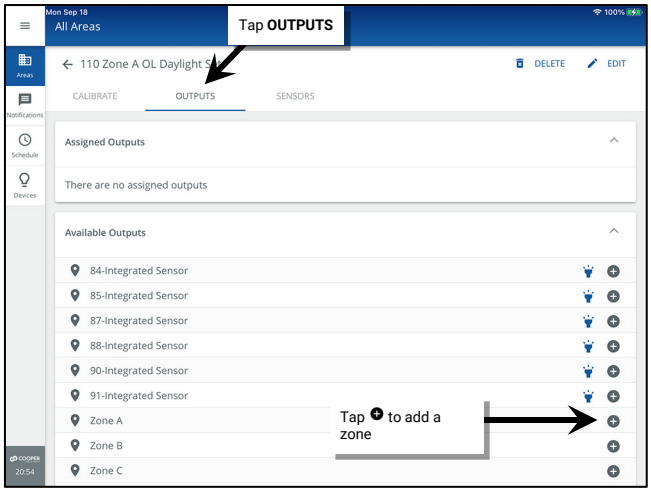


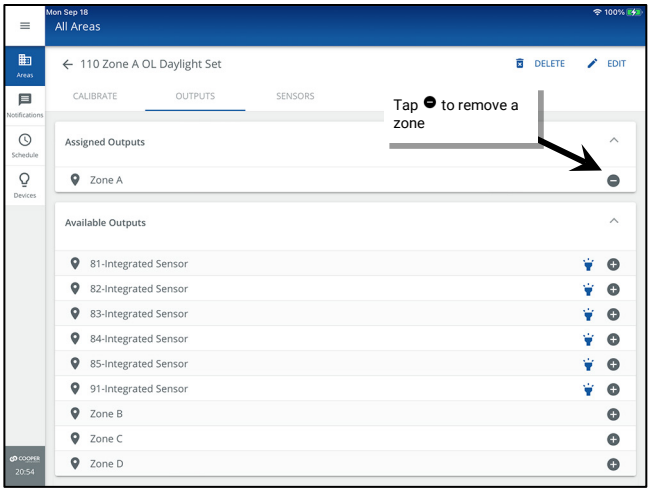
4: Select the **OUTPUTS** tab and scroll to the bottom of the **Available Outputs** list where the zones are listed.

5: Tap **add** to add the zone(s) that should be controlled by this daylight set.[346] Although individual fixtures may be assigned, use the zones whenever possible to simplify programming. To remove an assigned zone or output, in the **Assigned Outputs** section, tap on **remove**.

[345] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

[346] If more than one zone is assigned to the same daylight set, the assigned zones will daylight dim in the same manner. Zones defined with the white tuning type and their associated devices will not appear in this screen to prevent unintentional assignment.





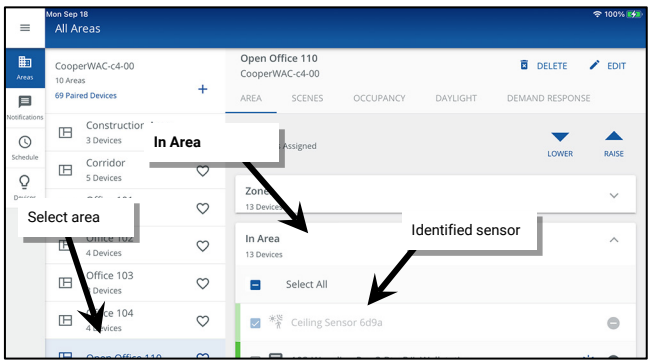
Continue to the next steps to assign and adjust the lighting response to the sensor.

Step 3: Assigning a Sensor to the Open Loop Daylight Set

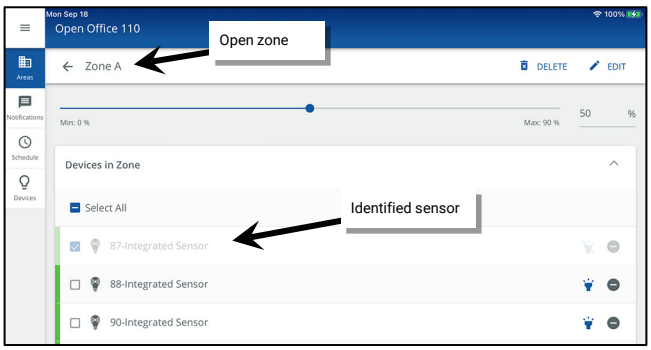
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[347] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that contains the device. If multiple sensors are within the area, only one will be used for the open loop daylight set. Identify the correct device using the device's identification method. Refer to the device reference sheets starting on page 17 for details on the identification methods for that specific device. WaveLinx PRO Integrated Sensors, Tilemount Sensors and WaveLinx PRO Outdoor Lighting Control Modules will be identified within the zone to which they are assigned.[348,349] WaveLinx PRO, WaveLinx CAT, and WaveLinx DALI Ceiling Sensors will be identified within the **Devices in Area** section. Once identified, make note of the device's name/descriptor.

WaveLinx PRO, CAT or DALI Ceiling Sensor Identification



WaveLinx PRO Integrated or Tilemount Sensor, or Outdoor Lighting Control Module Identification

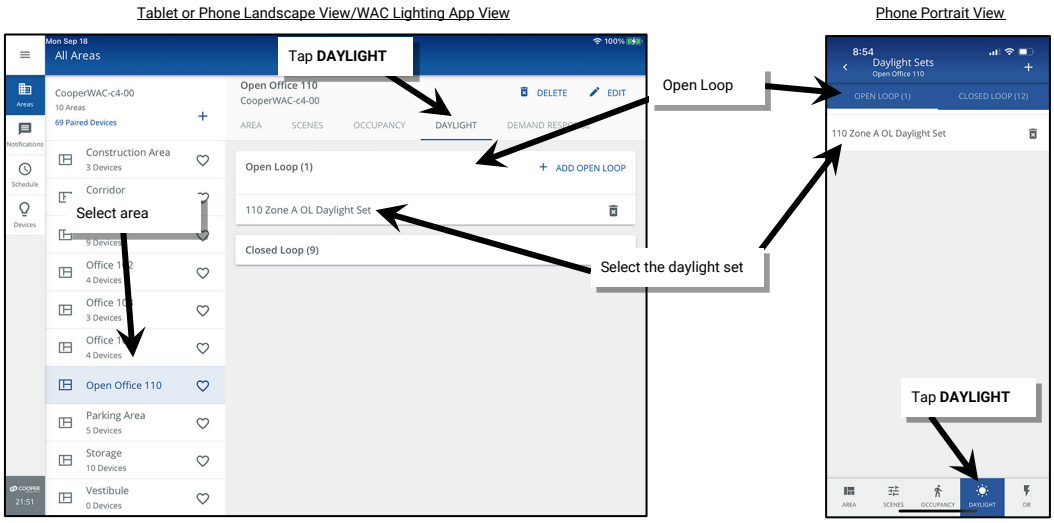


[347] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

[348] WaveLinx Integrated Sensor and Tilemount Sensor assignment for open loop control is contingent on the use of WaveLinx Area Controller v10.0.x.x and higher updated device firmware. Low-Voltage Integrated Sensors do not support this feature.

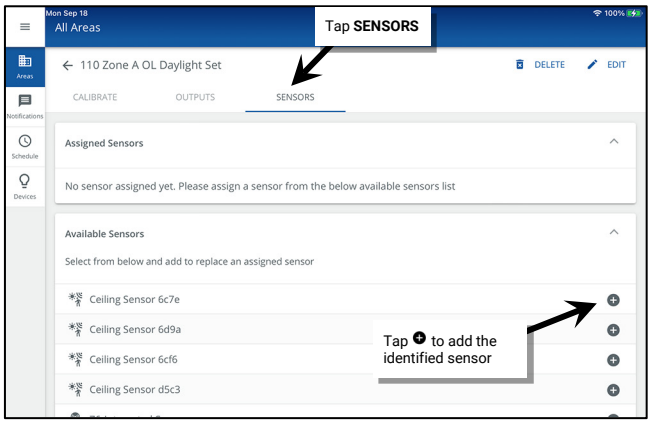
[349] Integrated and Tilemount Sensors can alternatively be reverse identified within the open loop daylight set's **Sensors** tab.

3: Next, select the **DAYLIGHT** tab and in the **Open Loop** section, select the previously created open loop daylight set.



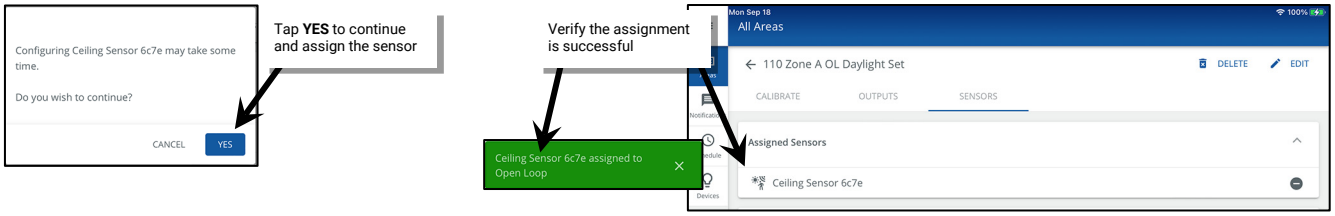
4: Select the **SENSORS** tab and scroll to the bottom of the **Available Sensors** list.

5: Tap on **add** ⊕ to add the previously identified sensor.[350]



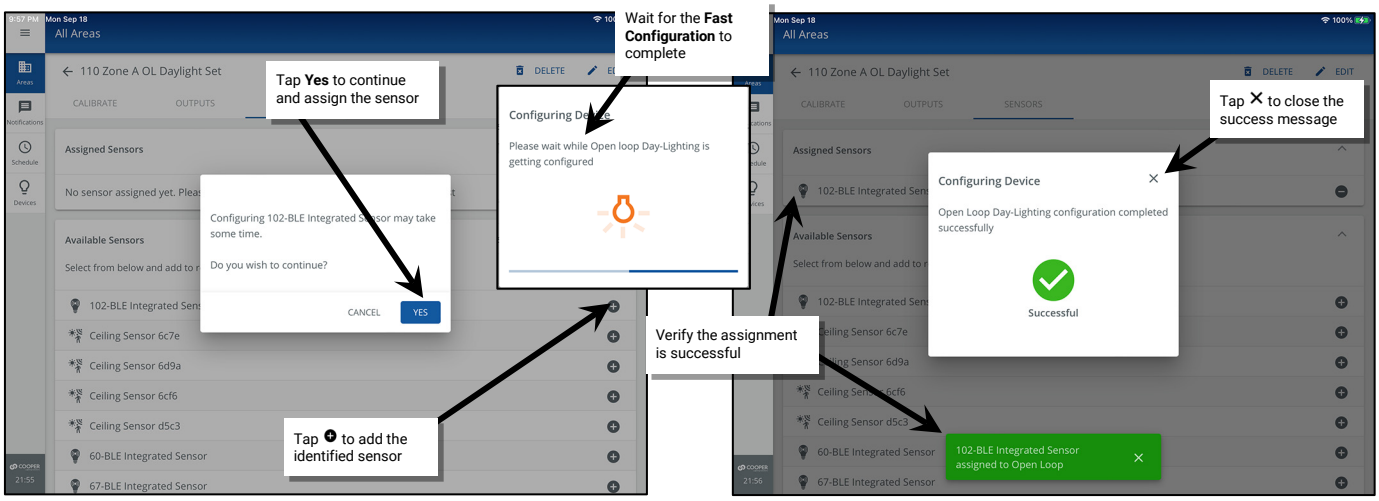
6: The next screens and steps will vary depending on the type of sensor selected:

- **WaveLinx PRO, WaveLinx CAT, and WaveLinx DALI Ceiling Sensor or WaveLinx PRO Outdoor Control Module**: When prompted, select **YES** to continue and confirm that the sensor is successfully assigned.

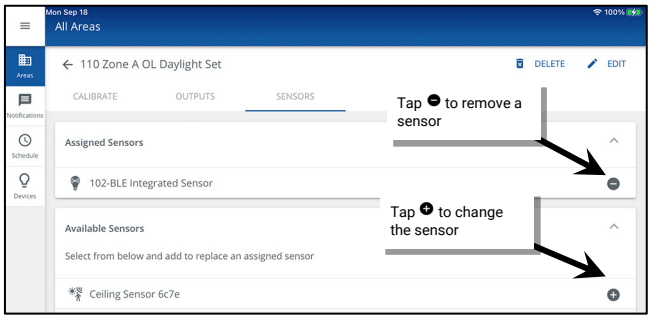


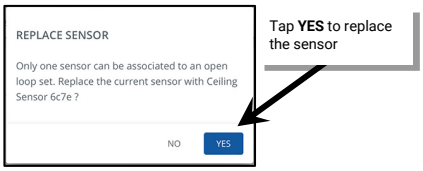
[350] Only one sensor may be assigned to an open loop daylight set. If a sensor is added when one is already assigned, the original sensor will be unassigned.

- **WaveLinx PRO Ambient, Industrial or Outdoor Integrated Sensor or WaveLinx PRO Tilemount Sensor**:[351] When prompted, select **Yes** to continue. The WaveLinx App will show that the device is configuring. During this **Fast Configuration,** the fixture connected to the sensor will turn OFF for 10 seconds and then will turn ON to 100% for 10 seconds before reverting to its previous light level as the sensor measures the fixture's max light output and the amount of light it contributes to the sensor's view to maximize the accuracy of the daylight response. The WaveLinx App will then confirm that the configuration is complete. Tap ✕ to close the configuration message and review the sensor's assignment.



Note: To change the assigned sensor, in the **Assigned Sensors** section tap **remove** ⊖ and then follow the steps in this section to assign a different sensor, or simply add the new sensor and when prompted, tap **YES** to acknowledge the replacement of the sensor.





[351] WaveLinx Integrated Sensor and Tilemount Sensor assignment for open loop control is contingent on the use of WaveLinx Area Controller v10.0.x.x and higher updated device firmware. Low-Voltage Integrated Sensors do not support this feature.

Step 4: Adjusting the Amount of Lighting Response

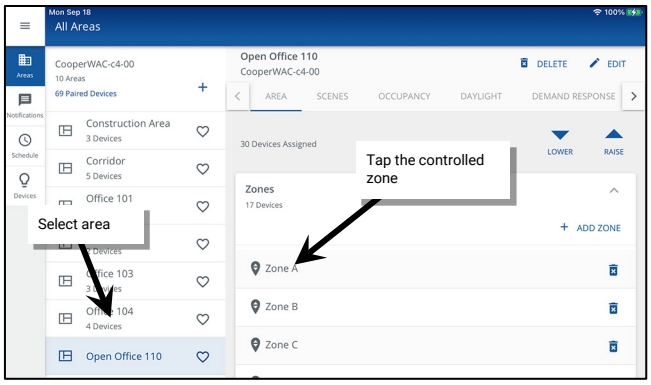
This step is not necessary for the WaveLinx Outdoor Lighting Control Module. Once the open loop daylight set has the zone(s) and sensor assigned, the WaveLinx Outdoor Lighting Control Module will begin operating with hardcoded settings.[352]

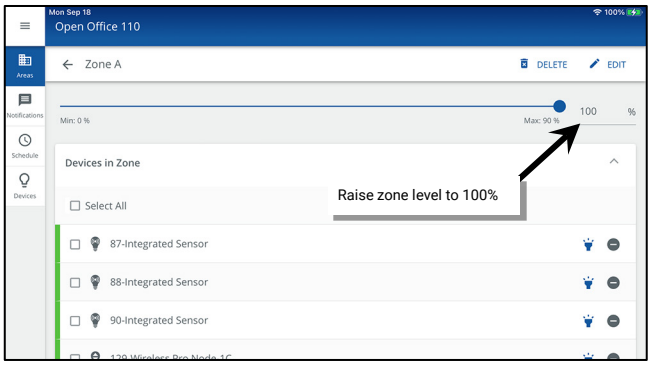
For all other open loop daylight sensor types: Once the open loop daylight set has the zone(s) and sensor assigned, adjust the zone(s) lighting response to daylight.[353]

IMPORTANT: Before adjusting the lighting response, review the recommendations for when and how open loop daylight adjustments should be performed for the device type being used. See the "WaveLinx Device Reference Sheets" beginning on page 17.

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[354] and establish a connection with the WaveLinx Area Controller as the administrator user.

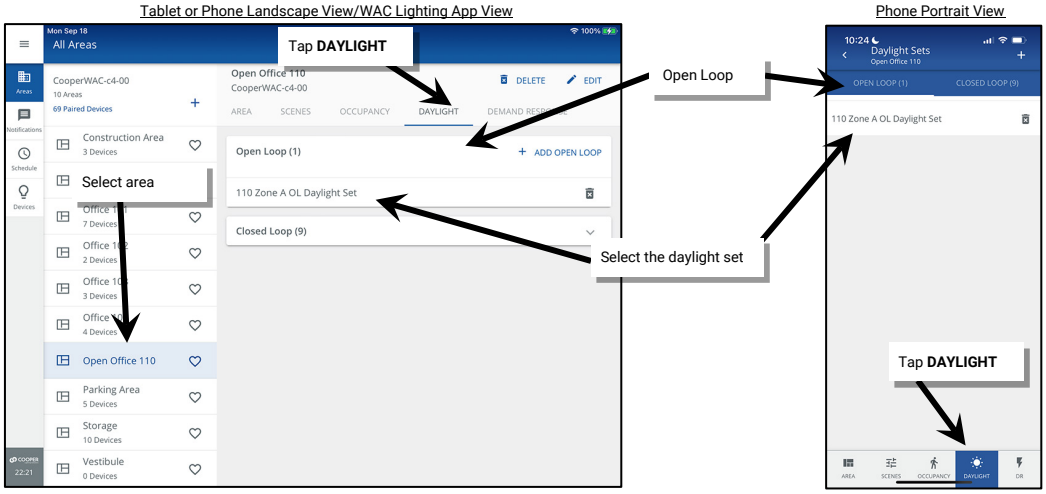
2: Using a wallstation or the WaveLinx App, turn ON the controlled zone(s) and raise the light level to the highest light output.





3: In the **All Areas** list, select the area that will be controlled by the open loop daylight set, and select the **DAYLIGHT** tab.

4: In the **Open Loop** section, select the previously created open loop daylight set.



[352] The WaveLinx Outdoor Lighting Control Module does not require calibration. It is hardcoded for ON at dusk / OFF at dawn operation based on optimal performance factors for outdoor application. Lighting will turn OFF if the light level has exceeded 65 lux for a period of 180 seconds (3 minutes). Lighting will turn ON if the light level falls below 16 lux for a period of 30 seconds. The calibration screen for this sensor will not allow modification.

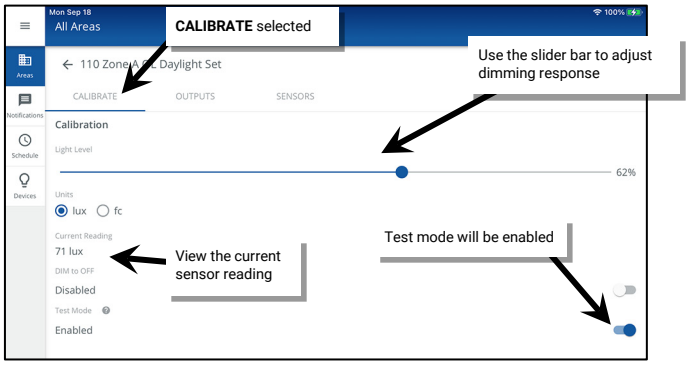
[353] The WaveLinx PRO IR Remote can also be used for adjusting this feature. Refer to the WaveLinx PRO IR Remote User Guide for details on using this feature.

[354] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

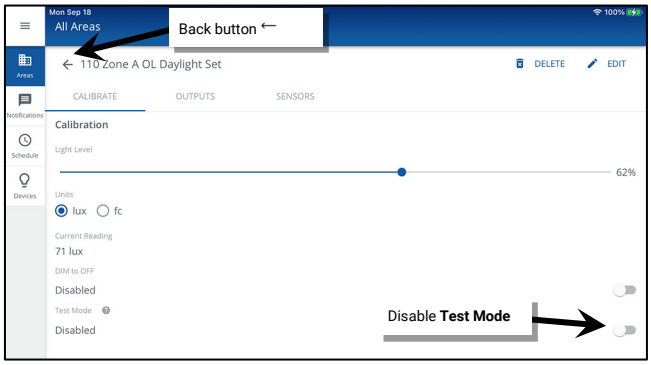
5: Make sure the **CALIBRATE** tab is selected and then use the slider to adjust the daylight sensor gain and modify the zone's dimming response. The system will automatically enter test mode when adjustments are made to accelerate the dimming response.[355] Wait approximately 10 seconds between adjustments to allow the light level to stabilize. Adjust the slider as needed until the light level is in the desired range using a light meter at the work surface to verify.

- Lower the slider level to lower the electric light level and increase sensitivity to daylight.
- Raise the slider level to increase the electric light level and decrease sensitivity to daylight.

The screen allows visibility of the current sensor reading in either lux or foot-candles for quick reference.



6: Once the adjustment is complete, enable or disable the daylight set to **DIM to OFF** (see "Enabling/Disabling DIM to OFF Capability for Open Loop Daylight Sets" on page 315 for further details). [356,357] Then disable **Test Mode** or allow it to automatically time out after 10 minutes. Tap the back button to exit the calibration screen. Adjusted light level settings are automatically saved.



Enabling/Disabling DIM to OFF Capability for Open Loop Daylight Sets

As of WaveLinx Area Controller version 12.x.x.x and higher, the ability for daylighting to **DIM to OFF** is selectable.[356,357] **DIM to OFF** is disabled by default. This means that the lighting will remain ON at the defined minimum dimming level if the light level is above the calibrated level.

If **DIM to OFF** is manually enabled and bright daylight causes the lighting to be above the desired level even after the lighting has been fully dimmed, after a period the fixture will dim to OFF.[358] As daylight contribution decreases, the fixture will turn back ON/raise the amount of electric light accordingly.

[355] The daylight set will automatically exit test mode after 10 minutes or test mode can be manually disabled once testing is complete.

[356] WAC versions prior to version 12.x.x.x will not have the ability of disabling the **DIM to OFF** feature. **DIM to OFF** is automatic when daylighting is enabled.

[357] Ambient Integrated Sensor model SWPD1 (IS) and Low-Voltage Fixture Integrated Sensors (IS-LV) will automatically have **DIM to OFF** enabled and will not offer the ability to disable this feature.

[358] For WaveLinx Integrated and Tilemount sensors, when the measured light exceeds 150% of the calibrated gain for more than 30 minutes, the sensor will turn lighting OFF. Lighting will be turned back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated gain for longer than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated gain for longer than 30 seconds.

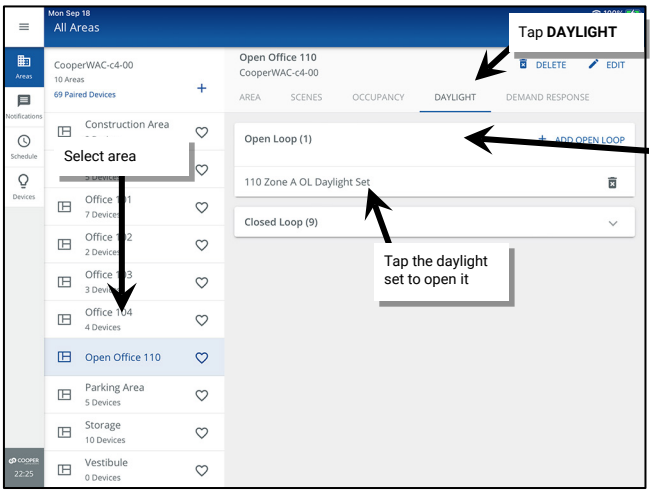
For WaveLinx Outdoor Lighting Control Modules, Lighting will turn OFF if the light level has exceeded 65 lux for a period of 180 seconds (3 minutes). Lighting will turn ON if the light level falls below 16 lux for a period of 30 seconds.

The **DIM to OFF** feature can be enabled/disabled for any open loop daylight set:

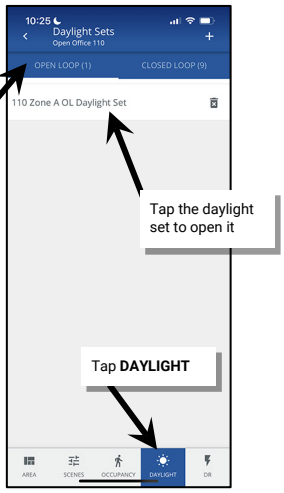
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[359] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that contains the daylight set, and then select the **DAYLIGHT** tab. Tap on the **Open Loop** section, and then tap the row for the desired daylight set.

Tablet or Phone Landscape View/WAC Lighting App View

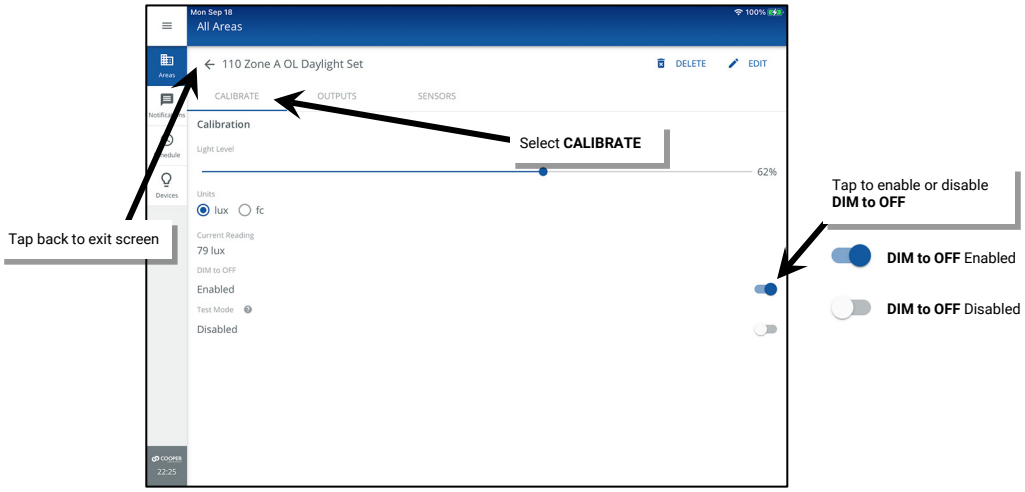


Phone Portrait View



3: At the bottom of the **CALIBRATE** screen, tap the **DIM to OFF** toggle button to enable (ON) or disable (OFF) the **DIM to OFF** capability.

4: Tap the back button at the top of the screen to exit the screen. The setting will be updated. Repeat for additional daylight sets if needed.



[359] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Manually Activating Test Mode for an Open Loop Daylight Set

The open loop daylight sensor response can be tested manually by placing the sensor into test mode.[360,361] During test mode:

- The daylight fade rate is lowered to 10 seconds.
- If **DIM to OFF** is enabled, the time delay for the OFF to occur is also reduced in test mode. When the measured light level exceeds 150% of the programmed gain for more than 30 seconds, the sensor will turn lighting OFF. Lighting will be turned back ON when one of two conditions occurs.
  - Condition 1: The measured light level falls between 100% and 50% of the programmed gain for more than 20 seconds.
  - Condition 2: The measured light level falls below 50% of the programmed gain for longer than 5 seconds.

The faster response allows the sensor operation to be quickly verified on site. Shine a laser pointer or bright focused flashlight into the sensor lens or cover the sensor to verify the lighting response.

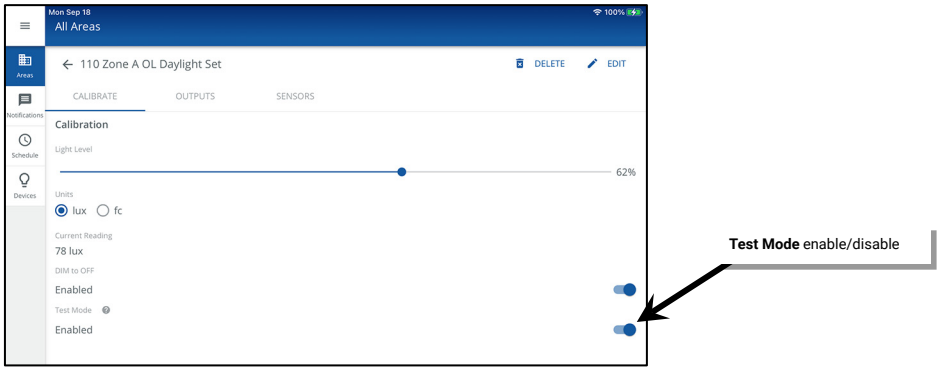
The daylight set will automatically exit test mode after 10 minutes or test mode can be manually disabled once testing is complete.

To manually activate test mode:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[362] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: In the **All Areas** list, select the area that will be controlled by the open loop daylight set, select the **DAYLIGHT** tab, and tap on the daylight set to open it.

3: Tap the slider to switch between enabling and disabling **Test Mode**.



[360] The WaveLinx Outdoor Lighting Control Module will not allow test mode to be enabled as its settings are hardcoded for ON at dusk / OFF at dawn operation based on optimal performance factors for outdoor application. Lighting will turn OFF if the light level has exceeded 65 lux for a period of 180 seconds (3 minutes). Lighting will turn ON if the light level falls below 16 lux for a period of 30 seconds.

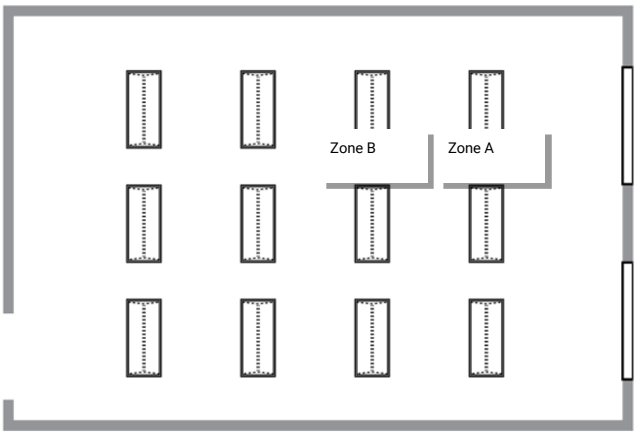
[361] The WaveLinx PRO IR Remote can also be used for adjusting this feature. Refer to the WaveLinx PRO IR Remote User Guide for details on using this feature.

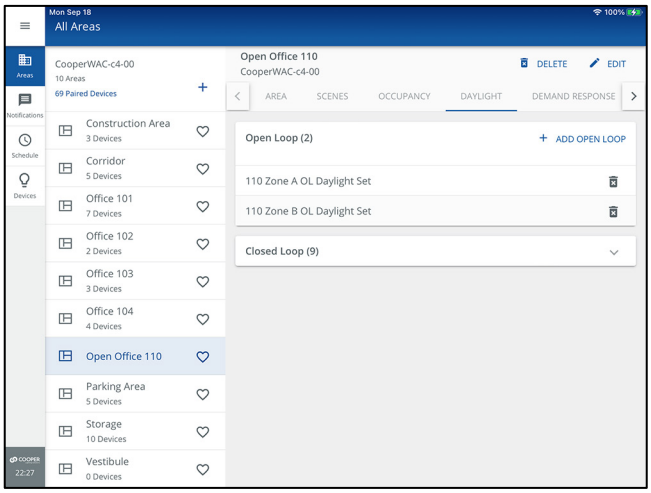
[362] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Controlling Zones at Different Light Levels from the Same Open Loop Sensor

One area can have up to six open loop daylight sets. A different sensor can be assigned to each open loop daylight set, or one sensor can be assigned to multiple daylight sets. This section shows one common application in which one sensor is assigned to two open loop daylight sets.

In this example, there are two daylighting zones in the space, the lighting closest to the window is Zone A. The secondary row of lighting further into the space is Zone B. Per the requested operation, both zones will perform open loop daylighting from the same sensor. Zone A needs to dim more aggressively than Zone B due to its proximity to the window.

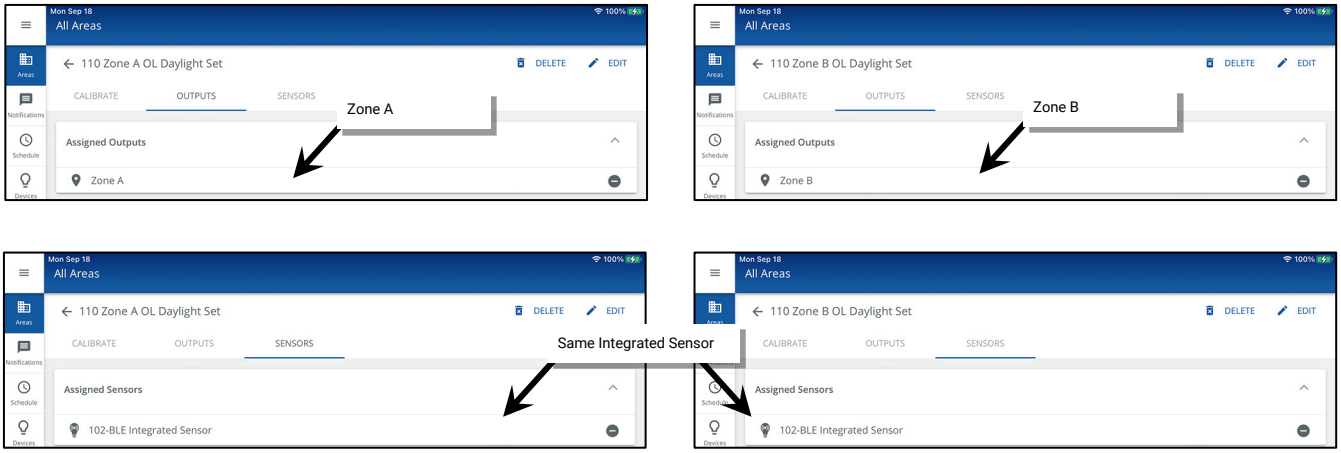




Two open loop daylight sets are programmed in the area.

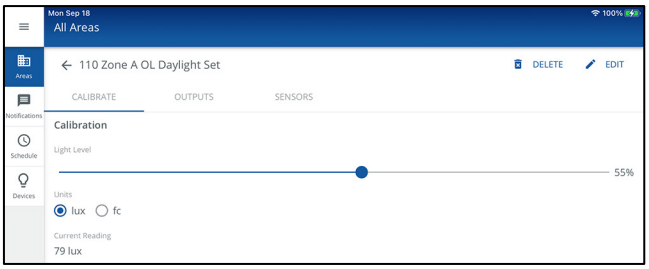
Open Loop Daylight Set 1 controls Zone A. Open Loop Daylight Set 2 controls Zone B. The same sensor device is assigned to both daylight sets.[363]

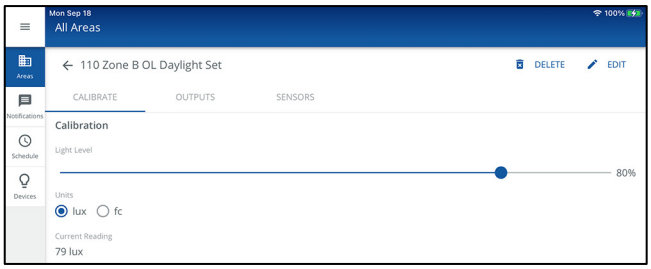
If the sensor assigned is an Integrated or Tilemount Sensor, the sensor will perform **Fast Configuration** when assigned to the first daylight set. It will not repeat **Fast Configuration** when assigned to additional daylight sets. During **Fast Configuration,** the fixture connected to the sensor will turn OFF for 10 seconds and then will turn ON to 100% for 10 seconds before reverting to its previous light level.



[363] WaveLinx Integrated Sensor and Tilemount Sensor assignment for open loop control is contingent on the use of WaveLinx Area Controller v10.0.x.x and higher updated device firmware. Low-Voltage Integrated Sensors do not support this feature.

Each daylight set is adjusted for the optimal light level based on the incoming daylight with Zone A adjusted for a more aggressive gain level than Zone B which is further from the window.





Quick Links for Common Questions

- After I programmed the open loop daylight sets, the work surface light level is not consistent over the controlled zone. Why is this occurring? See the answer on page 472.
- The lights over my desk appear to adjust to different dimming levels even though the daylight does not appear to change. Why is this happening? See the answer on page 472.
- My wallstation or occupancy sensor only seems to work at night. Why is this occurring? See the answer on page 473.
- My exterior lighting does not respond ON or OFF at the same time. Why is this occurring? See the answer on page 473.

Adding Schedules to the Control Strategy

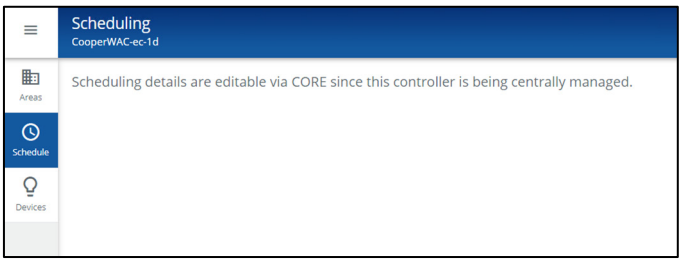
The default programming in WaveLinx does not include any schedule events. Schedule events may be added if they are needed for the control strategy. Schedule events through the WaveLinx App are automatically set to recur every week on the day(s) selected.

From the WaveLinx App, the schedule allows for up to 16 timed events to be added. Each event can be assigned multiple actions. For instance, an event at 06:00 may need to issue scene commands to multiple areas of the facility. Each scene command would be programmed as an action for the 06:00 event.

A schedule event may be used for the following functions:

- To issue scene or zone level commands at a specific time of day or astronomic clock sunrise or sunset time.[364]
- To modify the behavior of an occupancy set during the defined time.
- To disable or enable an occupancy set from triggering motion events during the defined time.
- To activate or deactivate a special After Hours Occupancy Mode that allows occupancy sets to issue a different unoccupied level when activated and return to the defined occupancy set unoccupied level when deactivated.[365]
- To disable or enable wallstations during the defined time.
- To disable or enable a manual override timer during the defined time.

For sites using the WaveLinx CORE, the WaveLinx CORE Lighting Application allows for advanced scheduling recurrences and additional schedules and events. if schedules are administered in the WaveLinx CORE Lighting Application, the WaveLinx Mobile App or WaveLinx WAC Lighting App[366] will display a message that schedule changes should be made through the WaveLinx CORE applications.



[364] If a schedule event that issues a scene or zone level command is assigned to an area that has occupancy sensors, at the time of the event if the area is occupied, the lighting and receptacle loads will go to the commanded schedule event levels. If the area is not occupied, the lighting and receptacle loads will remain at the unoccupied commanded levels.

[365] **After Hours Occupancy Mode** will only show in WaveLinx Area Controller version 14.1.x.x firmware and higher.

[366] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Adding a Schedule Event

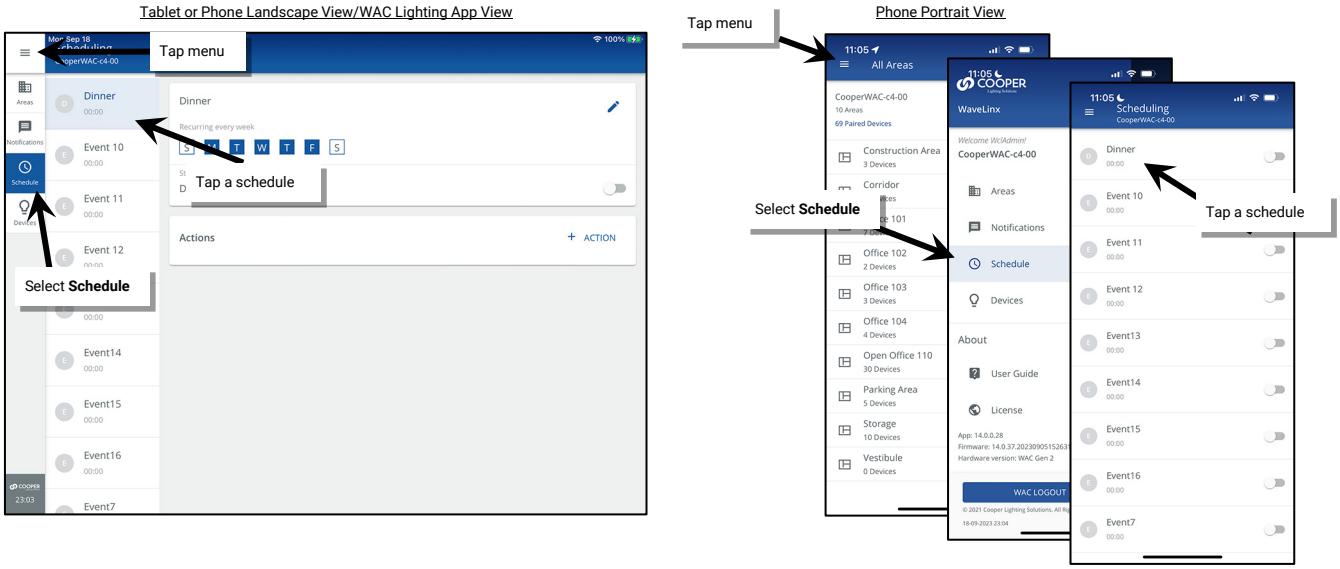
Before using Schedule Events, set the WaveLinx Area Controller clock if it was not set during the initial setup. See “Setting the System Location, Time, Date and Time Zone” on page 372 for this procedure.

To enable and modify a schedule event:

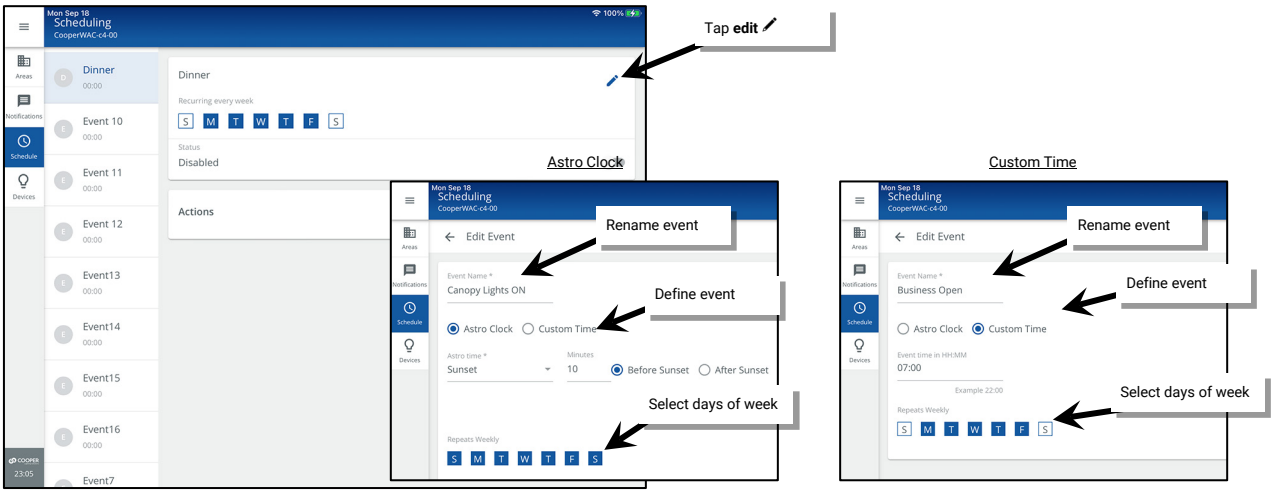
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[367] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: From the **menu** ≡, select **Schedule**.

3: The 16 available schedule events will be displayed in alphabetical order (default names may be changed during configuration). Select an event that is not currently being used (gray icon indicates the event is not enabled).



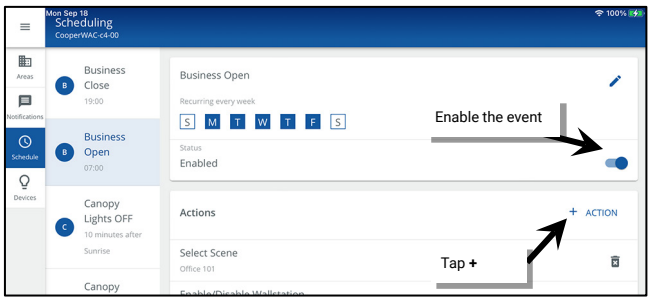
4: Tap the event **EDIT** ✎ icon. Then, enter a descriptive name, select the event type (astro clock or custom time), and enter the event parameters and days of week. Tap **SAVE** to continue.



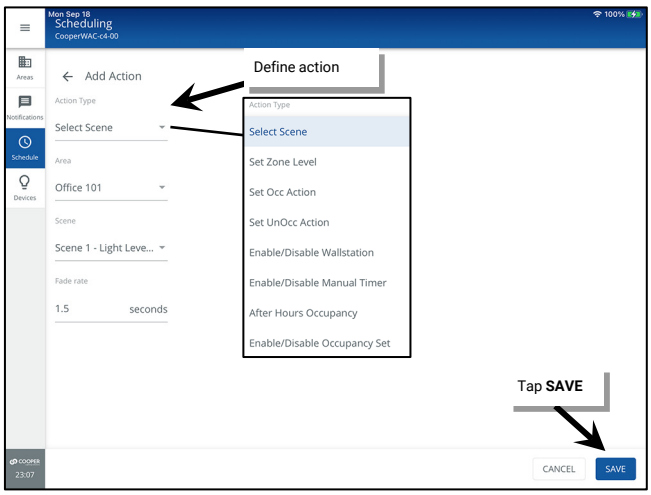
- For **Astro Clock** events, choose **Sunrise** or **Sunset** and add or subtract an offset time to cause the command to issue before or after the calculated sunset or sunrise time. For example, to have lighting turn ON 10 minutes prior to sunset, enter 10 minutes, and select the before option.
- For **Custom Time** events, enter the time in 24-hour, military time format. For example, 2:00 in the afternoon would appear as 14:00.
- Select the desired days of week for the schedule event to run. If the day of week is highlighted blue, the event will run on that day.

[367] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

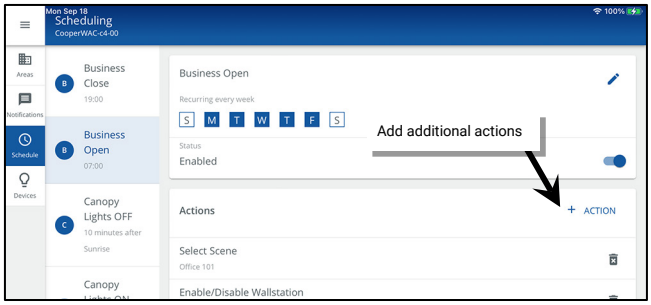
5: **IMPORTANT: Enable the event.** Tap the disable/enable button to enable the schedule event and then tap **+** to add an action.



6: Select the desired action type and parameters based on the action type chosen. Tap **SAVE**.



7: If additional actions need to occur at this same time, add additional actions and define the action type parameters.



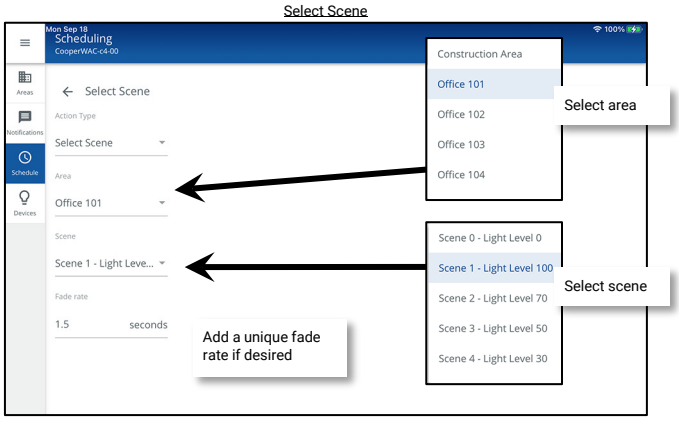
Scene or Zone Level Actions

Schedule events that issue scene or zone level commands will directly command lighting in the affected area(s).

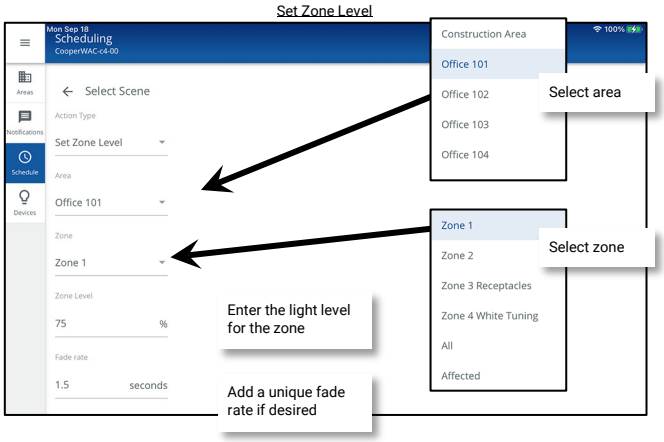
- **Select scene**: Select the area, scene, and a unique fade rate. The event will invoke the selected scene for the selected area.
- **Set zone level**: Select the area, zone, level, and unique fade rate. Selections for zones include the ability to choose a **specific zone**, **ALL zones** in the area, or **AFFECTED zones**.[368]
  - **Specific Zone**: Only the selected zone will be adjusted to the defined level regardless of the current scene or zone command in effect. If assigned to a white tuning zone, the button will adjust the color temperature to the specified level.
  - **ALL Zones**: All zones in the area will be adjusted regardless of the current scene or zone command in effect. White tuning zones are automatically excluded.
  - **AFFECTED Zones**: The zone(s) adjusted will be based on the last command received prior to the event. If the last command issued a scene, only the zones that are part of the scene will be adjusted (zones that have been ignored from the active scene will not respond). If the last command was a zone command, only the zone(s) commanded will be adjusted. White tuning zones are automatically excluded.

[368] White tuning zones are automatically exempted from control if the **ALL** or **AFFECTED** zone is selected to prevent inadvertent color temperature shifts when adjusting light levels. The white tuning zone will only respond to this command if it is the only zone selected.

Select Scene



Set Zone Level



Select scene and set zone level commands from schedule events will interact with other programming assigned to the area.

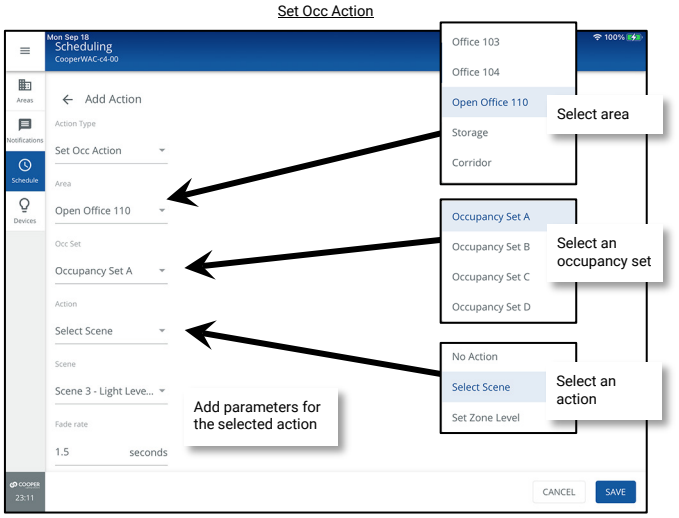
- **For areas that are controlled with occupancy sets:** If the area is not occupied when the scene or zone level event occurs, the lighting and receptacle loads will remain at the unoccupied light level. If the area is occupied at the time of the scheduled event, the lighting and receptacle loads will go to the schedule commanded level.
- **For areas that have daylight sets:** Daylighting filters the fixture's response to other control commands. A schedule event command to go to 100% will adjust the electric light level output to meet the originally calibrated daylight level. A schedule command to go to 50% will adjust the electric light level to meet 50% of the originally calibrated daylight level. The actual electric light level output with these commands will vary and adjust based on the available amount of daylight in the space and how much electric light needs to be contributed to maintain the commanded target.
- **For partitioned areas:** Scene and zone level commands will issue to the entire area independent of wall position.
- **For manual overrides:** If wallstations or manual commands from the WaveLinx App are used, lighting will respond to the command manual commands or schedule event commands in the order that they are received (last command received is the commanded light level).

Modify Occupancy Set Behavior (Set UnOcc and Set Occ Actions)

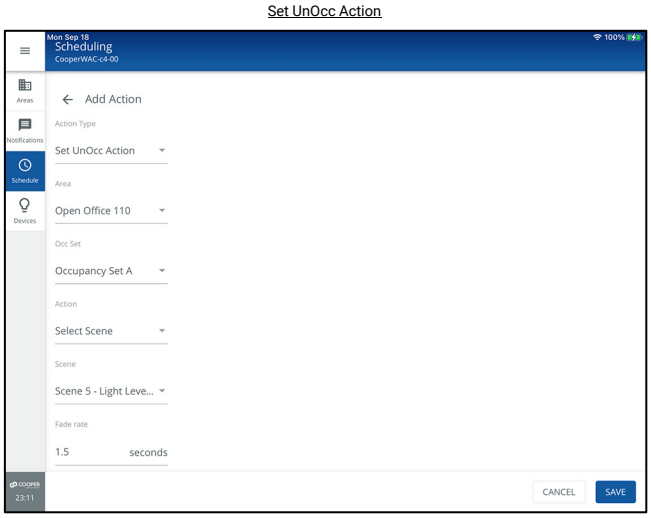
Use the **Set UnOcc Action** or **Set Occ Action** to change the behavior of the occupied and/or unoccupied occupancy commands at a specific time.

- **Set unocc action**: Select **Set UnOcc Action** to change the command that the occupancy set issues when the unoccupied command is issued (no motion activity and hold timers expired). Select the area and then select the command that should be issued for the unoccupied command (No action, select scene, or set zone level). Once the event occurs, if a space becomes unoccupied, the selected occupancy set will issue the command defined in this event action rather than what is defined in the occupancy set.
- **Set occ action**: Select **Set Occ Action** to change the command that the occupancy set issues when the occupied command is issued from motion activity. Select the area and then select the command that should be issued for the occupied command (No action, select scene, or set zone level). Once the event occurs, if the space becomes occupied, the selected occupancy set will issue the command defined in this event action rather than what is defined in the occupancy set.

Set Occ Action



Set UnOcc Action

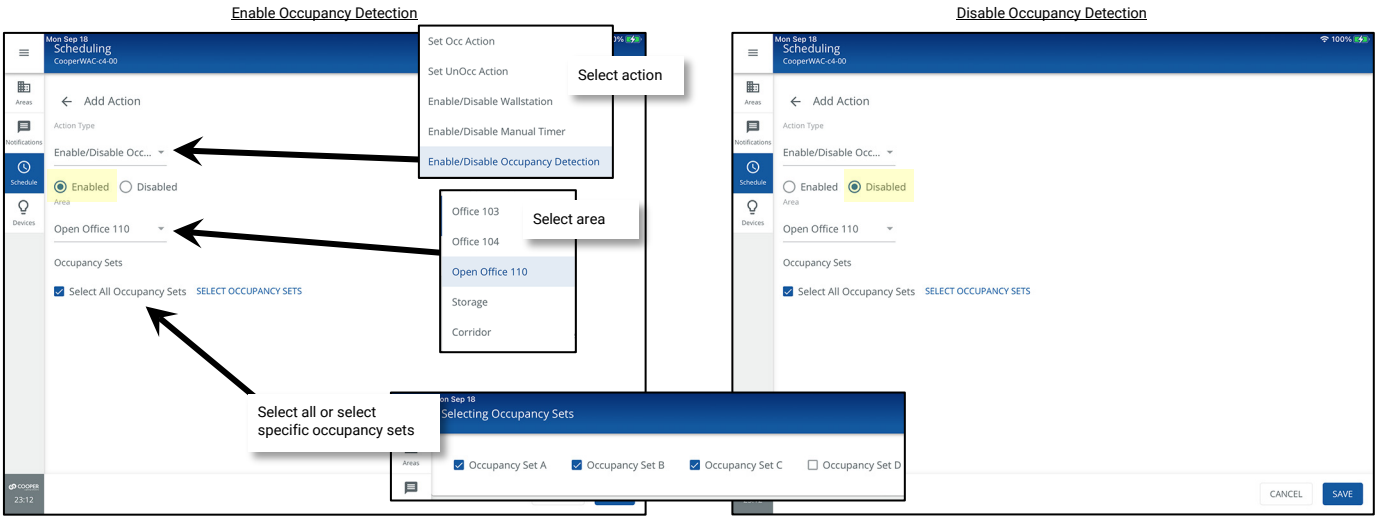


For instance, to set a motion sensor so that the occupied command issues scene 3 during business hours and issues scene 5 after hours, use the **Set Occ Action**. Create a schedule event at the time of the start of business hours and define the action for **set occ action**, issuing scene 3 for the affected area. Create another schedule event at the time of the end of business hours and define the action for **set occ action** issuing scene 5 for the affected area.

Enable/Disable Occupancy Detection Action

Use the **Enable/Disable Occupancy Detection** action to either allow or prevent motion-based occupancy set commands after the specified time.[369]

- **Enable/Disable Occupancy Detection**: Select whether the action is to enable or disable the sensor set and then choose the affected area. Pick either the option to affect all occupancy sets or to affect just selected occupancy sets in the area.



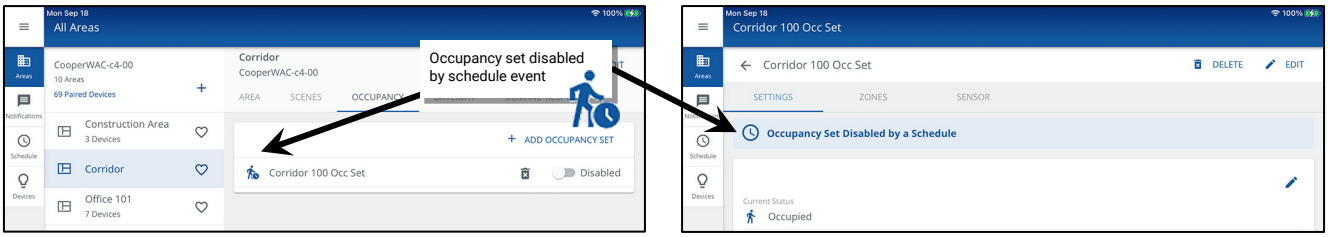
When a **Disable Occupancy Detection** event action occurs and the lighting is already ON due to the area being occupied previously, there will be no change in the current light level. If the lighting is in the unoccupied commanded level due to lack of motion and the **Disable Occupancy Detection** event occurs, the lighting will revert to the last commanded level prior to the unoccupied command. This is true regardless of whether the occupancy set is set to **Occupancy** or **Vacancy** mode.

- Example 1: If the lighting was last issued a level 30% command from a wallstation prior to the unoccupied command, the lighting will revert to the wallstation level 30% light level when the **Disable Occupancy Detection** event occurs.
- Example 2: If the lighting was last issued a level 0% (OFF) command from a wallstation prior to the unoccupied command, the lighting will revert to the wallstation level 0% command and remain OFF when the **Disable Occupancy Detection** event occurs.

The occupancy set will remain disabled until an enabled command is processed. Remember to set an Enable Occupancy Detection event at the time when the occupancy set should revert to motion control.

When the **Enable Occupancy Detection** event occurs, if the area is occupied, lighting will remain at the current level until the space becomes unoccupied. If the area is unoccupied and the hold time has expired when the **Enable Occupancy Detection** event occurs, the occupancy set will issue the programmed unoccupied action.

The WaveLinx Application will indicate the occupancy set is disabled by displaying a clock icon in the occupancy set list and a banner message in the occupancy set screen. LEDs on most sensor types will also indicate when they are disabled, flashing white for 1 sec. / OFF for 1 sec. repeatedly until the sensors are enabled.[370],[371]



[369] This action type is supported in the WaveLinx Area Controller version 12.x.x.x and higher.

[370] The SWPD1 (IS) ambient integrated sensor and Low-Voltage Integrated Sensor (IS-LV), and the WaveLinx DALI Ceiling Sensor will not display the disabled LED behavior described.

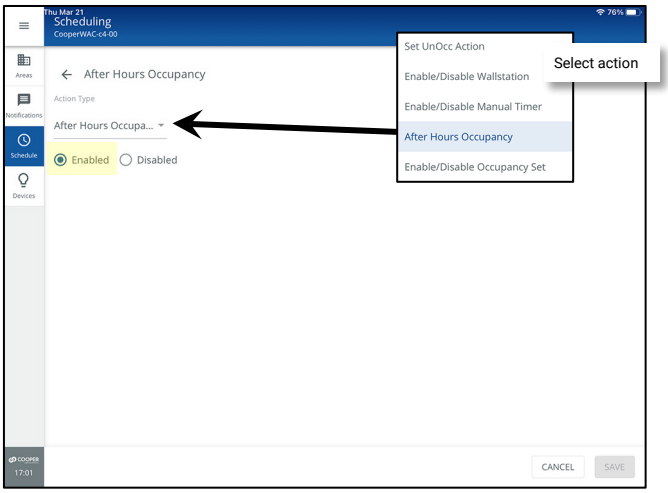
[371] If a closed loop daylight sensor has dimmed lighting to OFF, the LED will flash white for 700ms / yellow for 300ms / OFF for 1 second and then repeat.

Enable/Disable After Hours Occupancy Action

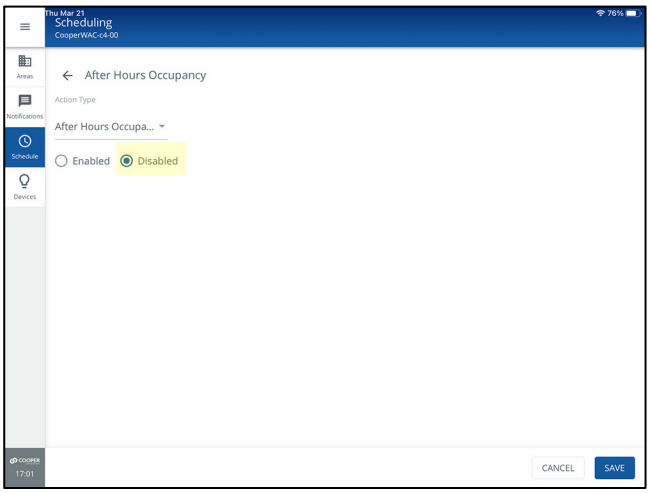
Use the **Enable/Disable After Hours Occupancy**[372] action to activate or deactivate a special After Hours Occupancy Mode. Each area that should respond to the command must have After Hours Mode enabled and the After Hours unoccupied level defined. When enabled, the mode allows occupancy sets to issue a different unoccupied level at the specified time. When disabled, the unoccupied command returns to the defined occupancy set unoccupied level at the specified time.[373] This allows a quick way of changing the unoccupied command for after-hours operation and revert to the occupancy set programming during normal operation hours.

- **Enable/Disable After Hours Occupancy:** Select whether the action is to enable or disable After Hours Occupancy mode.

Enable After Hours Occupancy Mode



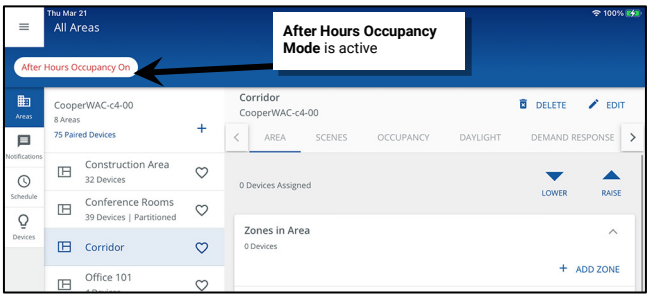
Disable After Hours Occupancy Mode



Only areas that are enabled for the After Hours Occupancy mode will respond with the unoccupied level change.

After hours mode will remain in effect until a disabled After Hours Occupancy command is processed. Remember to set an Enable After Hours Occupancy event action at the time when the occupancy set's unoccupied command should revert to the normal occupancy set programmed level.

When After Hours Occupancy Mode is activated, an **After Hours Occupancy On** message will be displayed at the top of the WaveLinx App.



For details on setting the After Hours Mode for the area(s), see "After Hours Occupancy Mode" on page 247.

[372] **After Hours Occupancy Mode** will only show in WaveLinx Area Controller version 14.1.x.x firmware and higher.

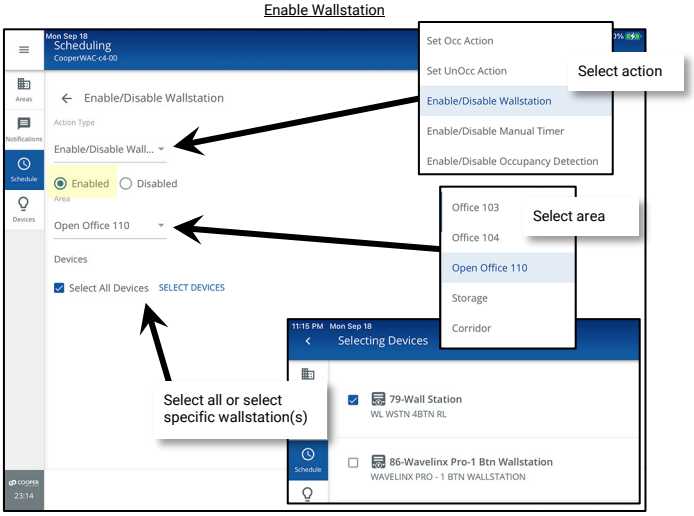
[373] This action type is supported in the WaveLinx Area Controller version 14.1.x.x and higher.

Enable/Disable Wallstation Action

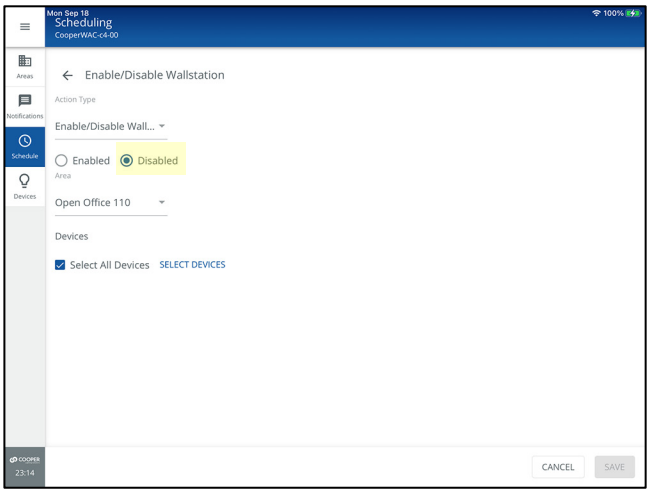
Use the **Enable/Disable Wallstation** action to either allow or prevent manual wallstation commands after the specified time.[374]

- **Enable/Disable Wallstation**: Select whether the action is to enable or disable the wallstation(s) and then choose the affected area. Pick either the option to affect all wallstations in the area, or to select specific wallstations.

Enable Wallstation

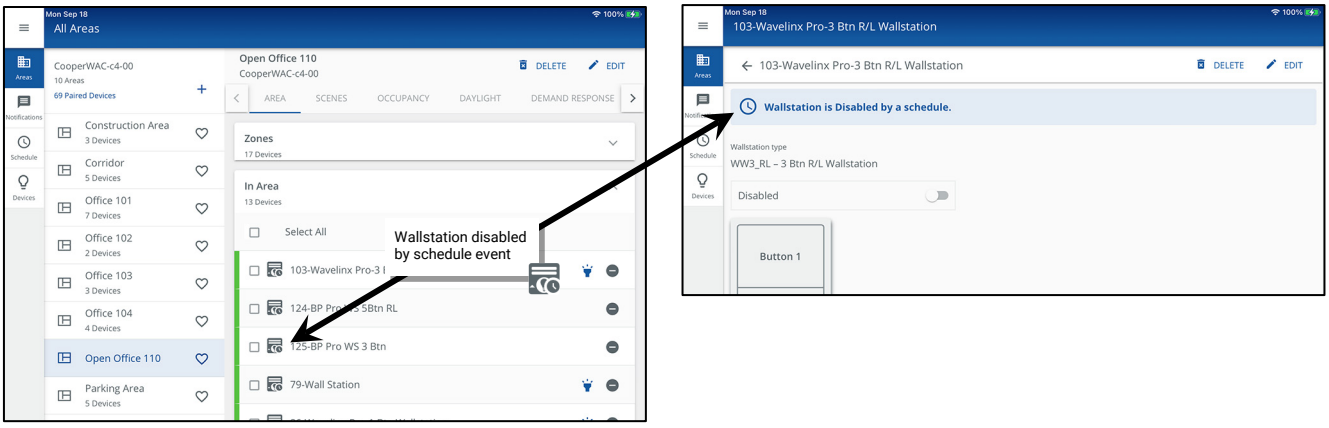


Disable Wallstation



If a **Disable Wallstation** event action is used, the affected wallstation(s) will remain disabled until an enabled command is processed. Remember to set an **Enable Wallstation** event at the time when the wallstation(s) should become operable.

The WaveLinx Application will indicate a wallstation is disabled by displaying a clock icon in the **Devices in Area** device list and a banner message in the wallstation's screen. When the wallstation is disabled, the LED indicator either on the button or at the top of the wallstation will flash white for 1 sec. / OFF for 1 sec. and repeat for 10 seconds whenever a button on the wallstation is pressed.[375]



[374] This action type is supported in WaveLinx Area Controller version 12.x.x.x and higher.

[375] The WaveLinx WB-Series Battery Powered Wallstation, models WB2L, WB3L, WB5 and WB6, will not display the described LED behavior.

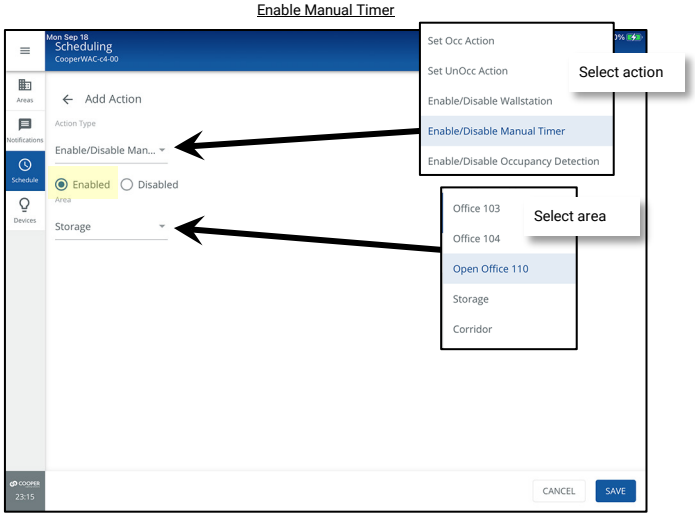
Enable/Disable Manual Timer Action

The manual override timer feature is used to automatically shut off a zone that is not controlled by occupancy sensors. When turned on, the lighting will turn off automatically after the defined timer period expires. The lighting may be set to blink to alert occupants that lighting will turn off in 5 minutes unless a wallstation button is pressed. See “Activating the Manual Override Timer Feature:” on page 245 for more information on using this feature.

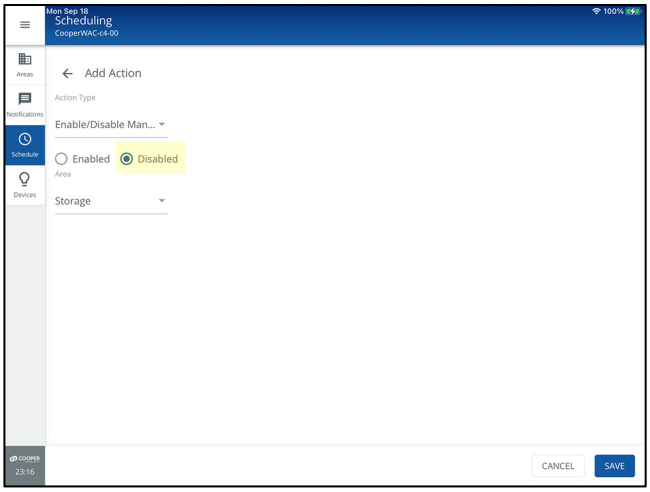
To prevent the automatic shut off timers and warning blinks from operating during a specific time period, use the schedule events action **Enable/Disable Manual Timer**.[376]

- **Enable/Disable Manual Timer**: Select whether the action is to enable or disable the manual override timer and then choose the affected area.

Enable Manual Timer

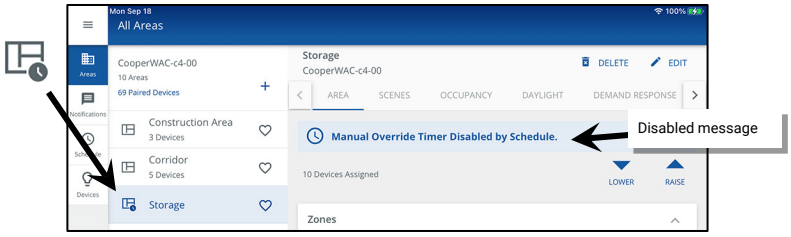


Disable Manual Timer



If a **Disable Manual Timer** event action is used, the timer and blink warns will not operate until an enable manual timer event action is processed. Remember to set an **Enable Manual Timer** event action at the time when the automatic timer shutoff should become operable. When the manual override timer is enabled and lighting is ON, the defined timer will restart so that lighting will automatically shut off once the timer expires.

The WaveLinx Application will indicate when the manual override timer is disabled by displaying a clock icon in the area list and banner messages in the main and edit area screens.



Quick Links for Common Questions

- My schedule events are running but they are running at the incorrect time. What could be causing this? See the answer on page 472.
- How do I define the astronomic clock’s latitude and longitude and set my time zone? See the answer on page 472.
- I get the message **Scheduling details are editable via WaveLinx CORE since this controller is being centrally managed**. Why is this message appearing? See the answer on page 473.
- My schedule event actions do not always appear to run. Why is this occurring? See a possible answer on page 473.

[376] This action type is supported in the WaveLinx Area Controller version 12.x.x.x and higher.

Modifying a Schedule Event

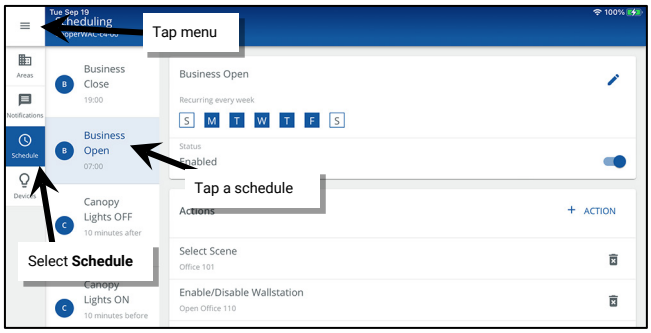
Once an event is configured, it can be modified as needed. The steps in this section go through modifying an existing scheduled event. For all these procedures, first open the event that needs to be modified.

To open the schedule event to be modified:

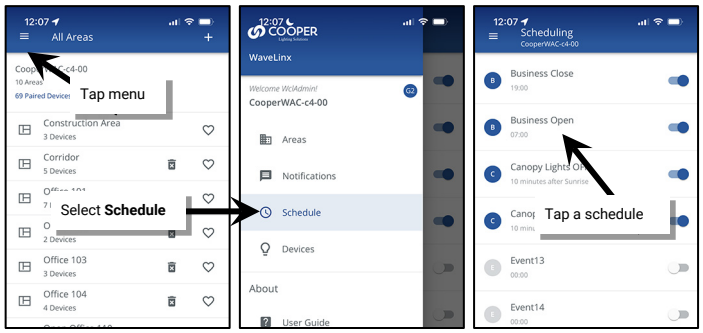
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[377] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: From the **menu** ≡, select **Schedule** and then tap the schedule to modify.

Tablet or Phone Landscape View/WAC Lighting App View

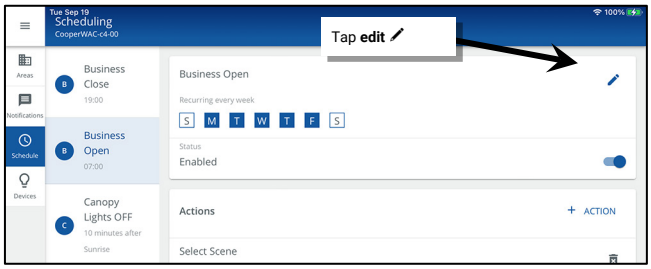


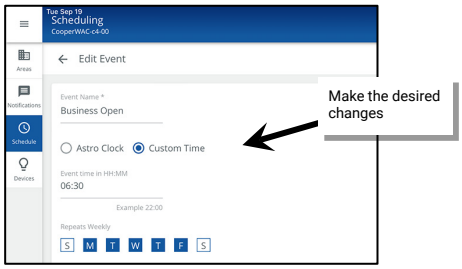
Phone Portrait View



Modifying a Schedule Event Time or Day

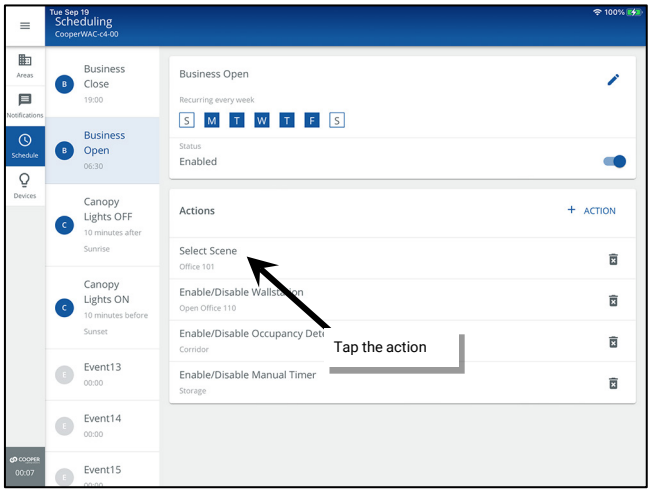
To modify an existing schedule event time or day, tap the event's **edit** ✎ icon and make the needed modifications. Tap **SAVE**.

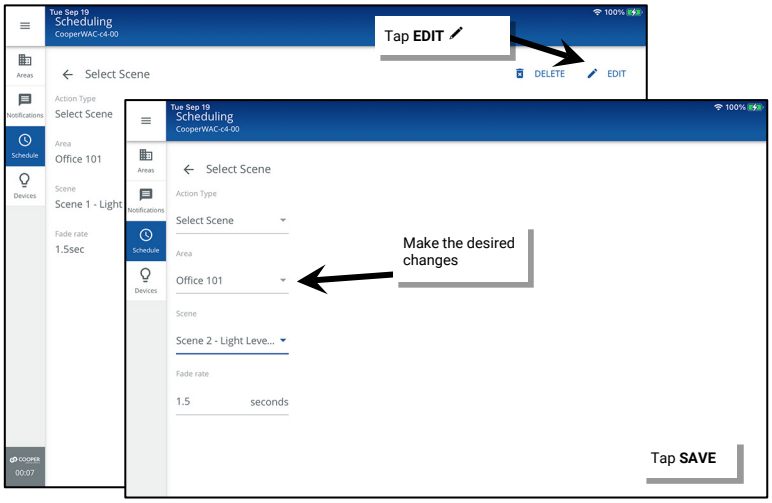




Modifying a Schedule Event Action

To modify an existing schedule event action, tap the desired action and then select **EDIT** ✎. Make the necessary modifications and then tap **SAVE**.

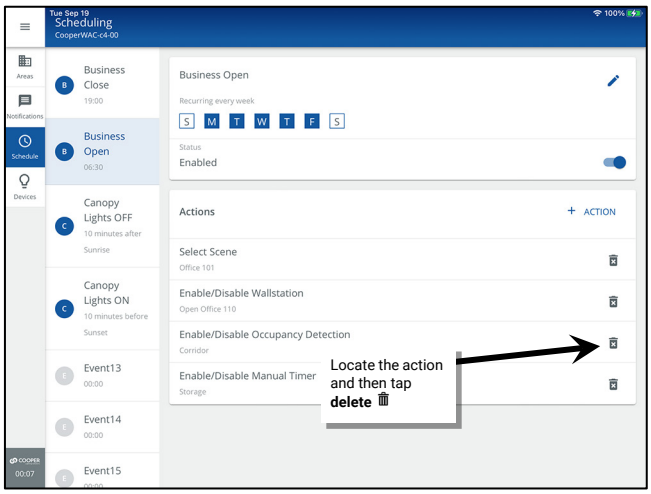




[377] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Deleting a Schedule Event Action

To delete an existing schedule action, locate the action and then tap **delete** 🗑. Confirm the deletion.



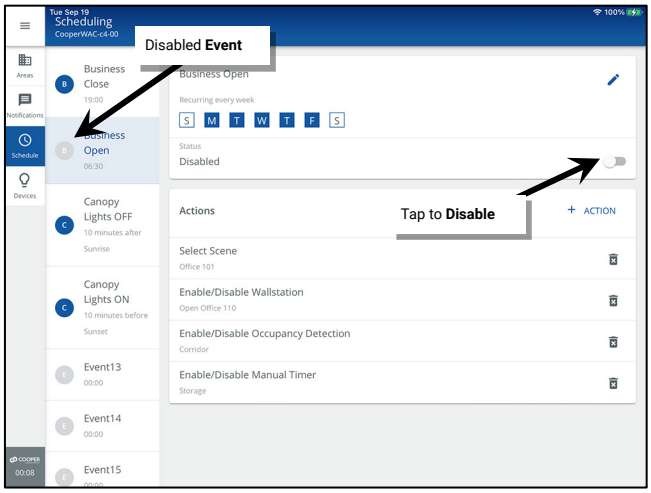
Deleting a Schedule Event

The WaveLinx schedule accessible by the WaveLinx App is hardcoded with 16 events. It is not possible to delete or add events. If an event should no longer function, disable the event, or delete the scheduled actions.

Disabling a Schedule Event

Disabling a schedule event will prevent the actions from executing until the event is re-enabled.

To disable a schedule event, open the desired event and then tap the slider icon to switch the status to **Disabled**. Disabled events will have gray icons in the schedule list.



Re-enable the event by tapping the slider icon to switch the status to **Enabled**. The actions will execute the next time the event occurs.

Modifying and Testing Demand Response Behavior

Once devices are paired with the WaveLinx Area Controller the WaveLinx system operates with default demand response functionality. Upon receipt of the demand response signal (from either an external system through WaveLinx CORE or from a contact input closure to a WaveLinx CAT Contact Input Module), all dimmable zones will reduce their light level by 20%. Commands from other controls will operate within the reduced range until the demand response signal is released. Lighting will then return to the level for the active command.

Demand response signals affect dimmable loads by default. WaveLinx Area Controllers versions 12.1.x.x and higher will also allow the manual assignment of receptacle zones to respond off when demand response signals are received.[378] Assigned receptacle zones will respond by turning all devices OFF when the demand response signal is received, with any reduction level defined for greater than 0%.

Non-dimmable zones (switched) and tunable white zones/devices cannot be assigned to respond to demand response signals and will remain at current light level/color temperature when a demand response signal is received.

This section describes how to adjust the default response, assign the zones that respond, and how to initiate a test to verify the demand response functionality.

Demand response signals are not affected by partition wall position in a partitioned area.

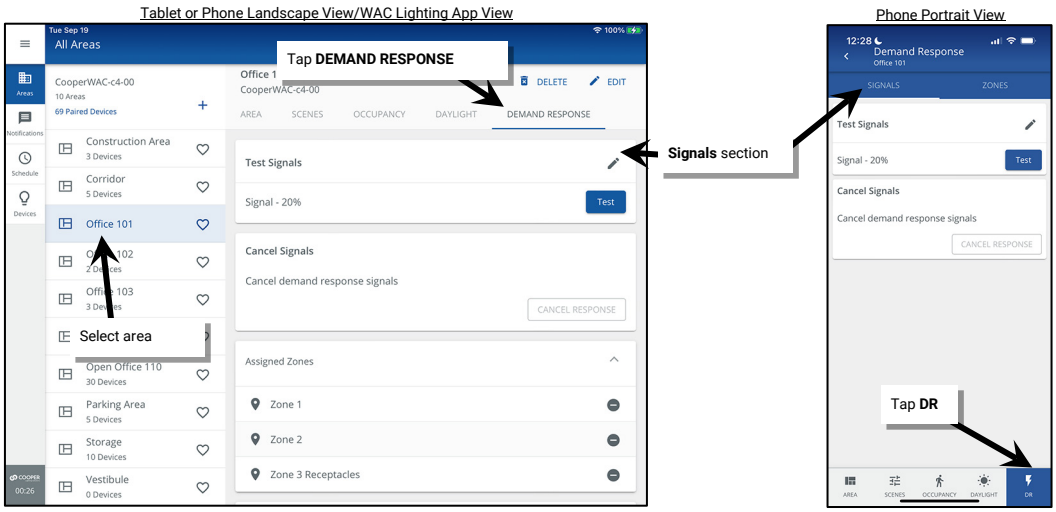
Modifying the Demand Response Reduction Amount

The default 20% demand response reduction for dimmable loads can be modified per area. Assigned receptacle loads will automatically turn OFF with any defined reduction level over 0%.[378]

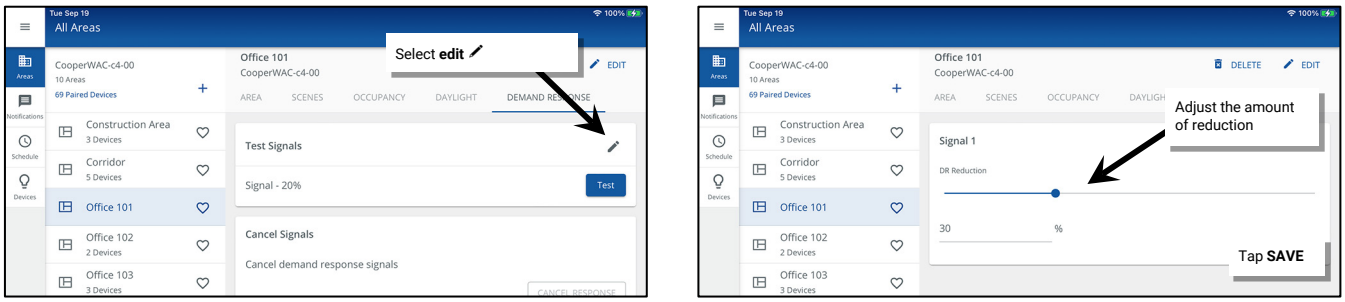
To modify the demand response reduction amount for dimmable loads:

1: Using the WaveLinx Mobile App or the WaveLinx WAC Lighting App[379], login to the WaveLinx Area Controller as the administrator user.

2: Select the desired area, tap the **DEMAND RESPONSE** option, and locate the **Signal** section.



3: Tap **edit** in the **Test Signals** section and then use the slider or number entry fields to enter the desired percentage of reduction. Tap **SAVE**.



[378] Receptacle zones allowing assignment for Demand Response is supported in the WaveLinx Area Controller version 12.1.x.x and higher.

[379] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller min. software version 11.x.x.x and higher.

Modifying the Zones that Respond to Demand Response

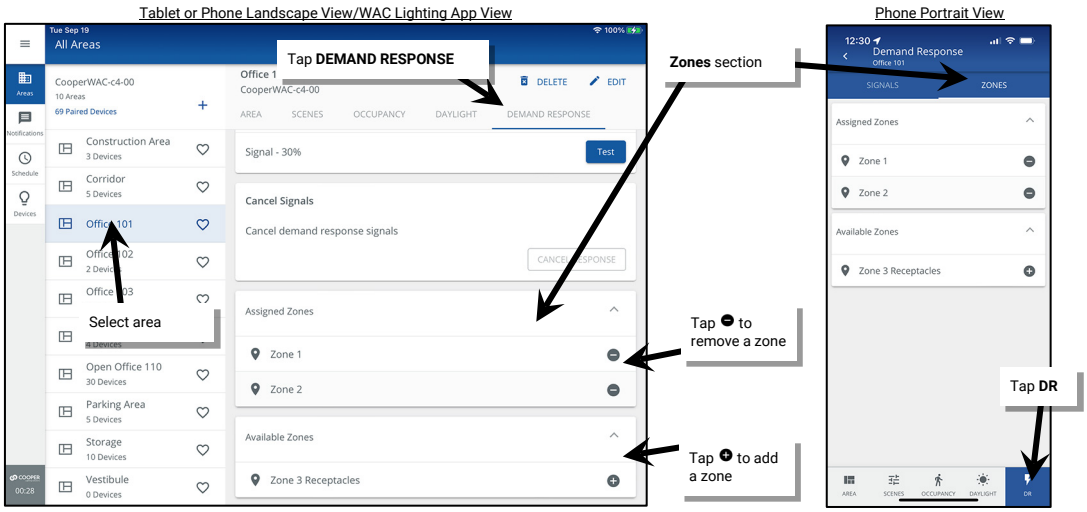
Demand response signals are automatically assigned to dimmable zones by default. Manual changes to demand response can be made to remove dimmable zones and/or add receptacle zones to have the controlled receptacles turn OFF when the demand response signal is received.[380] Demand response signals will have no effect on non-dimmable zones (switched) and tunable white zones. In partitioned sub areas, sub zone designation and partition wall positions have no effect on the demand response.

To modify the zones that respond to the demand response signal:

1: Using the WaveLinx Mobile App or the WaveLinx WAC Lighting App[381], login to the WaveLinx Area Controller as the administrator user.

2: Select the desired area, tap the **DEMAND RESPONSE** option, and locate the **Zones** section.

3: The **Assigned Zones** section will show the zones that operate from the occupancy set while other zones in the area will be in the **Available Zones** area. Tap **remove** ⊖ to remove a zone or tap **add** ⊕ to add a zone.[382]



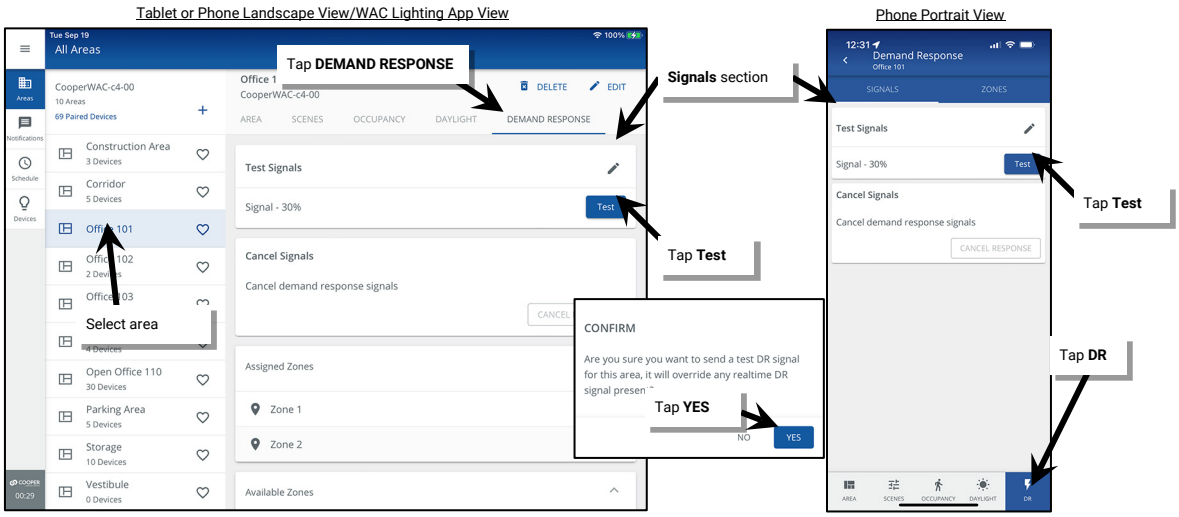
Testing Demand Response

The WaveLinx App contains a built-in test feature for verifying that demand response levels are set correctly. When activated, **ALL areas in that WaveLinx Area Controller** will respond with the defined zone reductions. To test demand response:

1: Using the WaveLinx Mobile App or the WaveLinx WAC Lighting App[381], login to the WaveLinx Area Controller as the administrator user.

2: Select any area, tap the **DEMAND RESPONSE** option, and locate the **Signal** section.

3: Tap the **Test** button and then tap **YES** on the message screen that appears.



[380] Receptacle zones allowing assignment for Demand Response is supported in the WaveLinx Area Controller version 12.1.x.x and higher.

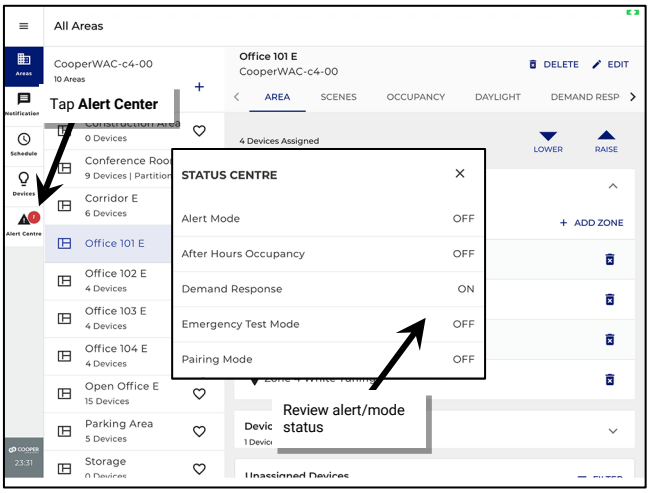
[381] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller min. software version 11.x.x.x and higher.

[382] White tuning zones and non-dimmable zones cannot be assigned to reduce with a demand response signal and will not be shown.

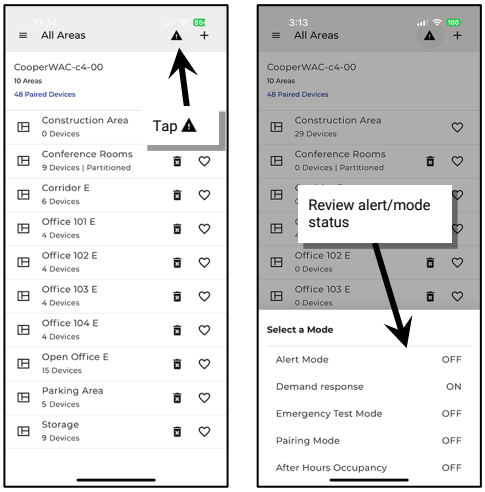
All areas in the WaveLinx Area Controller will respond with the defined demand response behavior limiting commands from other controls to the reduced range. Test mode will automatically time out after 30 minutes or may be manually cancelled by tapping **Cancel Response**. Lighting will then return to the level for the active command.

During test mode or during an active demand response signal, the WaveLinx App **Alerts Center** will show the active Demand Response alert.

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



Quick Links for Common Questions

- I am not using demand response. How do I disable it? See the answer on page 472.
- I want to use demand response. How do I make the connection to my demand response equipment? See the answer on page 472.

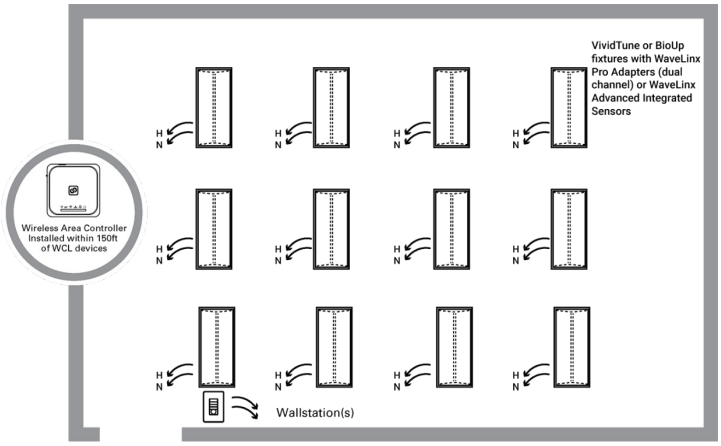
Practical Implementation of White Tuning Control

The WaveLinx system controls tunable white lighting by adjusting the correlated color temperature (CCT). Artificial light sources emit different tones of white light, ranging from warm to cool. In terms of lighting, CCT is measured in degrees Kelvin (K). Warmer, yellower tones of light will have a lower CCT while cooler, bluer tones of light will have a higher CCT. Tunable white lighting fixtures may vary in the supported color temperature range. Refer to the fixture's information for the expected supported range.

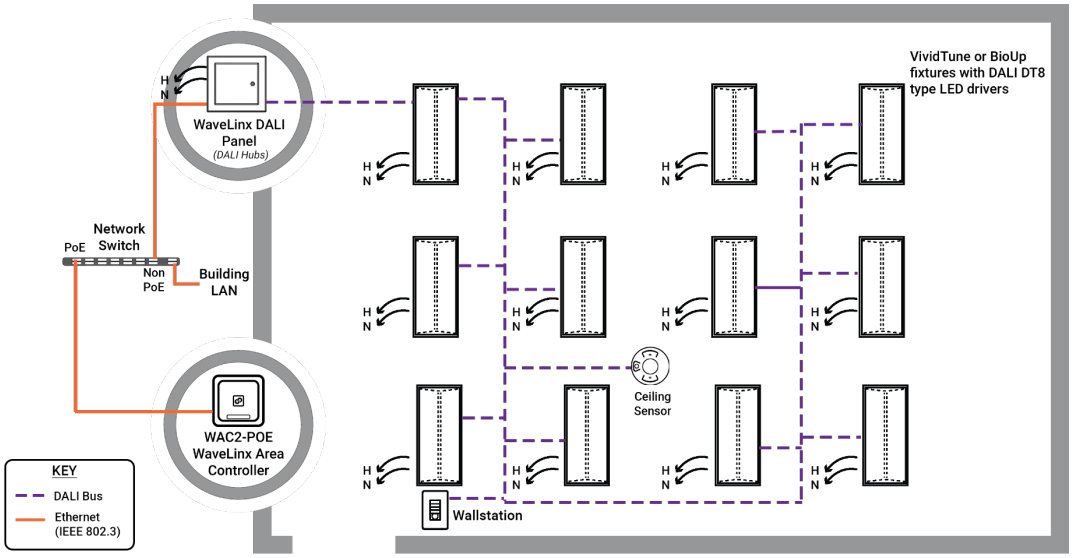
Allowing adjustment of color temperature along with the lighting intensity means that lighting can be fully customized to meet the specific needs of the intended task. Tunable white lighting may help maintain alertness and productivity in educational and office environments, assist with recovery, and comfort in healthcare facilities, and provide flexibility in retail or other environments that require constant modification to display items in the best light.

The WaveLinx system controls tunable white lighting using the following devices:

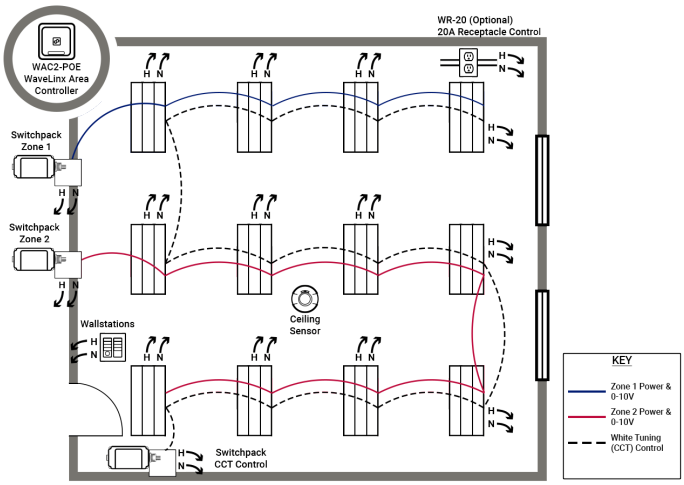
- **WaveLinx PRO Node (dual channel model)or advanced model WaveLinx PRO Integrated Sensor (WPA IS Pro CCT**: The WaveLinx PRO Node's dual channel model or the advanced model WaveLinx PRO Integrated Sensor (WPA IS Pro CCT) support white tuning and intensity control (ON/OFF dimming) within an individual fixture. For the Dual Channel WaveLinx PRO Node, one channel controls the color temperature while the other channel controls the intensity control. The WPA IS Pro CCT also allows for separate controls for dimming and white tuning. Each fixture will have its own Node or WPA IS Pro CCT allowing for individual control.



- **DALI DT8 Tunable White Fixture**: A fixture equipped with a DALI DT8 device type (tunable white) that is connected to the WaveLinx System through a WaveLinx DALI Hub supports both white tuning and intensity control (ON/OFF dimming) within an individual fixture. For the Dual Channel WaveLinx PRO Node, one channel controls the color temperature while the other channel controls the intensity control. Each fixture will have its own DALI DT8 type driver allowing for individual control.

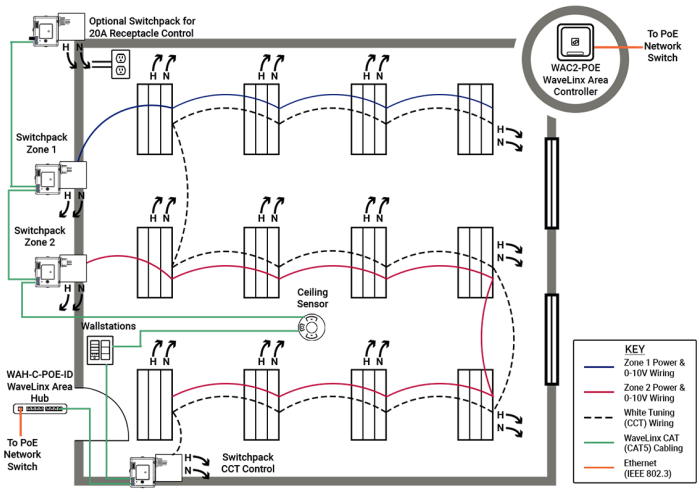


- **WaveLinx PRO Universal Voltage Dimming Switchpack**:[383] The WaveLinx PRO Universal Voltage Dimming Switchpack (RSP-P-010-347, WSP-MV-010 and WSP-UV-010 [non-emergency model]) supports white tuning when connected to the white tuning control wires of a 0-10V fixture. One switchpack typically controls the color temperature for an entire room of fixtures if they are the same fixture type (the line voltage relay switching lead on the white tuning control switchpack will not be used).
  - Some applications may have more than one WaveLinx PRO Universal Voltage Dimming Switchpack connected for white tuning control if fixtures have different supported color temperature ranges, or for ease of routing wiring.
  - The intensity control (ON/OFF/dimming) of white tunable fixtures may be done using additional WaveLinx Universal Voltage Dimming Switchpacks. Generally, one switchpack is used for CCT control and one or more are used for ON/OFF/dimming control zones. The intensity control (ON/OFF/dimming) of white tunable fixtures may also be achieved using Integrated Sensors if the fixture offers this option.
  - In the below example, The color temperature (CCT) control wires from each VividTune or BioUp tunable fixture are connected to one WaveLinx PRO Dimming Switchpack. Additional WaveLinx PRO Dimming Switchpacks control the Power and 0-10V wiring of the zoned fixtures.

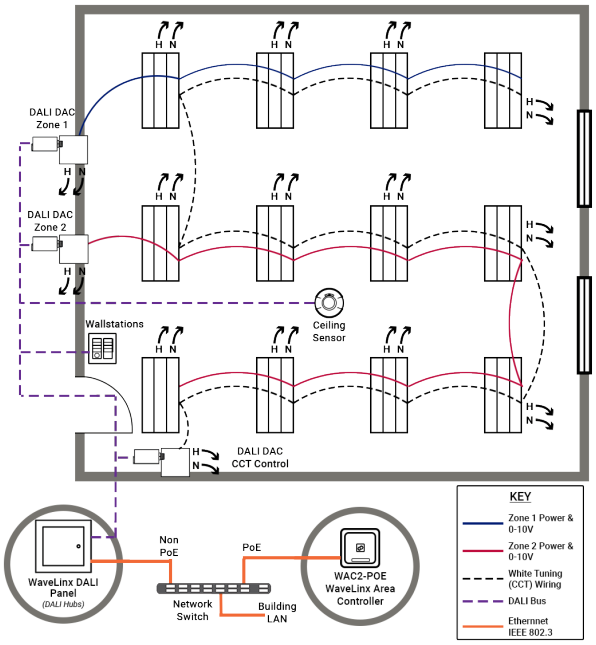


[383] When using WaveLinx Switchpacks (WSP-MV-010 or WSP-CA-010), installation should be on a junction box and NOT installed on fixture wiring compartment.

- **WaveLinx CAT Dimming Switchpack**: The WaveLinx CAT Dimming Switchpack (RSP-C-010-Z1) supports white tuning when connected to the white tuning control wires of a 0-10V fixture. One switchpack typically controls the color temperature for an entire room of fixtures if they are the same fixture type (the line voltage relay switching lead on the white tuning control switchpack will not be used).
  - Some applications may have more than one WaveLinx CAT Dimming Switchpack connected for white tuning control if fixtures have different supported color temperature ranges, or for ease of routing wiring.
  - The intensity control (ON/OFF/dimming) of white tunable fixtures may be done using additional WaveLinx CAT Dimming Switchpacks. Generally, one switchpack is used for CCT control and one or more are used for ON/OFF/dimming control zones.
  - In the below example, The color temperature (CCT) control wires from each VividTune or BioUp tunable fixture are connected to one WaveLinx CAT Dimming Switchpack. Additional WaveLinx CAT Dimming Switchpacks control the Power and 0-10V wiring of the zoned fixtures.



- **WaveLinx DALI DAC**: The WaveLinx DALI DAC supports white tuning when connected to the white tuning control wires of a 0-10V fixture. One DALI DAC typically controls the color temperature (the line voltage relay switching lead on the white tuning control DAC will not be used) The intensity control of the fixture may be controlled by additional DALI DACs..
  - Some applications may have more than one WaveLinx DALI DAC connected for white tuning control if fixtures have different supported color temperature ranges, or for ease of routing wiring.
  - The intensity control (ON/OFF/dimming) of white tunable fixtures may be done using additional WaveLinx DALI DACs. Generally, one DALI DAC is used for CCT control and one or more are used for ON/OFF/dimming control zones.
  - In the below example, The color temperature (CCT) control wires from each VividTune or BioUp tunable fixture are connected to one WaveLinx DALI DAC. Additional WaveLinx DALI DACs control the Power and 0-10V wiring of the zoned fixtures.



Setting Up for Success

VividTune and BioUp tunable are color tuning solutions already built-In to many Cooper Lighting Solutions fixture models. VividTune and BioUp tunable fixtures support operation from the dual channel WaveLinx PRO Node and support the use of the advanced Integrated Sensor (WPA IS Pro CCT). Both allow for seamless control of intensity and white tuning in the same device. VividTune and BioUp tunable fixtures also support operation from an entirely externally wired solution using either WaveLinx PRO Universal Voltage Dimming Switchpacks or WaveLinx CAT Dimming Switchpacks.

During initial setup, follow the steps in the sections below for a successful implementation of white tuning:

If using WaveLinx PRO Node (dual channel) OR if using advanced model WaveLinx PRO Integrated Sensors (WPA IS Pro CCT) or a DALI DT8 type DALI Driver in a tunable white fixture	If using an externally wired solution using WaveLinx PRO Universal Dimming Switchpacks, WaveLinx CAT Dimming Switchpacks, or WaveLinx DALI DACs

• Create the dimming zone(s) needed for the area. (p. 187)
• Create the white tuning zone(s) needed for the area. (p. 187)
• Identify each dual channel WaveLinx PRO Node, advanced model WaveLinx PRO Integrated Sensors (WPA IS Pro CCT), or DALI DT8 driver controlled fixture and when adding them, select the dimming zone for the intensity control and the white tuning zone for the white tuning control. (p. 203)
• Add other devices to the area as needed and proceed with programming.
	• Create the dimming zone(s) needed for the area. (p. 187)
	• Create the white tuning zone(s) needed for the area. (p. 187)
	• Identify the WaveLinx Switchpacks or WaveLinx DALI DACs controlling the on/off and dimming functions in the room and assign them to the dimming zone(s). (p. 200)
	• Configure the WaveLinx PRO Universal Voltage Dimming Switchpack, WaveLinx CAT Dimming Switchpack, or WaveLinx DALI DAC that is controlling the White Tuning(p. 207):
	  • Identify the switchpack/DAC controlling the color temperature and assign it to the **AREA**.
	  • Edit the switchpack/DAC in the area, changing the type to white tuning and defining the color temperature range for the fixture.
	  • Assign the white tuning switchpack/DAC to the white tuning zone.
	• Add other devices to the area as needed and proceed with programming.

Understanding WaveLinx White Tuning Zone Behavior

The WaveLinx system has specific characteristics for how white tuning zones natively operate and how programming should be applied:

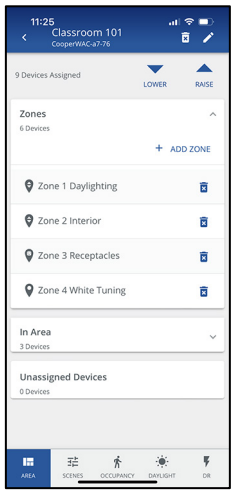
- A single area will typically have one white tuning zone. It is rare (although possible) to desire to have fixtures within the same space at different color temperatures at the same time.
- If there are different supported color temperature ranges amongst fixtures within the same space, the white tuning zone can be limited to a range that is supported amongst all the devices. For instance, if one device supports a range of 2700K-6500K and another device supports a range of 3000K-5000K, first, set the individual devices to their actual ranges. Then, at the white tuning zone, set the zone to a range of 3000K to 5000K. By limiting the zone to a range that all the devices support, the lighting will have a uniform color temperature response, despite the different device ranges.
- White tuning zones may be programmed to respond to scenes along with dimmable and non-dimmable lighting loads. Scenes may be used to control intensity and to change color temperature to meet a specific application.
- White tuning zones may be ignored from scenes to allow for separation of the intensity control and the color tuning control. This can aid in preventing unintentional color temperature shifts when lighting intensity is adjusted.
- WaveLinx allows commands to be issued to lighting zones with zone level, zone raise, and zone lower commands. Zone commands can be issued to a zone, to a **CUSTOM** group of zones, to **ALL** zones in an area, or to **AFFECTED** zones in the area. If a zone command is issued to a **CUSTOM**, to **ALL,** or to **AFFECTED** zones, white tuning zones automatically ignore the command and will remain at the previous color temperature. A white tuning zone will respond to a zone command if it is specifically programmed to control only the white tuning zone. This helps ensure that color temperature changes occur only when intended.
- White tuning zones are automatically excluded from being controlled by daylighting and demand response strategies. They may optionally be programmed to respond to occupancy sensor commands.

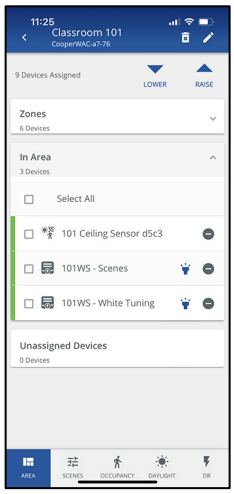
The following sections highlight some practical applications on implementing white tuning control.

Application 1: Separate Manual Controls for Intensity and White Tuning

One approach to implementing lighting and white tuning control is to provide manual controls that separate the lighting intensity from the white tuning. Dimming and ON/OFF response might be controlled by standard occupancy and daylighting strategies in addition to traditional manual wallstation scene and raise/lower controls. White tuning is controlled from a different manual wallstation that allows the occupant to adjust to the color temperature to meet their needs. This is a common application in classrooms and conference rooms.

Here is a sample of how this might be programmed in the WaveLinx system:



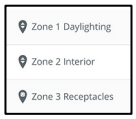
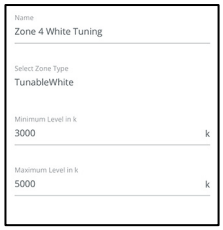
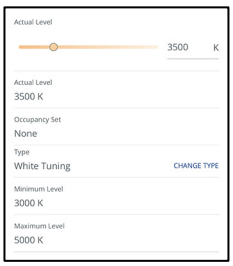
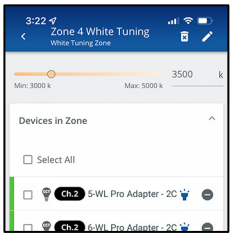


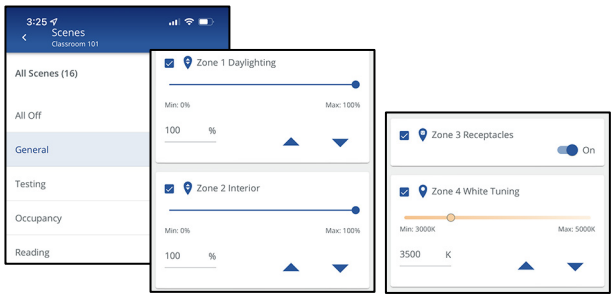
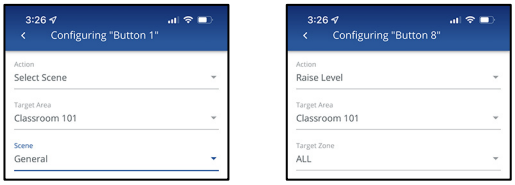
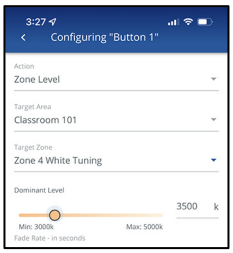
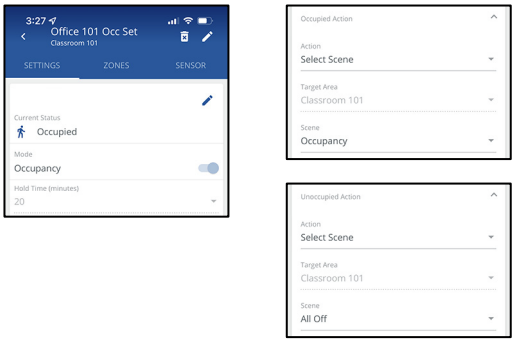
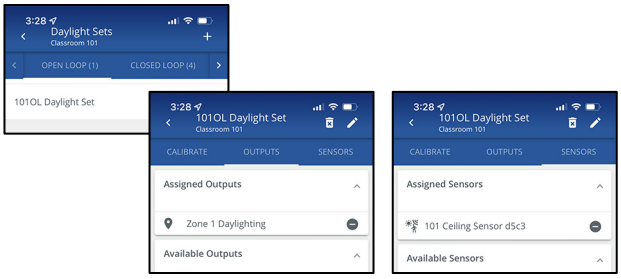
Zones:

- Zone 1: Dimmable: Daylight Zone
- Zone 2: Dimmable: Interior Zone
- Zone 3: Receptacle Zone (Optional)
- Zone 4: White Tuning Zone

Controls:

- Battery Powered WaveLinx Ceiling Sensor for occupancy and daylight control
- Wallstation 1: Scene and raise lower control for intensity
- Wallstation 2: Zone control for white tuning

Items	Programming Assigned
Zones 1 -3	• Devices are assigned to these zones according to their location. 
Zone 4 White Tuning Zone	• Set for White Tuning • Set to support the white tuning range of the connected fixtures. For this example, the fixture range is 3000K – 5000K. 
White Tuning Control	• Set device(s) to a white tuning type. • Set to the white tuning range of the connected device(s). For this example, the fixture range is 3000K – 5000K. • Assign the device(s) to white tuning zone 4.  

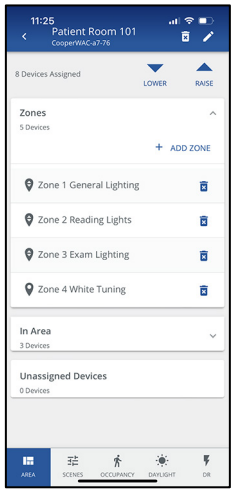
Items	Programming Assigned
Scene Programming	• Scenes are programmed for each of the intensity levels issued by the scene wallstation and occupancy sensor. • For each scene, white tuning zone 4 is ignored (unchecked). Optionally, the occupancy sensor may control the white tuning zone to reset to a specified color temperature when the space is initially occupied. The white tuning zone must be assigned to the occupancy set and a color temperature level defined for zone in the occupied scene. 
Wallstation 1: Scene and Raise/Lower Control	• Set each button to issue the desired scene command • Set the raise/lower buttons to control **ALL** or **AFFECTED** zones of the area. White tuning zones will automatically ignore these commands. 
Wallstation 2: White Tuning Control	• Set each button to issue a zone level command to the white tuning zone and set the desired color temperature (in Kelvin). 
Occupancy Sensor	• The occupancy sensor set is configured to issue scene commands for the occupied and unoccupied actions. Optionally, the sensor could be set for vacancy mode to issue only an unoccupied action. Optionally, the occupancy sensor may control the white tuning zone. The white tuning zone must be assigned to the occupancy set and a color temperature level defined for zone in the occupied scene. 
Daylight Control	• The WaveLinx PRO Ceiling Sensor is assigned to an open loop daylight set. The daylight zone is assigned for daylight control and calibrated for the location. An Integrated or Tilemount Sensor can be assigned to perform open loop daylighting instead of the WaveLinx PRO Ceiling Sensor used in this example.[384] Closed loop daylighting may also be used instead of open loop If using Integrated or Tilemount Sensors. Refer to "Calibrating all Closed Loop Daylight Sensors in an Area" on page 304 for detailed setup instructions. 

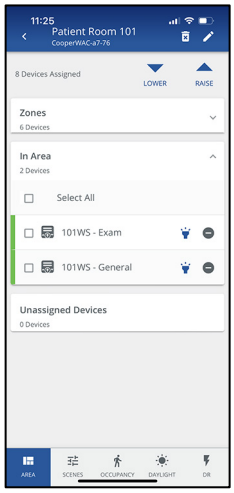
[384] WaveLinx Integrated Sensor and Tilemount Sensor assignment for open loop control is contingent on the use of WaveLinx Area Controller v10.0.x.x and higher updated device firmware. Low-Voltage Integrated Sensors do not support this feature.

Application 2: White Tuning Controlled by Automatic Timed Events

Another strategy for implementing lighting and white tuning control is to automate color temperature progression while allowing manual control of the lighting intensity. In this application, occupancy sensors, daylight sensors and manual controls could be used to adjust the intensity levels. White tuning is controlled automatically by daily scheduled events that automatically adjust the color temperature. Healthcare facilities may use this approach to potentially promote healing by mimicking daylight color temperature progression while office or education locations may use the approach to potentially enhance productivity during peak hours.

Here is a sample of how this might be programmed in the WaveLinx system:



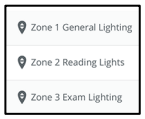
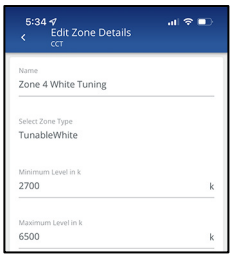
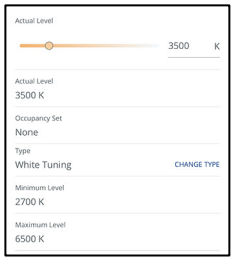
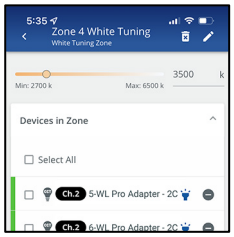


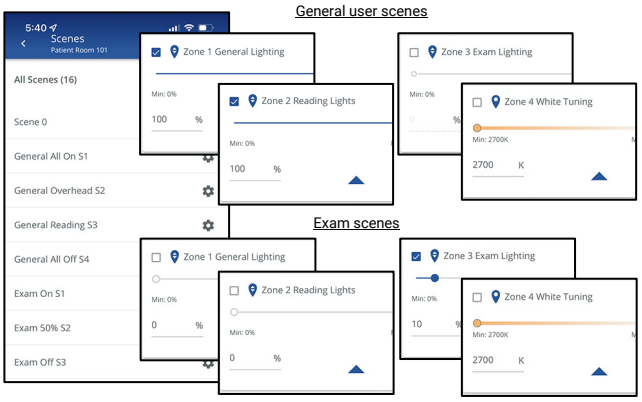
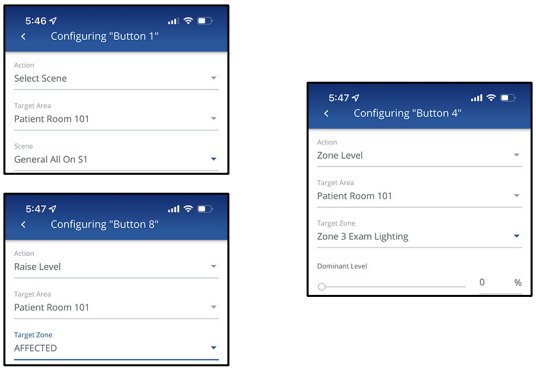
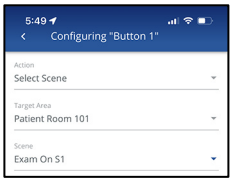
Zones:

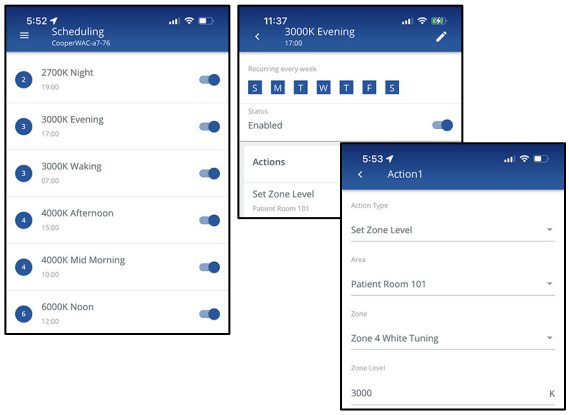
- Zone 1: General Lighting Zone
- Zone 2: Reading Lights
- Zone 3: Exam Lighting
- Zone 4: White Tuning Zone

Controls:

- Wallstation 1: General user control: scene and raise lower control of general and reading lights
- Wallstation 2: Exam lighting control. (Could optionally control general and reading lighting as well as exam lighting)
- Schedule Events: Color temperature control

Items	Programming Assigned
Zones 1 -3	• Devices are assigned to these zones according to their location. 
Zone 4 White Tuning Zone	• Set for White Tuning • Set to support the white tuning range of the connected fixtures. For this example, the fixture range is 2700K- 6500K. 
White Tuning Control	• Set device(s) to a white tuning type. • Set to the white tuning range of the connected device(s). For this example, the fixture range is 2700K – 6500K. • Assign the device(s) to white tuning zone 4.  

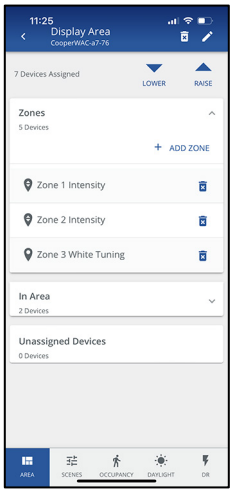
Items	Programming Assigned
Scene Programming	• Scenes are programmed for each of the intensity levels issued by the general user wallstation and the exam lighting wallstation. • For the general user wallstation scenes, ignore zone 3 exam lighting. • For the exam lighting wallstation scenes, ignore the General or Reading zones. • For all scenes, ignore white tuning zone 4. 
Wallstation 1: General User Control	• The wallstation is set to issue the general user scene commands. • One button could be used to issue a zone level 0% command to the exam lighting, allowing the general user to turn OFF the exam lights if they have been left ON. • The raise/lower controls are set to control **AFFECTED** zones of the area to allow raise and lower of the general and reading lighting. Exam lights have been ignored from the general user scenes and will ignore the raise/ lower controls when these scenes are active. White tuning zones will automatically ignore these commands 
Wallstation 2: Exam Lighting Control Station	• Set each button to issue the scenes programmed for the exam lighting. 

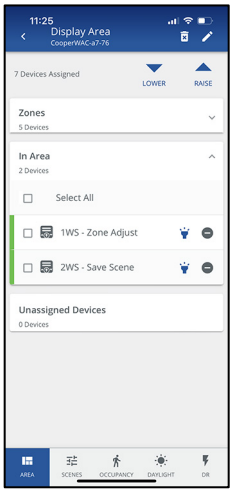
Time Schedule Events	• Time schedule events are programmed every few hours to issue zone level commands to the white tuning zone.
	• For example, events may progressively shift the color temperature:
	  • 7:00am: Zone Level 3000K
	  • 10:00am: Zone Level 4000K
	  • 12:00pm: Zone Level 6000K
	  • 3:00pm: Zone Level 4000K
	  • 5:00pm: Zone Level 3000K
	  • 7:00pm: Zone Level 2700K
	 

Application 3: White Tuning and Intensity Scenes with Flexible Adjustment

To meet the needs of a changing environment, the WaveLinx system allows for quick adjustments to intensity and white tuning levels in strategies where both the intensity and the color temperature are controlled as part of the same scenes. Quickly change the levels of each zone and save them to scenes using either the WaveLinx App, or with wallstations zone raise and lower commands and save scene commands. This type of control is ideal in environments such as a retail space where lighting needs to be changed frequently to display products in the best possible light.

Here is an example of how this might be programmed in the WaveLinx system:





Zones:

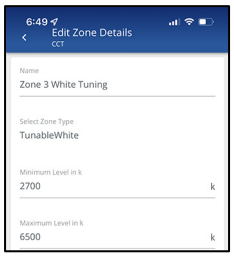
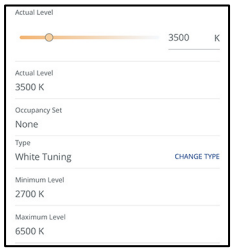
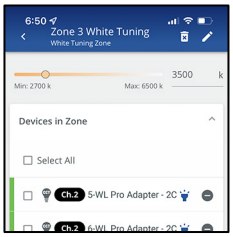
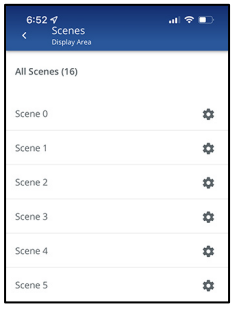
- Zone 1: Intensity Control
- Zone 2: Intensity Control
- Zone 3: White Tuning Zone

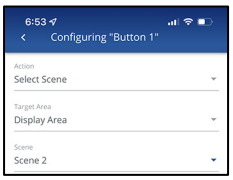
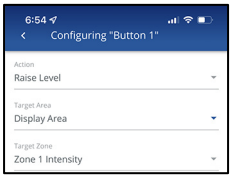
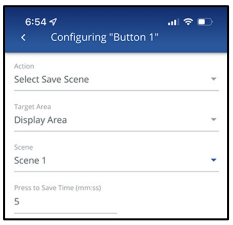
Controls:

There may be any number of controls throughout the space to issue commands to the lighting via scene-based control methods

Adjustment Controls (if not using the WaveLinx App)

- Wallstation 1: Zone Adjustment Control
- Wallstation 2: Save Scene Control

Items	Programming Assigned	
Zones 1 -2	• Devices are assigned to these zones according to their location.	
Zone 3 White Tuning Zone	• Set for White Tuning • Set to support the white tuning range of the connected fixtures. For this example, the fixture range is 2700K- 6500K.	
White Tuning Control	• Set device(s) to a white tuning type. • Set to the white tuning range of the connected device(s). For this example, the fixture range is 2700K – 6500K. • Assign the device(s) to white tuning zone 3.	 
Scene Programming	• Scenes are programmed for each of the desired intensity/color temperature levels to be issued by control devices. • For each scene, Zone 3 White Tuning is included and programmed for the desired color temperature	

Items	Programming Assigned	
Control Devices	• Any devices or events that issue commands are programmed to issue the appropriate scene.	
Wallstation 1: Zone Adjustment Control	• Two buttons will be used for every zone. In this example, there are three zones. This requires the use of a 6-button station. • Each pair of buttons is programmed to issue a raise or lower to one of the three zones.	
Wallstation 2: Scene Adjustment Control	• Each scene that requires modification will need one button on the wallstation. In this application, five scenes are being used so a 5-button station would be used. • Program each button to issue the action type **Select Save Scene**, to one of the scenes being used.	
How to use the adjustment wallstations	• First, quickly press and release (less than 5 seconds) the **Select Save Scene** button for the scene being adjusted. This will issue the scene command. • Next, use the individual zone raise and lower buttons to adjust each zone to the desired lighting intensity and color temperature. • Making sure to use the button that is associated with the scene being reprogrammed, press, and hold the **Select Save Scene** button for at least 5 seconds. This will save the new levels to the scene.	

Modifying Emergency Sets and Testing Emergency Mode Operation

Some WaveLinx PRO and CAT devices are UL924 approved for control of emergency fixtures. This allows the emergency fixtures to operate like any other fixture in the space unless there is an interruption of normal power. Upon detection of loss of normal power, the device enters Emergency Mode, forcing the emergency fixture to full brightness until normal power returns.[385] This section discusses the basic information regarding Emergency Mode operation with these devices.

Important Information about Emergency Sets

Out-of-the-box, WaveLinx PRO and CAT emergency devices will remain in Emergency Mode where lighting is ON/100% and will remain in Emergency Mode indefinitely unless programmed into an **Emergency Set** using the WaveLinx App.

When programming an Emergency Set, there are two different devices involved:

- **NPS device**: NPS stands for Normal Power Sense. An NPS device is one that is connected to a normal power circuit and can sense power loss on the attached circuit within the required UL924 ten second period. When powered, an NPS device that is assigned to an Emergency Set sends a beacon signal to the EM Device(s). When it loses power, the beacon signal ends alerting the EM Device(s).
- **EM device**: EM devices are the UL924 approved emergency devices. EM devices are connected to emergency circuits. An EM device that is assigned to an Emergency Set will listen for the assigned NPS device beacons. If any assigned NPS device beacon is not detected, the EM device(s) will go to Emergency Mode. Once all NPS device beacons are detected again, the EM device(s) will go back to Normal mode.

An **Emergency Set** is made up of at least one NPS device (max. 3) and the EM devices (unlimited number) that need to respond to Emergency Mode if the NPS device(s) beacon signals stop. The NPS device maximum of three allows for one device from each of the three electrical phases to be monitored if desired. Once the Emergency Set is programmed, the EM devices will operate like any other device in normal circumstances allowing for WaveLinx command control.

[385] WaveLinx Networked Relay Panels can be ordered for Emergency Mode. These devices handle UL924 emergency mode internal to the cabinet. It is not necessary to configure any additional settings through the WaveLinx Application. Refer to the installation instructions for the panel or to the item reference sheets in this user guide for details on the emergency panel operation.

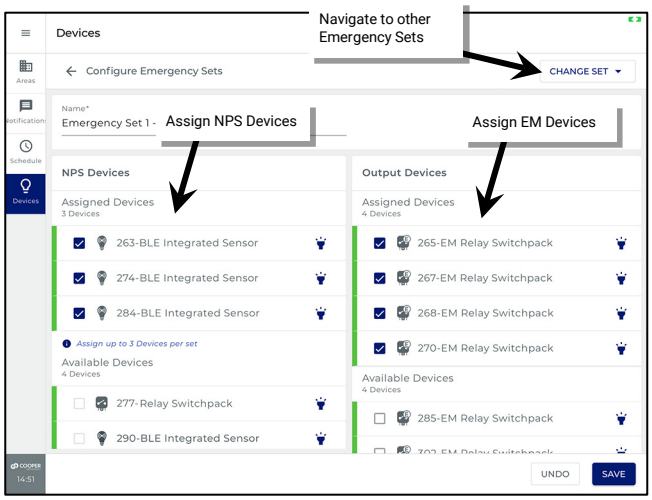
Emergency Sets are not limited by user defined areas and zones. There are limits by the hardware category, i.e., **Wireless Emergency Sets** (WaveLinx PRO) and **Area Hub Emergency Sets** (WaveLinx CAT). See the rules for each hardware category as outlined below:

Wireless Emergency Set (WaveLinx PRO Devices)	Area Hub Emergency Set (WaveLinx CAT Devices)

• Each WaveLinx WAC can be manually programmed with up to 6 max. user defined Wireless Emergency Sets to be used with WaveLinx PRO devices. These user defined sets are separate from those used by WaveLinx CAT devices.
• Amongst all the Wireless Emergency Sets, a max. of 6 total WaveLinx PRO NPS devices can be assigned.
  • No more than 3 WaveLinx PRO NPS devices can be assigned to any Wireless Emergency Set. Possible configurations include:
  • 6 Emergency Sets each with 1 NPS device assigned
  • 3 Emergency Sets each with 2 NPS devices assigned
  • 2 Emergency Sets each with 3 NPS devices assigned
• There is no limit on how many Emergency devices can be assigned to an Emergency Set.
• WaveLinx PRO NPS and EM capable devices from any area and zone in the same WAC can be assigned to any Wireless Emergency Set.
• WaveLinx CAT NPS and EM capable devices cannot be assigned to a Wireless Emergency Set.
	• One Area Hub Emergency Set will be **created automatically** for each port on the Area Hub that has an emergency device connected to it during the Area Hub is discovery and import. The created Area Hub Emergency Set will not have devices assigned and requires setup.
	• One Area Hub can have up to 8 Area Hub Emergency Sets if all ports have an Emergency device attached.
	• The WaveLinx CAT NPS device(s) must be physically connected to the same CAT bus as the WaveLinx CAT EM device(s) on the Area Hub port for them to assigned to the same Area Hub Emergency Set. Devices cannot be shared between Area Hub ports or with other Area Hubs.
	• No more than 3 WaveLinx CAT NPS devices can be assigned to any Area Hub Emergency Set.
	• There is no limit on how many Emergency devices can be assigned to an Area Hub Emergency Set.
	• WaveLinx CAT NPS and EM capable devices do not need to be in the same area or zone to be assigned to the Area Hub Emergency Set if they are physically wired to the same CAT bus.
	• WaveLinx PRO NPS and EM capable devices cannot be assigned to an Area Hub Emergency Set.

Understanding Basic Navigation and Layout in the Emergency Mode Screens

The Emergency Mode Screen is used to create Wireless Emergency Sets, access automatically created Area Hub Emergency Sets, and enter Test Mode. This screen also contains colored indicators to alert of improper vs. correct setup and Normal vs. Emergency Mode operation. Within an Emergency Set Screen, NPS devices and EM devices (Output Devices) can be assigned.



The WaveLinx Wireless Emergency Sets and Area Hub Emergency Sets have a colored indicator bar at the beginning of the Emergency Set Row. The colored indicator bar can be gray, red, or green. These colors can indicate different conditions:

Icon	Description
Emergency Set 2 0 NPS Devices, 0 EM Devices	**Gray:** The Emergency Set has been created but there are no NPS or EM devices assigned. Configure the Emergency Set for proper operation.
Emergency Set 1 AH-B020 Port 1 1 NPS Devices, 1 EM Devices	**Green:** The green indicator can have two meanings: • The Emergency Set has been configured properly with NPS and EM devices assigned. • The Emergency Set has been configured properly and is in Normal Mode.
Emergency Set 1 - East Offices 3 NPS Devices, 0 EM Devices	**Red:** The red indicator can have two meanings: • The Emergency Set has been partially configured but is not complete. Either the NPS devices or the EM devices have not been assigned. Complete the configuration for proper operation. • The Emergency Set has been configured properly and is in Emergency Mode.

Adding an Emergency Set

WaveLinx PRO and WaveLinx CAT behavior is different in terms of adding Emergency Sets. WaveLinx PRO Wireless Emergency Sets are added manually. WaveLinx CAT Area Hub Emergency Sets are added automatically during discovery or rescan.

Adding a WaveLinx PRO Wireless Emergency Set

WaveLinx PRO Normal Power Sense (NPS) and Emergency (EM) devices require the creation of at least one Wireless Emergency Set to allow operation of the EM devices when normal power is present.

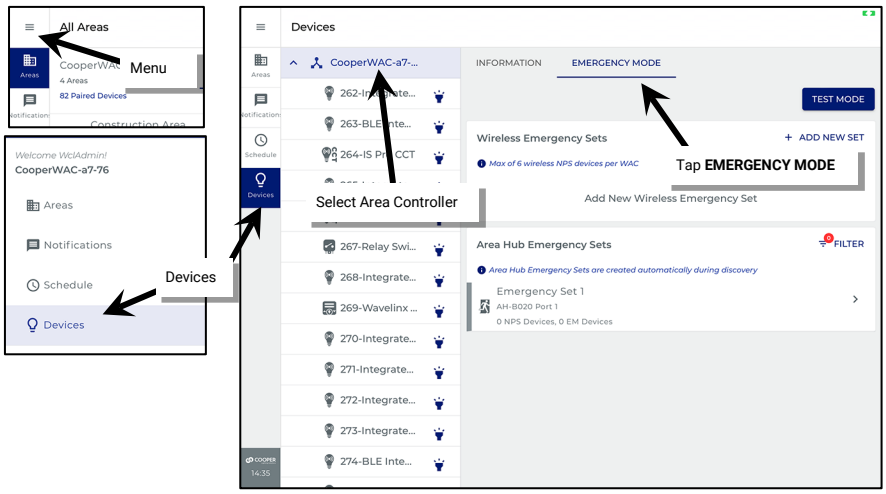
To create a Wireless Emergency Set:

1: From the **menu** ≡, select **Devices**.

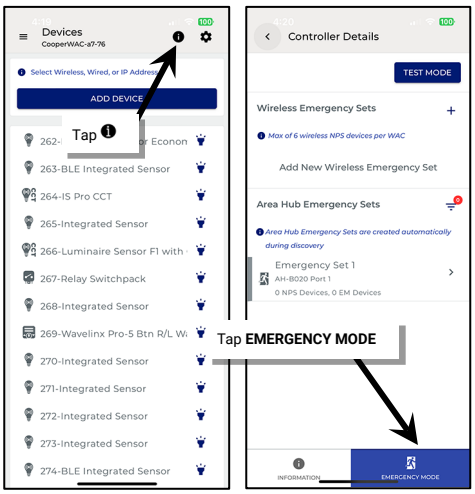
2: Open the **Emergency Mode** screen:

- For tablet users in landscape view, In the **Devices** list, locate and select the WaveLinx Area Controller. Tap the **Emergency Mode** tab.
- For smaller devices in portrait view, at the top of the device list tap ❶. At the bottom of the screen, tap the **Emergency Mode** tab.

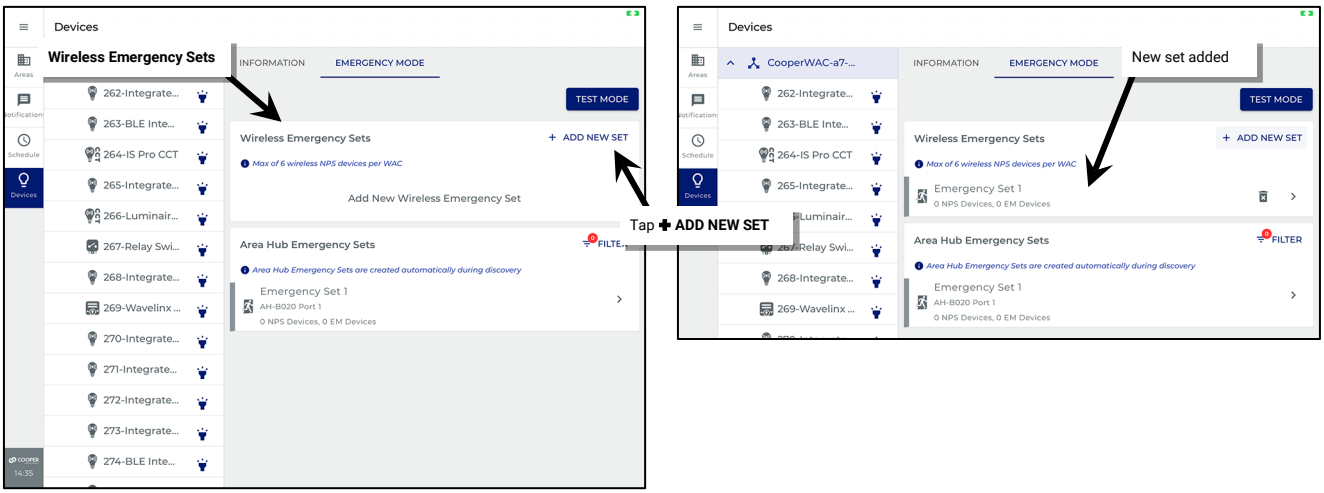
Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



3: In the **Wireless Emergency Sets** section, tap **✚ ADD NEW SET** or **✚**. The new set will be added to the **Wireless Emergency Set** list.



After adding the Emergency Set remember to Configure the Emergency Set for proper operation.

Adding a WaveLinx CAT Area Hub Emergency Set

Area Hub Emergency Sets are automatically created. It is not possible to manually create an Area Hub Emergency Set. When the Area Hub is discovered and imported into the WaveLinx Area Controller, any Area Hub port that has an Emergency device connected will have an Emergency Set created in the Area Hub Emergency Set section. If an Emergency device is added after the Area Hub is initially discovered, use the Area Hub manager to rescan to add the device. The Emergency Set will be created when the new device is imported. See “Adding a WaveLinx CAT Device” on page 443 for information on rescanning the Area Hub.

Once an Area Hub Emergency Set is added, remember to configure the Emergency Set for proper operation.

Configuring an Emergency Set

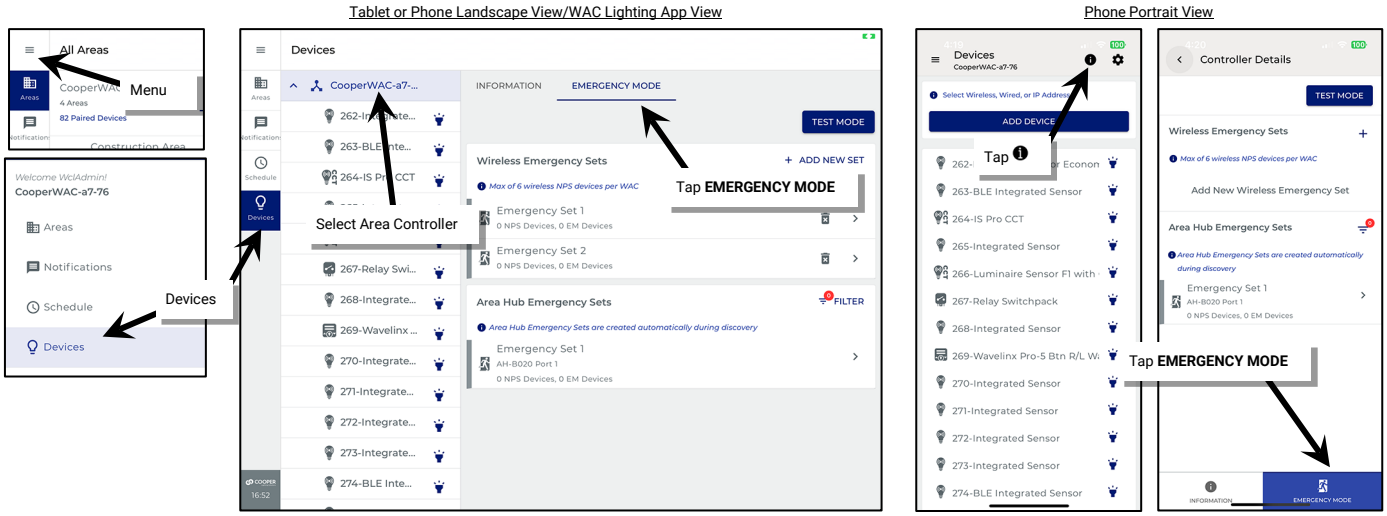
Once the Emergency Set is created, it must be configured. If it is not configured, Emergency Devices will remain in Emergency Mode indefinitely (ON/100%). During configuration, optionally rename the Emergency Set and add or remove NPS devices and EM devices.

To access the Emergency Set for the steps in this section:

1: From the **menu ≡**, select **Devices**.

2: Open the **Emergency Mode** screen:

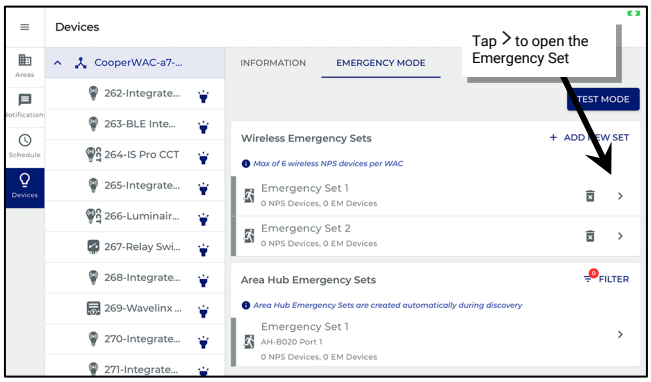
- For tablet users in landscape view, In the **Devices** list, locate and select the WaveLinx Area Controller. Tap the **Emergency Mode** tab.
- For smaller devices in portrait view, at the top of the device list tap ❶. At the bottom of the screen, tap the **Emergency Mode** tab.

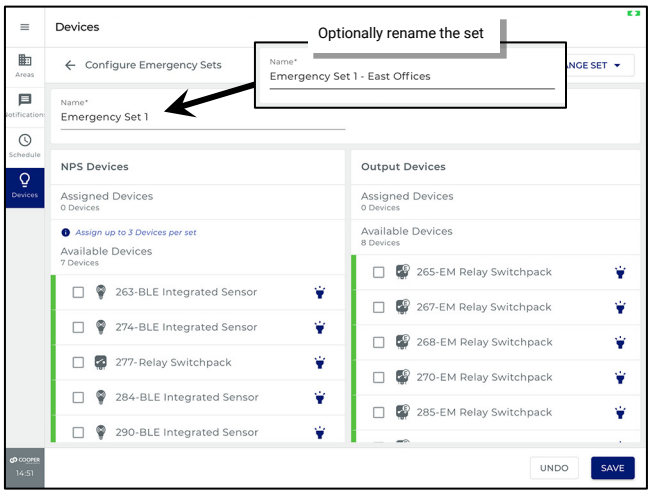


Renaming an Emergency Set

1: Locate the desired Emergency Set in either the Wireless or Area Hub Emergency Set lists. Tap > to open the configuration screen.

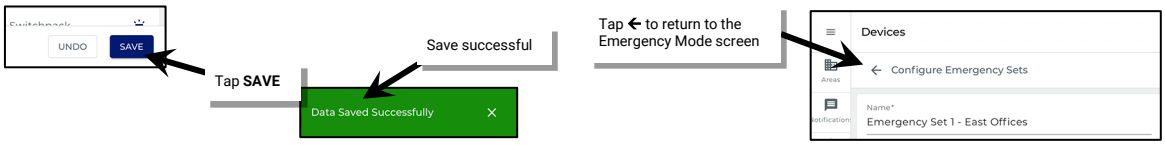
2: Optionally enter a new **name** for the Emergency Set to distinguish it from other sets.





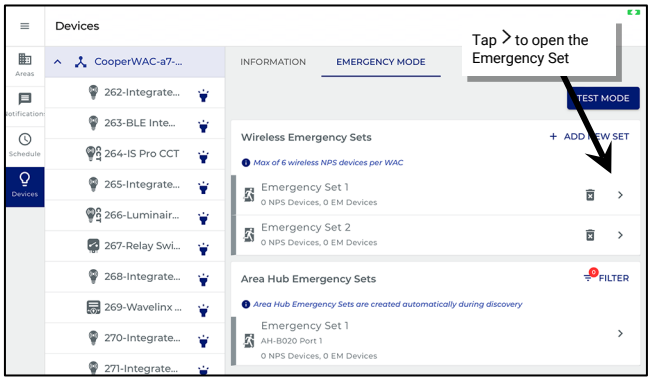
3: Once all changes are done, tap **SAVE**. The WaveLinx Area Controller will send the NPS and EM device settings to all the assigned devices. This may take a bit of time to process depending on the number of devices involved. Wait for the process to be completed successfully.

4: Tap ← **CONFIGURE EMERGENCY SETS** to return to the main Emergency Mode screen.



Assigning or Unassigning an NPS Device to an Emergency Set

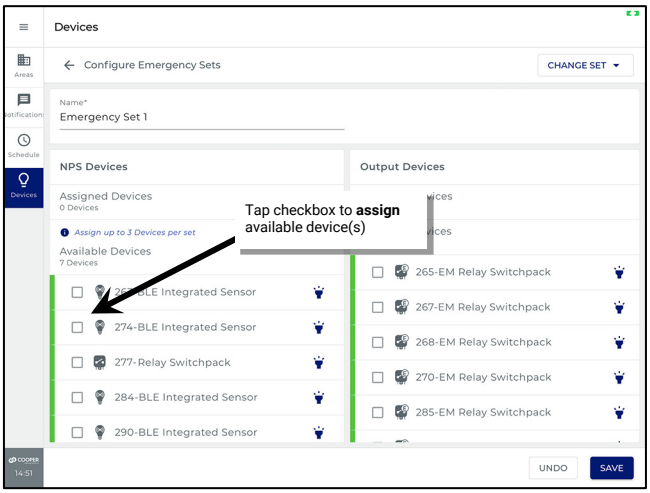
1: Locate the desired Emergency Set in either the Wireless or Area Hub Emergency Set lists. Tap > to open the configuration screen.

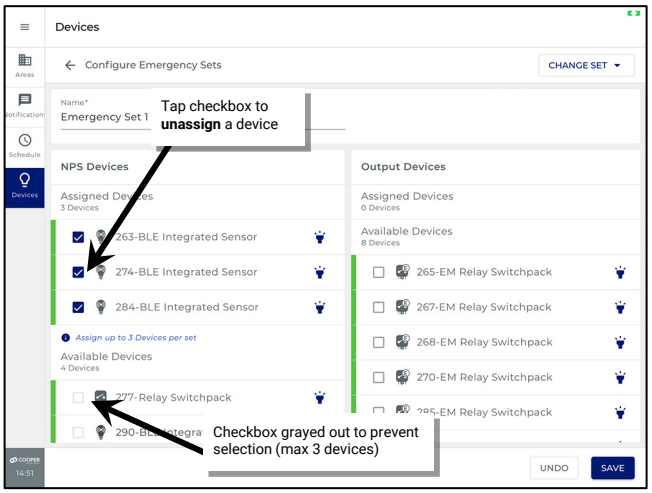


2: Assign/Unassign the **NPS Device(s)** (Normal Power Sense) that will send the normal power signal beacons to the Emergency devices. Tap to use **Blink to Identify** if needed to locate the correct device(s).

Note: Only NPS compatible devices will be shown in the list. If monitoring more than one phase of power, make certain that the selected devices are wired to the desired phases. Once the maximum of three assigned devices is reached, remaining available devices checkboxes will be grayed out to prevent additional selections.

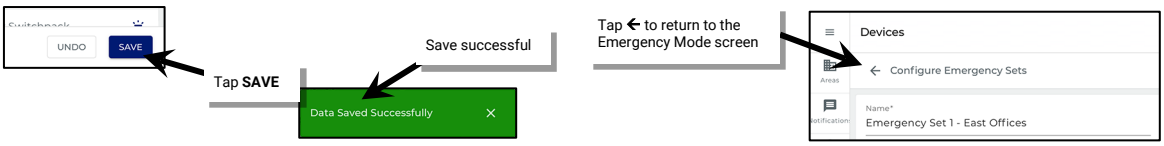
- **To Assign a Device**: In the **Available Devices** section, tap to place a checkmark next to the device(s) which will automatically move the device(s) to the **Assigned Devices** section. Up to 3 NPS devices may be assigned.
- **To Unassign a Device**: In the **Assigned Devices** section, tap to remove the checkmark next to the device(s) which will automatically move the device(s) to the **Available Devices** section.





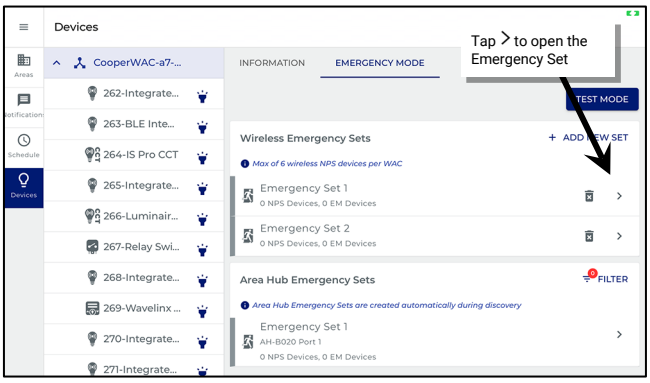
3: Once all changes are done, tap **SAVE**. The WaveLinx Area Controller will send the NPS and EM device settings to all the assigned devices. This may take a bit of time to process depending on the number of devices involved. Wait for the process to be completed successfully.

4: Tap ← **CONFIGURE EMERGENCY SETS** to return to the main Emergency Mode screen.



Assigning or Unassigning an EM Device to an Emergency Set

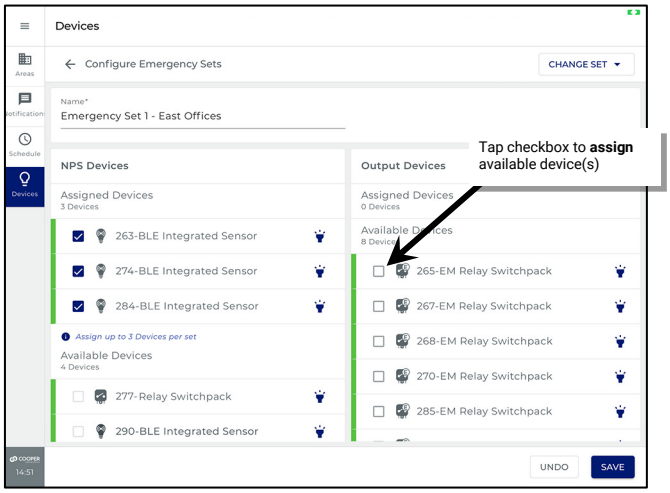
1: Locate the desired Emergency Set in either the Wireless or Area Hub Emergency Set lists. Tap > to open the configuration screen.

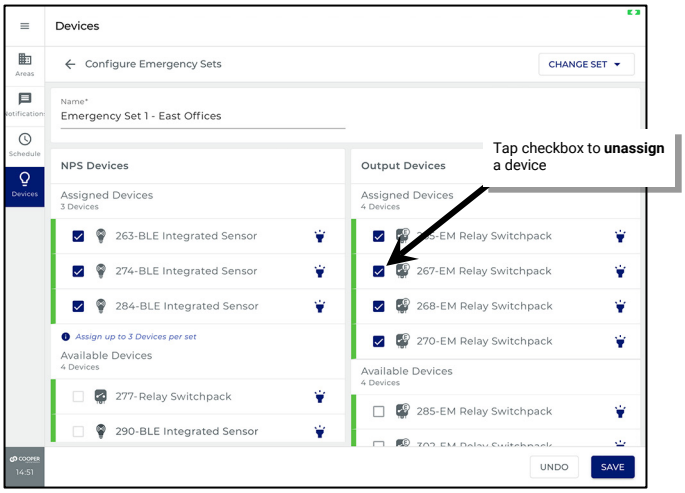


2: Assign or Unassign the **Output Devices** (Emergency Devices) that will respond to the NPS devices in this set. Tap to use **Blink to Identify** if needed to locate the correct device(s).

Note: Only EM compatible devices will be shown in the list.

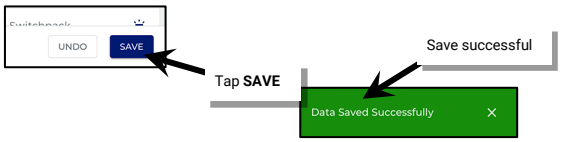
- **To Assign a Device**: In the **Available Devices** section, tap to place a checkmark next to the device(s) which will automatically move the device(s) to the **Assigned Devices** section.
- **To Unassign a Device**: In the **Assigned Devices** section, tap to remove the checkmark next to the device(s) which will automatically move the device(s) to the **Available Devices** section.

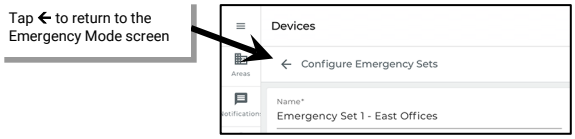




3: Once all changes are done, tap **SAVE**. The WaveLinx Area Controller will send the NPS and EM device settings to all the assigned devices. This may take a bit of time to process depending on the number of devices involved. Wait for the process to be completed successfully.

4: Tap ← **CONFIGURE EMERGENCY SETS** to return to the main Emergency Mode screen.





Deleting an Emergency Set

WaveLinx PRO and WaveLinx CAT behavior is different in terms of deleting Emergency Sets. WaveLinx PRO Wireless Emergency Sets can be deleted manually. WaveLinx CAT Area Hub Emergency Sets cannot be deleted.

Deleting a WaveLinx PRO Wireless Emergency Set

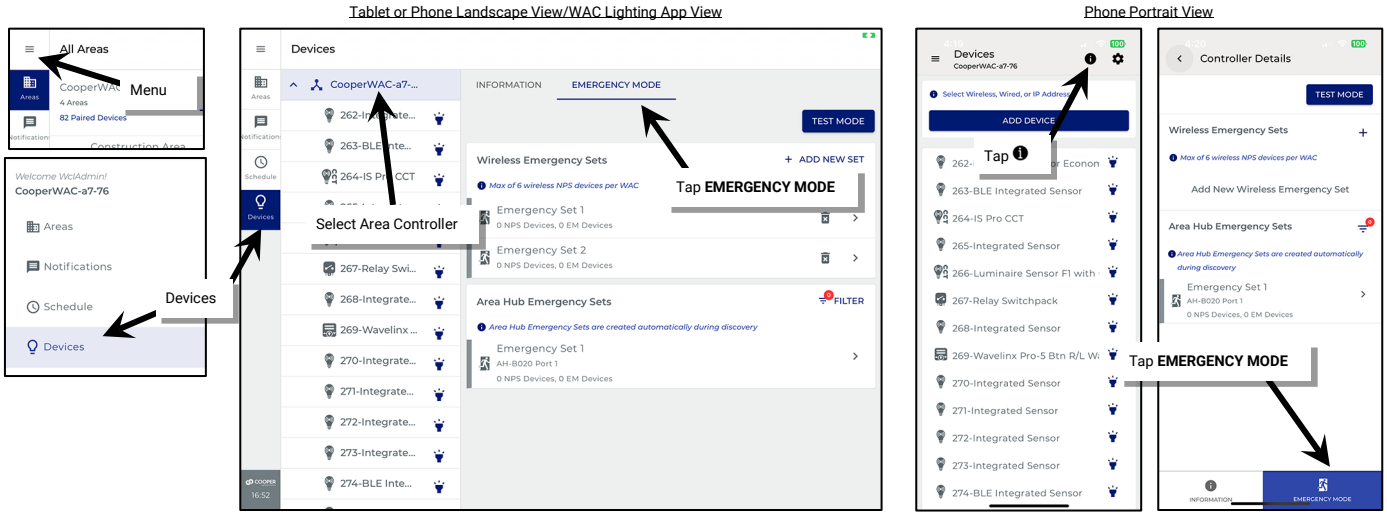
If a Wireless Emergency Set is no longer needed, it can be deleted. If there are assigned NPS and EM devices in the deleted Emergency Set, the EM devices will go to Emergency Mode until they are assigned to another Wireless Emergency Set.

To delete a Wireless Emergency Set:

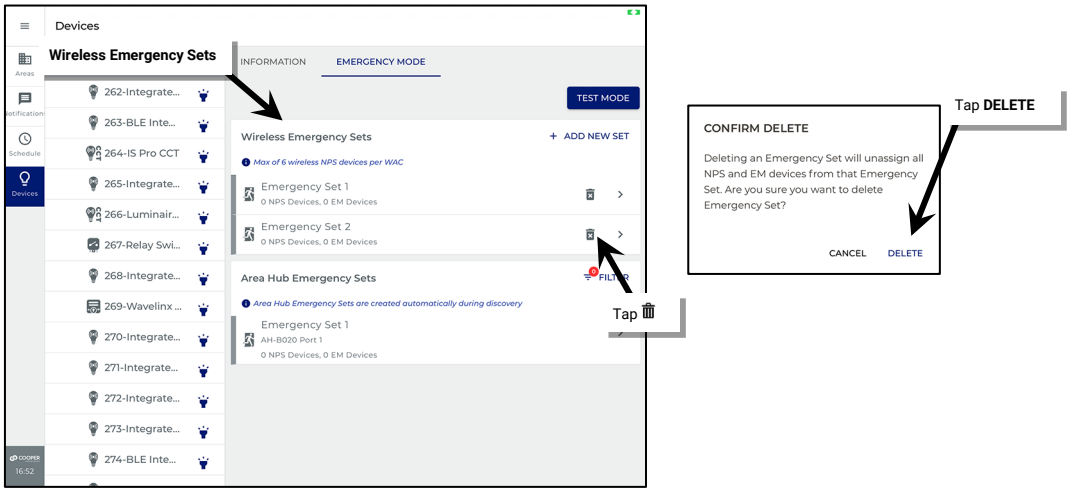
1: From the **menu** ≡, select **Devices**.

2: Open the **Emergency Mode** screen.

- For tablet users in landscape view, In the **Devices** list, locate and select the WaveLinx Area Controller. Tap the **Emergency Mode** tab.
- For smaller devices in portrait view, at the top of the device list tap ❶. At the bottom of the screen, tap the **Emergency Mode** tab.



3: In the **Wireless Emergency Sets** section, locate the Emergency Set and then tap 🗑. When prompted, tap **DELETE** to confirm.



Deleting a WaveLinx CAT Area Hub Emergency Set

WaveLinx CAT Area Hub Emergency Sets cannot be deleted unless the Area Hub is deleted from the Mobile App (**WARNING: this removes all programing for the Area Hub devices**). The Area Hub can then be discovered and imported as a new Area Hub.

Note: If it is not desirable to delete the Area Hub due to other Area Hub devices being programmed and the EM device is removed from an Area Hub port, the Area Hub Emergency Set can remain without impacting programming.

Using Emergency Test Mode

Place any Emergency Set(s) into **Test Mode** to easily verify correct Emergency Mode response without the need to cycle normal power breakers. Test Mode can be user defined from anywhere from 10 minutes (min.) to 30 minutes (max.), allowing for enough time to do a walk through to ensure the Emergency Devices have responded. Test Mode can be cancelled manually at any time before the time expires from the WaveLinx App.

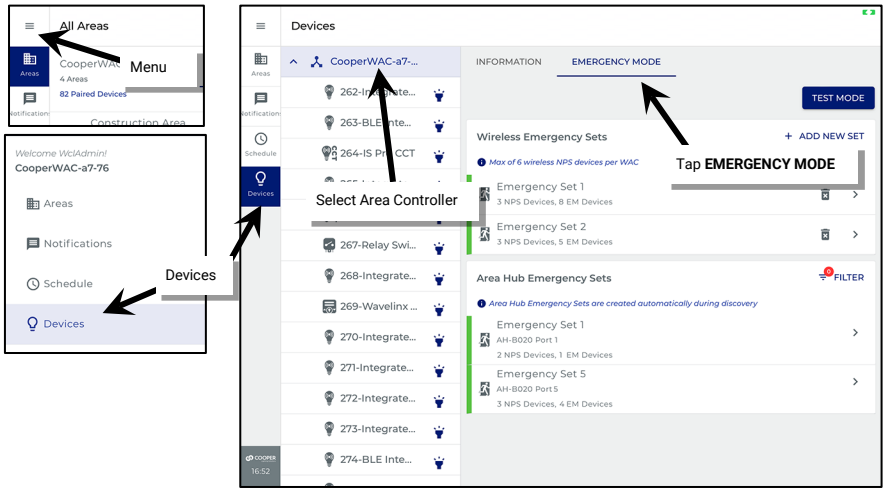
To use **Test Mode**:

1: From the **menu** ≡, select **Devices**.

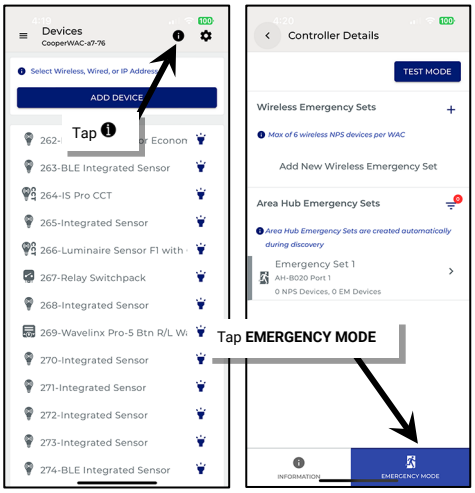
2: Open the **Emergency Mode** screen.

- For tablet users in landscape view, In the **Devices** list, locate and select the WaveLinx Area Controller. Tap the **Emergency Mode** tab.
- For smaller devices in portrait view, at the top of the device list tap ❶. At the bottom of the screen, tap the **Emergency Mode** tab.

Tablet or Phone Landscape View/WAC Lighting App View



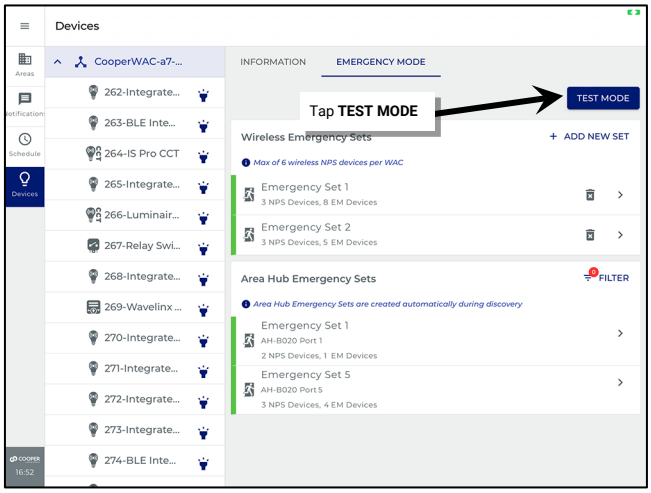
Phone Portrait View



3: Tap **TEST MODE**.

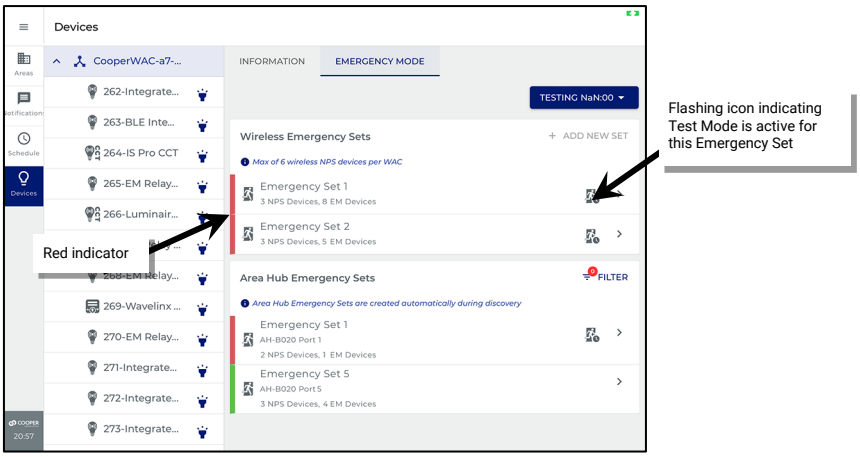
4: Enter the number of **minutes** that the devices should remain in Test Mode (min. 10 minutes, max. 30 minutes) and then select the Emergency Sets that are part of the test.

5: Tap **START TEST**.



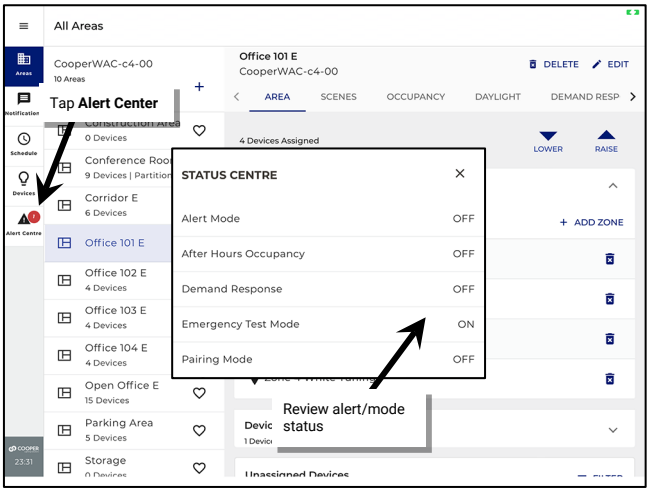
When the test is started, all EM Devices from the selected Emergency Sets will turn ON/100% and will not respond to other WaveLinx Device commands. WaveLinx wallstations can be used to verify proper response. If wallstations are used, the normal lighting will respond but the EM devices will remain ON/100%.

In the Emergency Mode screen, all Emergency Sets under test will display a red indicator on the row and have a flashing egress icon to indicate the set is in Test Mode.

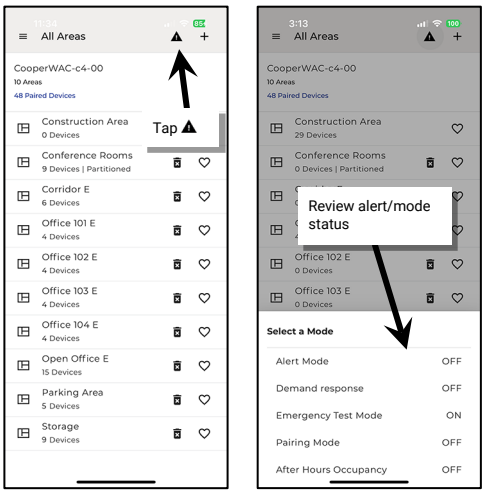


During the test, the Mobile App will display the active Emergency Test Mode in the **Alerts Center**.

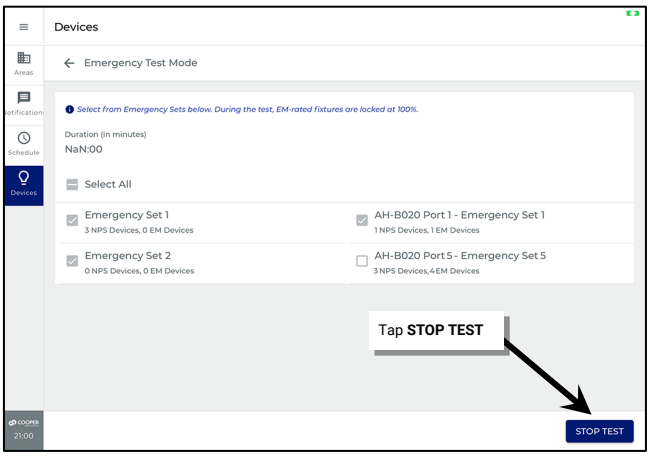
Tablet or Phone Landscape View/WAC Lighting App View

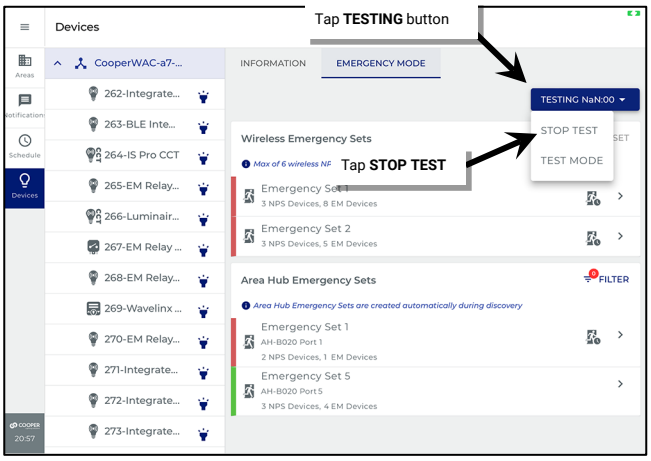


Phone Portrait View



Test Mode will automatically time out after the user defined period expires. To cancel Test Mode before the time expires, either tap **STOP TEST** in the Test Mode screen, or from the Emergency Mode screen, tap the **TESTING NaN:00** button and select **STOP TEST** from the drop down.





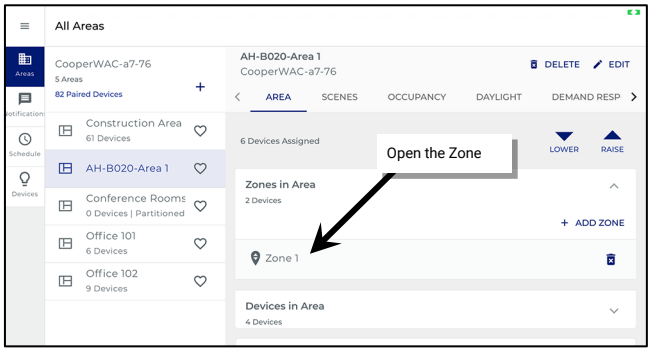
When the Emergency Set exits Test Mode, the EM devices will resume normal operation along with other normal power devices.

Viewing NPS and EM Device Details

Devices that are capable of being NPS devices and WaveLinx PRO and CAT Emergency devices will have an additional tab in the Device Details screen.

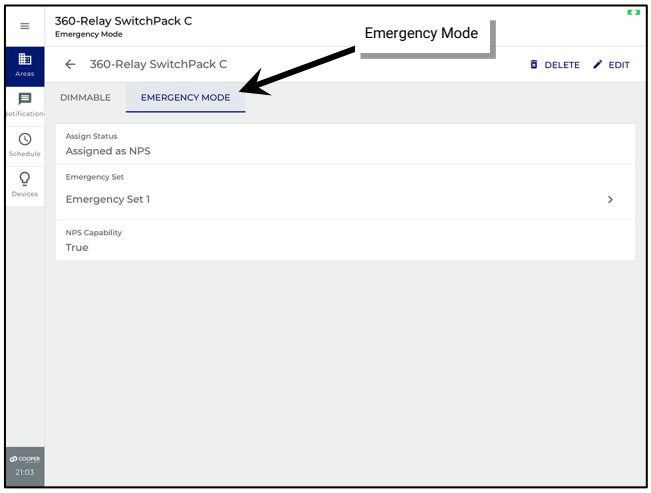
To view the additional tab:

1: Locate the device in its assigned area and zone and then tap the device to open the details.

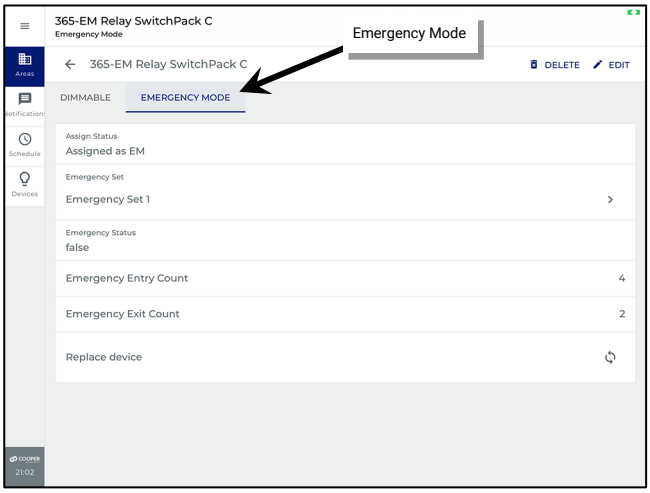


2: Tap the **EMERGENCY MODE** tab and then view the details for the NPS or EM device.

NPS Devices



EM Devices



NPS Devices

Setting	Options	Description
Assigned Status	Assigned as NPS UNASSIGNED	Shows whether this device is assigned as an NPS device to an Emergency Set
Emergency Set	Emergency Set name N/A	Shows either N/A or the assigned Emergency Set. Navigate to the Emergency Set by tapping >.
NPS Capability	True	Any NPS capable device will display True. Devices that are not NPS capable will not have the Emergency Mode tab available.

EM Devices

Setting	Options	Description
Assigned Status	Assigned as EM UNASSIGNED	Shows whether this device is assigned as an EM device to an Emergency Set
Emergency Set	Emergency Set name N/A	Shows either N/A or the assigned Emergency Set. Navigate to the Emergency Set by tapping >.
Emergency Status	False or True	If False, the device is not currently in Emergency Mode. If True, the device is currently in Emergency Mode.
Emergency Entry Count	#	This shows the number of times the device has gone into Emergency Mode
Emergency Exit Count	#	This shows the number of times the device has exited Emergency Mode.

Using the WaveLinx Apps to Control Lighting

The WaveLinx Mobile App and the WaveLinx WAC Lighting App[386] allow the administrator to control the WaveLinx PRO devices, WaveLinx LV devices, WaveLinx CAT devices and WaveLinx Networked Relay Panel relays and dimmers from the app. In addition, the WaveLinx Mobile App allows the administrator or facility occupants to have personal control of the lighting in their area. Administrators can also use onboard app controls in partitioned areas to simulate the wall open and close signals. Use this section to:

- Connect the WaveLinx Mobile App to a WaveLinx Area Controller as a personal control user.
- Assign a favorite area to open automatically for each personal control user.
- Control devices from the WaveLinx Mobile App or WaveLinx WAC Lighting App in standard areas and in partitioned areas
- Simulate wall open and close signals in partitioned areas. [387],[388]

Connect the WaveLinx Mobile App to a WaveLinx Area Controller as a Personal Control User

The use of Personal Control Users is geared toward the WaveLinx Mobile Application use. While it is possible to login as a personal control user (tenant) account using the WaveLinx WAC Lighting App, initial access to the WAC webpage to launch the lighting app requires the use of the administrator login and password.

Personal Control Users have limited access to features. Note that partitioned areas may not be accessible for personal control users.

The WaveLinx Area Controller supports up to 31 concurrent user connections. However, only one administrator account may be logged in at a time. The below procedure describes connecting with the default personal control user account. Additional users and passwords may be defined to allow users to have unique usernames and passwords for system access. Please see “Adding a New User Account” on page 374 for details on creating personal user (tenant) accounts.

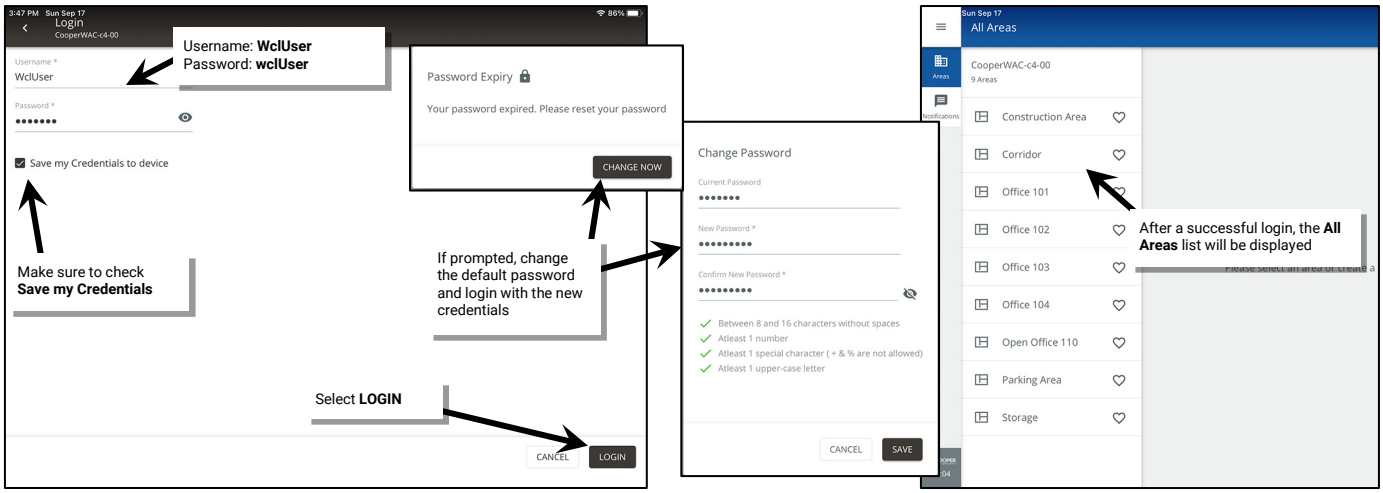
To establish an initial connection, on the user’s smartphone or tablet, follow the procedures in the section “WaveLinx Area Controller Login using the WaveLinx Mobile App” on page 151 to establish a connection between the WaveLinx Mobile App and the WaveLinx Area Controller. When prompted for log in credentials, instead of entering the information for the administrator, enter the username and password for the default personal control user or a custom defined user account (these are case sensitive).

- Default Personal Control Username: **WclUser**
- Default Personal Control Password:[389] **wclUser**

Select the option to save credentials to remember the credentials automatically on this device for future connection and then select **Login**.

If this is the first login for the WclUser user, a password change may be forced. If prompted to change the password, follow the instructions on screen to set a complex password. Use the new password to login. Important: Select a password that can be remembered as it will be used from this point forward when using the WclUser username.

After a brief refresh period, the **All Areas** list will be displayed indicating a successful connection.



[386] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

[387] Partitioned area features require a WaveLinx Area Controller minimum software version 14.1.x.x.

[388] This feature will not operate if a WaveLinx CAT Contact Closure Module input is being used for a wall open/close signal input.

[389] For security purposes, update the default password. Users should set a complex password when changing passwords. See “Modifying Existing User Accounts and Passwords” on page 375 for this procedure.

Quick Links for Common Questions

- I previously logged in on my mobile device as an administrator user and saved my credentials. Now I need to log in as the personal control user. How do I switch users? See the answer on page 471.
- How do I change the default password for the user? See the answer on page 375.
- How do I create additional users? See the answer on page 374.
- When I open the Mobile App, I get an error message. What do I do? See the answer on page 471.

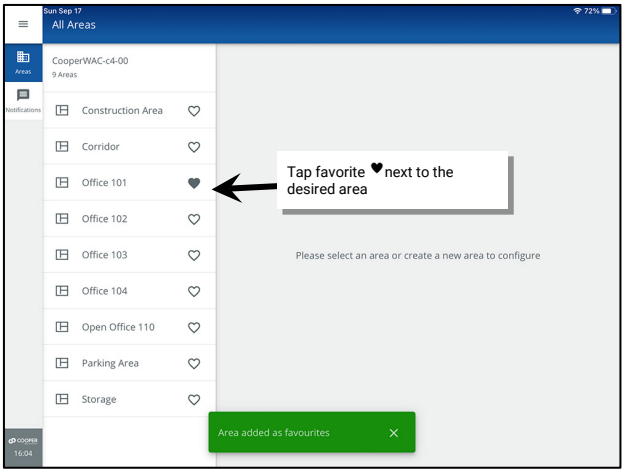
Assigning a Favorite Area

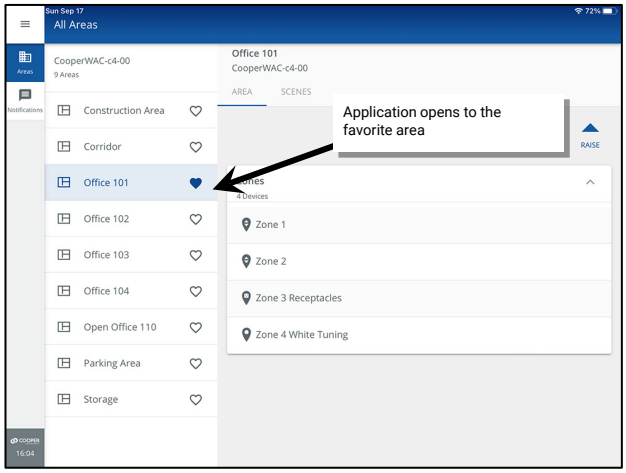
If using personal control from different user mobile devices, each user's mobile device can be set to open the WaveLinx Mobile App to a favorite area by default for quick and easy access to lighting and receptacle loads in their location. Favorite area information is stored on the device and not linked to the mobile account. Any user logged in to the same mobile device will share the favorite area.

To assign a favorite area:

1: On the user's mobile device, open the WaveLinx Mobile App and establish a connection with the WaveLinx Area Controller as the personal control user.

2: In the list of areas locate the desired area, and then tap **favorite ♥**. The next time the user logs in to the WaveLinx Area Controller, the application will open to the favorite area.





Controlling Lighting from the WaveLinx Apps

The WaveLinx WAC Lighting App also allows administrators to control lighting and devices in any space. Personal control or tenant users also allows the occupant of the space more limited control within defined programmed parameters. Note that personal control or tenant user logins will not be able to access partitioned areas for control of these spaces. Login as the administrator to access control features in partitioned areas.

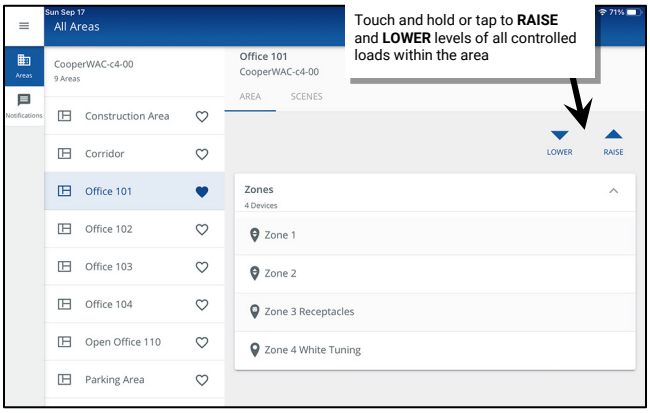
Occupancy/vacancy sensing, daylighting, and demand response settings will define the range within which the occupant/administrator can:

- Raise and lower the light level of all controlled zones in an area.
- Raise and lower the light level of all controlled sub zones in a partitioned sub area
- Adjust the level of individual zones in an area.
    - Turn ON and OFF individual non-dimmable lighting zones in the area.
    - Turn ON and OFF individual controlled receptacle zones in the area.
    - Adjust the color temperature of individual tunable white lighting zones in the area.
- Trigger pre-programmed scenes for the area.
- Temporarily turn ON, OFF, or adjust the level of an individual control device (administrators only).

To use the control features, connect to a WaveLinx Area Controller using the WaveLinx Mobile App or the WaveLinx WAC Lighting App[390].

[390] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Raise and Lower the Light Level of all Controlled Zones in an Area



<u>To raise or lower levels for all area zones:</u>

Use the raise and lower controls located on the area screen.

- Tap and release to increment/decrement slowly.
- Tap and hold to increment/decrement rapidly.

In a partitioned area, this will control levels for all zones regardless of partition wall open or close status. Partition areas may only be accessible to administrator users.

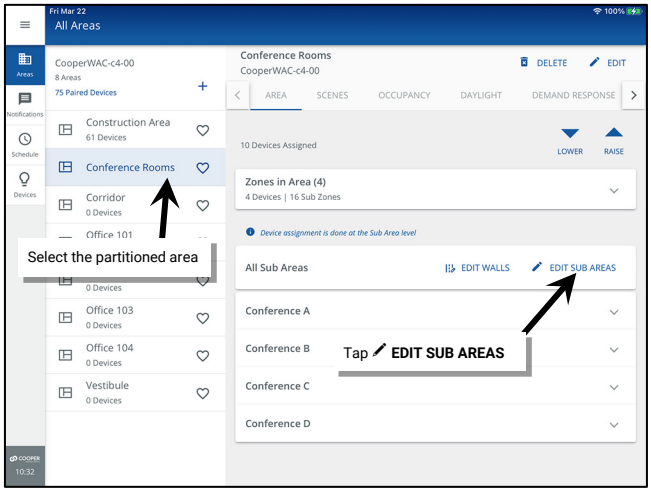
Raise and Lower the Light Level of all Controlled Sub Zones in a Partitioned Sub Area

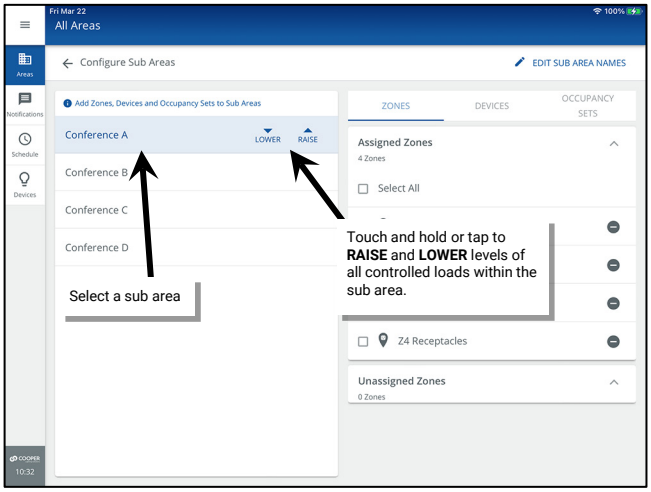
Partition areas may only be accessible to administrator users.

<u>To control the light level of all controlled sub zones in a partitioned sub area:</u>

Use the controls found in the **Configure Sub Area** screen. In the **All Areas** list, select the **partitioned area** created for this space and then tap on ✎ **EDIT SUB AREAS**. Select the desired **sub area**. Use the raise and lower controls located in the sub area's row.

- Tap and release to increment/decrement slowly.
- Tap and hold to increment/decrement rapidly.

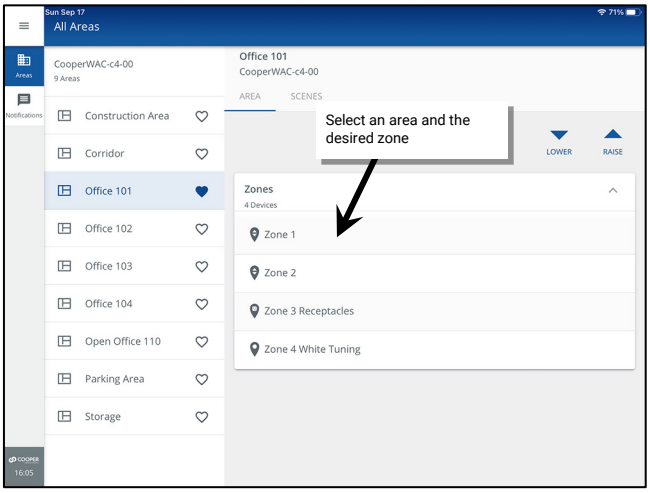


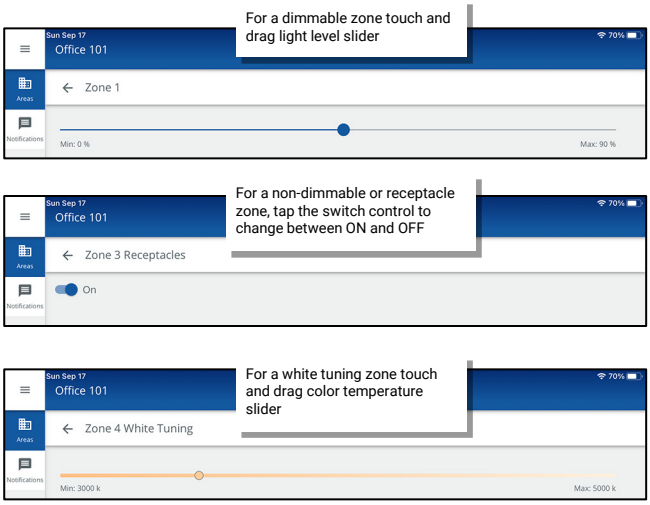


Adjust the Light Level of Individual Zones in an Area

To adjust the light level of individual zones in an area:

- Touch and drag the slider for dimmable zones and white tuning zones to adjust the levels.
- Tap on the ON/OFF slider control for non-dimmable or receptacle zones to toggle between ON and OFF.





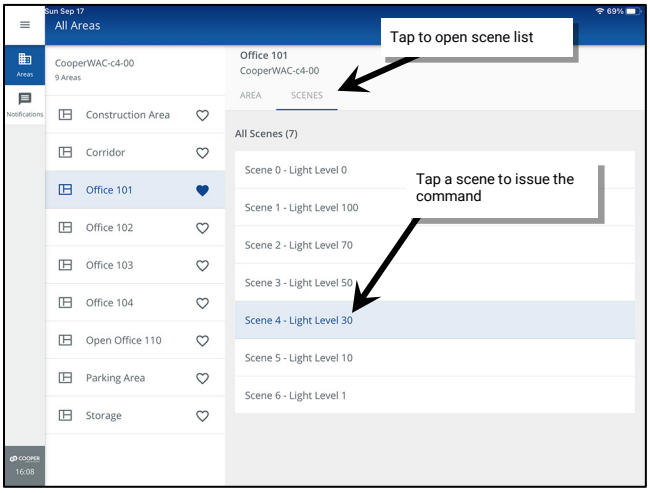
In a partitioned area, this will control levels for all the sub zones that report to that zone regardless of partition wall open or close status. Note: It is not possible to adjust the light level of individual sub zones in a partitioned area. Partition areas may only be accessible to administrator users.

Issue Pre-Programmed Scene Commands to the Area

To issue pre-programmed scenes:

Navigate to the area's scene list. Tap one of the scenes to issue the scene command.

In a partitioned area, this issues the scene to the entire area regardless of partition wall open or close status. Note: It is not possible to issue a scene to a specific sub area in a partitioned area. Partition areas may only be accessible to administrator users.



Issue a Temporary Command to a Specific Control Device

Only administrator users can issue a command to a specific device.

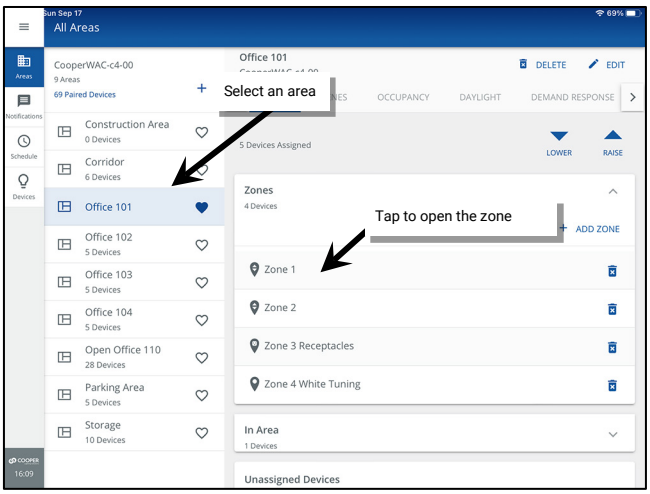
To issue commands to a specific device (**administrators only**):

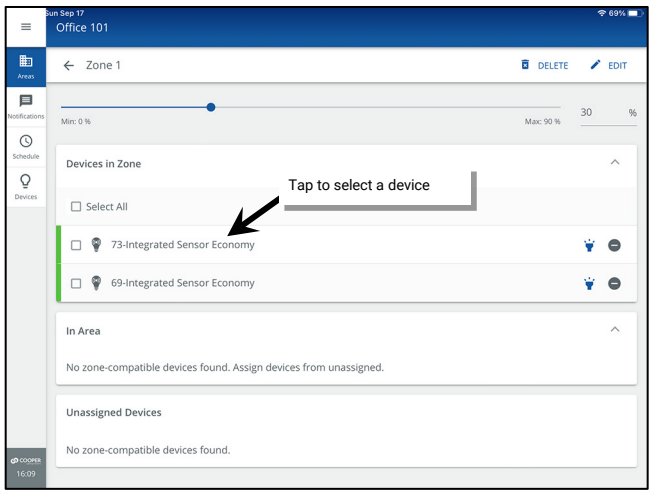
High priority overrides will bypass demand response or photosensor daylight dimming to allow the device to respond to the commanded level. This is a temporary command that will automatically revert to normal control if the administrator navigates to another screen or after 10 minutes if the user leaves the device screen open.

To issue a command to a control device:

1: Open the area and select the zone that the device is assigned to.

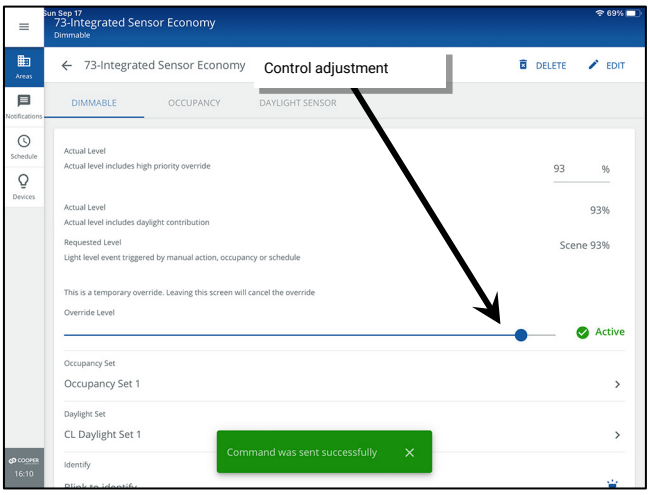
2: Locate the device in the **Devices in Zone** and tap to open.

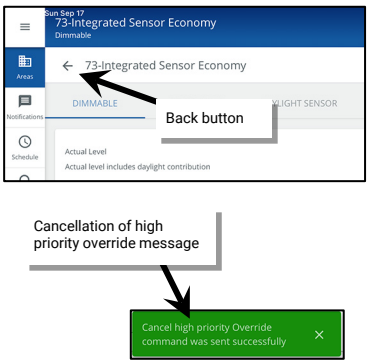




3: Use the provided control adjustment at the top of the device page to temporarily issue the temporary high priority override to the device.

4: Once finished, tap the back button to automatically cancel the high priority override, or allow the 10-minute timer to automatically release the high-priority command.





Quick Links for Common Questions

- When I log in as the personal control user, not all the scenes are showing. Why is this happening? See the answer on page 471.
- I selected a scene, but the lighting did not appear to change. Why? See the answer on page 471.
- The lights are dimmed but the personal control screen says that they are at 100%. Why? See the answer on page 471.
- The scene levels are not optimal for me, and I need to adjust them. How do I customize the scene levels to what I want? See the answer on page 226.
- I work between two different spaces. Can I control both rooms through the Mobile App? See the answer on page 472.

Configuring the WaveLinx Touchscreen

The WaveLinx Touchscreen connects to the WaveLinx Area Controller (WAC) through the building LAN. Both devices (touchscreen and WaveLinx Area Controller) must reside within the same network. Each touchscreen requires an IP address (either through DHCP or static assignment) and the use of a **tenant** or personal user account.

The WaveLinx Touchscreen should have the recommended minimum software version 1.6.0 for successful connection to a WaveLinx Area Controller with the latest firmware. For Touchscreens with version 1.0.x firmware, contact technical support for guidance. Version 1.0.x will not connect successfully without an update.[391]

Once the touchscreen connects to and logs in to the WaveLinx Area Controller, the areas, scenes/presets, and zones programmed into that WaveLinx Area Controller will display. Customize the touchscreen to limit the display to specific areas, to automatically load a favorite area, and to limit the display of presets/scenes. Adjust display brightness, auto-dim timing, change the default language (Spanish, English, and French), update the touchscreen passcode, and factory reset the touchscreen using the onboard touchscreen controls.

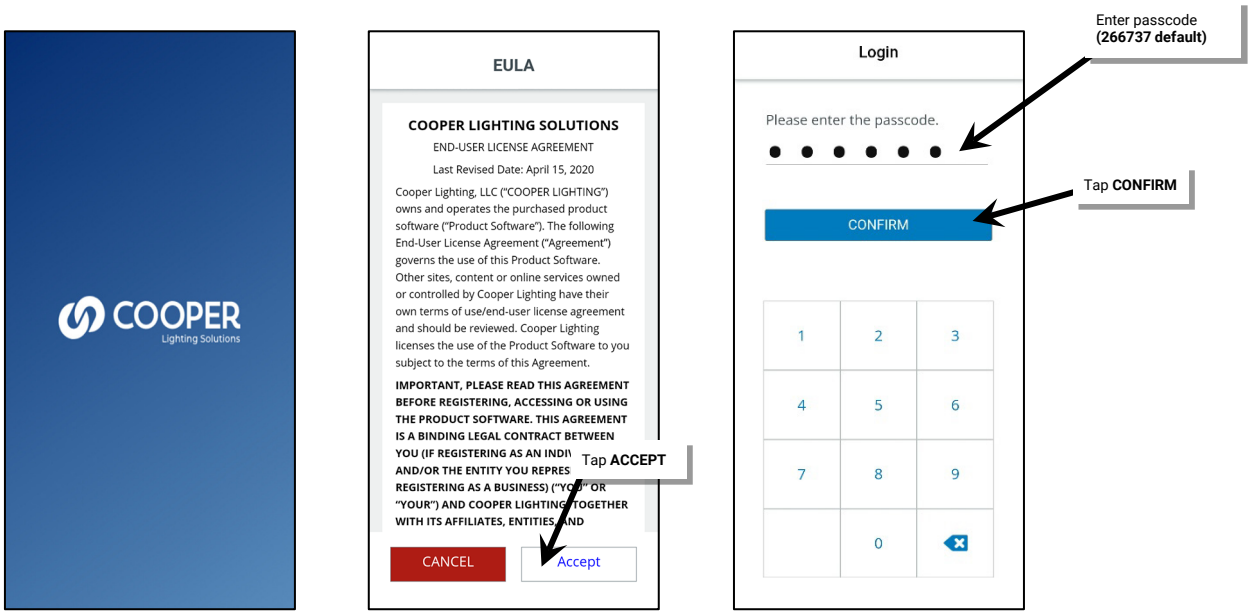
Getting Started: Configuring the Touchscreen for Initial Use

In this section, learn how to make the communications connection between the touchscreen and the WaveLinx Area Controller. This section assumes that the touchscreen is still in its default configuration.

1: Before connecting the touchscreen to the network, set up the required **tenant** user account that the touchscreen will use. If there are multiple touchscreens at the facility, each touchscreen will require a unique user account. See "Adding a New User Account" on page 374 for these instructions.

2: Connect the touchscreen to the building LAN. The touchscreen must be installed in the same network as the WaveLinx Area Controller and requires a PoE connection.

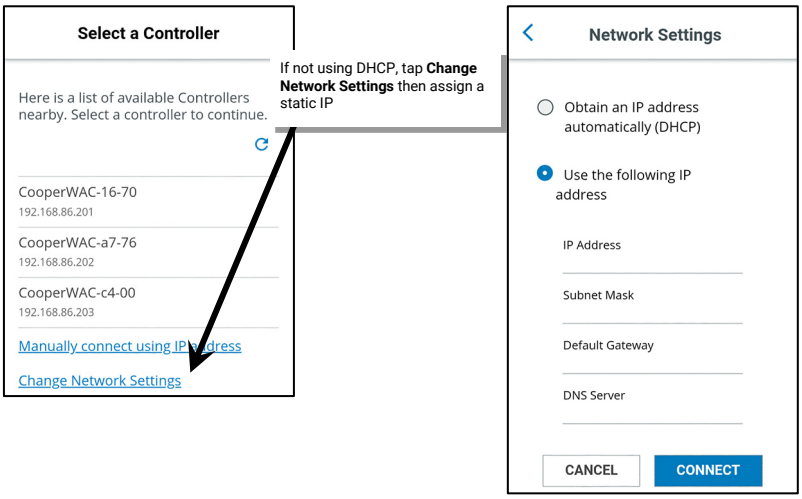
3: Once power is applied, the touchscreen will briefly display a blue screen and then display the End User License Agreement. Tap **ACCEPT** to agree to the conditions and proceed. When prompted to login, enter the default passcode **266737** [392] and then tap the **CONFIRM** button.



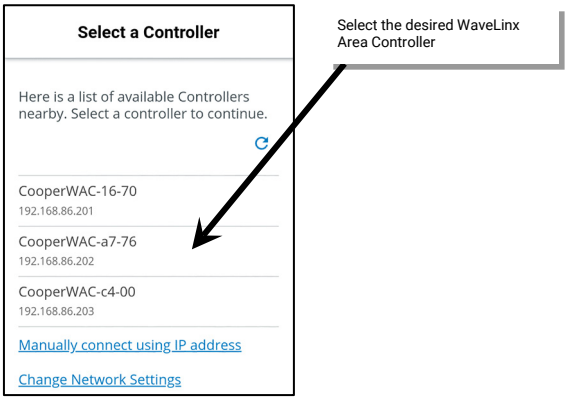
[391] To determine touchscreen version, enter the passcode to open the touchscreen but do not login the touchscreen to a WaveLinx Area Controller. The version will display at the bottom of the **Select a Controller** screen.

[392] For security, it is recommended that default passcode be changed once the initial touchscreen configuration is complete. Refer to "Changing the Administrator Passcode" on page 367 for step-by-step instructions. In previous touchscreen versions, the default passcode was 328661.

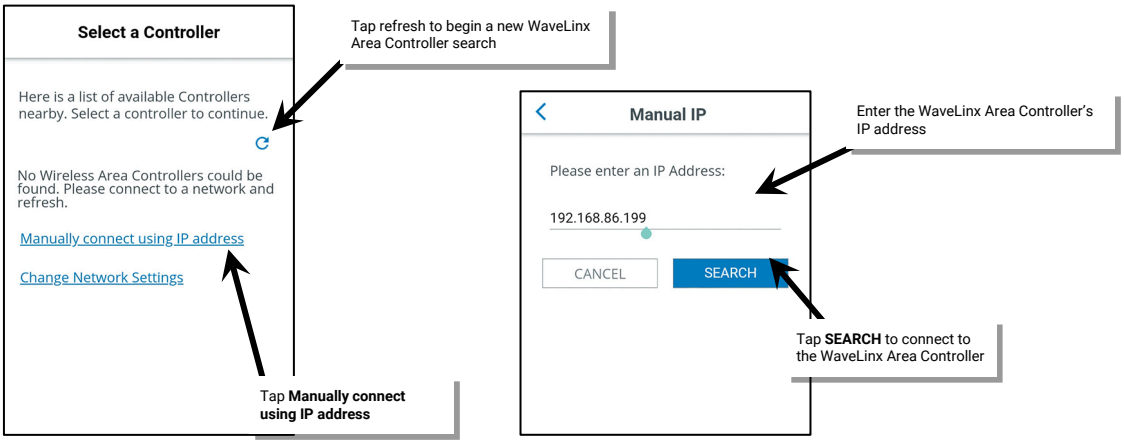
4: The touchscreen defaults to using DHCP to obtain its IP address. If the site is using DHCP, no further IP configuration is necessary. For sites that require a statically assigned IP, select the **Change Network Settings** option, and then select the option to **Use the Following IP Address**. Type in the requested information.



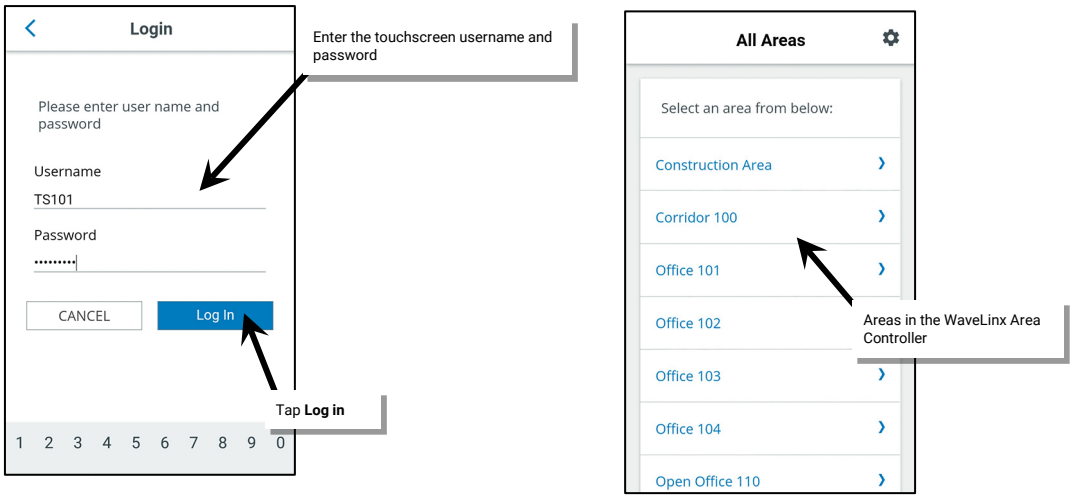
5: Once it has an IP address, the touchscreen will search for and then display any WaveLinx Area Controllers that it has found on the network. If the site has more than one WaveLinx Area Controller, multiple WaveLinx Area Controllers may be listed. Select the WaveLinx Area Controller that is programmed for the area(s) that the touchscreen should operate.



If no WaveLinx Area Controllers are found, touch the refresh button to begin the search again. If the touchscreen still does not find the WaveLinx Area Controller, select the option to **Manually Connect Using an IP Address**, and then type in the WaveLinx Area Controller's IP address. Tap the **SEARCH** button to connect to the WaveLinx Area Controller.



6: In the displayed **Login** screen, enter the username and password created for the touchscreen, and then select the **Login** button. Once connected, the touchscreen will display the areas that have been programmed in the WaveLinx Area Controller.



WARNING: Do not log in using an **admin** role password. Only one administrator user may be logged into the system at a time.

The touchscreen can now be used to control lighting in the defined areas. For information on using the touchscreen, refer to "Using the Touchscreen Controls" on page 361.

Configuring the Area(s) that the Touchscreen Displays

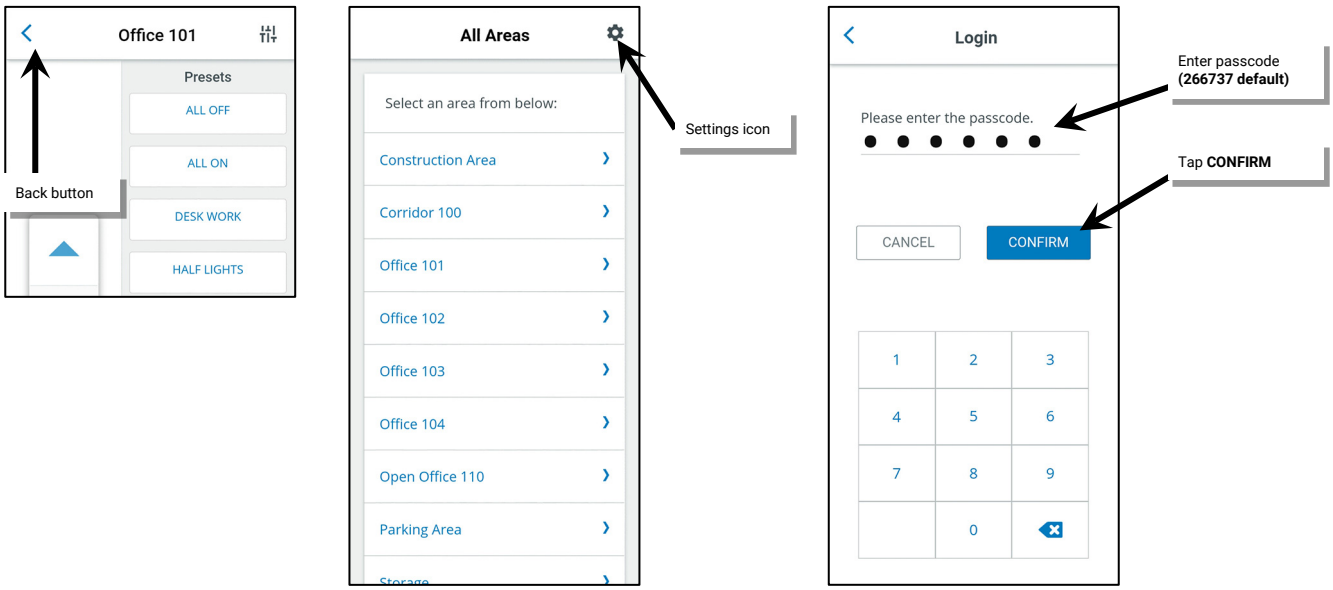
Once the connection between the Touchscreen and the WaveLinx Area Controller is made, the touchscreen will display all areas that are programmed into the connected WaveLinx Area Controller. It is possible to limit the touchscreen to display a specific area, multiple selected areas, and default to opening a favorite area.

This section assumes that the connection has been successfully made between the WaveLinx Area Controller and the touchscreen. It also assumes that the touchscreen is still using the default passcode.

If the touchscreen is displaying an area's preset page, touch the back button until the **All Areas** screen is displayed.

1: From the **All Areas** screen, select the settings gear icon

2: Enter the touchscreen passcode, then tap **CONFIRM**. The default passcode is 266737 [393].

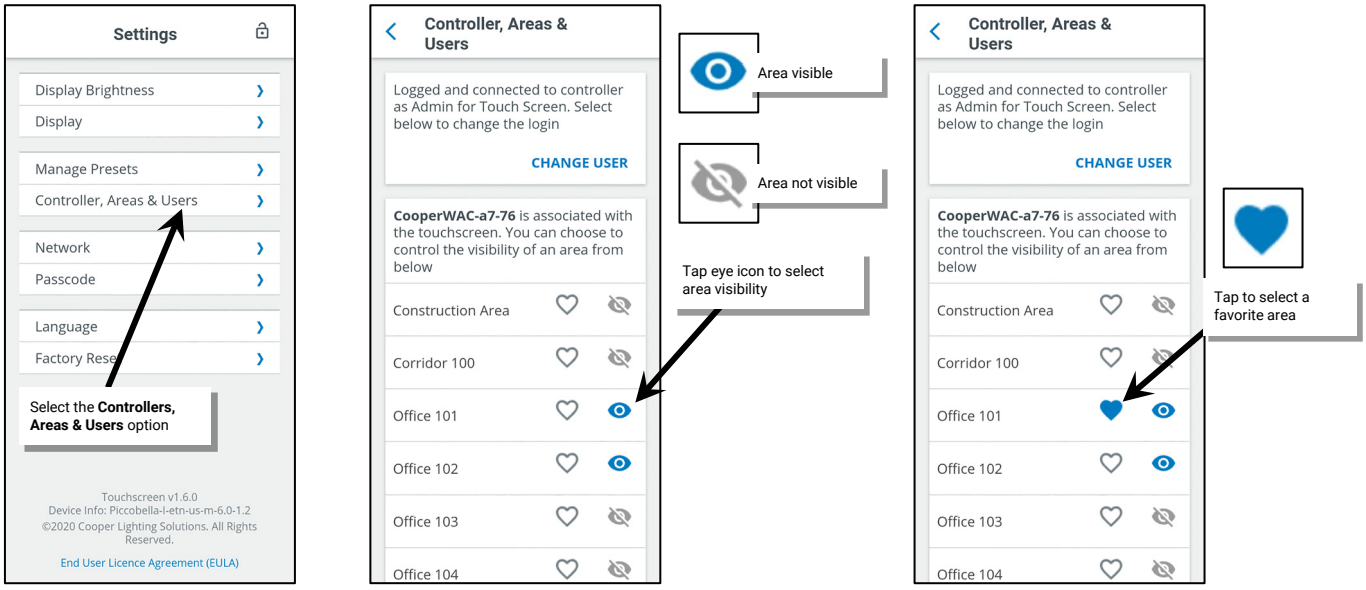


[393] For security, it is recommended that default passcode be changed once the initial touchscreen configuration is complete. Refer to "Changing the Administrator Passcode" on page 367 for step-by-step instructions. In previous touchscreen versions, the default passcode was 328661.

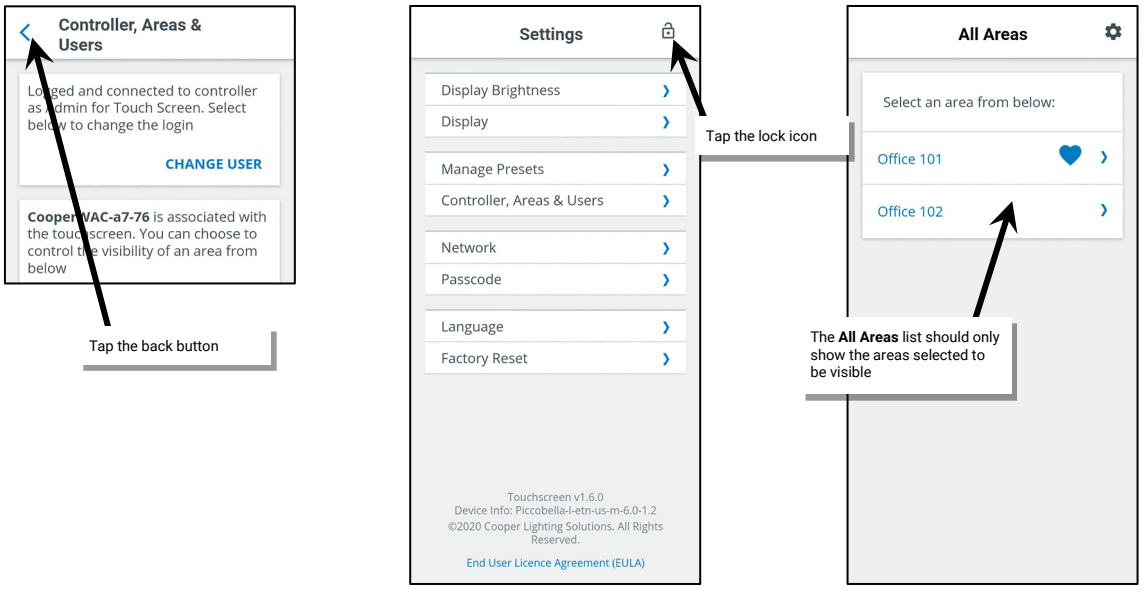
3: In the **Settings** screen, tap the **Controllers, Areas & Users** option.

4: Turn on or off the visibility of the areas displayed by tapping on the eye icon next to each area. The area will be visible if the icon is dark blue. Hide the area by tapping on the icon. The icon will turn gray. Touch and drag the display up or down to access areas beyond the current screen view.

5: Select a favorite area by selecting the heart icon next to the desired area. After a power up or restart, the touchscreen will automatically reboot to display the controls of the favorite area.



6: Tap the back button to exit and save the changes, and then tap the lock icon to exit the settings screen. The touchscreen should now show only the visible areas in the **All Areas** display.



The touchscreen can now be used to control lighting in the defined areas. For information on the screen controls, refer to “Using the Touchscreen Controls” on page 361.

Note that partitioned areas will allow control from the Touchscreen with limited functionality. Commands from a Touchscreen to scenes and zones in a partitioned area will control lighting in the entire area regardless of partition wall open or close status.

Quick Links for Common Questions

- How do I change the area name(s) that is displayed? The area names are stored in the WaveLinx Area Controller. For information on changing an area name, see “Renaming Standard Areas, Zones, and Devices” on page 228.

Selecting the Presets/Scenes that the Touchscreen Displays

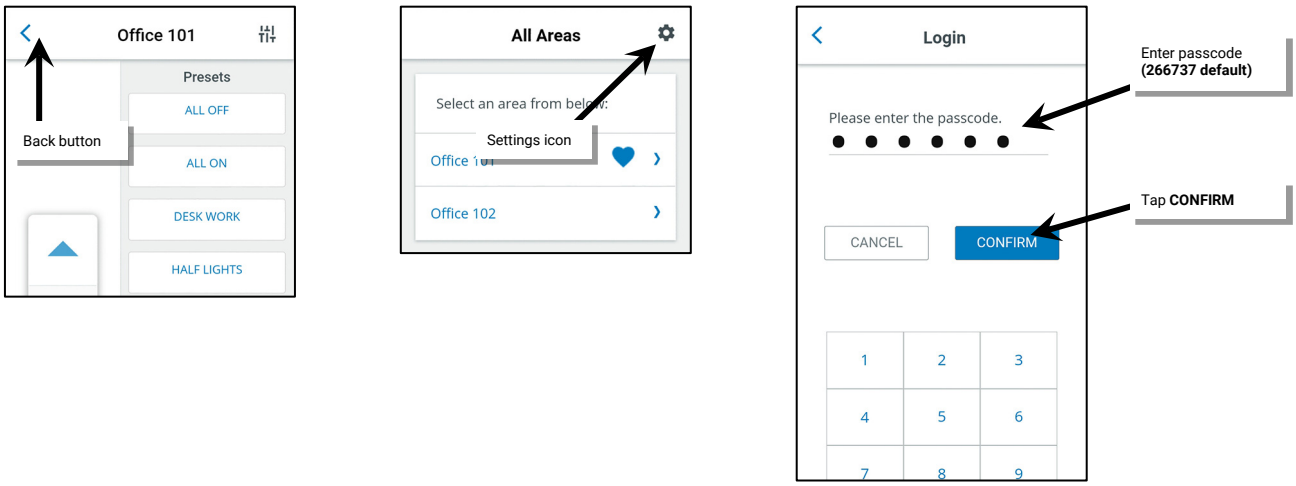
The touchscreen defaults to displaying all presets/scenes except for scenes that have been hidden through the WaveLinx App. It is possible to limit the touchscreen further to display only specific presets/scenes.

This section assumes that the connection has been successfully made between the WaveLinx Area Controller and the touchscreen. It also assumes that the touchscreen is still using the default passcode.

If the touchscreen is displaying an area's preset page, touch the back button until the **All Areas** screen is displayed.

1: From the **All Areas** screen, select the settings gear icon.

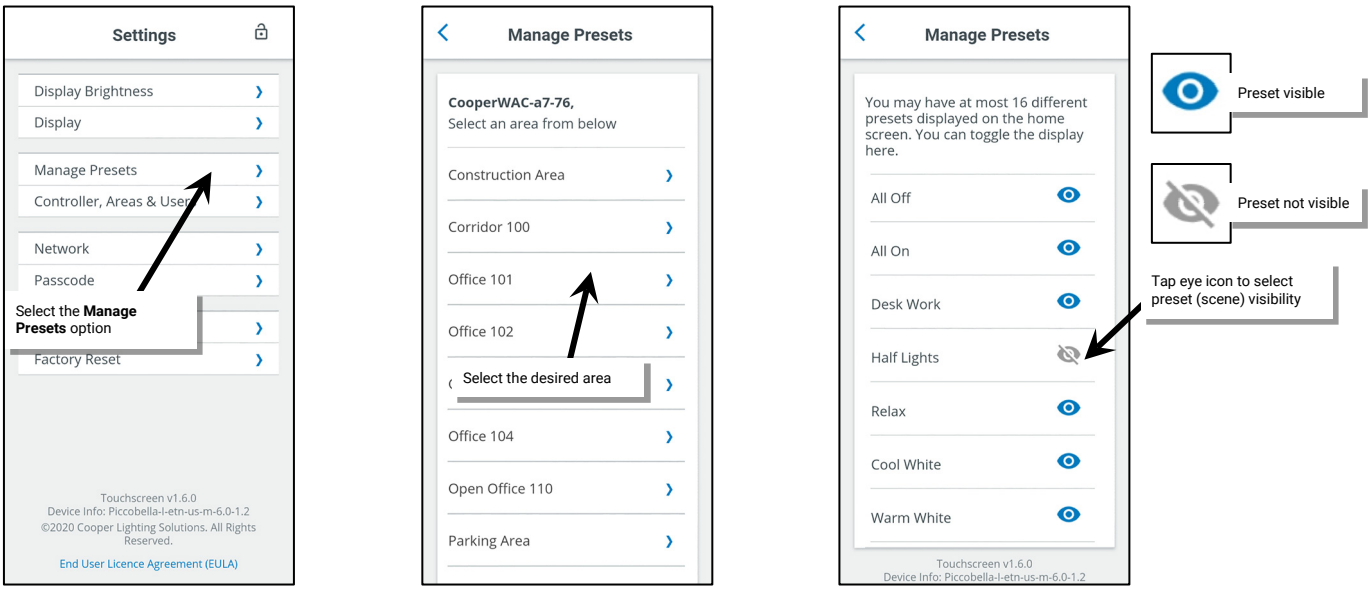
2: Enter the touchscreen passcode, then tap **CONFIRM**. The default passcode is 266737 [394].



3: In the **Settings** screen, tap the **Manage Presets** option.

4: Select the desired area.

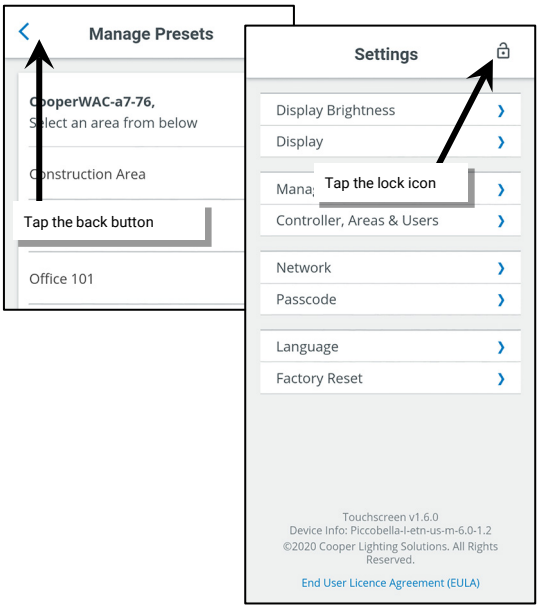
5. Turn on or off the visibility of the presets/scenes by tapping on the eye icon next to the presets. The preset/scene will be visible if the icon is dark blue. Hide a preset/scene by tapping on the icon until it changes to gray. Set visible scenes to the dark blue eye icon. Define a preset as hidden by tapping on the eye icon. The icon will turn gray. Touch and drag the display up or down to access presets/scenes beyond the current screen view.

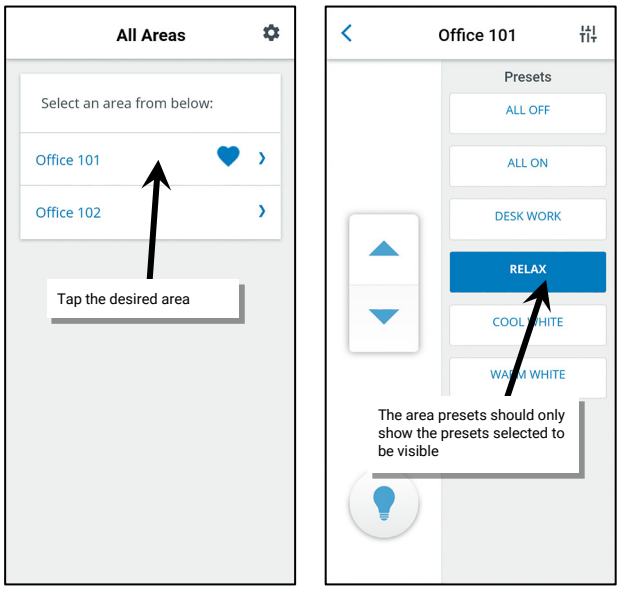


[394] For security, it is recommended that default passcode be changed once the initial touchscreen configuration is complete. Refer to "Changing the Administrator Passcode" on page 367 for step-by-step instructions. In previous touchscreen versions, the default passcode was 328661.

6: Tap the back button to exit and save the changes, and then tap the lock icon to exit the settings screen.

7: Tap the area from the **All Areas** list and view the controls. Only the presets that have been defined as visible will show.





The touchscreen can now be used to control lighting in the defined areas. For information on the screen controls, refer to “Using the Touchscreen Controls” on page 361.

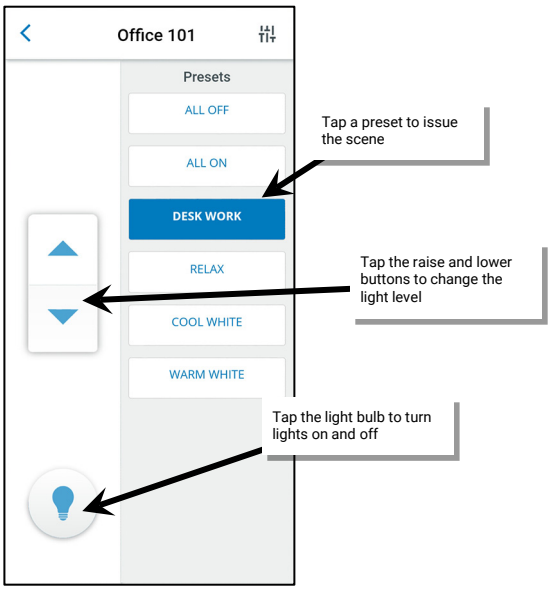
Note that partitioned areas will allow control from the Touchscreen with limited functionality. Commands from a Touchscreen to scenes and zones in a partitioned area will control lighting in the entire area regardless of partition wall open or close status.

Quick Links for Common Questions

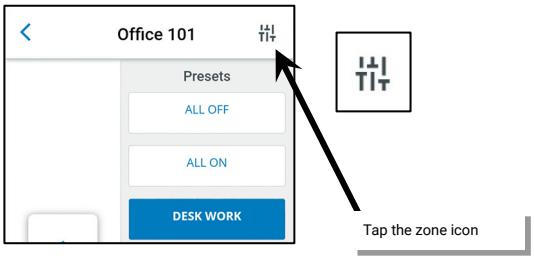
- How do I change the preset name(s) that is displayed? The preset or scene name is defined and stored in the WaveLinx Area Controller. For information on changing a scene name, see “Modifying Scene Settings and Response” on page 251.
- Not all my scenes are appearing on my touchscreen display. I have checked the visibility through the touchscreen and the scenes simply do not show. What could cause this? The scene may be defined as a hidden scene through the programming stored in the WaveLinx Area Controller. For information on how to hide or unhide scenes, see “Modifying Scene Settings and Response” on page 251.

Using the Touchscreen Controls

Once the touchscreen is configured for the desired area and presets, use the onboard controls to adjust the lighting to the desired level.



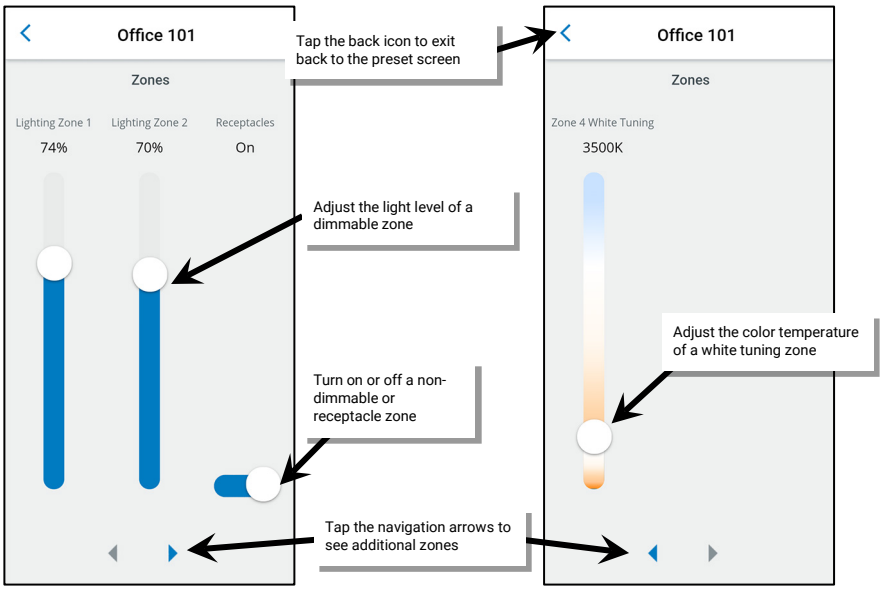
- In the main area control screen, tap one of the presets select a scene.
- Tap the raise or lower button on the sidebar to increment or decrease the light level by 1% increments or press and hold the raise or lower button to change the light level at a more rapid rate.
- Quickly turn ON or turn OFF lighting in the area by tapping the light bulb icon in the sidebar. This will toggle between the ALL OFF scene (scene 0), and scene 1.



It is also possible to adjust individual zone light levels or white tuning color temperature. To access the zone adjustments, tap the zone level icon at the top of the area presets screen.

The zone adjustment screen will allow control of any zone that is part of the area.

- Use the slider control for a dimmable zone to adjust the light level.
- Use the ON/OFF control for non-dimmable and receptacle zones to turn the load ON or OFF.
- Use the slider control for white tunable zones to adjust the color temperature.
- Use the provided navigation arrows at the bottom of the screen to navigate to additional zones.
- Use the back button to return to the area presets display.



Note that partitioned areas will allow control from the Touchscreen with limited functionality. Commands from a Touchscreen to scenes and zones in a partitioned area will control lighting in the entire area regardless of partition wall open or close status.

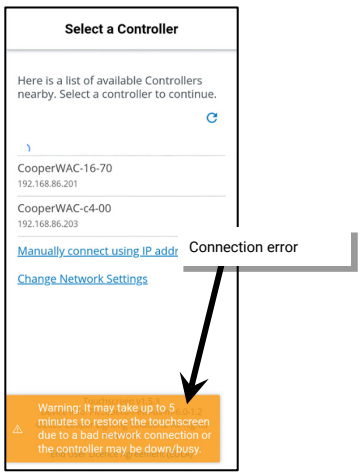
Important Connection Error Resolution and Power Up Details

Under normal conditions, the touchscreen will maintain the connection to the WaveLinx Area Controller it has been connected to. If the connection to the WaveLinx Area Controller is lost or the touchscreen goes through a power cycle, the touchscreen should exhibit the following behavior:

Lost Connection to the WaveLinx Area Controller

Communications from the touchscreen to the WaveLinx Area Controller can be interrupted if the WaveLinx Area Controller is powered down or in a reboot process, or if there are issues with the network. In these circumstances, the touchscreen may display the following message and be redirected to the WaveLinx Area Controller selection screen.

The touchscreen will continue to try to connect to the WaveLinx Area Controller. If it is a temporary issue caused by the WaveLinx Area Controller being powered down or rebooting, the touchscreen will automatically reconnect and login once the WaveLinx Area Controller has completed the reboot process. If the problem is due to a network issue, it may be necessary to troubleshoot the network or review the defined IP addresses to verify that there is no conflict before the problem is resolved.



Touchscreen Power Up Behavior

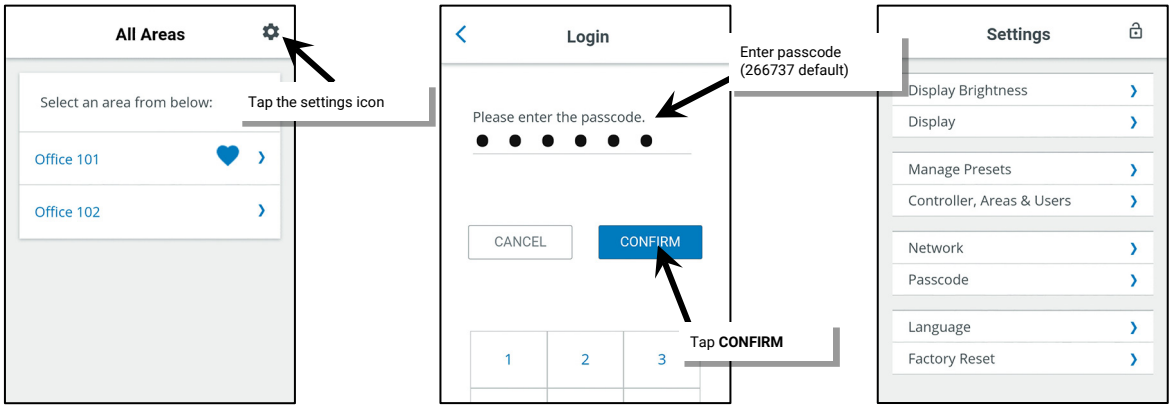
If a touchscreen has been powered down, once power is restored, the touchscreen boots and attempts to reconnect to the previously connected WaveLinx Area Controller. Once the connection is made, the touchscreen will login with the previously defined user credentials and then will display either the **All Areas** list or the preset page of the favorite area if a favorite area has been defined.

Performing Other Touchscreen Administrator Functions

The touchscreen also allows for administration of other general settings. This includes:

- Changing the logged in touchscreen user or connected WaveLinx Area Controller
- Adjusting the display brightness and auto-dim timing settings
- Viewing the touchscreen's IP address
- Changing the administrator passcode
- Changing the display language
- Viewing the End User License Agreement (EULA)
- Performing a factory reset

All these options are found in the touchscreen **Settings** screen. Navigate to the **Settings** screen by tapping the settings gear icon in the **All Areas** screen and then entering the touchscreen passcode. The default passcode is 266737 [395].

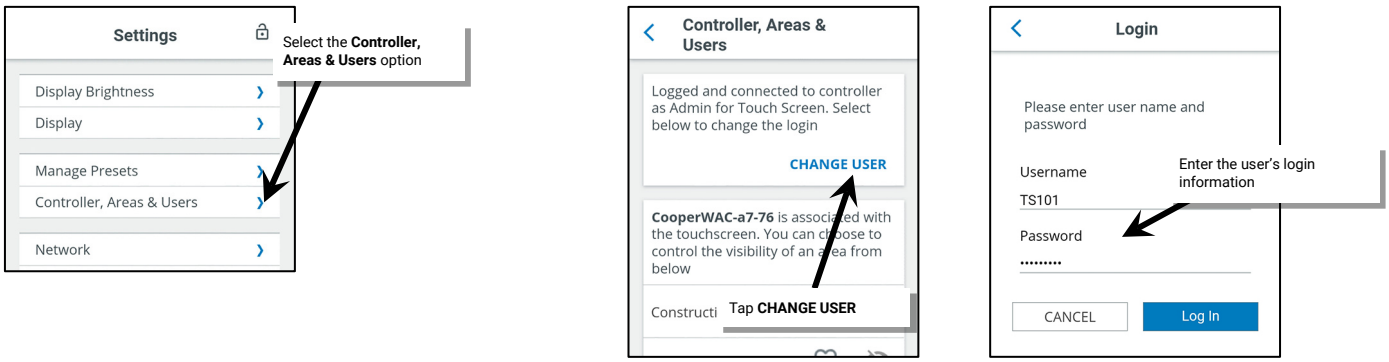


Changing the Touchscreen User or WaveLinx Area Controller

If the incorrect user account has been used to login to the touchscreen, it is possible to change users. It is also possible to select a different WaveLinx Area Controller if the incorrect WaveLinx Area Controller has been accessed. To change the user or WaveLinx Area Controller:

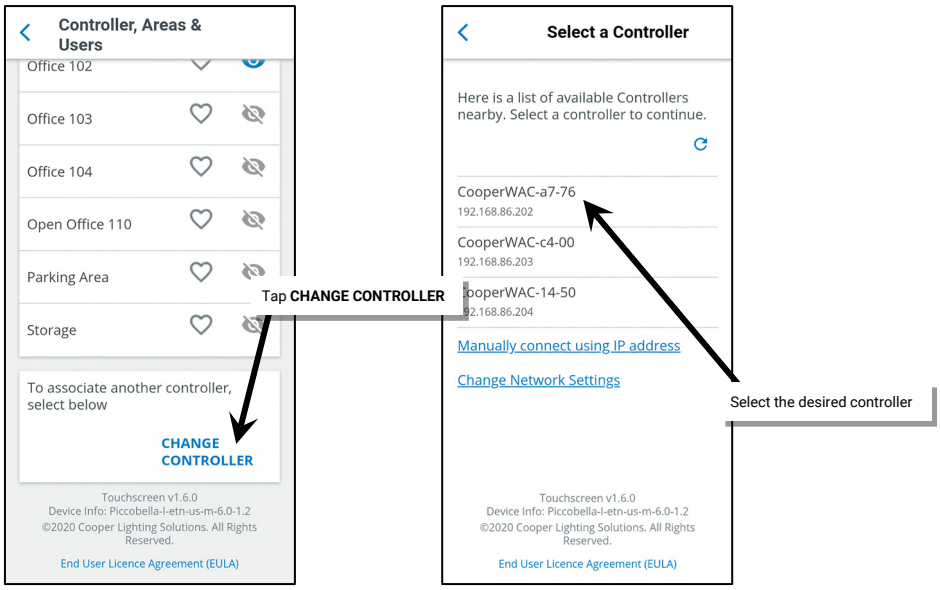
1: From the **Settings** screen, select the **Controllers, Areas & Users** option.

2: To login as a different user account, at the top of the screen, select the option to **CHANGE USER** and then login with the desired user's credentials.



[395] For security, it is recommended that default passcode be changed once the initial touchscreen configuration is complete. Refer to "Changing the Administrator Passcode" on page 367 for step-by-step instructions. In previous touchscreen versions, the default passcode was 328661.

3: To connect to a different WaveLinx Area Controller, scroll to the bottom of the display and select the option to **CHANGE CONTROLLER**. Select the correct WaveLinx Area Controller from the list.



Adjusting the Preferred Display Brightness and Auto-dim Timing

The touchscreen allows selection of a preferred brightness level for when the screen is in use. If no activity occurs during an initial user defined time-out period, the touchscreen will automatically dim to 50% of the preferred brightness level. If there is no activity for 10 minutes, the touchscreen will automatically dim to 20% of the preferred brightness level. At any time, if the touchscreen registers a touch, the touchscreen will immediately return to the preferred brightness level.

To adjust the preferred brightness level and the initial auto-dim time-out period:

1: From the **Settings** screen, select **Display Brightness**.

2: Use the slider to adjust the screen to the desired brightness, and then tap the **Back** button.

3: Next, select the **Display** option.

4: Select the initial time-out period from the provided options, and then tap the **Back** button.

5: Tap the lock icon to exit the settings screen.

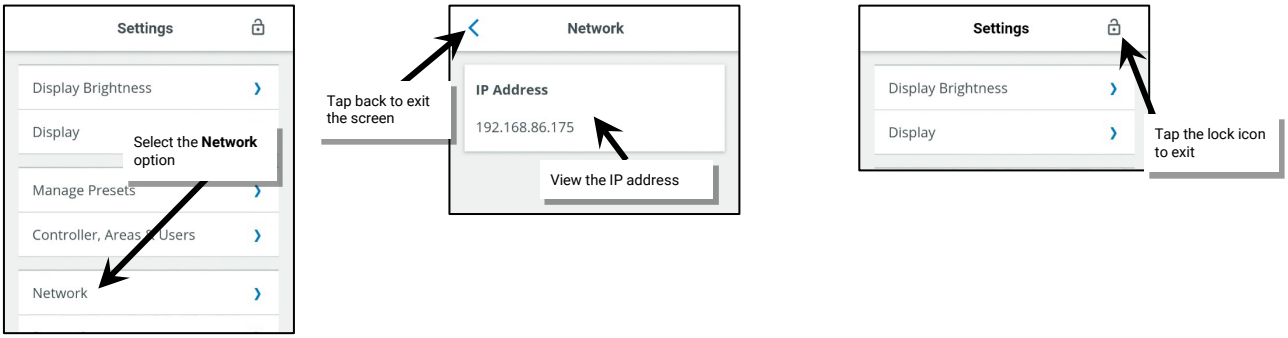
Viewing or Changing the Touchscreen's IP Address

To view the touchscreen's currently assigned IP address:

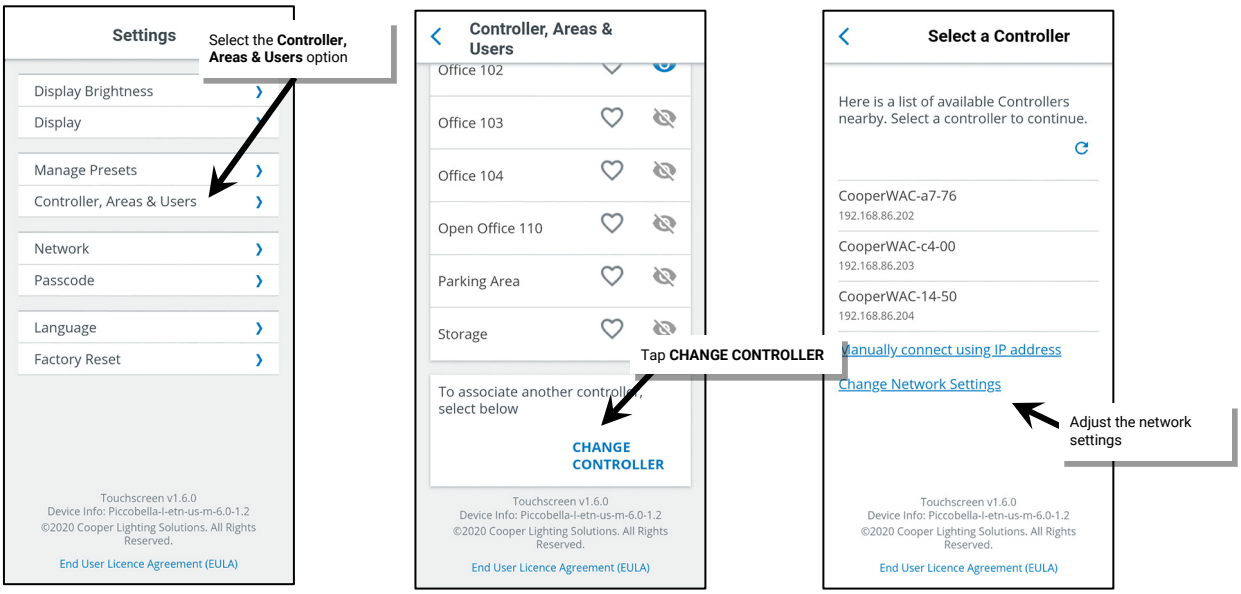
1: From the **Settings** screen, select the **Network** option.

2: Review the IP address. Once finished, tap the **Back** button.

3: Tap the lock icon to exit the settings screen.



To change the touchscreen's IP address,16 from the settings menu, select the option for **Controllers, Areas & Users**, and then select **CHANGE CONTROLLER**. Define the new settings and then tap the correct WaveLinx Area Controller to reconnect.



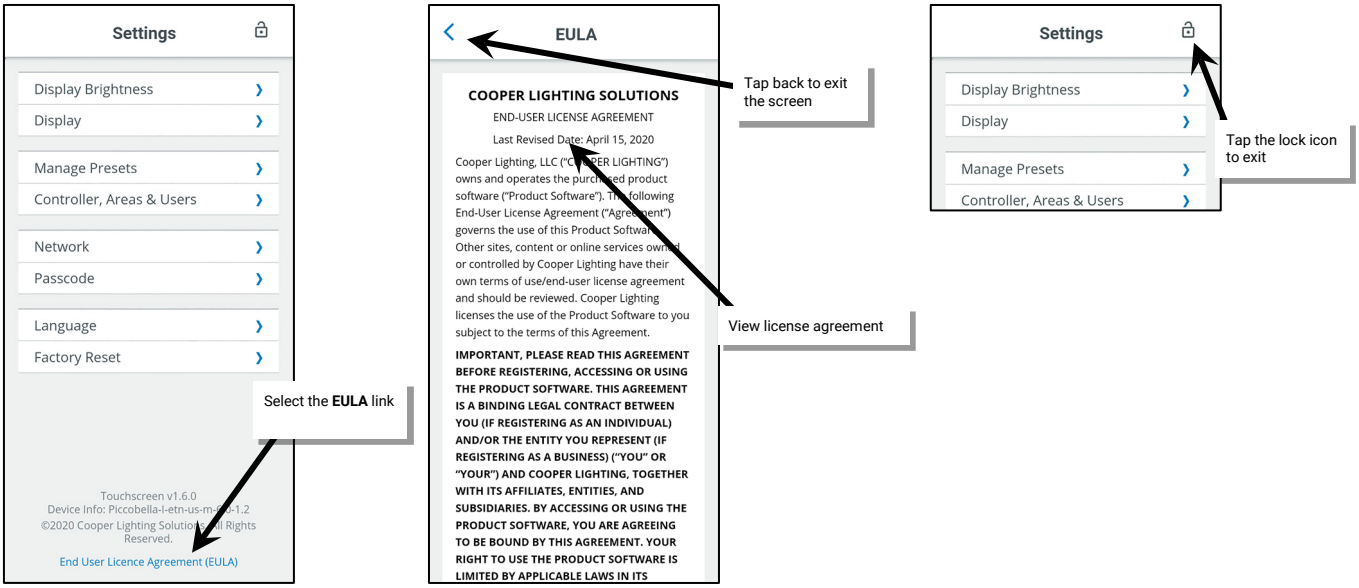
Viewing the End User License Agreement (EULA)

To view the touchscreen End User License Agreement (EULA):

1: From the **Settings** screen, select the **End User License Agreement (EULA)** link at the bottom of the screen.

2: Once finished reviewing the information, tap the **Back** button.

3: Tap the lock icon to exit the settings screen.



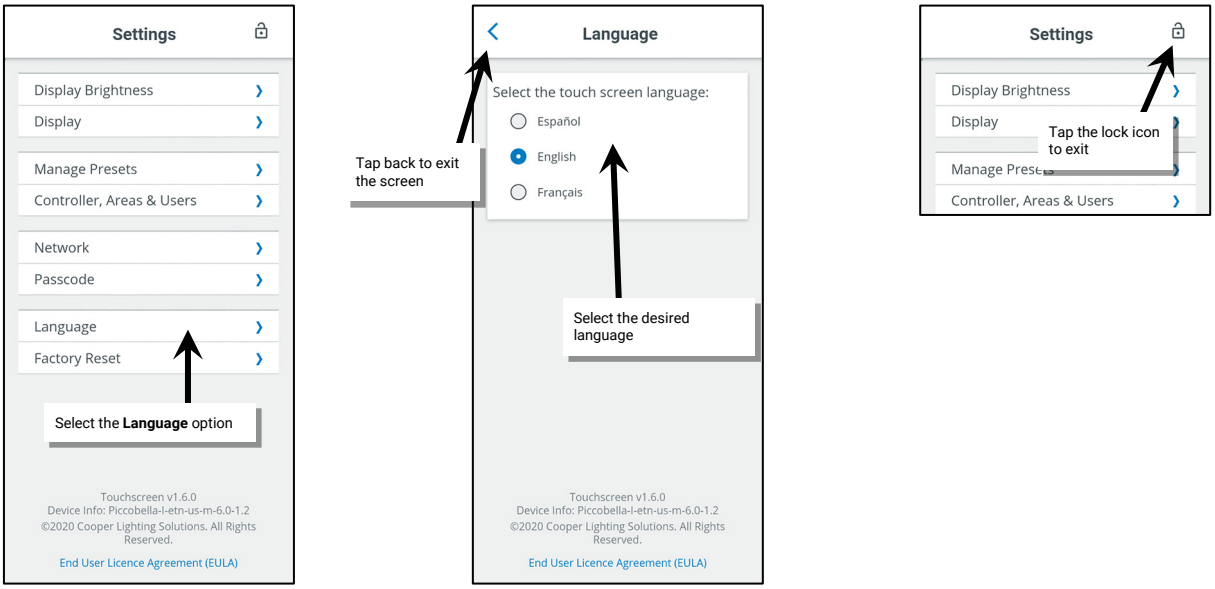
Changing the Display Language

It is possible to switch the display language between English, Spanish, and French. To change the display language:

1: From the **Settings** screen, select the **Language** option.

2: Select the desired language, and then tap the **Back** button.

3: Tap the lock icon to exit the settings screen.



Changing the Administrator Passcode

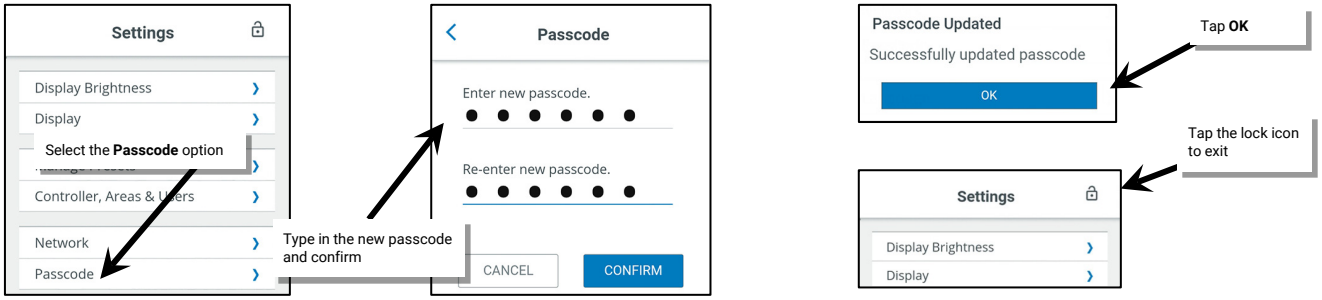
For security reasons, it is recommended that the default administrator passcode be changed. To change the admin passcode:

1: From the **Settings** screen, tap the **Passcode** option.

2: Enter the new passcode desired (must be 6 digits) and then enter the same passcode in the second field. Tap **CONFIRM**.

3: Tap the **OK** button once the success message box is displayed.

4: Tap the lock icon to exit the settings screen.



The new passcode must now be used for administrative functions. The default passcode will no longer be valid.

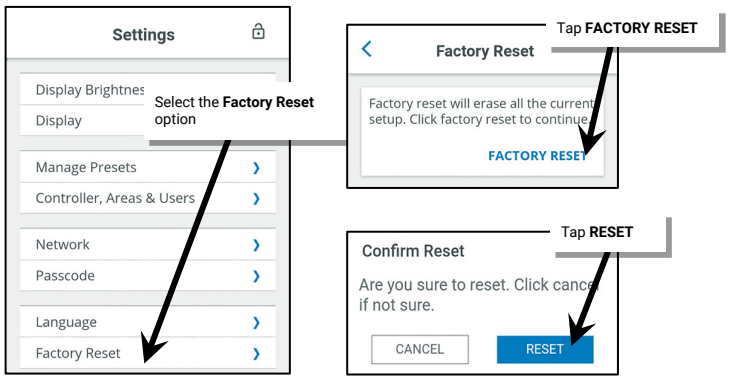
Performing a Factory Reset

A factory reset will erase the current touchscreen setup and return the device to factory defaults. Use it with caution!

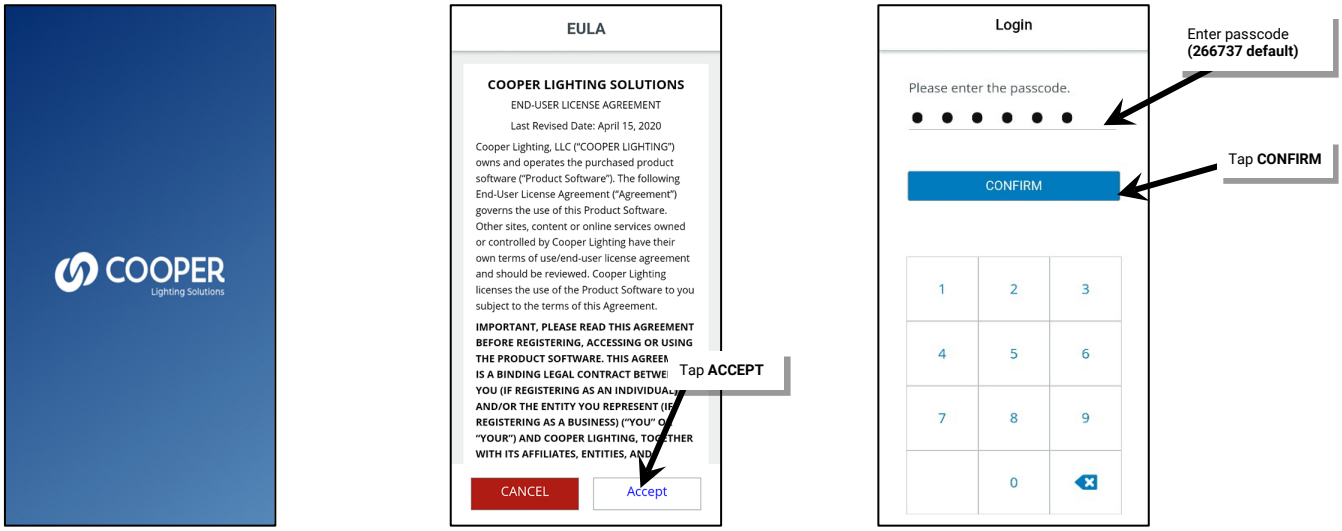
1: From the **Settings** screen, tap the **Factory Reset** option.

2: Tap the **FACTORY RESET** link.

3: Tap the **RESET** option when prompted to confirm.



The display will show the blue screen and then request the passcode. Enter the default administrative passcode 266737 [396].to begin the setup process. Reconfigure the touchscreen using the steps outlined in this chapter.



[396] For security, it is recommended that default passcode be changed once the initial touchscreen configuration is complete. Refer to "Changing the Administrator Passcode" on page 367 for step-by-step instructions. In previous touchscreen versions, the default passcode was 328661.

WaveLinx Area Controller Administration

The WaveLinx Area Controller allows for advanced administrator functionality using built-in internal webpages. This section describes how to:

- Login to the internal webpages
- Set the system location, time, date, and time zone
- Manage user accounts and passwords
- Rename the WaveLinx Area Controller
- Backup and restore databases/replace a WaveLinx Area Controller
- Firmware administration
  - Obtain the latest firmware/software files
  - View and update firmware/software of the WaveLinx Area Controller
  - View or update firmware of WaveLinx devices
- Advanced network administration
  - Administer Wi-Fi access point settings
  - Administer other Wi-Fi settings
  - Administer Ethernet setting
  - Change DNS settings
  - View 802.15.4 network settings
  - Enable or Disable the WaveLinx CORE Connection
- Remove devices in the Construction Area
- Reboot the WaveLinx Area Controller
- View disclaimers and license agreements
- Use the WaveLinx WAC Lighting Application[397]

Logging into the WaveLinx Area Controller Webpages

Establish a connection from a computer to the WaveLinx Area Controller to access administrator functions in the internal webpages.[398]

If the WaveLinx Area Controller is connected to the building network, or the wireless name and password has been changed from the default, please refer to the network administrator for access information, the WaveLinx Area Controller's IP address, and the credentials to use when logging in.

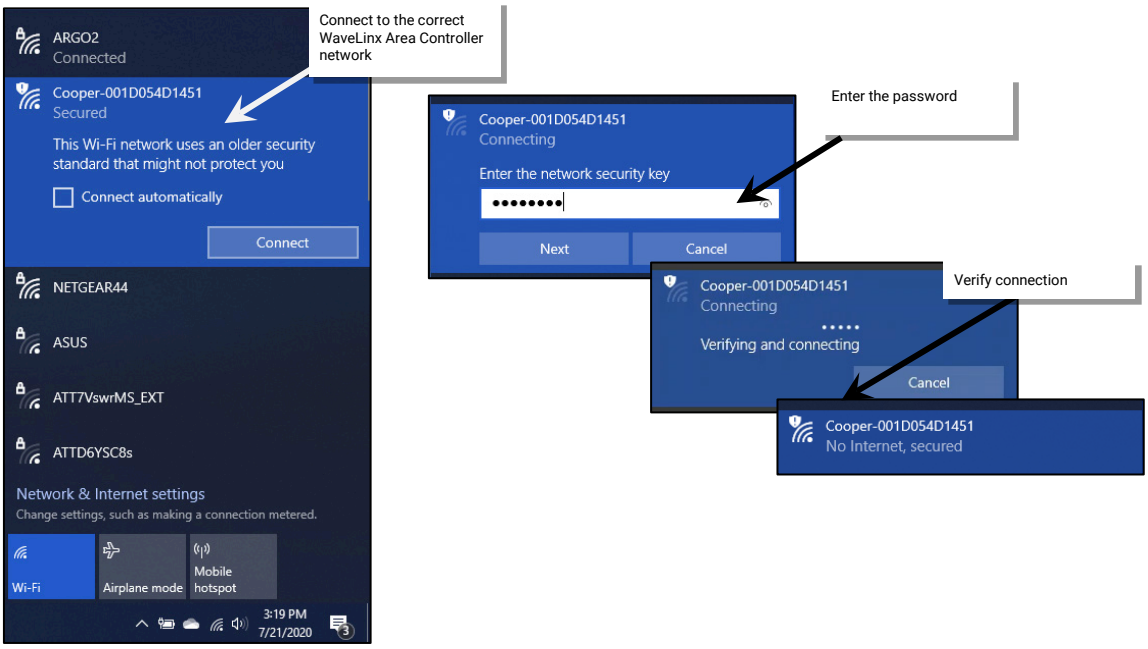
1: Make sure that the computer being used has wireless connectivity and has a current web browser installed.

2: If there is more than one WaveLinx Area Controller in the facility, on the top of the WaveLinx Area Controller, locate the label with the MAC ID. Make note of the MAC ID shown.

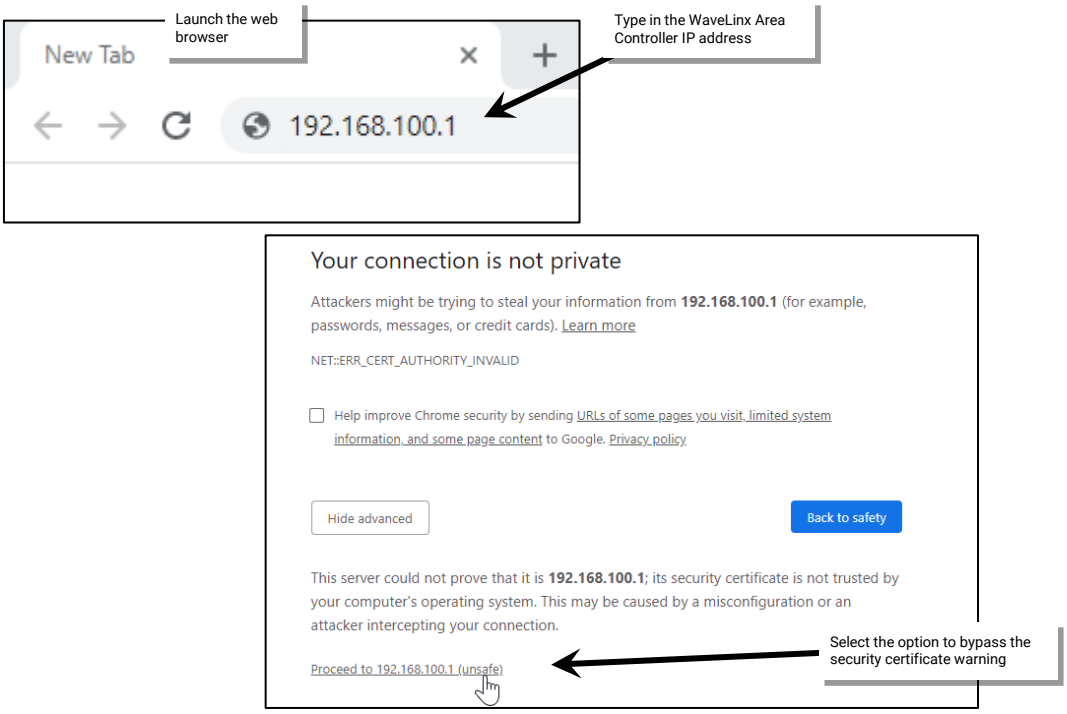
[397] This feature requires the use of a WaveLinx Area Controller WaveLinx Area Controller with the minimum software version 11.x.x.x.

[398] There is a WaveLinx Manager Monitoring Webpage which is an additional webpage accessible by Technical Support and Field Engineers for component level analysis. Contact Technical Support regarding the use and access to this page.

3: Turn on the computer's Wi-Fi and locate the Wi-Fi network named Cooper-XXXXXXXXXXXX (where X is a string of letters and numbers). Select the Wi-Fi network Cooper-XXXXXXXXXXXXX where the X characters match the MAC ID noted in the last step. When prompted, enter the previously customized password, and then join the network (If still at the default settings, use the network key password **wclAdmin** [case sensitive]).



4: Open the web browser and enter the IP address of the WaveLinx Area Controller in the address bar. (The default IP address if connecting through the onboard wireless access point is 192.168.100.1.) The first time the WaveLinx Area Controller is accessed, the browser may display message windows regarding the site security certificate. The display and wording of these messages may differ between web browsers. Locate the option to bypass the warning to proceed to the site.



5: In the log in screen, enter the username and password for the administrator user.

- Username: **WclAdmin**
- Password: Enter the assigned password. (If the WaveLinx Area Controller is still in default configuration, the default password is **wclAdmin**.)

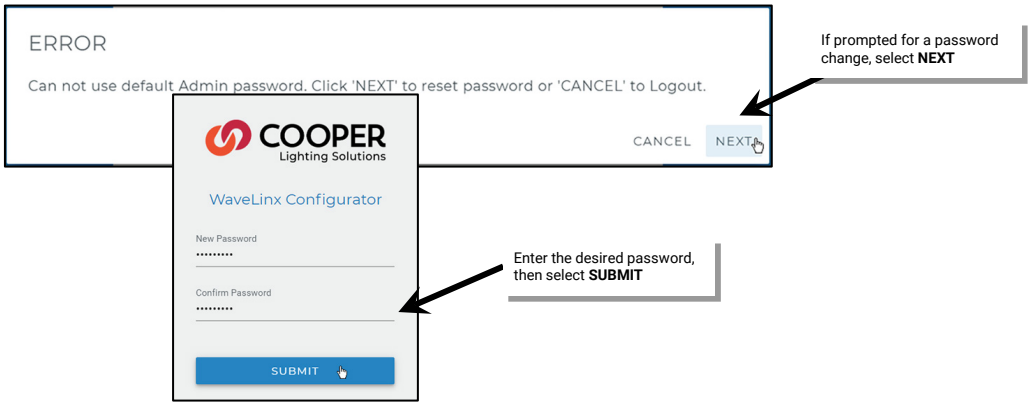
If this **is not** the first login for the WaveLinx Area Controller, the system page will display in the web browser. No further steps are necessary.

If this **is** the first login to this WaveLinx Area Controller, continue with the following steps:

6: If this is the first login, the system will force a password change. When prompted, enter a new password for the administrative user.

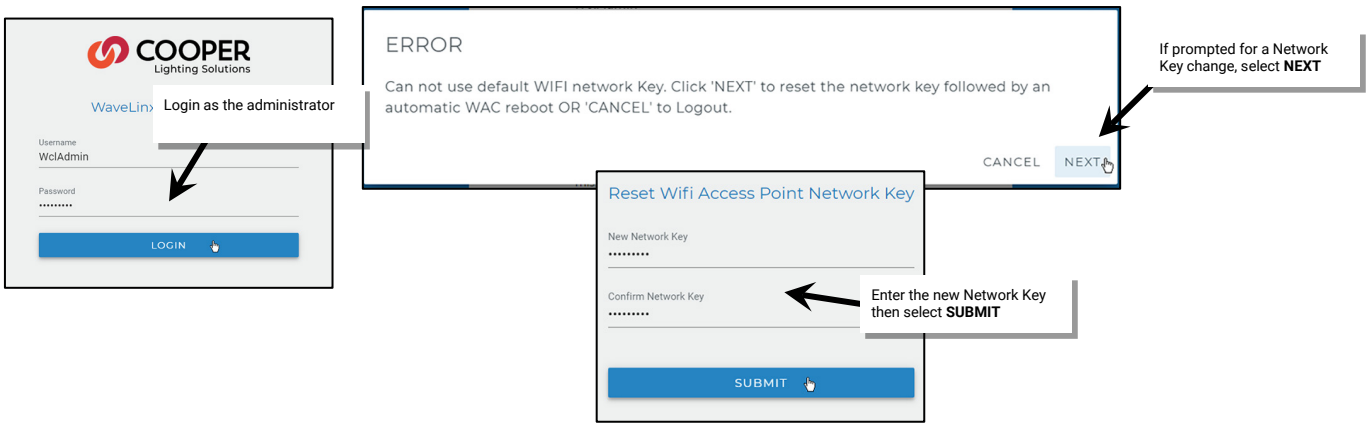
Set a complex password when changing passwords, making sure it is something that can be remembered.

IMPORTANT! REMEMBER THE NEW PASSWORD AS IT WILL BE USED FOR ALL FUTURE ADMINISTRATOR LOGINS FOR THE INTERNAL WEBPAGE AND FOR THE MOBILE APPLICATION.



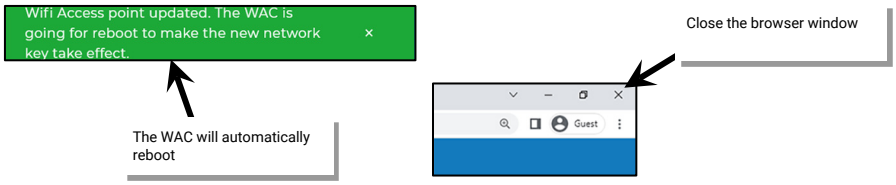
7: When prompted, login with the new credentials. The WaveLinx Area Controller will force a Wi-Fi Access Point Network Key (password) change. When prompted, submit a new Network Key. Set a complex Network Key when changing it, making sure it is something that can be remembered.

IMPORTANT! REMEMBER THE NEW NETWORK KEY AS IT WILL BE USED FOR ALL MOBILE DEVICE OR COMPUTER CONNECTIONS TO THE WI-FI ACCESS POINT ON THIS WAVELINX AREA CONTROLLER.

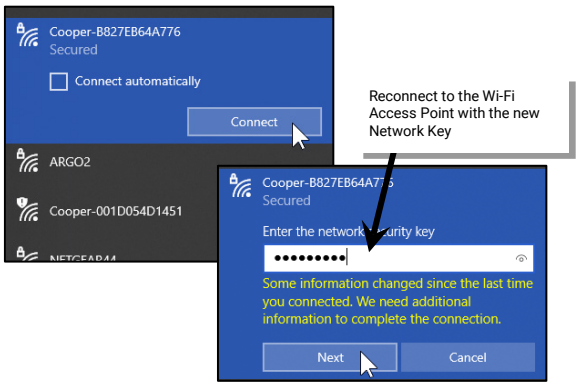


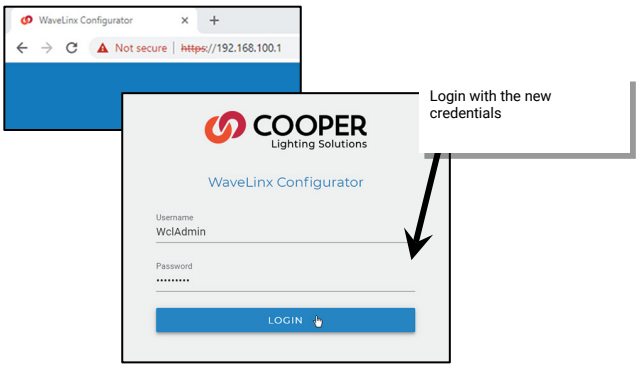
8: If the Network Key has changed, the WaveLinx Area Controller will automatically reboot. Close the web browser window.

Wait until the reboot is complete. The Power/Health LED, 802.15.4 LED and Wi-Fi LED will be ON indicating it is ready (other LEDs may also be illuminated depending on connections).

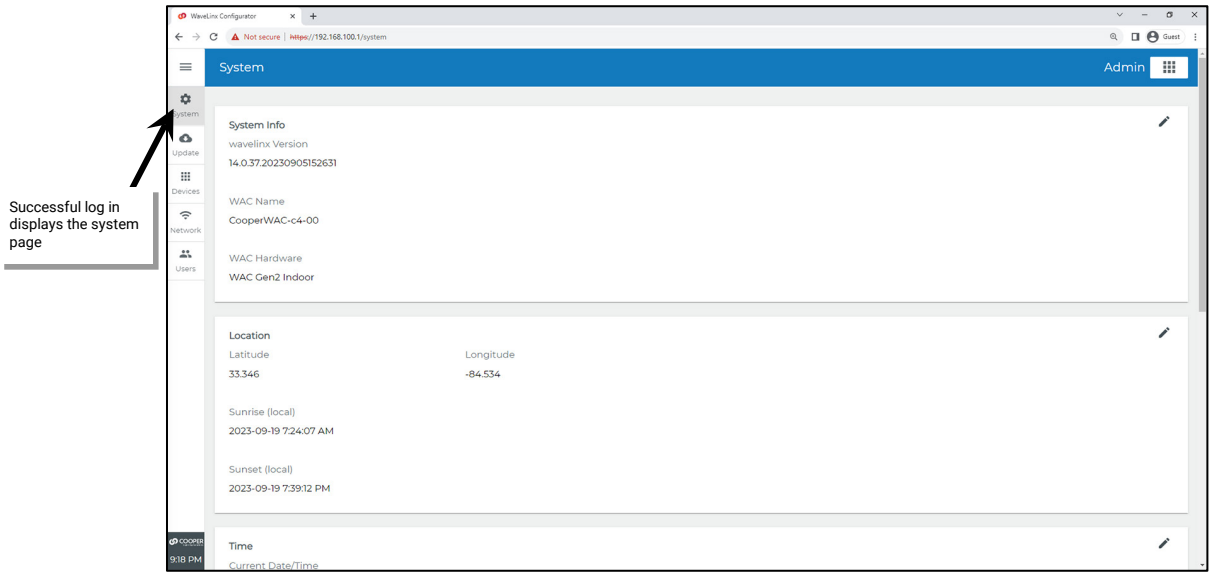


9: Re-connect to the WaveLinx Area Controller's Wi-Fi Access Point, entering the new Network Key assigned. Then navigate to and login to the WaveLinx Area Controller using the new credentials.





The internal webpage will open and display the system page.



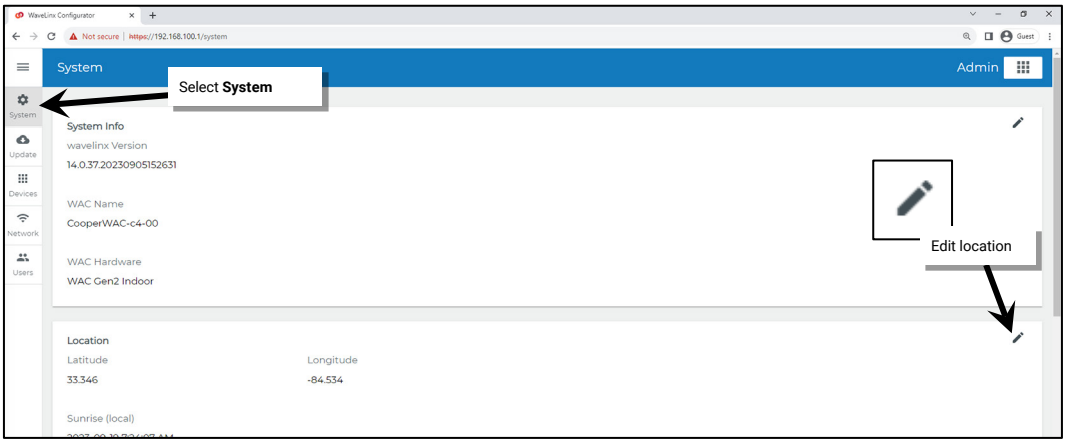
Setting the System Location, Time, Date and Time Zone

To ensure schedule event accuracy, set the location, time, date, and time zone in the WaveLinx Area Controller. These settings are found within the system webpage. The location setting is used for calculating the astronomic clock sunset and sunrise times. In the event of power loss, the time and date are retained for up to 48 hours. If the power loss exceeds 48-hours, the clock settings will need to be reconfigured.

To set the location, time, date, and time zone:

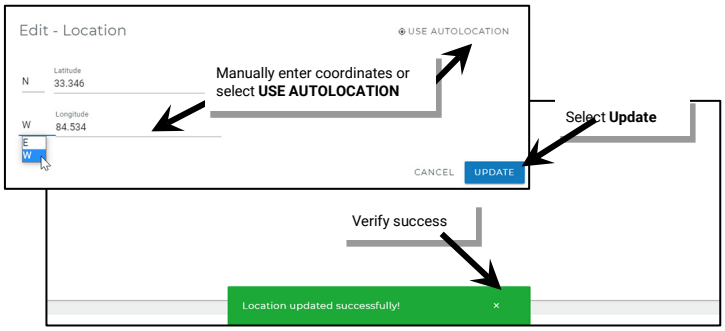
1: Establish a connection from the computer to the WaveLinx Area Controller as the administrator user.

2: Select the **System** page and then select the pencil icon in the location section to open it for editing.

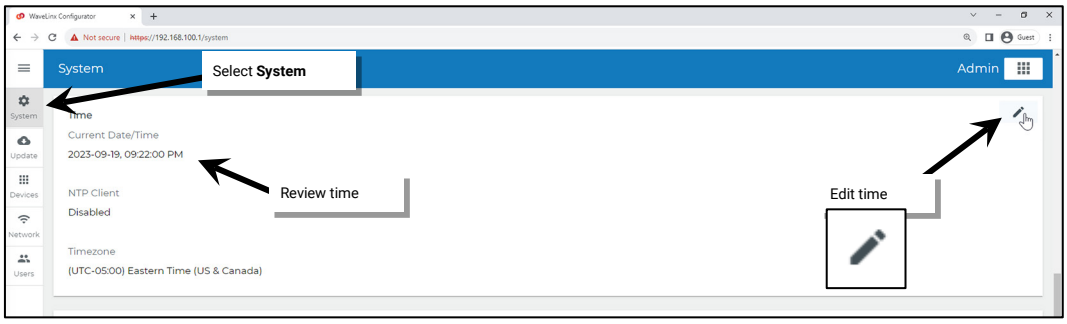


3: Set the location using either the auto location feature or by manually entering the coordinates.

- Auto-Location: Can be used if the computer is connected to a network that allows for GPS location. Fields will automatically populate with the coordinates.
- Manually enter: Manually enter the coordinates after determining the latitude and longitude for the site.



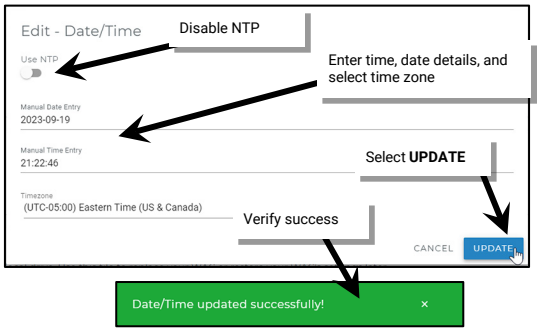
4: In the system page, review the current time, date, and time zone. If they are not correct, select the pencil icon to edit.

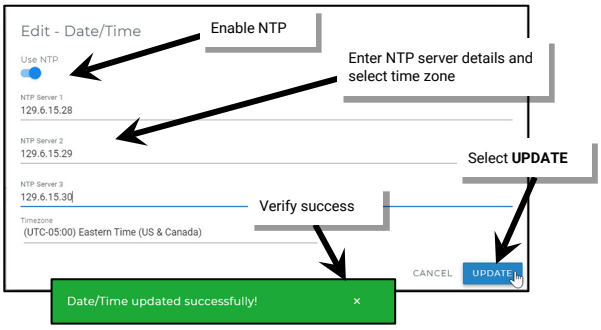


5: Update the time information by either entering the data manually or entering the NTP server details.

- **Enter manually**: Disable the **Use NTP** slider and enter the date (year-month-day YYYY-MM-DD format) and time fields (Use 24-hour military clock format to distinguish AM from PM). Click the time zone drop down and select the proper time zone.
- **Use NTP**: If the WaveLinx Area Controller is connected to a building network that uses a network time protocol (NTP) server, enable the **Use NTP** slider and fill in the NTP server address details. NTP servers do not set the time zone field. Manually set the time zone using the provided time zone drop down.

Click **UPDATE** to save the coordinates to the WaveLinx Area Controller. A success message will appear once completed.





Managing User Accounts and Passwords

The internal webpages allow for creation of user accounts and administration of user accounts and passwords. By default, the WaveLinx Area Controller ships with a default system administrator user and a default personal control user account. These user accounts may be changed, or additional user accounts may be defined. The WaveLinx Area Controller supports up to 99 user accounts.

The WaveLinx Area Controller determines user access and permissions by associating the user accounts with different roles. For the purposes of a stand-alone WaveLinx Area Controller, only two roles will be used:

- **System Administrator Role**: A user defined as a system administrator will have access to all functions within the WaveLinx Mobile App, the WaveLinx WAC Lighting App[399], and the WaveLinx Area Controller webpages. This includes all programming options, system administration, and user management. **Only one system administrator may be logged into the WaveLinx Area Controller at a time**.
- **Tenant Role**: A user defined as a tenant will have access to the system as a personal control user. The user will be able to view areas in the WaveLinx Mobile App, issue normal overrides through the WaveLinx App, and view schedule events. The personal control tenant user will not be able to change or modify programming, access the WaveLinx Area Controller webpages, or create user accounts/ administer passwords. The WaveLinx Touchscreen requires the use of a tenant role user account. Up to 31 tenant users may be logged into the WaveLinx Area Controller concurrently.

Other role types are specific to the implementation of the WaveLinx Area Controller into larger systems using the WaveLinx CORE and WaveLinx CORE Applications. The additional user roles and default user accounts will not be discussed in this user guide. Refer to the user guides for these products for further information.

For security, change the default passwords for the administrator and personal control users to be unique for the facility. Users should set a complex password when changing passwords.

Once all users are entered, create a backup of the user accounts. The backup can be restored at any time to re-establish the user accounts/roles or to duplicate the user accounts to other WaveLinx Area Controllers.

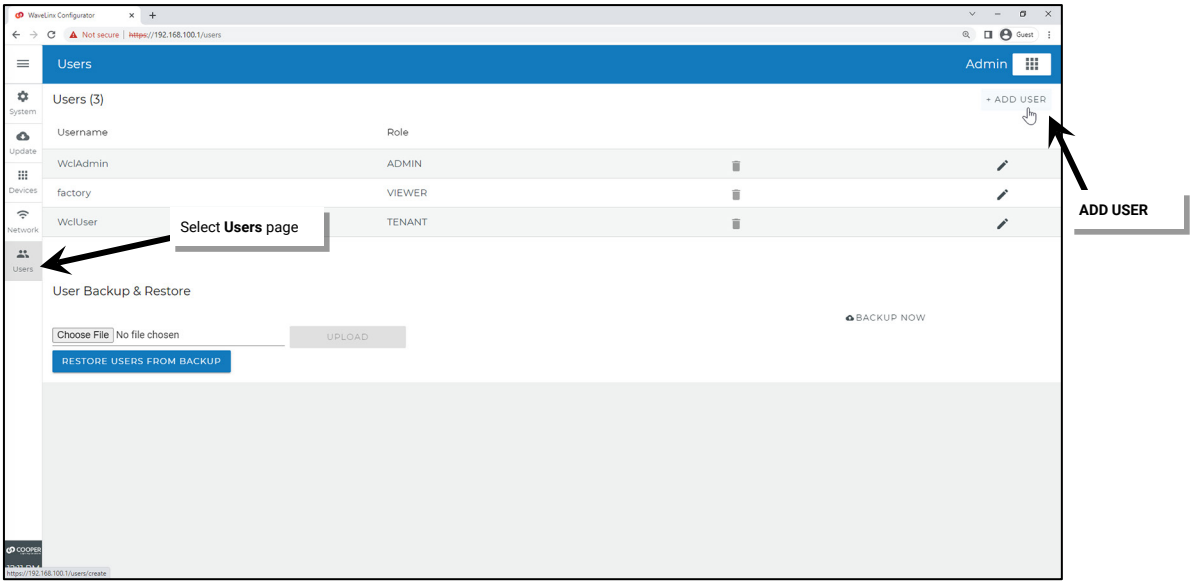
[399] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Adding a New User Account

To create a new user account:

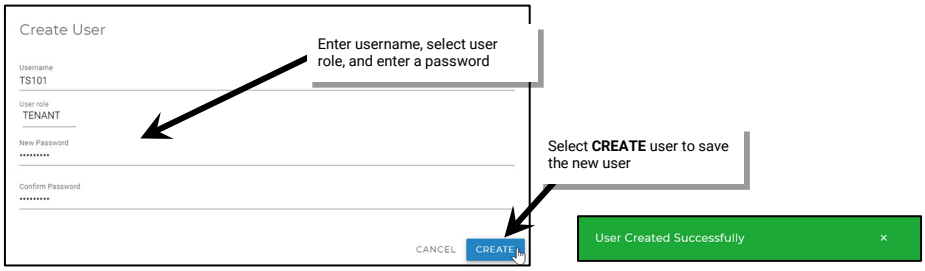
1: Establish a connection from the computer to the WaveLinx Area Controller as the administrator user.

2: Select the **Users** page, and then select the option to add a user.



3: Enter the desired username, select the role, and create a password. Click **CREATE** to save the new user account.

- **Username**: Usernames can contain up to 32 characters and may include letters, numbers, and a limited set of special characters. Usernames may not contain spaces. Special characters that may be used include - _ ‘.
- **Role**: Select between **Tenant** (personal control user or Touchscreen user account) and **Admin** (system administrator user). Other roles are for use with the WaveLinx CORE.
- **Password**: The password must be between 8 and 16 characters and must contain at least 1 upper case letter, 1 number and 1 special character. The special characters that may be used are "#$'()*,-./:;<=>?@[]^_`{|}~.

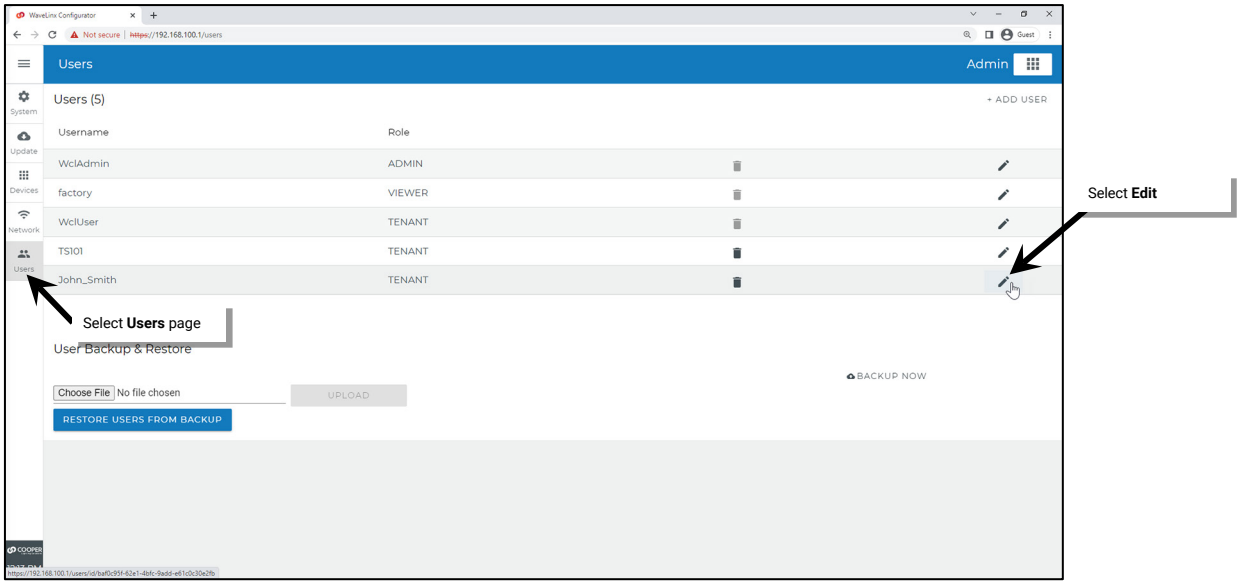


Modifying Existing User Accounts and Passwords

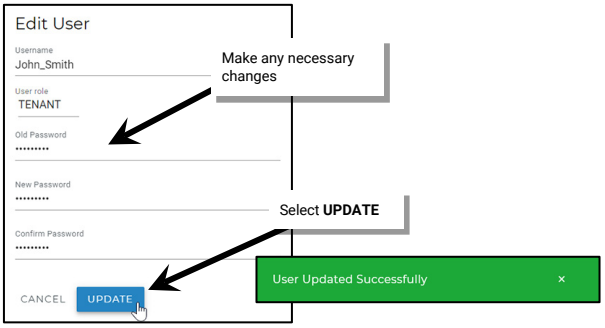
To administer changes to the username, role, and passwords of existing user accounts:

1: Establish a connection from the computer to the WaveLinx Area Controller as the system administrator user.

2: Select the **Users** page and then locate and select the pencil icon in the desired username row to open the edit form.[400]



3: Make the changes to the role, username, or password. Passwords must be between 8 and 16 characters and must contain at least 1 upper case letter, 1 number and 1 special character (**"#$'()*,-./:;<=>?@[]^_`{|}~**). Click **Update** to save the changes.

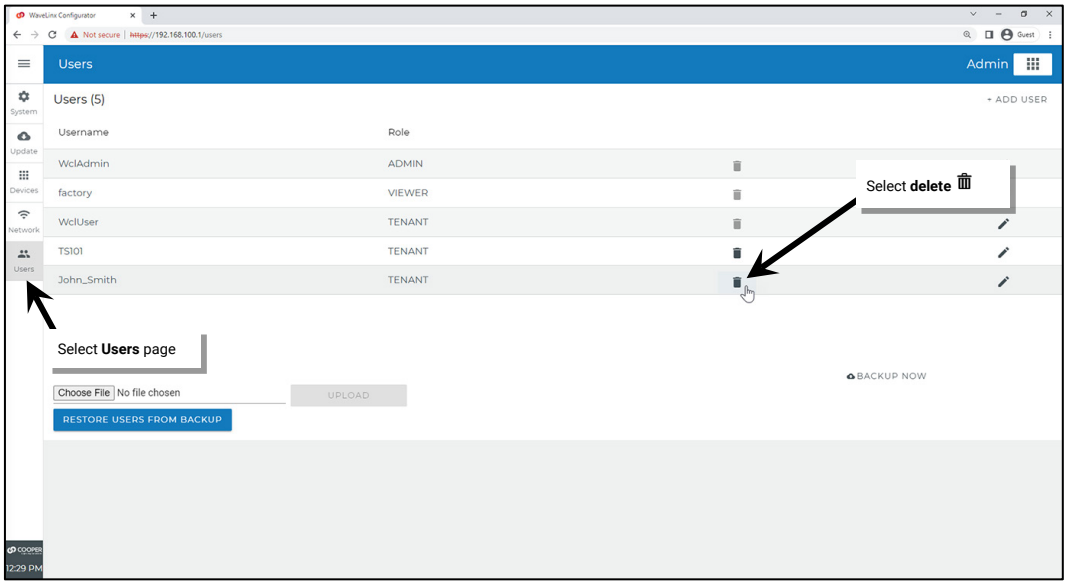


[400] The factory user listed is not used in typical applications.

Deleting a User Account

1: Establish a connection between the computer and the WaveLinx Area Controller as the system administrator user.

2: Select the **Users** page and then select **delete** 🗑 in the desired username row.



3: **CONFIRM** the deletion.

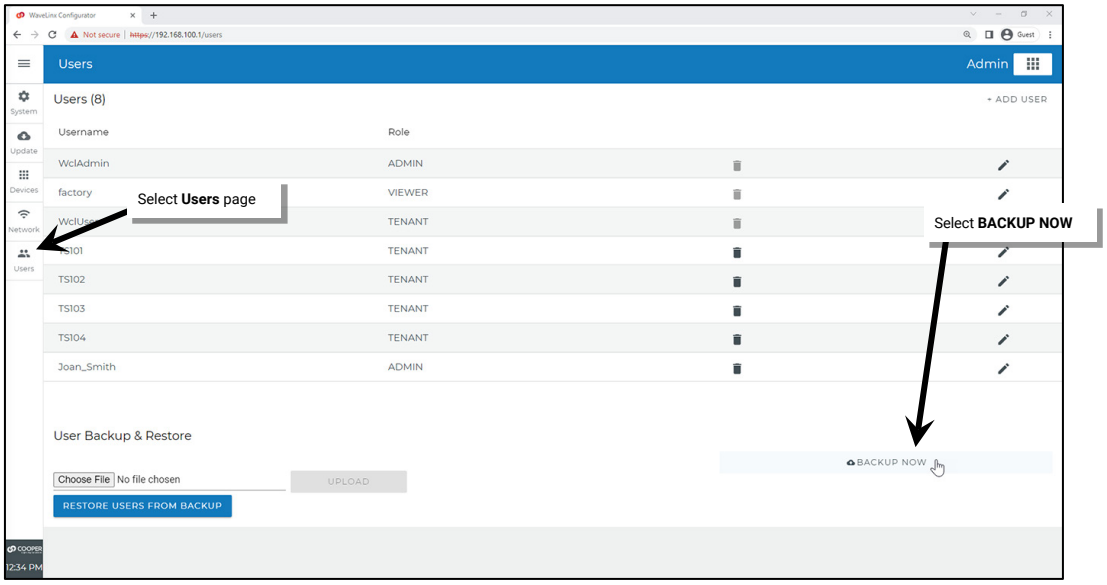
Using the Backup and Restore User Accounts Option

Once all users accounts exist, create a backup of the user accounts. The backup can be restored at any time to re-establish the user accounts/roles or to duplicate the user accounts to other WaveLinx Area Controllers.

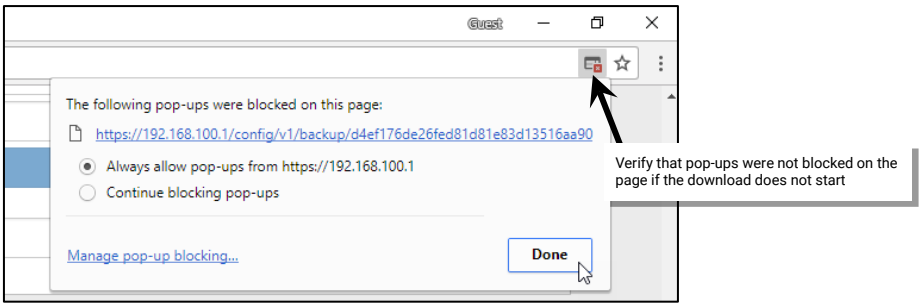
Creating a User Accounts Backup

1: Establish a connection between the computer to the WaveLinx Area Controller as the system administrator user.

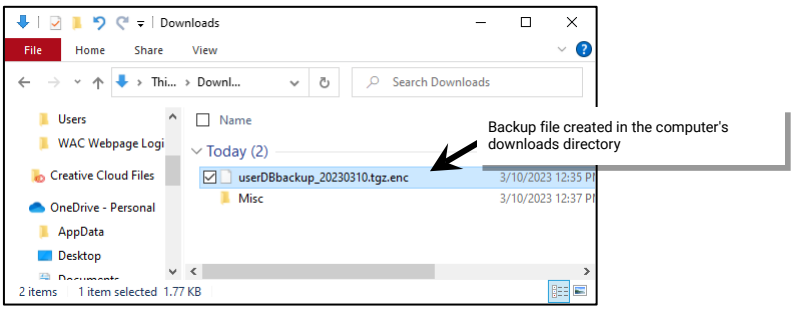
2: Select the **Users** page and then scroll to the bottom of the page to select the **BACKUP NOW** option. When prompted, select a location to store the backup.



3: After a few seconds, a file transfer should begin to the selected directory. If the download does not start, verify that popups are not blocked for this site, and then try again.



4: Verify that the backup file is in the chosen computer directory. The file name will be userDBbackup_ followed by the date of the backup (YYYYMMDD). Move the file to a designated directory for WaveLinx user database backups (optional).

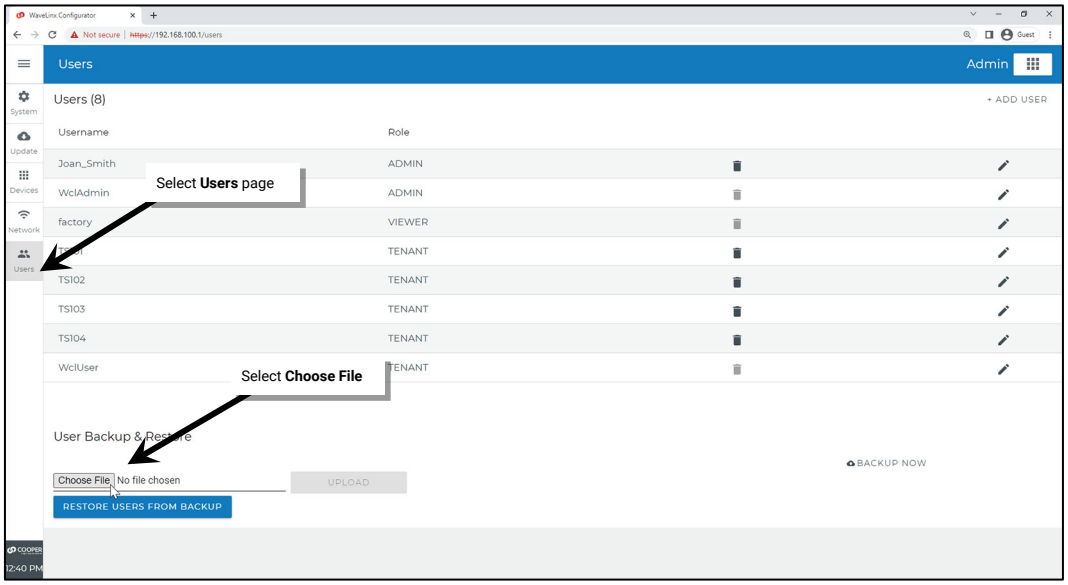


Restoring User Accounts from a Backup

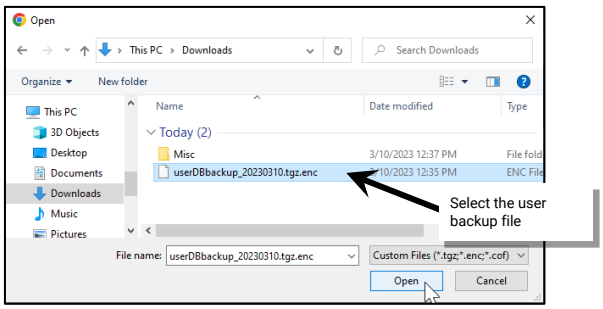
To restore the user accounts from a backup:

1: Establish a connection from the computer to the WaveLinx Area Controller as the system administrator user.

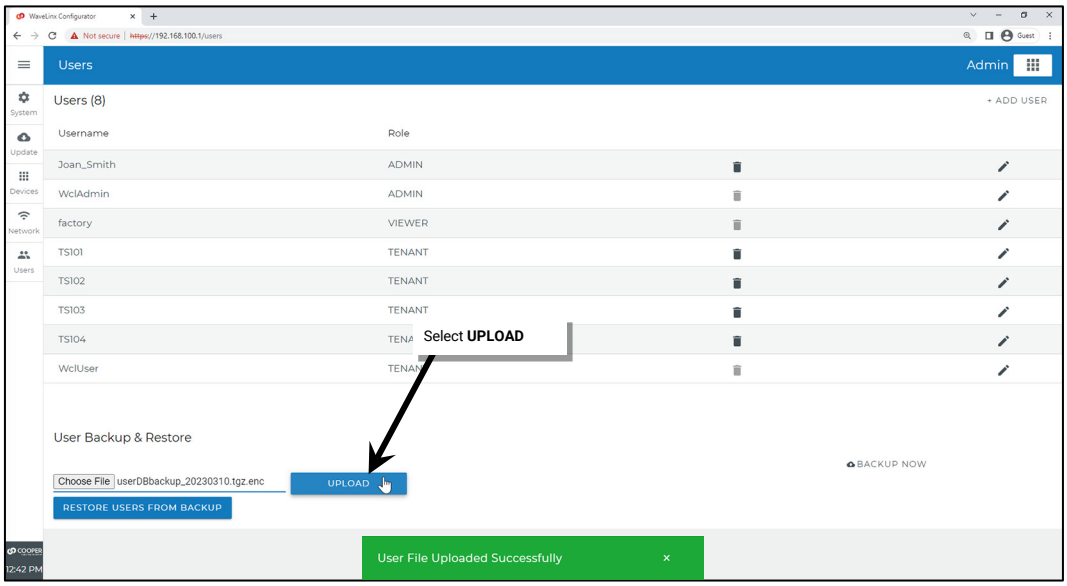
2: Select the **Users** page and then scroll down the page to select the choose file option.



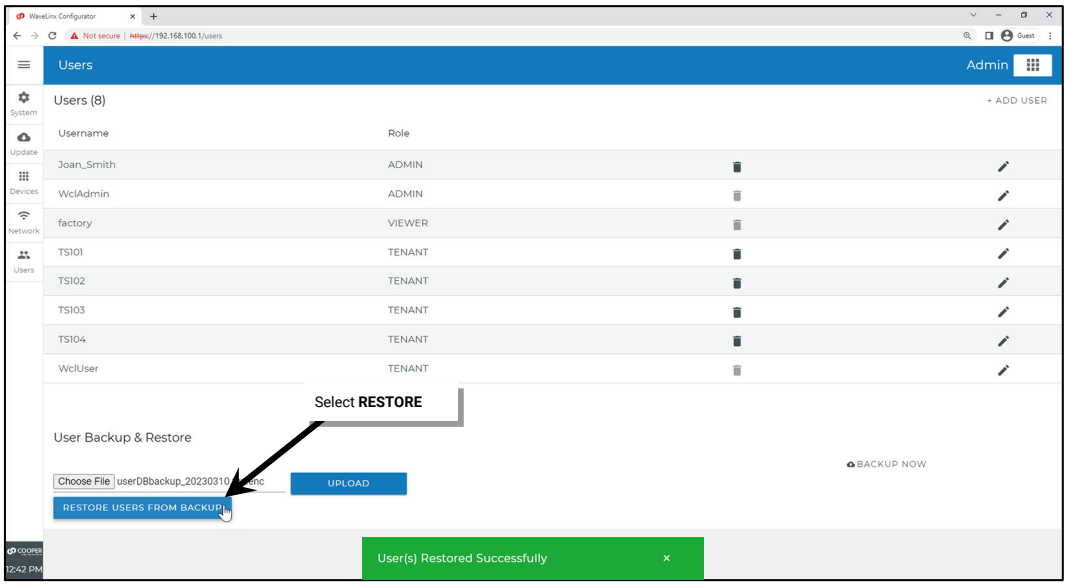
3: Navigate to and then select and open the user backup file.



4: Click **UPLOAD**. After a short delay, a successful upload message should be displayed.



5: Next, click **RESTORE USERS FROM BACKUP**. Once complete, a success message will be displayed. Refresh the webpage to view the restored user accounts. In some cases, it may take several minutes before the restored users will appear.



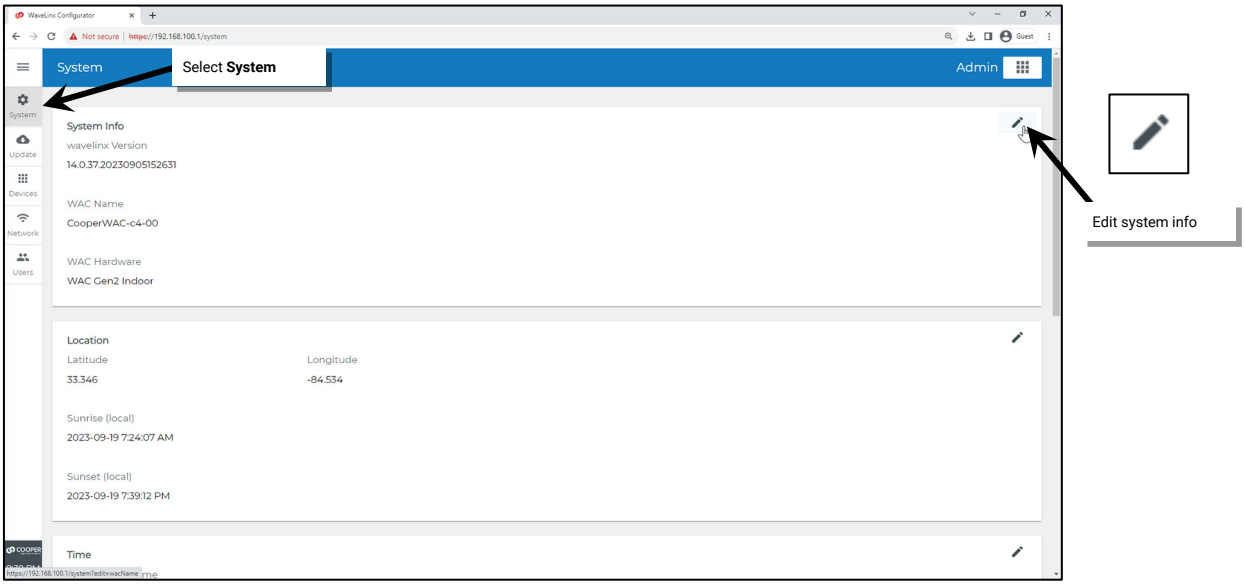
Renaming the WaveLinx Area Controller

Each WaveLinx Area Controller has a default name that will appear in the WaveLinx Mobile App or WaveLinx WAC Lighting App[401]. It is possible to change this name through the internal webpages.

To change the WaveLinx Area Controller default name:

1: Establish a connection from the computer to the WaveLinx Area Controller as the administrator user.

2: Select the **System** page, and then in the system info section, select the pencil icon to open the page for editing.



3: Type the new name (letters, numbers, and hyphens only). Select **UPDATE** and verify the success message appears. The new name will display in the WaveLinx App.

[401] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Performing a System Backup

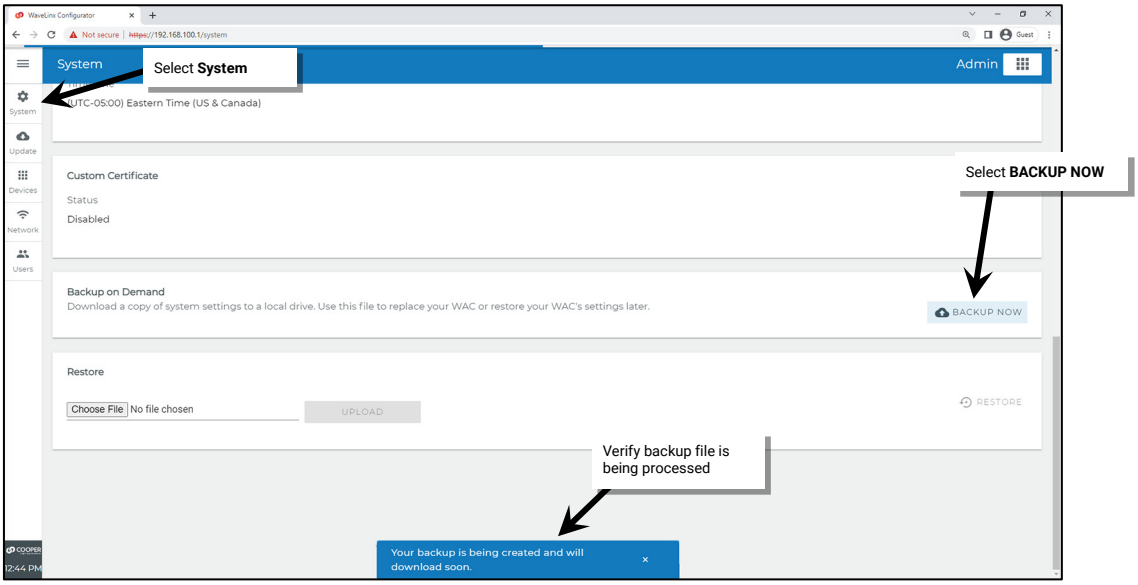
Perform system backups regularly. The system should be backed up:

- Once the system is initially running and operational
- Before making significant changes
- Before updating WaveLinx Area Controller or device firmware (recommended)
- After updating WaveLinx Area Controller or device firmware (recommended)

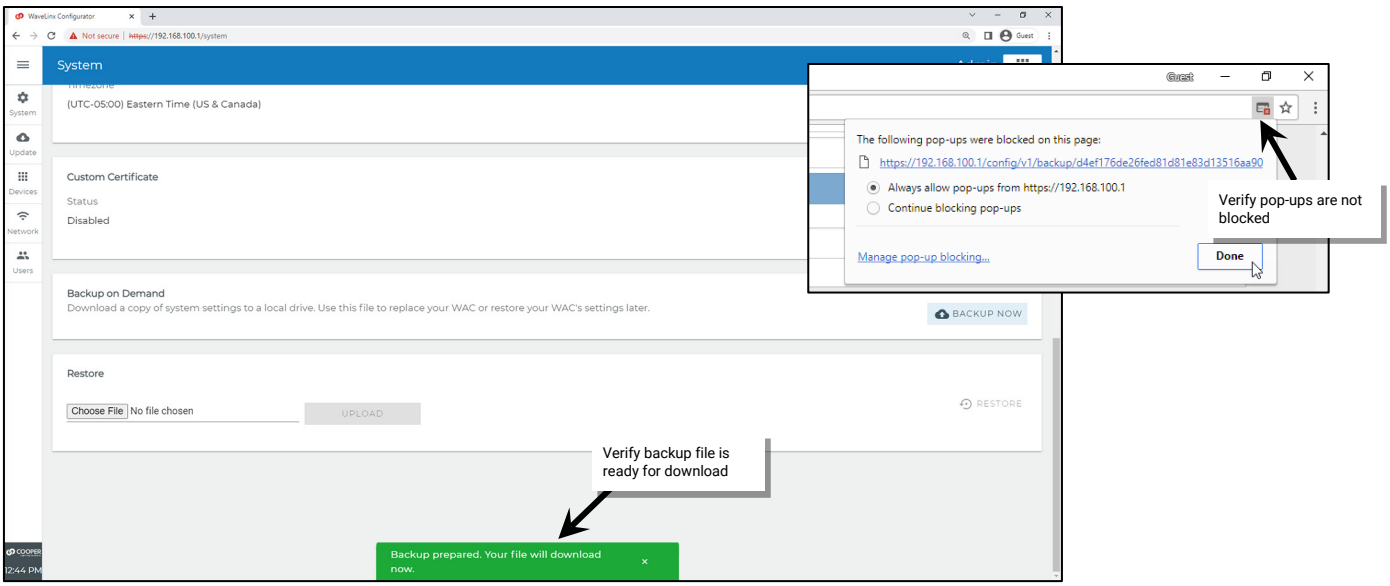
The system may be restored from the backup if programmed changes do not operate as intended or if replacing the WaveLinx Area Controller in the event of a failure.

1: Establish a connection from the computer to the WaveLinx Area Controller as the administrator user.

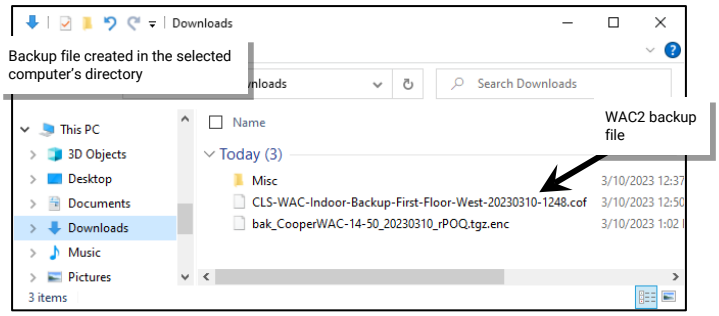
2: Select the **System** page and locate the **Backup on Demand** section. Click **BACKUP NOW** and confirm that the backup indication message appears.



3: After a few minutes, the file download should be ready to start. Select the location where the file should be stored on the computer. If the download does not appear, verify that popups are not blocked for this site, and then try again.



4: Verify that the file is in the selected computer directory. The file name will reflect the WaveLinx Area Controller name and the date that the backup was created. The file extension for the backup file will be **.cof**



Performing a System Restore or WaveLinx Area Controller Replacement

Restore the system at any time from a previously created backup file. A backup may also be restored to a replacement WaveLinx Area Controller if necessary. During restoration, devices will remain in their current state for the duration of the loss of communications timer after which they will go to their out-of-the-box behavior. Once restoration is complete, and they have rejoined the wireless network, devices will resume normal operation.

Details on Restoring a Backup to the Same WaveLinx Area Controller

A backup can be used to restore a previous version of programming to the same WaveLinx Area Controller, effectively rolling back programming to a previous version. In this type of restore, any devices that have been added to the system after the backup will need to be re-added as new devices. Firmware that was in place at the time of the backup will also be restored along with the programming. It may be necessary to run firmware updates after the restore is complete.

Details on Restoring a Backup to a Different WaveLinx Area Controller (WAC Replacement)

The system restore can be used to replace a WaveLinx Area Controller. If replacing a WaveLinx Area Controller, the following rules apply:

- A WAC can be replaced with a WAC
- A WAC can be replaced with a WAC2 or a WAC2 R4
- A WAC2 can be replaced with a WAC2 or a WAC2 R4
- A WAC2 can be replaced with a WaveLinx Outdoor Area Controller
- A WaveLinx Outdoor Area Controller can be replaced with a WaveLinx Outdoor Area Controller
- A WAC2 can be replaced with a WAC2 R4
- A WAC2 R4 can be replaced with a WAC2 R4

Replacing a WAC with a WAC

If replacing a WAC that has failed with another WAC, once the restore is completed, the replacement unit will take on the functions and ID of the original WaveLinx Area Controller with the firmware versions from the backup file. The replacement WaveLinx Area Controller may then be backed up and restored to itself as many times as needed but may not be used to replace another WaveLinx Area Controller in the facility with a different ID. It is imperative that only the replacement unit be powered after the restoration is complete to avoid communication conflicts.

For example:

- If WaveLinx Area Controller A1 fails, its backup can be restored into replacement WaveLinx Area Controller A2.
- WaveLinx Area Controller A2 can be backed up and restored to itself if it is necessary to rollback to previous programming.
- If WaveLinx Area Controller A2 also fails, it can be replaced by a new WaveLinx Area Controller A3.
- If a WaveLinx Area Controller in another area of the facility fails (B1), and the B WaveLinx Area Controller is deemed more critical than the A WaveLinx Area Controller, WaveLinx Area Controller A2 cannot be moved to replace WaveLinx Area Controller B1 (A2's ID was previously overwritten by A1's ID and cannot be overwritten again with the B1 ID).
- If the replacement WaveLinx Area Controller A2, mistakenly has WaveLinx Area Controller B1's backup restored into it, and then the mistake is realized and the A1 backup is then restored, the WaveLinx Area Controller will appear online, but the devices will not join the WaveLinx Area Controller. To recover from this issue, factory reset all paired devices (except the WaveLinx Area Controller). Then, pair the devices to the WaveLinx Area Controller again. Once paired, the devices will begin operating per the programming in the restored A1 database.

Replacing a WAC with a WAC2 or WAC2 R4

If replacing a WAC that has failed with a WAC2 or WAC2 R4, once the restore is completed, the replacement unit will take on the functions and ID of the original WaveLinx Area Controller. The WAC2 or WAC2 R4 will restore programming but not the firmware from the WAC backup file. The replacement WaveLinx Area Controller may then be backed up and restored to itself as many times as needed. It is imperative that only the replacement unit be powered after the restoration is complete to avoid communication conflicts.

Unlike the WAC, the WAC2 or WAC2 R4 may be used to replace another WaveLinx Area Controller with a different ID. The WAC2or WAC2 R4 ID may be overwritten as many times as needed.

Replacing a WAC2, WAC2 R4 or WaveLinx Outdoor Area Controllers

If replacing a WAC2, WAC2 R4 or WaveLinx Outdoor Area Controller that has failed with another WaveLinx Area Controller, once the restore is completed, the replacement unit will take on the functions and ID of the original WaveLinx Area Controller with the firmware versions from the backup file. The replacement WaveLinx Area Controller may then be backed up and restored to itself as many times as needed. It is imperative that only the replacement unit be powered after the restoration is complete to avoid communication conflicts.

Unlike the WAC, the WAC2, WAC2 R4 or WaveLinx Outdoor Area Controller may be used to replace another WaveLinx Area Controller with a different ID. The ID may be overwritten as many times as needed.

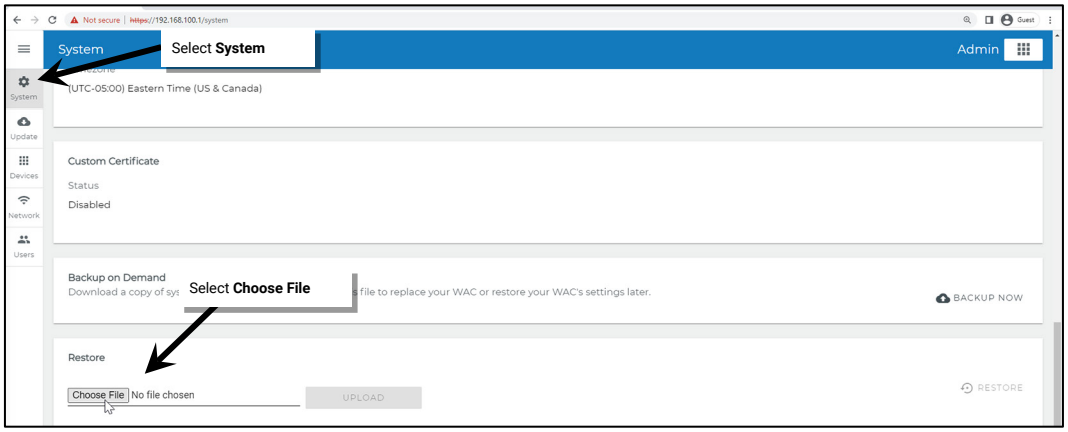
Steps to Process a System Restore

To restore the system:

1: If replacing a WaveLinx Area Controller, ensure that **only** the replacement WaveLinx Area Controller is powered and that the Controller is set for the same IP address as the original WaveLinx Area Controller.[402]

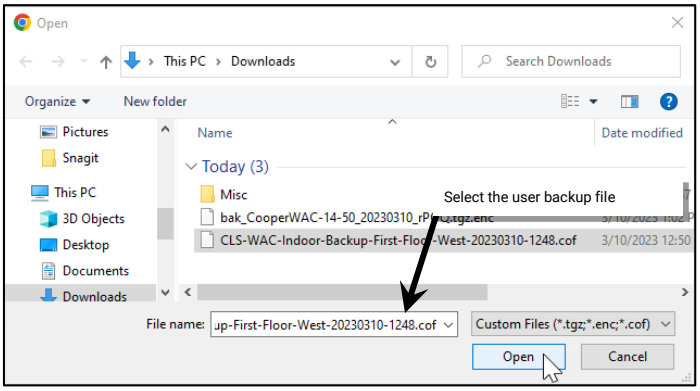
2: Establish a connection from the computer to the WaveLinx Area Controller as the administrator user.

3: Select the **System** page and then scroll down to the **Restore** section and select the option to **Choose File**.



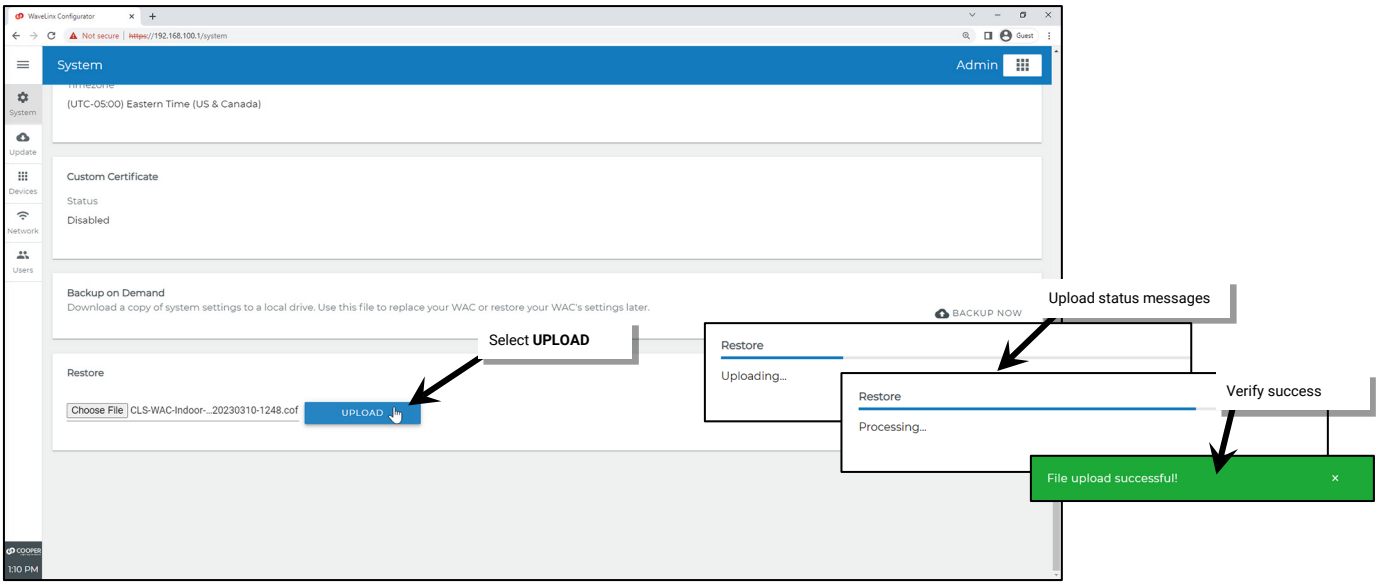
4: Navigate to and then select and then open the backup file to restore.

- **WAC:** The file extension for the backup file will be **.tgz.enc**
- **WAC2, WAC2 R4 or Outdoor WaveLinx Area Controller:** The file extension for the backup file will be **.cof**

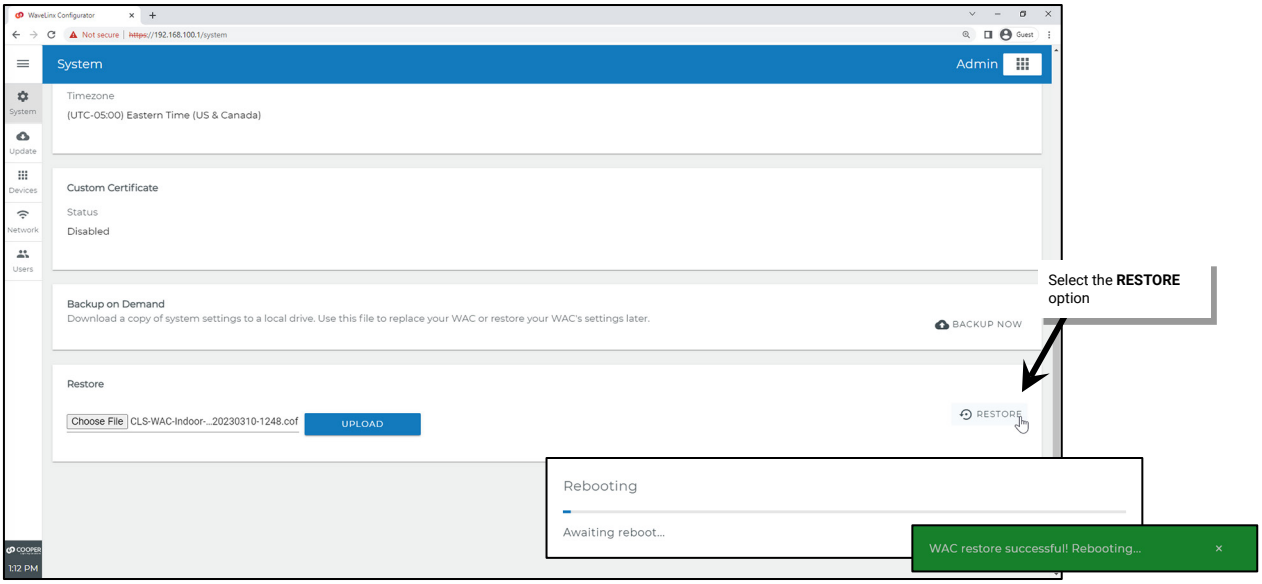


[402] If a different IP address is being used for the replacement WaveLinx Area Controller and WaveLinx Touchscreens or WaveLinx Power Modules connected to Low-Voltage Lighting are being used in the system, it will be necessary to remap the WaveLinx Touchscreens and WaveLinx Power Module to the new IP address. For information on remapping Touchscreens, see "Changing the Touchscreen User or WaveLinx Area Controller" on page 363. For information on remapping the WaveLinx Power Module, see "Reconnecting after IP Address Changes" on page 439.

5: Click **UPLOAD**. Review the status that shows the file is uploading and processing. After several minutes, a successful upload message should display. **Continue with the steps below to complete the restore process**.



6: Next, click **RESTORE**. The restore process may take several minutes (approximately 5 minutes) as the WaveLinx Area Controller first restores the database and then reboots. Several minutes into the process, the screen may display a successful restore message and request login as the WaveLinx Area Controller reboots and loses the original connection.



At this point, the webpage can be disconnected and closed. The WaveLinx Area Controller may take approximately 45 minutes to propagate the restored information to connected devices and may take approximately an additional 45 minutes for devices to operate with the restored programming. If firmware updates are necessary after the restoration is done, wait 1½ hours prior to performing the firmware update to ensure that devices have completed the restoration and rejoining process.

Quick Links for Common Questions

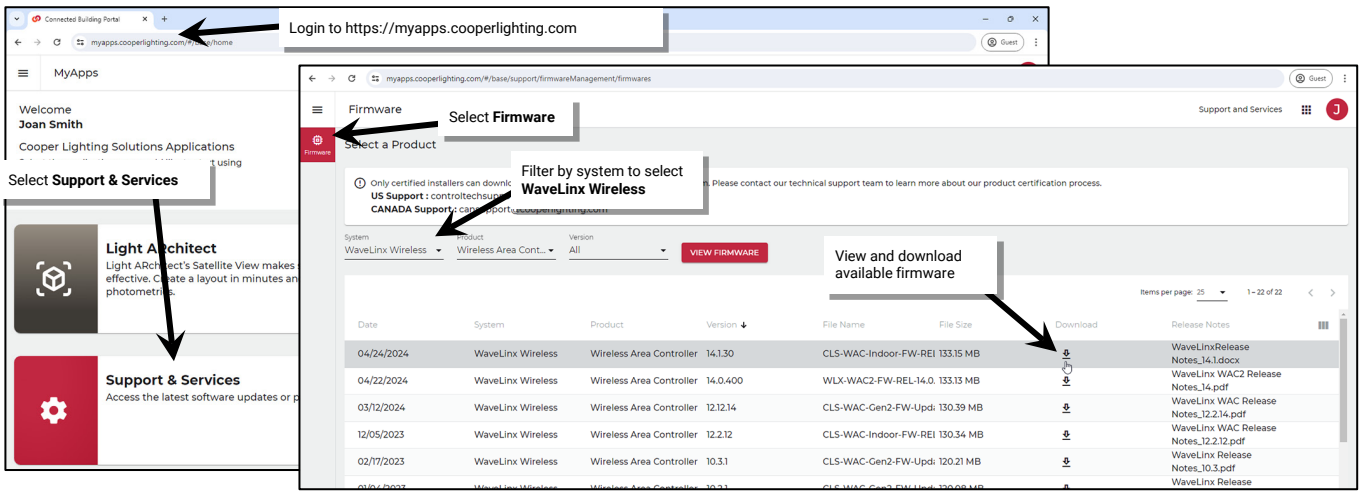
- I am replacing a failed WaveLinx Area Controller with a replacement WaveLinx Area Controller. Do I need to go through the construction grouping process to pair the devices with the new WaveLinx Area Controller or is this part of the restore function? See the answer on page 472.
- My backup was done prior to a firmware update. Can I restore the older backup if I have updated the firmware in my devices? See the answer on page 472.
- What will my devices do if they lose communication with the WaveLinx Area Controller? See the answer on page 473.

Viewing and Updating Firmware of the WaveLinx Area Controller and WaveLinx Devices

It is important to keep the WaveLinx Area Controller and installed WaveLinx devices current with firmware updates to ensure functionality and security.

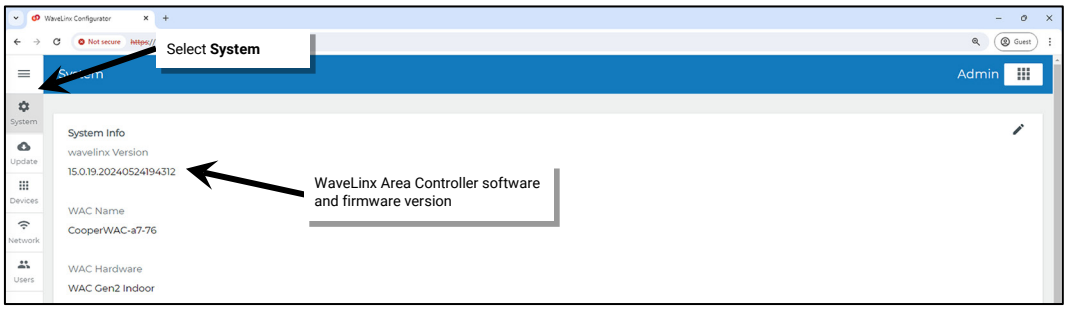
Obtaining the Latest Firmware/Software for the WaveLinx System

Check for updates by using a web browser to log in to the Cooper Lighting Connected Building Portal at https://myapps.cooperlighting.com with the email address registered in the WaveLinx App. Once logged in, select **Support and Services,** and then select **Firmware**. Filter for WaveLinx Wireless firmware updates. Select download to save any updates to the computer. The WaveLinx update file typically contains the WaveLinx Area Controller updates as well as any updates for specific WaveLinx devices.



Viewing Firmware/Software of the WaveLinx Area Controller

To view the current firmware and software versions for the WaveLinx Area Controller, access the internal WaveLinx Area Controller webpages and select the system page. The operating system and firmware version will be displayed in the system info section at the top of the page.

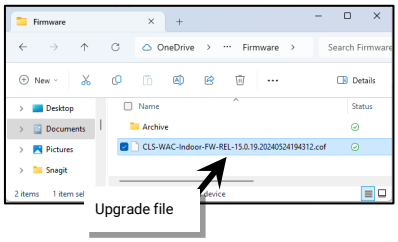


Updating the Firmware/Software of the WaveLinx Area Controller

To perform an update to the WaveLinx Area Controller firmware/software:

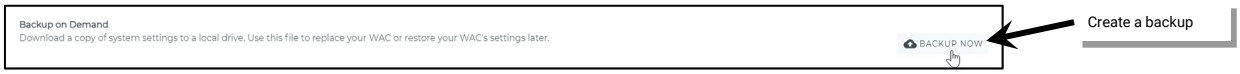
1: Download the firmware/software file from the Cooper Lighting Connected Building Portal, https://myapps.cooperlighting.com, and save it to the computer being used to perform the update. If the file is in a .zip format, unzip the files to a known location.

- **WAC:** The filename should appear as otaUpdate_XXXXXXXX**.tgz.**
- **WAC2, WAC2 R4 or WaveLinx Outdoor Area Controller:** The filename should appear as WLX-WAC2-WACMVOD-REL-X.X.X.XXXXXX**.cof.**

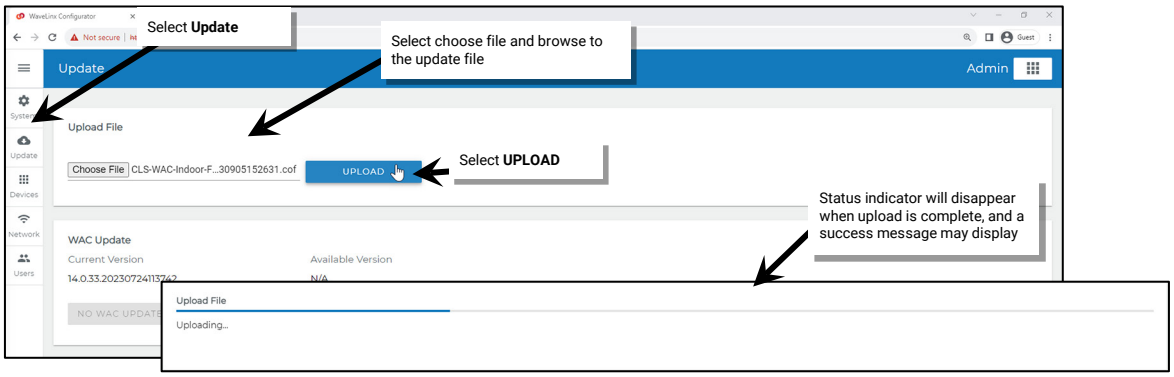


2: Establish a connection from the computer to the WaveLinx Area Controller as the administrator user.

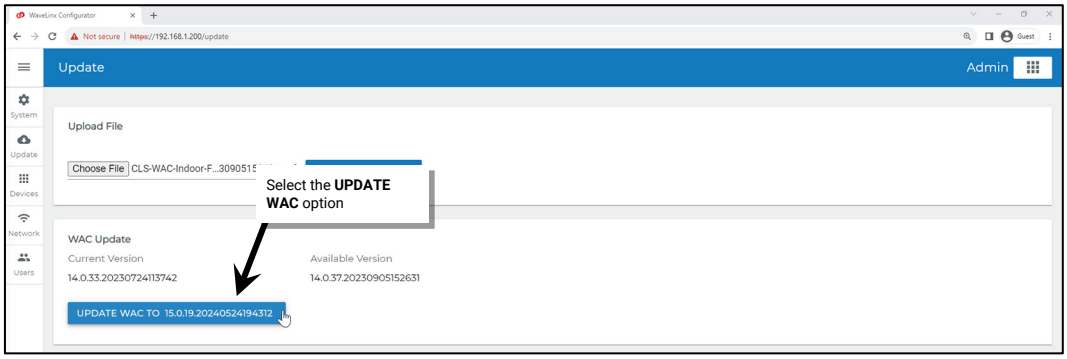
3: If necessary, turn off the browser popup blocker for this website and then create a backup of the current programming.



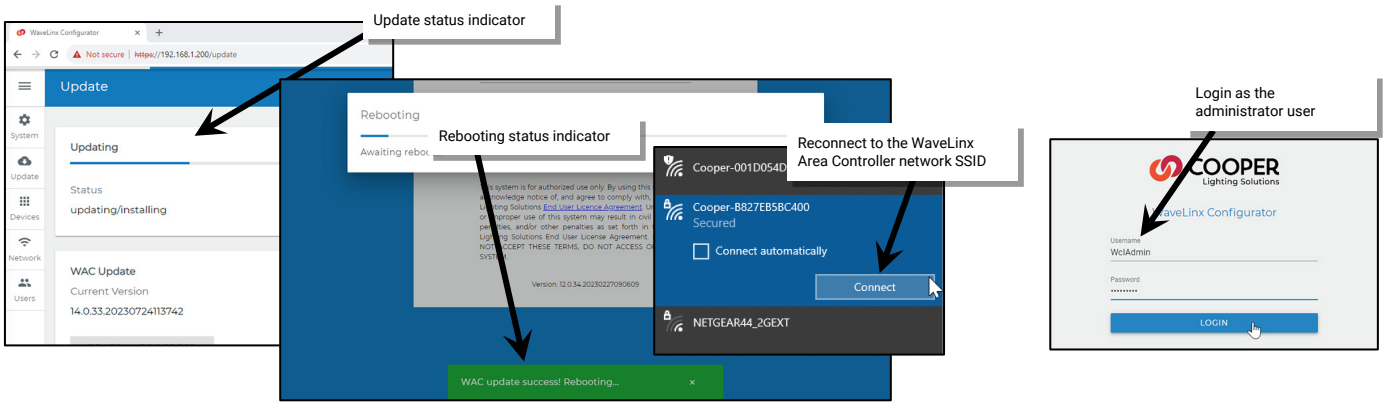
4: Select the **Update** page, and then select the **Choose File** button to navigate to the location of the update file saved on the computer. Select the **UPLOAD** button. The upload status will disappear when the upload is completed.



5: Next, scroll down to the **WAC Update** section, to review the available updates for the WaveLinx Area Controller. If an update is available, select the **UPDATE WAC** button to proceed.



6: The update process takes approximately 5 minutes during which the system may display a status bar and a rebooting status. If the WaveLinx Area Controller is visible, the power/health LED or other LEDs may flash during the update and reboot process. Once complete, the power/health LED and the blue 802.5.4 LED will turn ON and remain ON. (Other LEDs may also be ON). If necessary, reconnect the computer Wi-Fi[403] to the WaveLinx Area Controller and login as the administrator user.



[403] If the SSID does not appear in the list of available networks, the system has not yet completed the update.

Updating the Firmware of WaveLinx Devices

Most devices that are connected to the WaveLinx Area Controller may be updated from the WaveLinx Area Controller webpages. This includes all WaveLinx PRO devices, WaveLinx LV devices, and WaveLinx CAT devices. Touchscreens (v1.1 or higher) and WaveLinx DALI Hubs that have been connected to the WaveLinx Area Controller can also be updated through the WaveLinx Area Controller webpages. WaveLinx DALI devices connected to the DALI hub do not currently support update through the WaveLinx Area Controller.

Note: WaveLinx Networked Relay Panels do not typically require updates and are not updated through the WaveLinx Area Controller. If an update becomes necessary, files and instructions will be provided.

Updates to supported WaveLinx devices may be done manually or may be selected to happen automatically using the auto-upgrade feature. Regardless of the method chosen, the WaveLinx Area Controller ensures that devices meet minimum firmware requirements. If a paired device does not meet minimum requirements, the WaveLinx Area Controller will automatically update the device firmware 1 hour after the WaveLinx Area Controller reboots or at midnight the day that the discrepancy is detected.

The firmware files for WaveLinx devices are loaded with the WaveLinx Area Controller firmware/software file. If necessary, an individual device's firmware file may also be loaded into the WaveLinx Area Controller.

- Before updating device firmware, **ensure that the WaveLinx Area Controller firmware has been updated** per the instructions on page 384. This should populate the firmware for all WaveLinx devices.
- **If an individual device file has been provided**, go to the **Update** page, and then select the **Choose File** button to navigate to the location of the individual device update file saved on the computer. Select the **Upload** button. The upload status will disappear when the upload is completed. The firmware file will be available to use in the **Devices** page.

Device firmware may take a significant amount of time to update depending on the quantity of devices requiring update. Plan time accordingly.

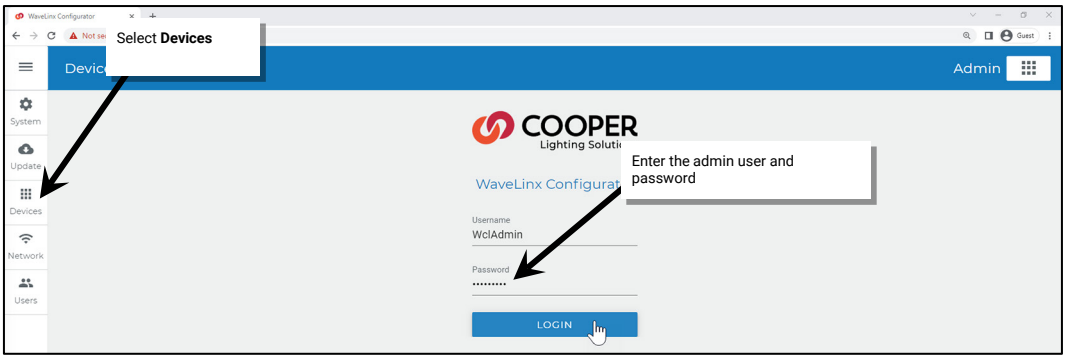
- During firmware update, most devices will remain in their current state until the update is complete, and they have rejoined the wireless network after a reset upon completion. Then they will begin to operate from schedule events or user/device commands.
- During an upgrade to the Low-Voltage Fixture or Low-Voltage Fixture with Integrated Sensor, the fixtures will turn FULL ON. After the upgrade is complete, they will return to normal operation.

Manually Updating WaveLinx Device Firmware

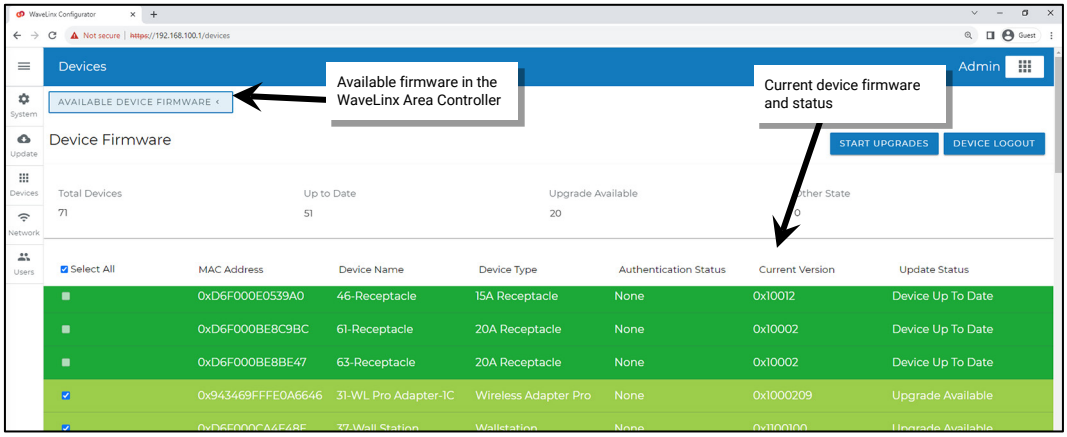
To manually update WaveLinx device firmware:

1: Establish a connection from the computer to the WaveLinx Area Controller as the administrator user.

2: Select the **Devices** page. When prompted, re-enter the Administrator username and password. (Username: WclAdmin, Password: Enter the assigned password. If the WaveLinx Area Controller is still in default configuration, the default password is wclAdmin).

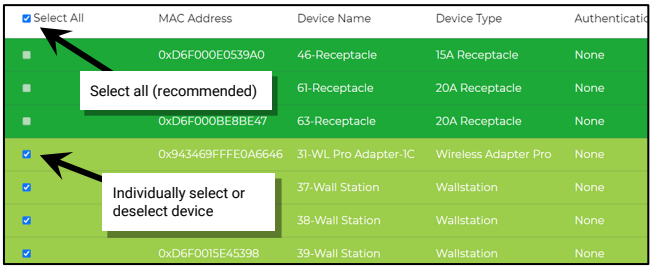


3: A list of paired devices along with a **total device** count, **up to date** device count and **upgrades available** device count will be shown. If desired, review the **AVAILABLE DEVICE FIRMWARE** list against the actual device firmware.



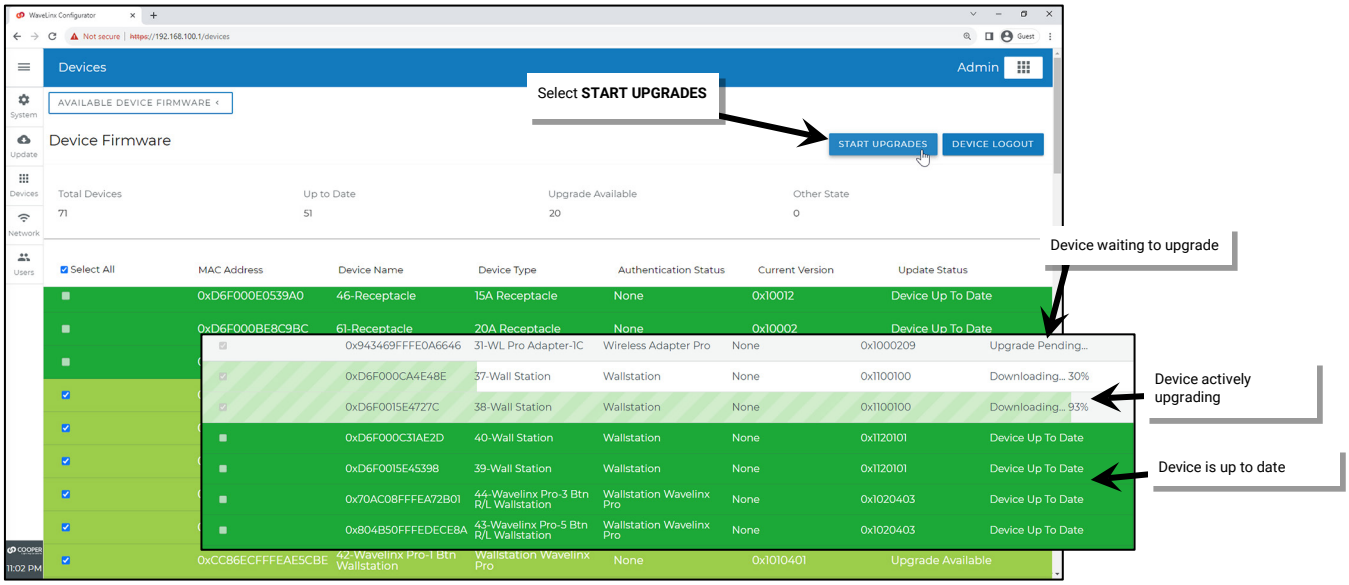
4: All devices requiring updates will be selected by default. It is recommended to leave all upgradable devices selected although it is possible to change the selection by clicking to remove or add a checkmark.

- If a Low-Voltage Power Module requires update, any Low-Voltage devices connected to the Low-Voltage Power Module that require update will automatically be selected. Once the Low-Voltage Power Module update is completed, it will run the necessary updates for its attached devices. Low-Voltage Fixtures with Integrated Sensors will be listed twice, once for the control module and once for the Integrated Sensor.
- Bluetooth Enabled Integrated Sensors may have more than one device listed for update. If manually selecting which devices update, make sure that both devices are selected to prevent issues with operation.

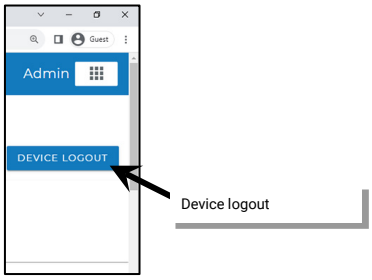


5: Select **START UPGRADES** to begin. In most cases, the update processes two devices at a time. Devices may take several minutes to process the update (some device types may take significantly longer than others). The page will show a status display indicator for devices that are actively updating and will show any devices that are pending.

Once one device finishes, the WaveLinx Area Controller will move on to the next device and will continue until all devices are updated. If the WaveLinx Area Controller is in a location that is visible, the power/health LED or other LEDs may flash during the firmware update process. Upon completion, the power/health LED will turn ON and remain ON and the blue 802.15.4 LED will be illuminated (Other LEDs may also be ON dependent on network connections).



It is not necessary to keep the computer connected to the system once the update starts. To disconnect, select **DEVICE LOGOUT** option, and then select the **Logout** option from the main menu. To check the status of the update later, log back in to the **Devices** page to review the status. If the update is complete, all devices will show **Device Up To Date**.



Using the Auto Upgrade Function

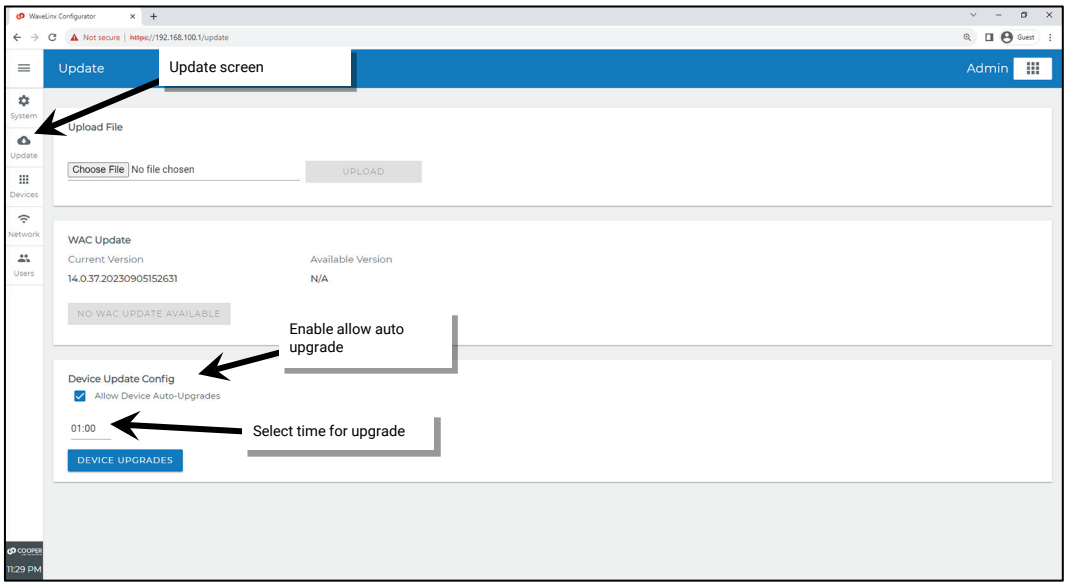
The auto upgrade function is disabled by default. If enabled, devices that are paired with the WaveLinx Area Controller will automatically update the firmware in the following circumstances:

- If the WaveLinx Area Controller is updated and the WaveLinx Area Controller firmware for the devices is newer than the installed devices, the update will begin 1 hour after the WaveLinx Area Controller reboots from the WaveLinx Area Controller's update. The delay allows enough time for devices to rejoin the WaveLinx Area Controller.
- At any other time, if the firmware of a paired device is found to be older than what is in the WaveLinx Area Controller, the firmware of the device(s) will be updated at the user defined time after the discrepancy is detected.

To enable the auto upgrade function:

1: Establish a connection between the computer and the WaveLinx Area Controller as the administrator user.

2: Select the **Update** page and then scroll down to the **Device Update Config** section. Enable the option to allow auto upgrades and then click on the time field to select the desired time for the auto upgrade to run.



Advanced Network Administration

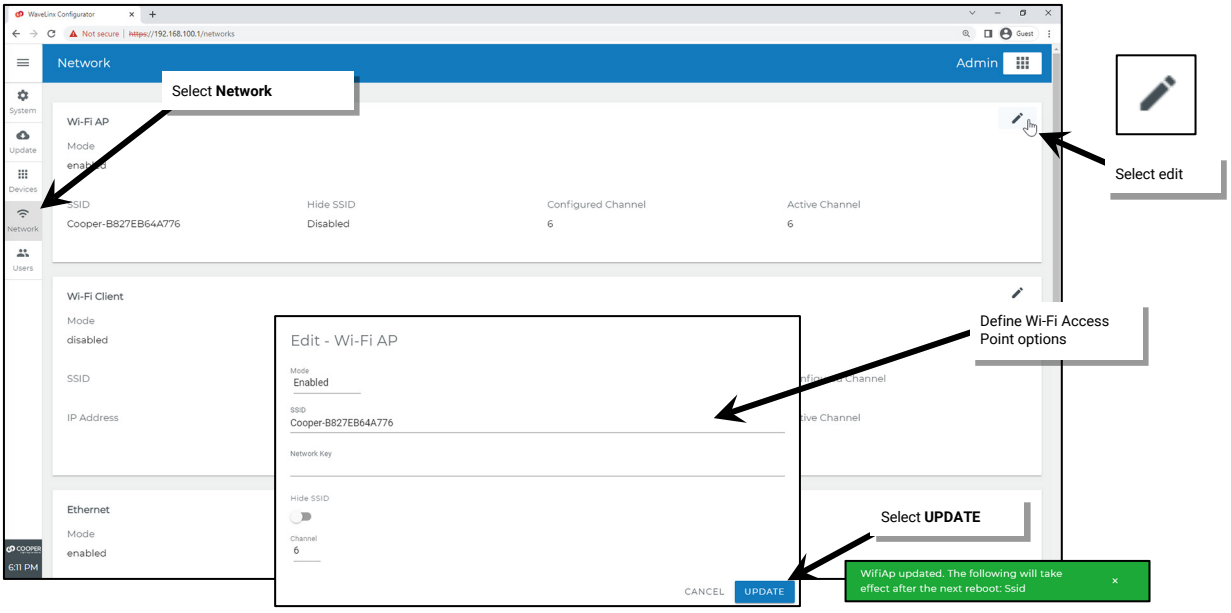
Additional administrator settings are available for advanced network functions. This includes:

- Changing Wi-Fi access point settings
- Changing Wi-Fi client settings
- Changing Ethernet settings
- Changing DNS settings
- Viewing 802.15.4 Network Settings
- Assigning a custom certificate
- Enabling and Disabling the WaveLinx CORE connection and access

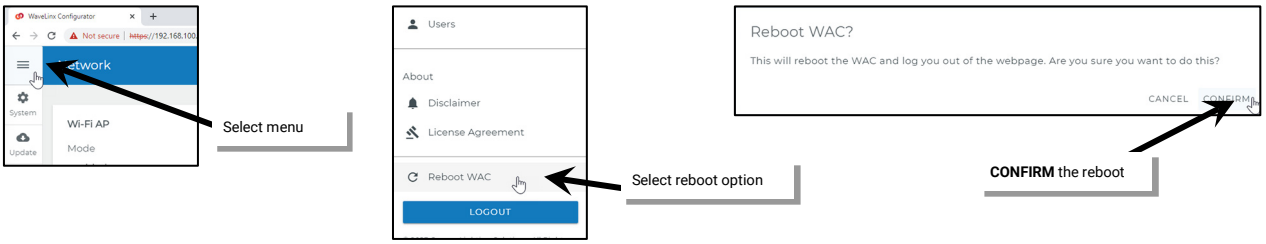
Changing Wi-Fi Access Point Settings

The WaveLinx Area Controller may be used as an access point for the WaveLinx Mobile App or WaveLinx WAC Lighting App[404] communications. By default, the wireless access point is enabled and uses the unit's MAC ID plus one for its SSID. To update the Wi-Fi access point settings, select the **Network** page, and then click on the pencil icon in the Wi-Fi AP section. Configurable settings include:

- **Enabled/Disabled/On Demand**: If the WaveLinx Area Controller is placed on the building LAN, the internal wireless access point may be disabled. Alternately, the access point may be set for on-demand mode, allowing the access point to be temporarily enabled for 30 minutes upon reboot, or when manually triggered from the activate AP button on the webpage.
- **SSID**: Change the default SSID by typing in the new SSID.
- **Network Key:** Update the default network key (password) to be unique and more complex to enhance access point security.
- **Hide SSID**: Hide the SSID to prevent it from appearing as an available wireless network. Users may enter the SSID to manually connect to the access point. If connecting manually, the wireless access point defaults to using WPA2 security by default.
- **Channel**: The Wi-Fi Access Point will automatically select a Wi-Fi channel. Advanced administrators may change to a specific Wi-Fi channel if encountering interference on the default channel.



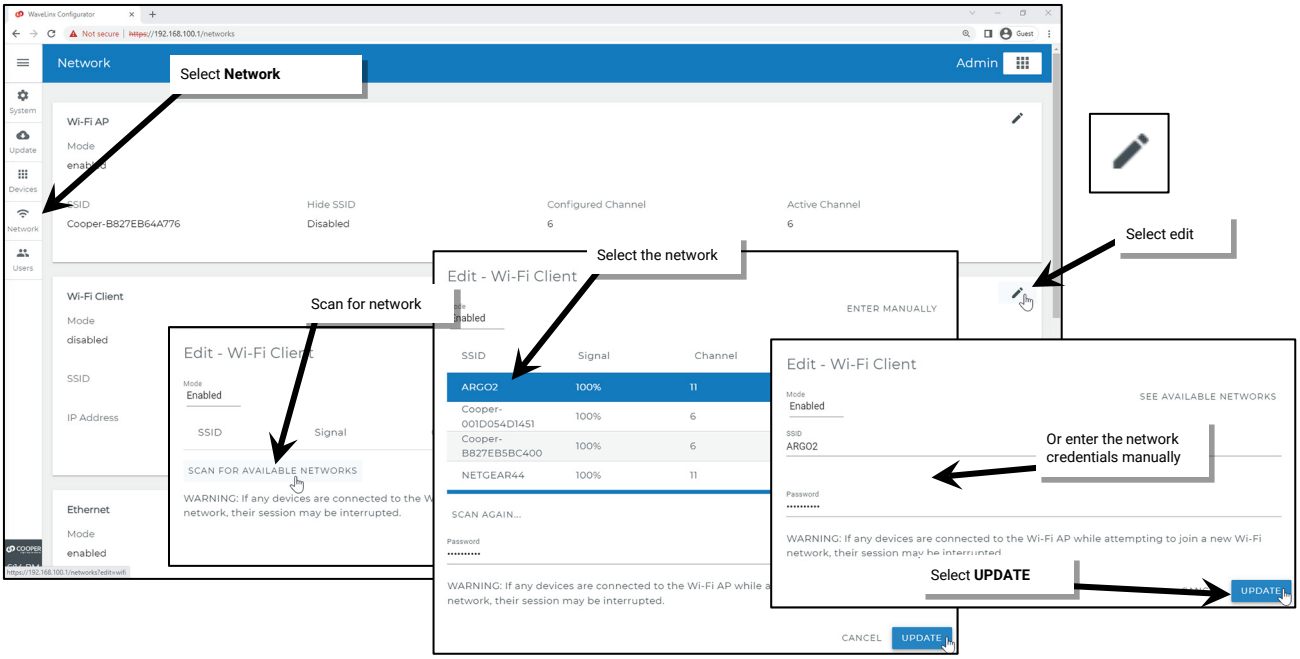
If Wi-Fi Access Point settings are changed,[405] reboot the WaveLinx Area Controller for the changes to take effect. From the menu select **Reboot WAC** and then confirm.



[404] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.
[405] Wi-Fi channel modification does not require a reboot.

Changing Wi-Fi Client Settings

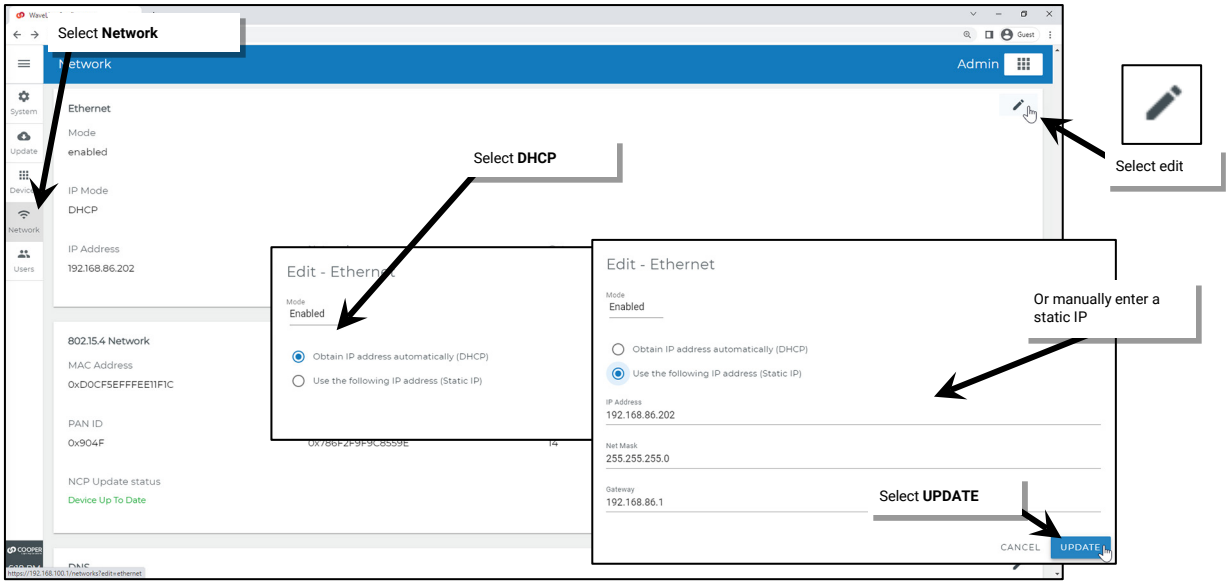
The WaveLinx Area Controller may be connected to the facility's building WLAN for wireless communications. To access the Wi-Fi client settings, select the **Network** page, then click on the pencil icon in the **Wi-Fi Client** section. The Wi-Fi client screen will open and will begin a wireless network search. Ensure that the Wi-Fi client mode is enabled, and then select the desired network. Type in the password for the network and select the **UPDATE** button. Optionally select the **Enter Manually** option to type in the necessary connection credentials by hand.



Note: If the connection to the WaveLinx Area Controller webpage is being made through the WAC's wireless access point, scanning for networks during the Wi-Fi client setup may cause the access point to disconnect. Wait until the access point is available again to complete the process or to prevent this entirely, connect to the WAC using Ethernet until the Wi-Fi client setup is complete.

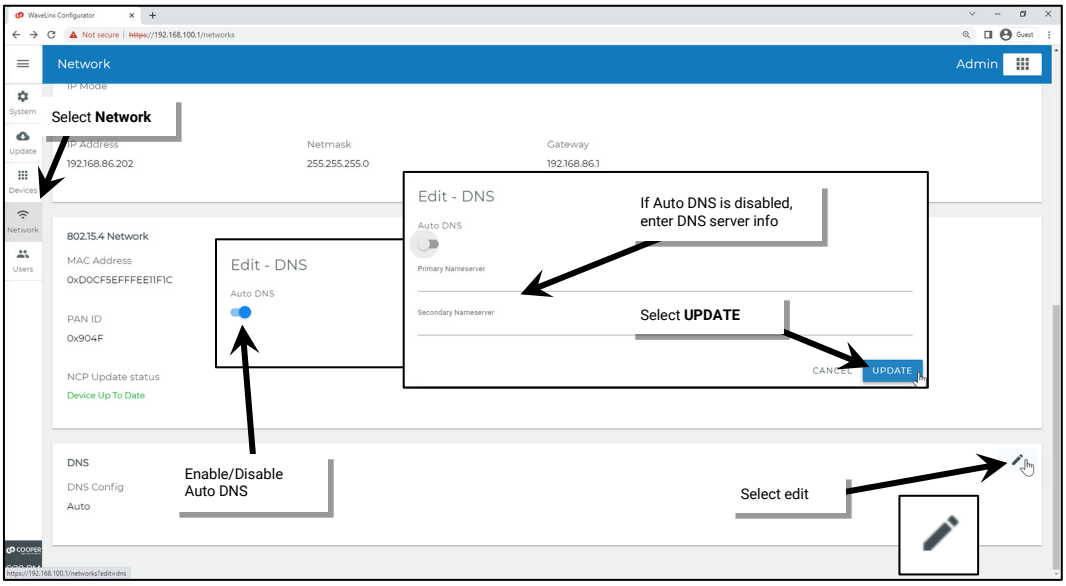
Changing Ethernet Settings

If the WaveLinx Area Controller is installed into the facility's building LAN, by default, it is set for obtaining an IP address automatically through DHCP. It is possible to assign a static IP by changing the selection to use a defined IP address, and then typing in the desired IP address, subnet mask and default gateway. To access the Ethernet settings, select the **Network** page, and then click on the pencil icon in the Ethernet section. Ensure the Ethernet mode is set to Enabled, if using an Ethernet connection, then select the desired options.



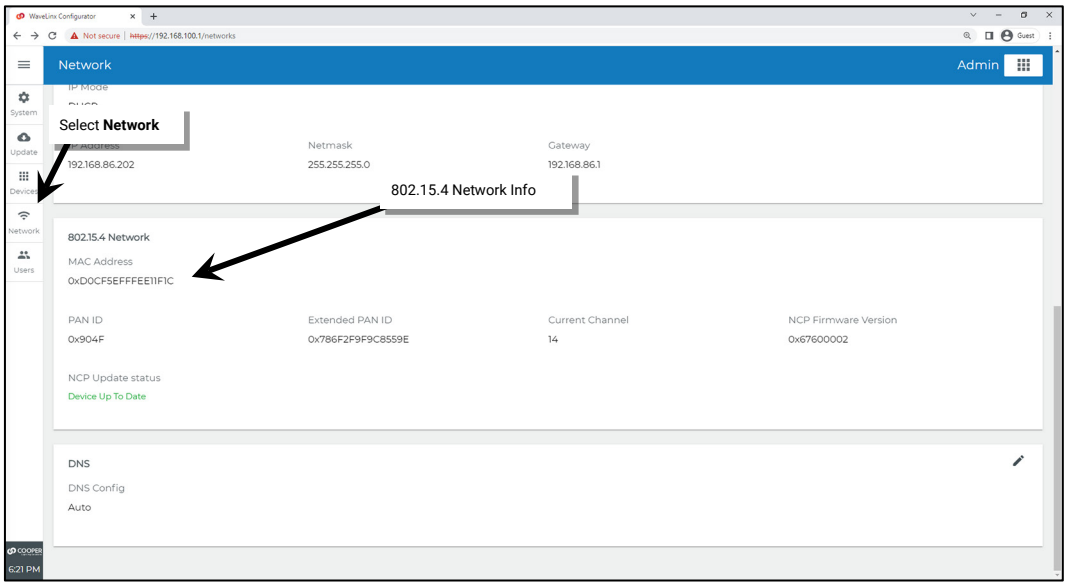
Changing DNS Settings

If not using DHCP, it is possible to hardcode the domain name server settings into the WaveLinx Area Controller. Select the **Network** page, then click the pencil icon within the **DNS** screen. To manually enter the DNS, turn off the **Auto DNS** option and then type the IP addresses of the desired domain name servers. For non-public domain name servers, use a manual name server entry.



Viewing 802.15.4 Network Settings

The WaveLinx Area Controller allows viewing of the 802.15.4 Network settings. To view these settings, select the **Network** page, and then scroll down to the **802.15.4 Network** screen. The 802.15.4 section identifies the WAC's 802.15.4 MAC Address, PAN ID, Extended PAN ID, Channel, and Firmware version and status.



Custom Certificates

WaveLinx uses Cooper Lighting Solutions provided default SSL certificates that are installed with the system to certify WaveLinx Area Controller communication to mobile devices and computers. The provision has been made to allow for future support of other custom certificates. This custom certification option feature is not currently operational and should not be used without discussion with Cooper Lighting Solutions technical support team.

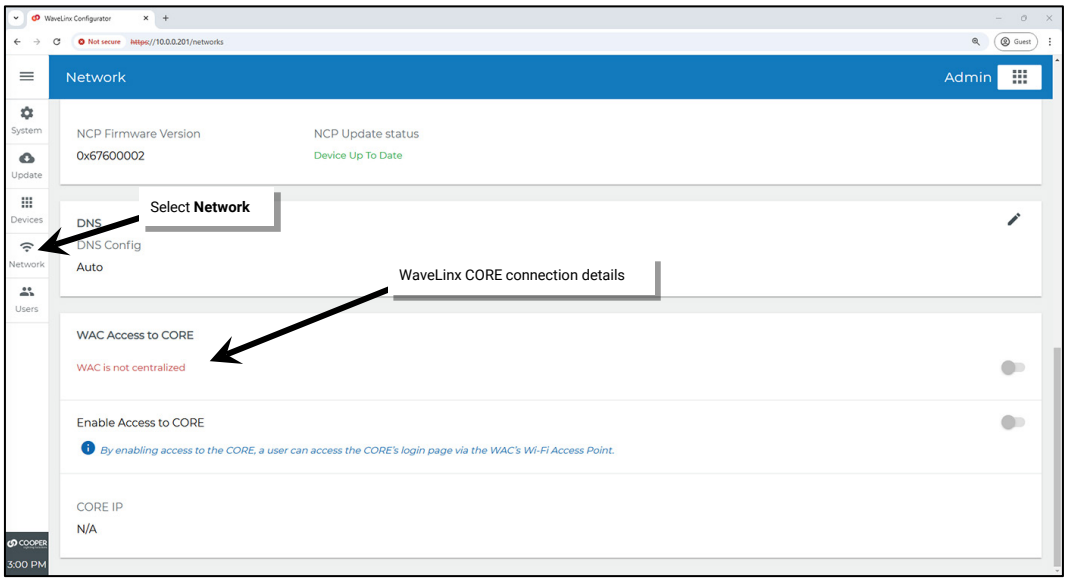
Enabling and Disabling the WaveLinx CORE Connection

The WaveLinx Area Controller can operate independently or may be connected to the WaveLinx CORE for access from the WaveLinx CORE application suite.

- Stand-alone WaveLinx Area Controllers will always show **WAC is not connected**.
- If connected to WaveLinx CORE, **WAC is centralized** will be displayed. The WaveLinx Configurator allows the option to switch this connection OFF, returning the WAC to independent operation.

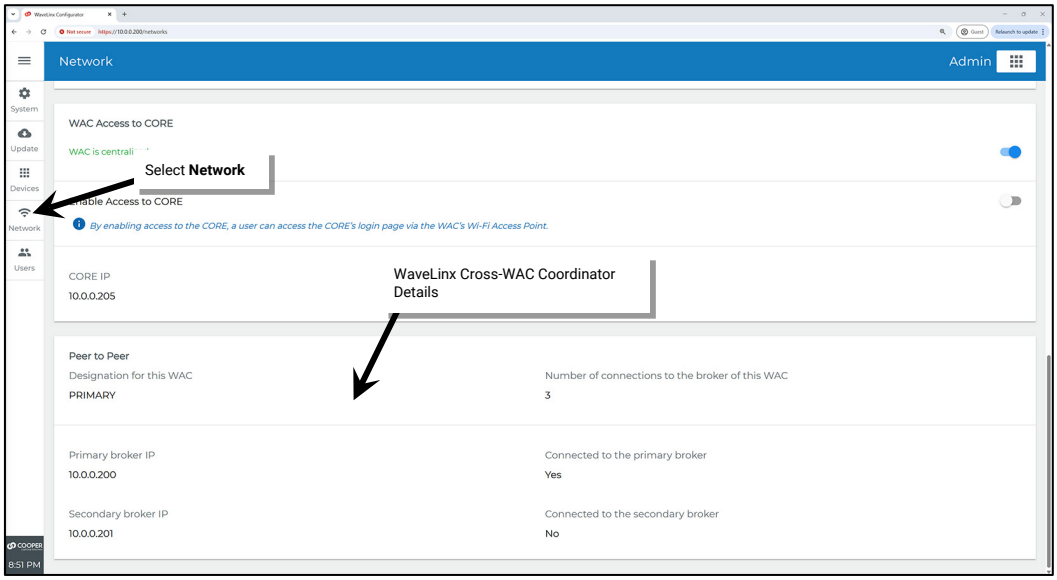
WARNING: If WAC is centralized and the connection is turned OFF from the WaveLinx Configurator, the WAC will be removed from the WaveLinx CORE. It will be necessary to reimport the WAC into the CORE as a new device to re-establish the connection.

- With WaveLinx version 15.3 and higher, the WaveLinx Area Controller's Wi-Fi Access Point can be used to access the WaveLinx CORE if the WAC is centralized. This feature must be enabled and allows a temporary portal to be established for two hours before the portal is automatically disabled again. This allows login to the CORE from the WaveLinx Area Controller's Configurator pages. For information on using this feature, see "Appendix B: Accessing the WaveLinx CORE through a WaveLinx Area Controller" on page 484.



Cross-WAC Coordinator Connections in a WaveLinx CORE System

When connected to a WaveLinx CORE version 16.1 and higher, Cross-WAC Sharing is possible. To facilitate this, the CORE will assign a primary coordinator and a backup secondary coordinator to communicate the shared input commands to the other WaveLinx Area Controllers. If inputs are being shared in a WaveLinx CORE system, the display will show whether the displayed WAC is a CLIENT (i.e. a listener for the commands), a PRIMARY coordinator, or a SECONDARY coordinator. In addition, the IP Address for the assigned primary and secondary coordinators will be shown.



Removing Devices in the Construction Area Using the Debug Page

If multiple devices have paired with the wrong WaveLinx Area Controller, a four second press of the PAIR button will remove all devices that are still in the Construction Area, easily setting the devices back to factory default with a single action.

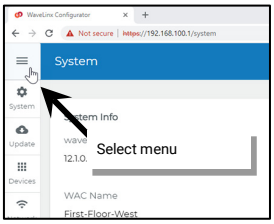
For sites with WaveLinx Outdoor Area Controllers or a WaveLinx Area Controller where access is limited, the WaveLinx Area Controller's debug page may be used to perform this function, easily removing devices that are still in the Construction Area without the need to individually delete each device.

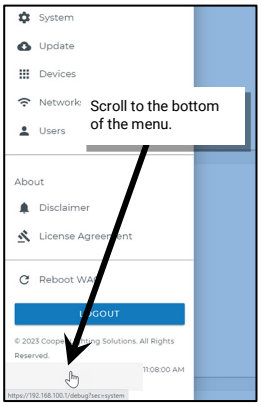
Other options may be shown beyond those described in this procedure. Do not use additional options without guidance from technical support.

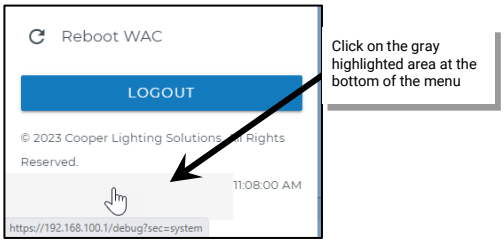
To remove devices from the WaveLinx Area Controller's Construction Area using the debug page:

1: Establish a connection from the computer to the WaveLinx Area Controller as the administrator user.

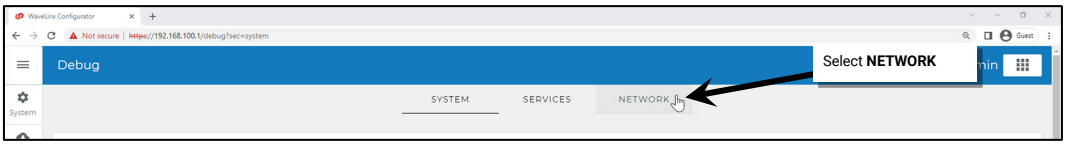
2: Select the menu icon, then scroll to the bottom of the menu. Position the mouse arrow below the **Logout** button and copyright info. A gray highlight will appear over the white space. Click on the gray highlight to open the **Debug** pages.



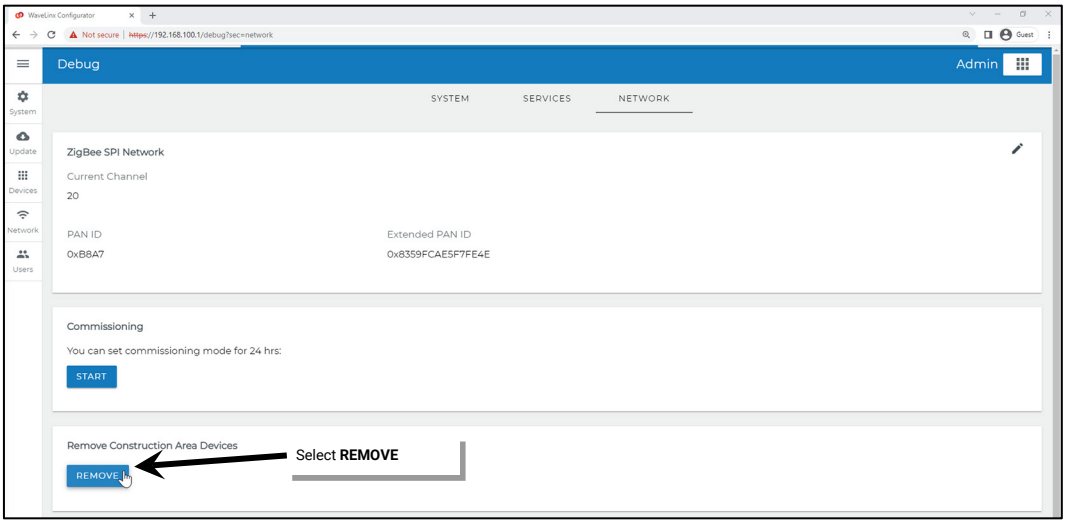




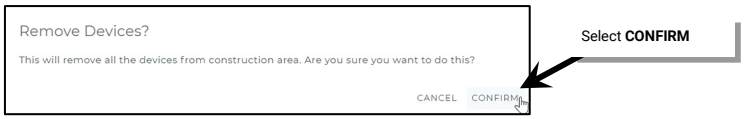
3: Once the debug page displays, select **NETWORK** at the top of the page.



4: Once the network page displays, select the **REMOVE** button in the **Remove Construction Area Devices** section at the bottom of the page.



5: When prompted, select the **CONFIRM** button to confirm the removal of all devices in the construction area. The devices pairing will be removed, and the devices will revert to out-of-the-box behavior.



Resetting the WaveLinx Outdoor Area Controller Credentials/Passwords

The WaveLinx Outdoor Area Controller is not equipped with a user accessible reset button due to its IP66 construction. If the assigned Wi-Fi and admin passwords are not known, perform a credential reset to return the Wi-Fi AP, Wi-Fi Client, and main Admin passwords back to the default password. This procedure requires the use of a computer or mobile device to process the reset via a Wi-Fi connection. The WaveLinx Outdoor Area Controller has a special RESET-AP network that will be available for 2 ½ minutes after a power up for this purpose.

To reset the WaveLinx Outdoor Area Controller Passwords:

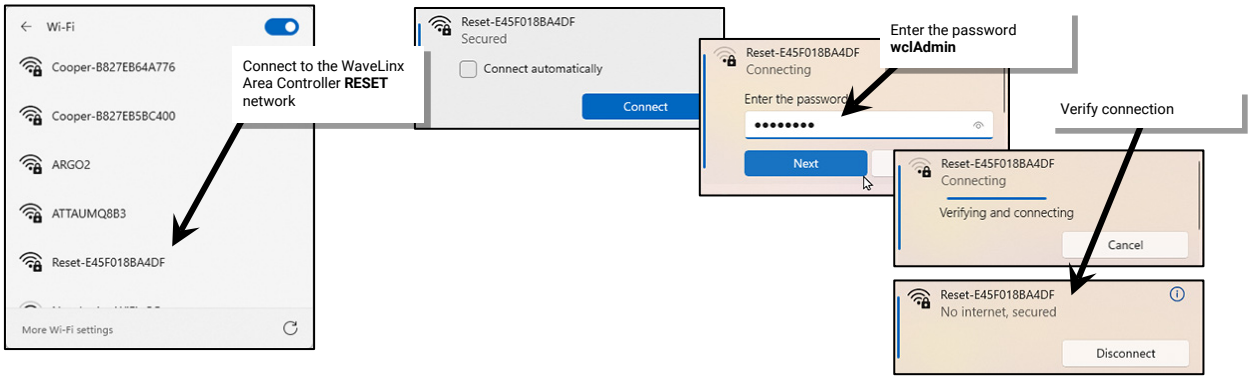
1: Make sure that the computer or mobile device being used has wireless connectivity and has a current web browser installed.

2: If there is more than one WaveLinx Outdoor Area Controller in the facility, locate the label with the MAC ID. Make note of the MAC ID shown.

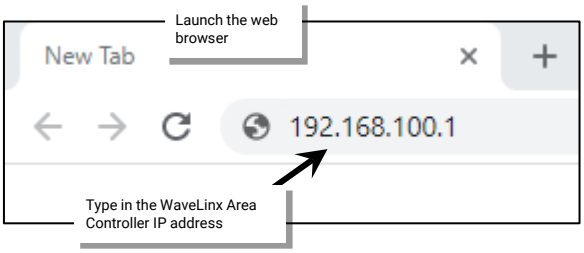
3: Disconnect power from the WaveLinx Outdoor Area Controller and wait approximately 10 minutes for power to fully discharge.

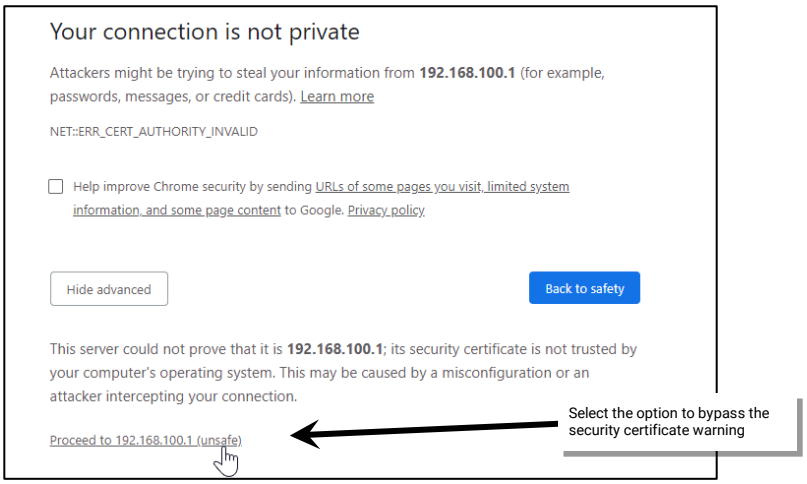
4: Reconnect power to the WaveLinx Outdoor Area Controller and wait for the device to fully power on (approximately 1 minutes).

5: Within 2 ½ minutes from the WaveLinx Outdoor Area Controller power up, turn on the computer or mobile device's Wi-Fi and locate the network named **RESET-XXXXXXXXXXXX** where X matches the MAC ID noted in the last step. Select the RESET network, connect, and when prompted for a password, enter **wclAdmin** and wait for the Wi-Fi to connect.

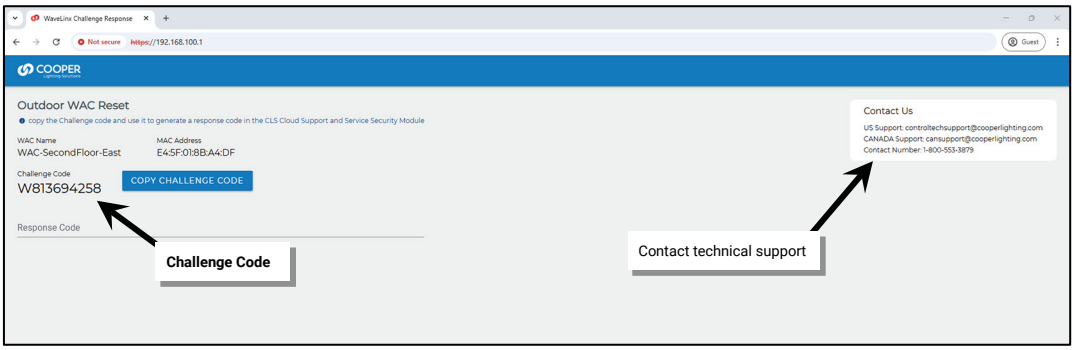


6: Open the web browser and enter the IP address of the WaveLinx Area Controller in the address bar. (The default IP address if connecting through the onboard wireless access point is 192.168.100.1.) The first time the WaveLinx Area Controller is accessed, the browser may display message windows regarding the site security certificate. The display and wording of these messages may differ between web browsers. Locate the option to bypass the warning to proceed to the site.



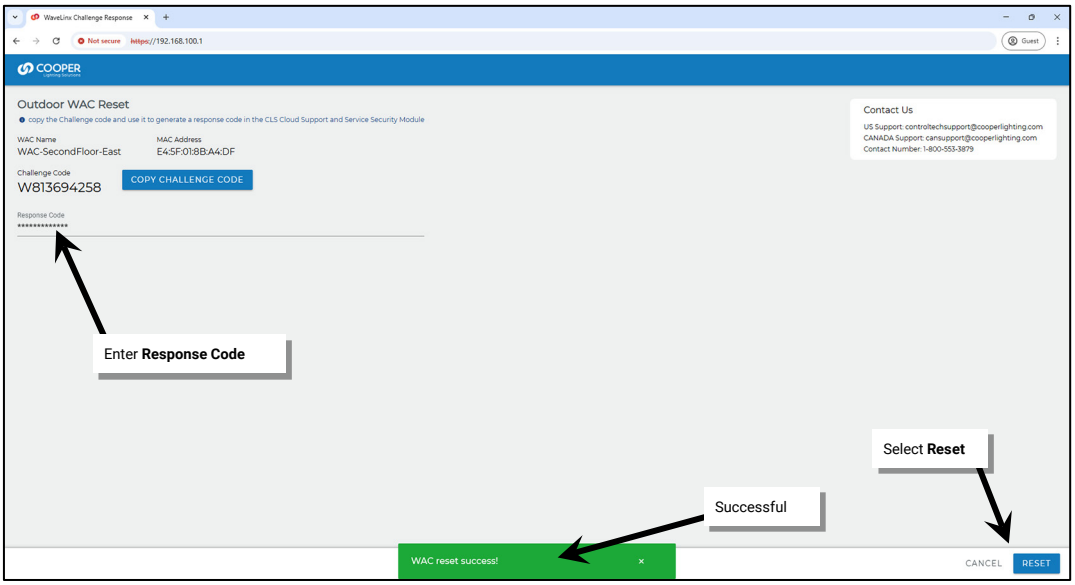


7: In the Outdoor WAC Reset page, locate and copy the Challenge Code. Use the information in the Contact Us section to contact technical support, providing them with the challenge code.



8: Technical support will provide a Response Code. Enter the Response Code and then press RESET.

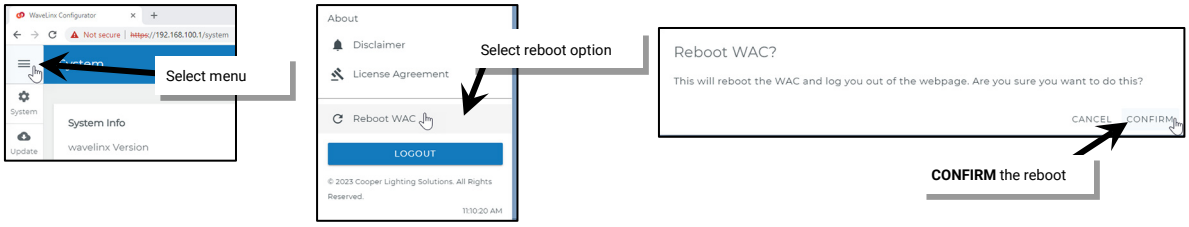
If the response code entered is correct, the screen will show a reset success message and the equipment will reset with the factory default credentials. Use the factory default credentials to login and set the new credentials/passwords.



Rebooting the WaveLinx Area Controller

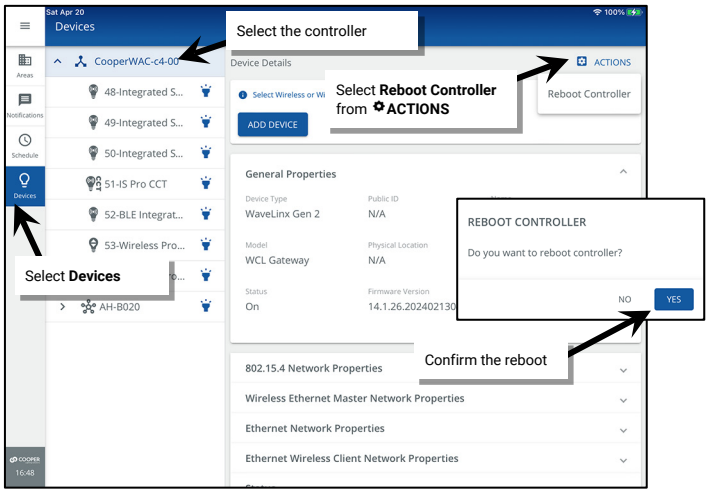
It is possible to reboot the WaveLinx Area Controller from the internal webpages or from the WaveLinx App. During changes to network settings, the system may prompt for a reboot.

- To perform the reboot from the WaveLinx Area Controller's internal webpages, select the reboot option from the menu and confirm.

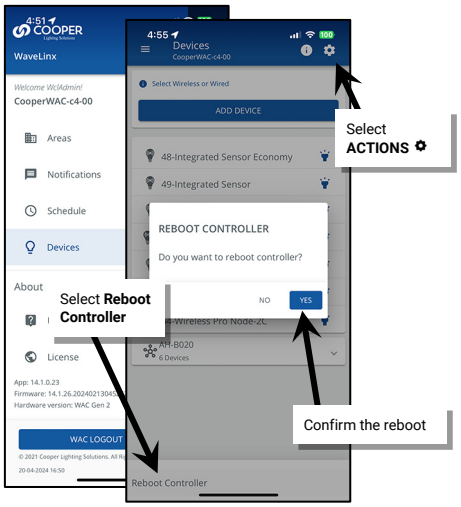


- To perform the reboot from the WaveLinx Mobile App or WaveLinx WAC Lighting App[406], select the **Devices** option from the menu. Select the WaveLinx Area Controller, then tap the **ACTIONS** option. Select **Reboot Controller** and then confirm.

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



Once started, a reboot takes approximately 2 to 4 minutes to complete. Status messages may be displayed on the WaveLinx Area Controller's internal webpage as the reboot processes.

[406] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

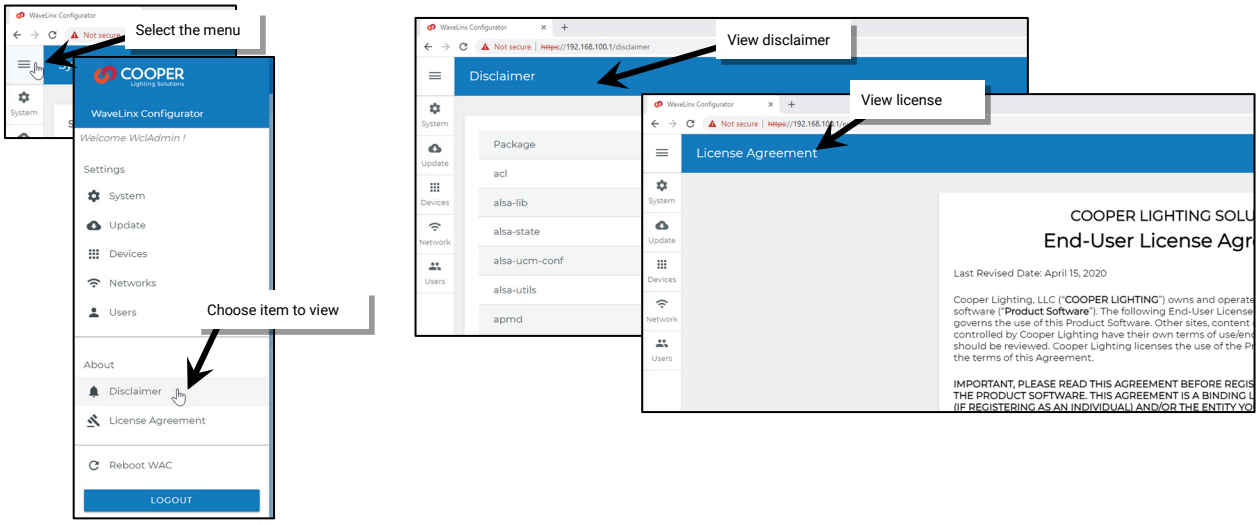
Viewing Disclaimers and End User License Agreements

The WaveLinx Area Controller internal webpages display required disclaimer and end user license agreement pages which may be viewed as needed.

To access this information:

1: Establish a connection from the computer to the WaveLinx Area Controller as the administrator user.

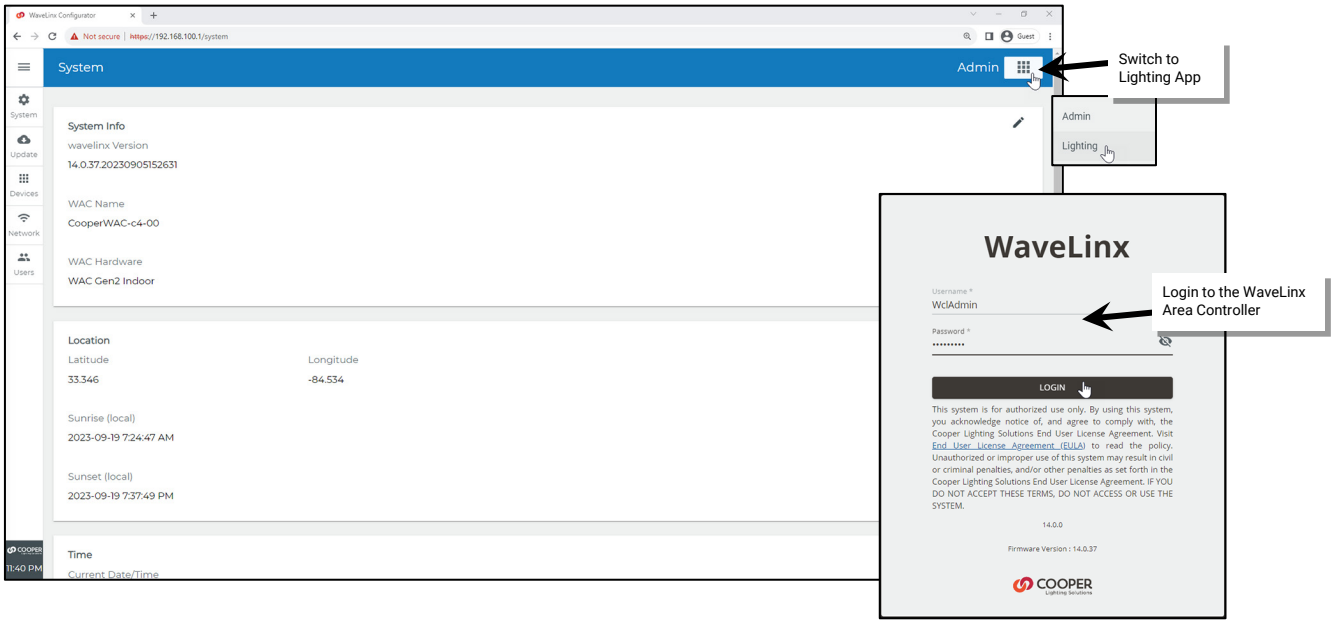
2: Select the menu icon, then select the **Disclaimer** or **License Agreement** option to view the desired item.

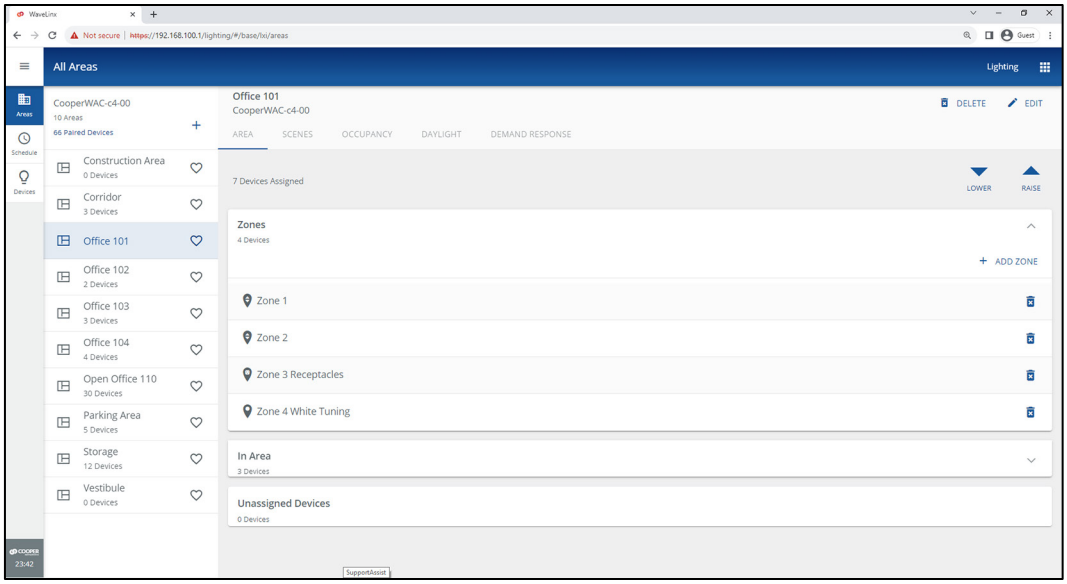


Using the WaveLinx WAC Lighting App

The WaveLinx Area Controller (WAC) internal webpages offer the capability to login via PC to administer the lighting programming through a built-lighting app. This feature requires a WaveLinx Area Controller with minimum software version 11.x.x.x.

The WaveLinx WAC Lighting App will have the same appearance and functionality as the WaveLinx Mobile App when logged in to a WaveLinx Area Controller. The WAC Lighting App will not require user registration or have the notification or demonstration mode features of the WaveLinx Mobile App.





For further details on accessing the WAC Lighting App, see “Preparing to use the WaveLinx WAC Lighting App” on page 157.

WaveLinx Area Hub Administration

This section is dedicated to administrator tasks as they pertain to the WaveLinx CAT Area Hub. This section discusses:

- Using the Internal Webpages of the WaveLinx CAT Area Hub
- Replacing a WaveLinx CAT Area Hub
- Deleting an Area Hub

Using the Internal Webpages of the WaveLinx CAT Area Hub

A current version web browser is used for accessing the WaveLinx CAT Area Hub's internal webpages. The internal webpages allow for basic configuration functions. This section discusses:

- Logging in to the WaveLinx CAT Area Hub webpages
- Reviewing and changing general settings
- Updating Ethernet settings
- User setting administration
- Firmware updates

Logging in to the WaveLinx CAT Area Hub Webpages

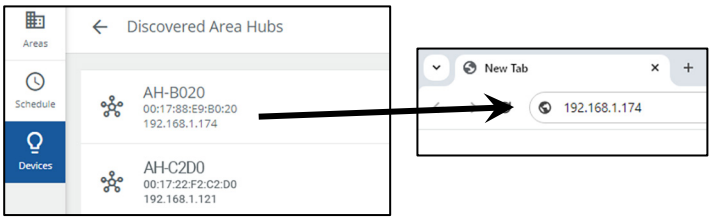
IMPORTANT NOTE: The Area Hub is automatically set to allow DHCP configuration of the IP address. If the Area Hub has been connected to a building LAN with a DHCP server, it will automatically obtain an IP address. When no DHCP server is detected on the network, after 3 minutes, the Area Hub will self-assign an IP address in the range of 192.168.1.100 to 192.168.1.255 (randomized in this range to try to avoid IP conflict with other Area Hubs that may be on the same network)[407].

With either IP method, the status LED on the Area Hub will turn ON solid green indicating an IP address has been set.

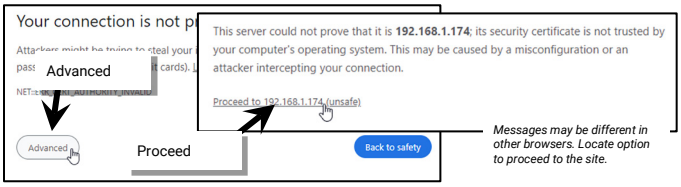
The Area Hub's Configuration screen is accessed by connecting to the Area Hub's IP address using a current web browser. Regardless of whether the Area Hub is addressed using a DHCP address, an auto-assigned static IP address or a manually assigned static IP, the first step is to identify the IP address of the Area Hub. Refer to page 31 to connect to and then discover the Area Hub which will display the IP address in the WaveLinx Mobile App. The laptop being used for configuration must connect to the same network and be given an IP address on the same subnet as the Area Hub and WaveLinx Area Controller for access.

Once the Area Hub's IP address is determined and the laptop being used is connected and configured for an IP on the same Ethernet network, follow the steps below:

1: Open a current version web browser and enter the Area Hub's IP address in the address bar.



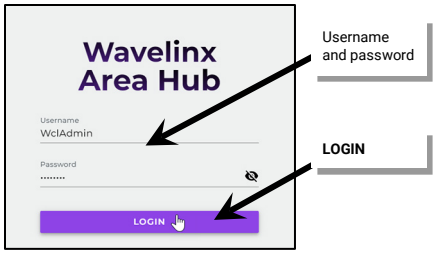
2: Bypass warnings and proceed to the site. This step is needed only for initial login or if browser cache is cleared.



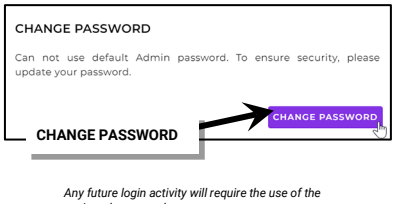
[407] Prior to release 14.1.x.x, all Area Hubs defaulted to the same IP address of 192.168.100.100. If connecting to a device with older firmware, isolate the Area Hub connection to the PoE switch and connect the laptop with a static IP address on this subnet to the network. Use the 192.168.100.100 IP address to open the Area Hub Configurator. Once configuration is complete, repeat with additional Area Hubs.

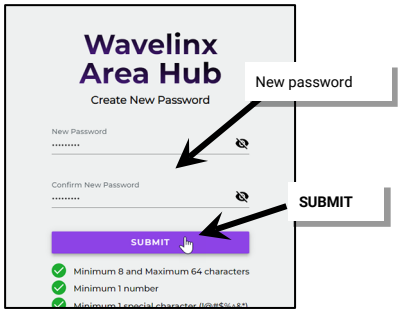
3: Login to the WaveLinx Area Hub Configurator Webpage.

- Enter the admin username: **WclAdmin**,
- Enter the password:
  - Default for first time logging in: wclAdmin
  - Use assigned password after first log in
- Select **LOGIN**



4: If this is the first login, the system will force a password change. When prompted, submit a new password for the administrative user. Set a complex password when changing passwords, making sure it is something that can be remembered. Once changed, use the new password to login.





IMPORTANT! REMEMBER THE NEW PASSWORD AS IT WILL BE USED FOR ALL FUTURE ADMINISTRATOR LOGINS FOR THE AREA HUB WEBPAGE.

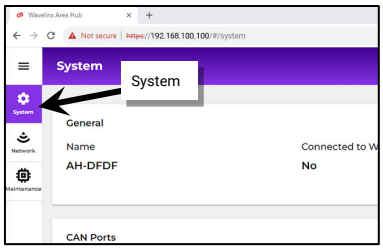
Using the System Page

The System page is used to update the Area Hub name and view the general Area Hub settings. It can also be used for basic port status and identification of the connected WaveLinx CAT ports and devices.

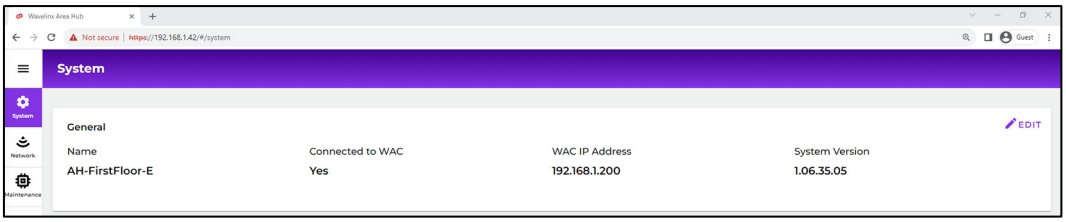
Viewing General Settings and Updating the Area Hub Name

Use the General section in the System page to view the Area Hub Name, connection status, IP address, and version. The Area Hub name can be edited in this section. The default name of an area hub is AH-XXXX where X is the last four characters of the Area Hub's MAC address. If there are multiple Area Hubs, update the name for easy identification in the WaveLinx Mobile Application. Area Hub names should be unique. Avoid duplication. Area Hub names are limited to a maximum 16 alphanumeric characters (hyphen character is allowed).

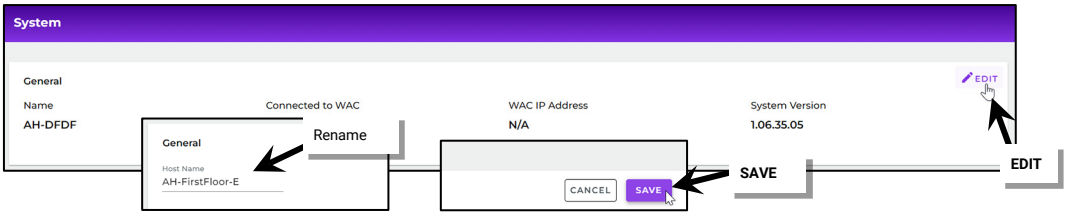
1: If needed, login to the WaveLinx Area Hub Configurator webpage and select **system**.



2: Review the General section details. The details include the Area Hub name, the connected WAC information, and the Area Hub software version.



3: To edit the Area Hub name, select **EDIT** ✎, and then enter the new Area Hub name and select **SAVE**.



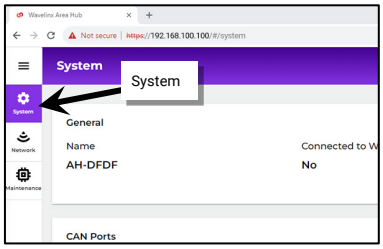
Note: If an Area Hub name is changed AFTER the Area Hub has been discovered and added to the WaveLinx Area Controller, the new name will not automatically appear. To read the new name, run an Area Hub discovery command. The name will be updated.

Using the System CAN Ports Page for Basic Status and Identification

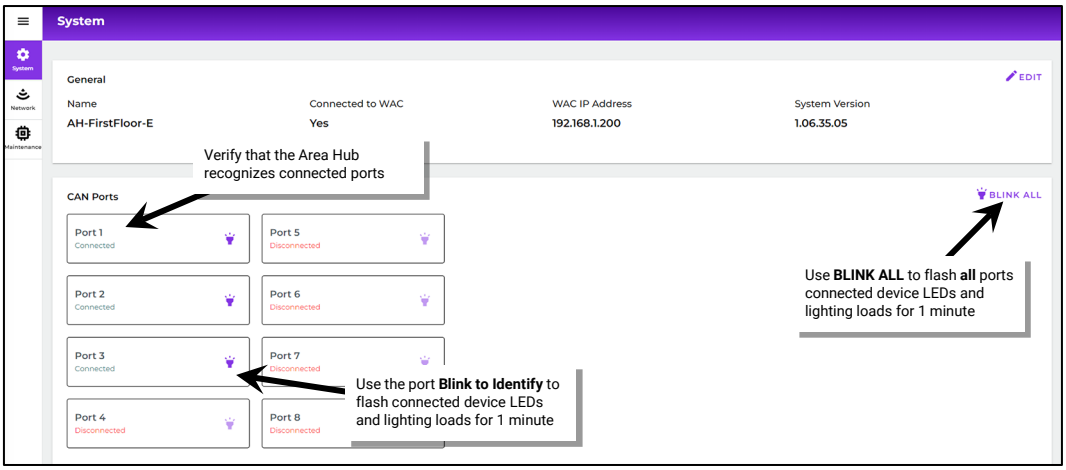
The System page can be used to do basic troubleshooting and identification of the Area Hub ports and connected CAT devices.

To use the CAN Ports section of the System page:

1: If needed, login to the WaveLinx Area Hub Configurator webpage and select **system**.



2: Use the displayed controls to view connected ports, identify what devices are connected to a specific port, or blink all devices connected to all ports of the Area Controller. (BLINKS FOR 1 MINUTE)

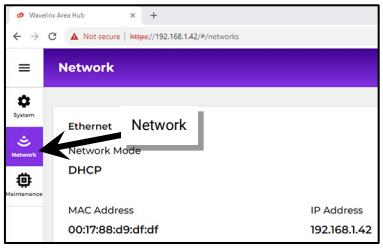


Using the Network Page

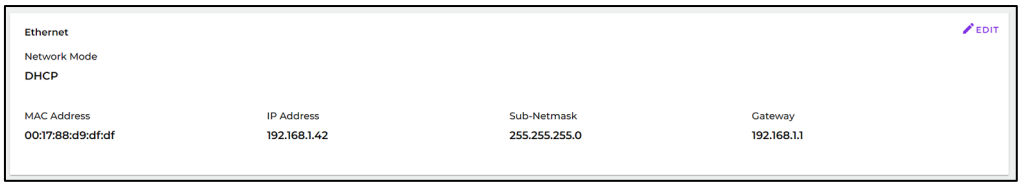
The network page is used to view Ethernet and 802.15.4 Network details used by the WAC to assist with connection. Edit the Ethernet settings to change between using DHCP IP addressing, using the auto-assigned static IP address, or manually setting a static IP address.

Viewing Current Ethernet and Other Network Settings

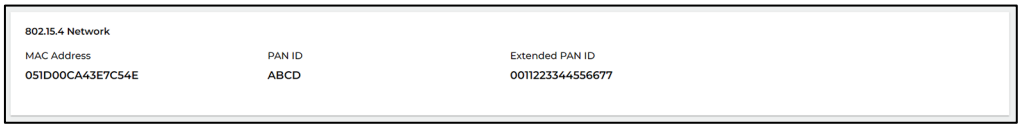
1: If needed, login to the WaveLinx Area Hub Configurator webpage and select **network**.



2: Review the **Ethernet** section details. Ethernet details include autoconfig (auto-assigned) manual static, or DHCP setting, IP address information, and the MAC Address.



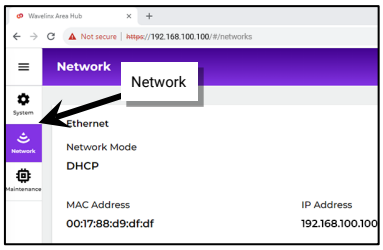
3: Review the **802.15.4 Network** section details. The 802.15.4 details include the MAC Address, PAN ID, and Extended PAN ID.

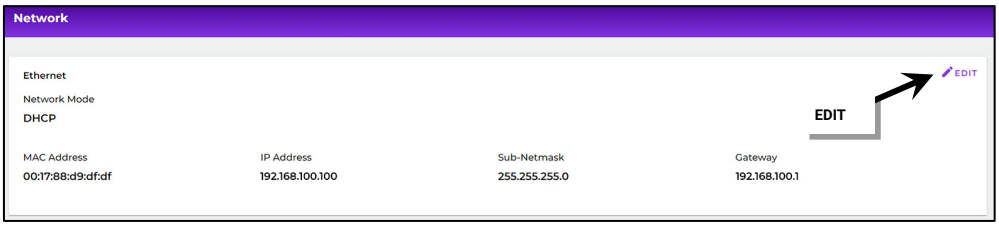


Changing Ethernet Settings

The WaveLinx CAT Area Hub is set to use DHCP by default. If using a DHCP server, no further IP address settings are needed. If not using DHCP, the WaveLinx CAT Area Hub is set up to automatically configure an initial IP address in the range of 192.168.1.100 through 192.168.1.255 to allow for initial operation and configuration. Because both the 192.168.100.X and 192.168.1.X networks on the 255.255.255.0 subnet are used for default random IP address assignment, it is recommended that a different subnet be chosen for the final static IP to avoid conflict with any new devices connected to the system. [408]

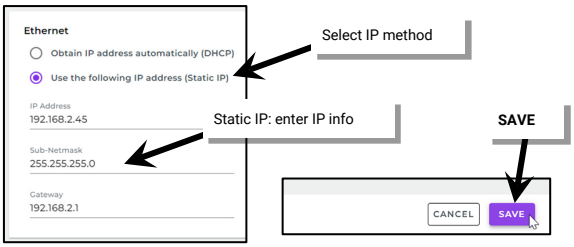
1: If needed, login to the WaveLinx Area Hub Configurator webpage and select **network**. In the **Ethernet** section, select **EDIT** ✎.





[408] Prior to release 14.1.x.x, all Area Hubs defaulted to the same IP address of 192.168.100.100. If connecting to a device with older firmware, isolate the Area Hub connection to the PoE switch and connect the laptop with a static IP address on this subnet to the network. Use the 192.168.100.100 IP address to open the Area Hub Configurator. Once configuration is complete, repeat with additional Area Hubs.

3: Select between **Obtain an IP automatically (DHCP)** and **Use the following IP address (Static IP)**. If assigning a static IP, enter the desired **IP address**, **net mask**, and **gateway**. Select **SAVE**.



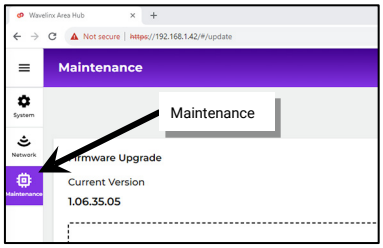
The WaveLinx Area Hub will reboot automatically and operate with the new settings.

Using the Maintenance Page to Factory Reset the Area Hub

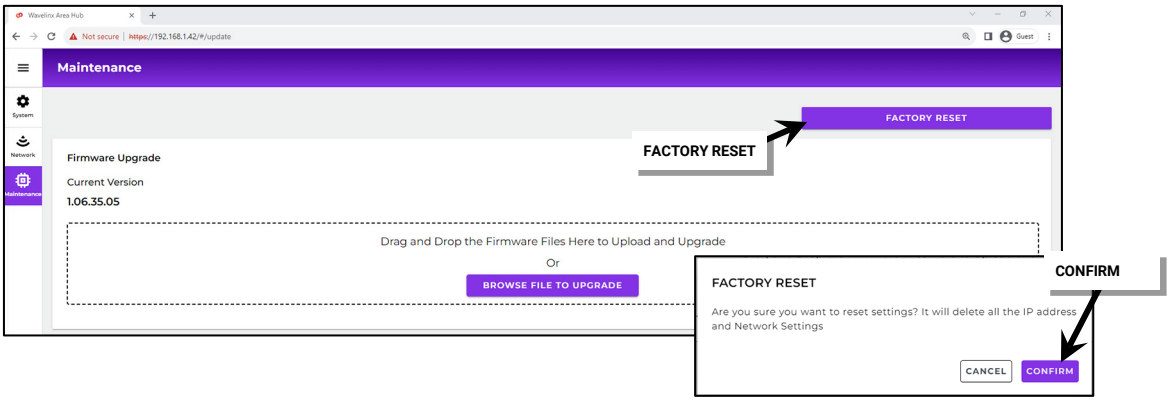
The maintenance page is used for performing a **Factory Reset**. The factory reset will erase all configured area hub settings including the area hub name and network settings. While this webpage also supports the option of updating Area Hub firmware, this function should be done through the WaveLinx Area Controller. For details on updating firmware, see “Updating the Firmware of WaveLinx Devices” on page 386.

To perform a factory reset:

1: If needed, login to the WaveLinx Area Hub Configurator webpage and select **maintenance.**



2: Select **FACTORY RESET** and then **CONFIRM** the reset.



The Area Hub will factory reset and reboot with the default settings.

Additional Menu Options

The Area Hub Webpage also contains additional menu options. This includes:

- Change Password
- Reboot Area Hub
- Viewing Disclaimer and License Agreements

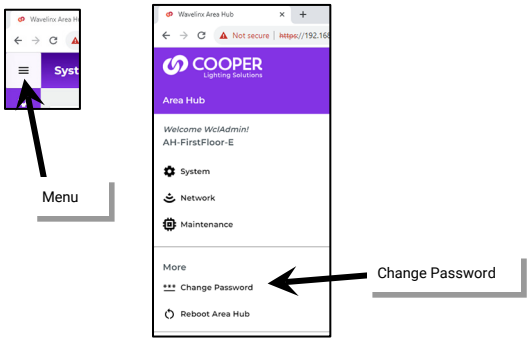
Changing the Area Hub Password

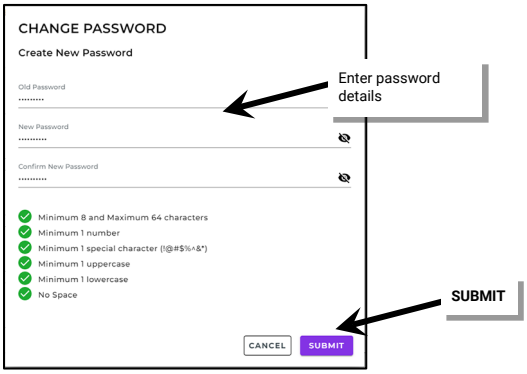
To perform a factory reset:

1: If needed, login to the WaveLinx Area Hub Configurator webpage.

2: Select the **menu** ≡ and then select **Change Password.**

3: Enter the current password and then the new desired password. Select **SUBMIT**.





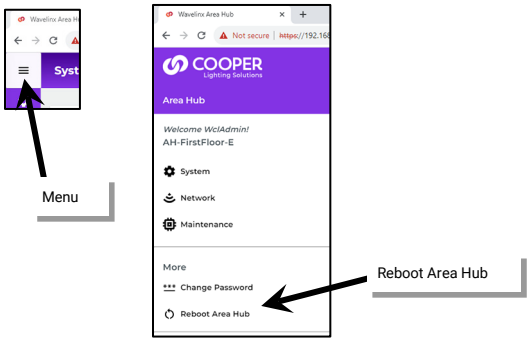
Rebooting the Area Hub

To reboot the Area Hub:

1: If needed, login to the WaveLinx Area Hub Configurator webpage.

2: Select the **menu** ≡ and then select **Reboot Area Hub.**

3: When prompted, select **CONFIRM**. The Area Hub will reboot.

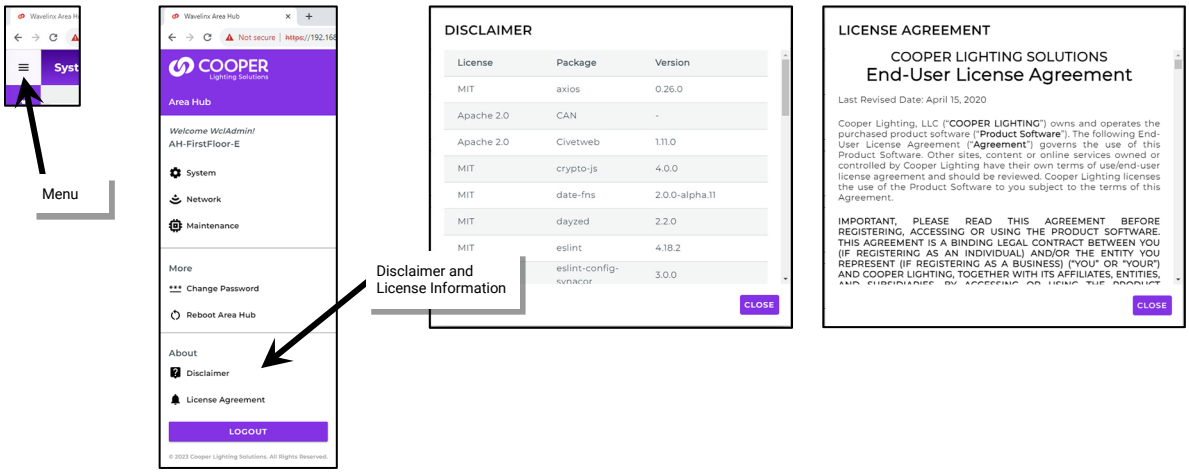


Viewing the Disclaimer and License Agreement

To view Area Hub Disclaimer and License Agreement details:

1: If needed, login to the WaveLinx Area Hub Configurator webpage.

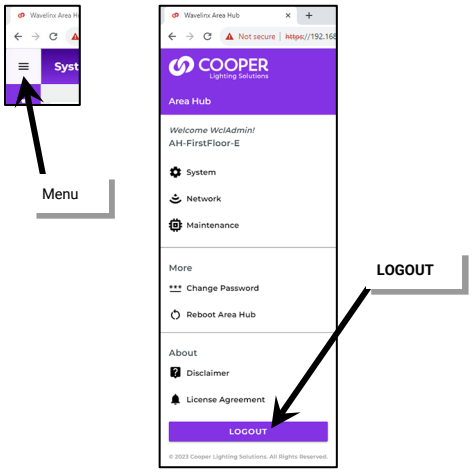
2: Select the **menu ≡** and then select **Disclaimer** or **License Agreement.** The selected information will be displayed.



Logging Out of the WaveLinx CAT Area Hub Webpages

The WaveLinx CAT Area Hub Webpage contains a manual Logout option to exit the webpage. The Area Hub will also automatically log the user out if the webpage is manually closed without logout or if the webpage is open for longer than 15 minutes with no activity.

To manually logout, select the **menu ≡** and then select **LOGOUT**.



Replacing a WaveLinx CAT Area Hub

If an Area Hub needs replacement, do not delete the Area Hub from the WaveLinx App. Use the Area Hub replacement feature.

Before disconnecting devices from the Area Hub, make sure to label which port each device network connects to. The connections will need to be made to the same ports on the replacement Area Hub for proper operation.

To replace the Area Hub:

1: Power down the existing Area Hub and label each port connection before disconnecting the ports.

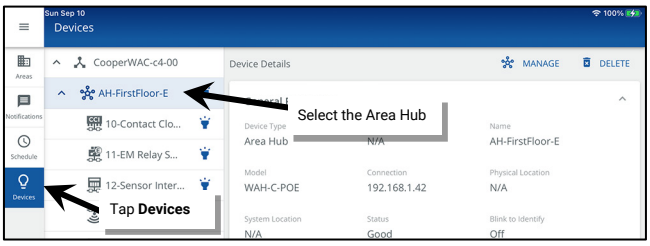
2: Configure the new Area Hub as instructed in “Initial Configuration Steps for the WaveLinx Area Hub” on page 31. Note: the new area hub does not need to have the same IP address as the previous one but does need to be addressed in the same subnet.

3: Reconnect CAT device networks to the new Area Hub ports the same way they were connected on the original Area Hub. Reapply power and wait for the Area Hub to boot.

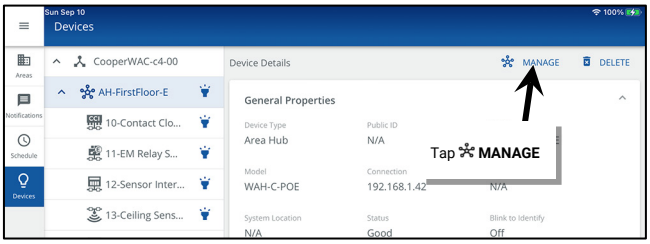
2: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

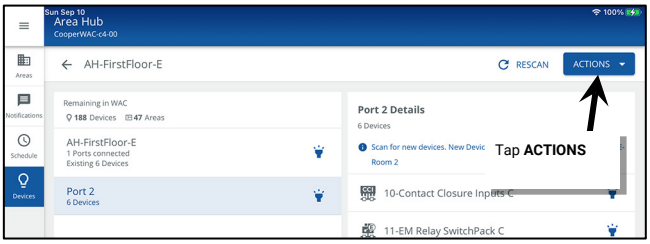
3. From the menu ☰, select **Devices**. From the **Devices** list, tap the **Area Hub.**

For phone devices being used in portrait view, tap ℹ ***Details***.

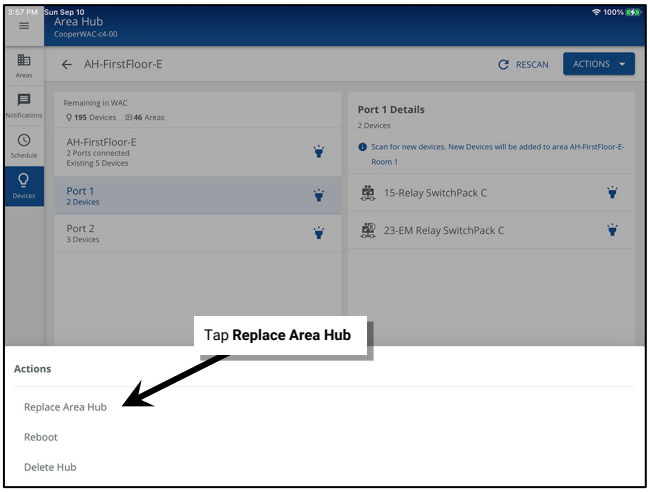


5: In **Device Details**, tap **MANAGE** and then tap the **ACTIONS** dropdown.

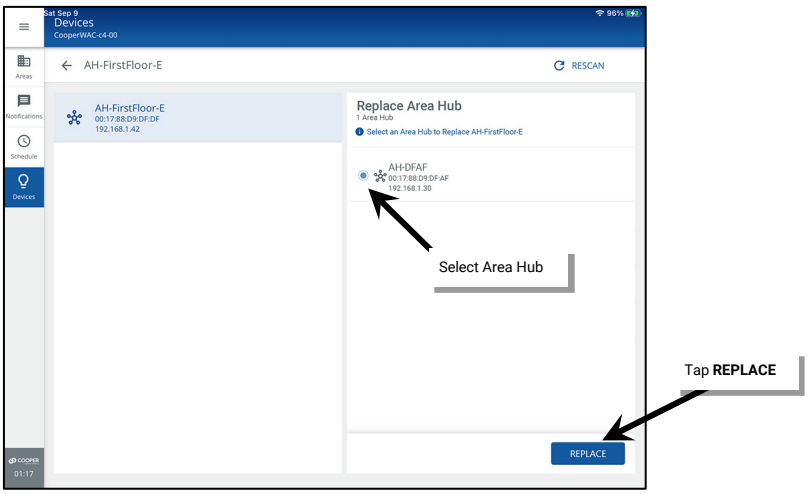




6: Select **Replace Area Hub** and wait for the Area Hub discovery to complete.



7: Select the desired area hub and click on the **REPLACE** button.



Once replaced, the new Area Hub and connected devices will operate with the same functionality as the original Area Hub/devices.

Deleting an Area Hub from the WaveLinx Area Controller

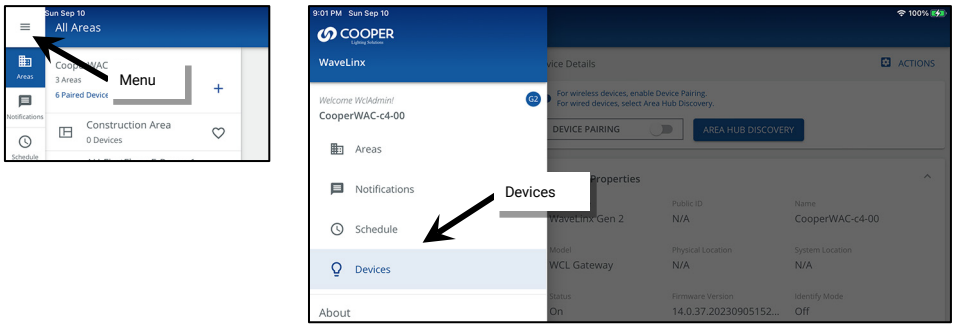
If an Area Hub has been added to the incorrect WaveLinx Area Controller, the Area Hub can be deleted. **If replacing an Area Hub, DO NOT use this method**. Refer to “Replacing a WaveLinx CAT Area Hub” on page 406 for replacement procedures.

WARNING: Deleting an Area Hub from the WaveLinx Area Controller will also delete all devices and the associated port areas and programming associated with those devices. Use with caution.

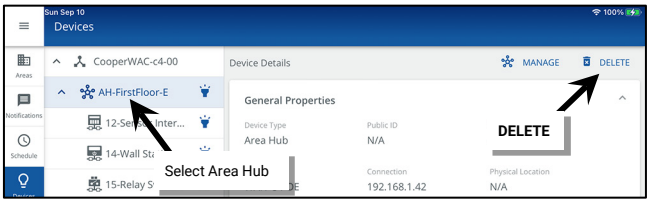
To delete the Area Hub:

1: Using the WaveLinx Mobile App or the WaveLinx WAC Lighting App[409], login to the WaveLinx Area Controller as the administrator user.

2: Select menu ☰ , and tap **Devices**.

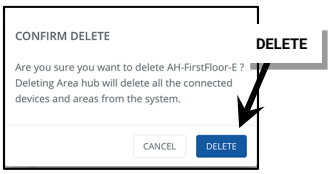


3: Tap the WaveLinx **Area Hub** in the **Devices** list and then select **DELETE**.



[409] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller min. software version 11.x.x.x and higher.

4: Select **DELETE** again when asked to confirm.



The WaveLinx CAT Area Hub will return to factory defaults, ready to be added to another WaveLinx Area Controller. Any connected CAT devices will return to distributed operation.

WaveLinx DALI Hub Administration

This section is dedicated to administrator tasks as they pertain to the WaveLinx DALI Hub. This section discusses:

- Using the Internal Webpages of the WaveLinx DALI Hub
- Replacing a WaveLinx DALI Hub
- Deleting a WaveLinx DALI Hub

Using the Internal Webpages of the WaveLinx DALI Hub

A current version web browser is used for accessing the WaveLinx DALI Hub's internal webpages. The internal webpages allow for basic configuration functions. This section discusses:

- Logging in to the WaveLinx DALI Hub webpages
- Reviewing and changing general settings
- Using DALI bus test options
- Updating Ethernet settings
- User setting administration
- Firmware updates

Logging in to the WaveLinx DALI Hub Webpages

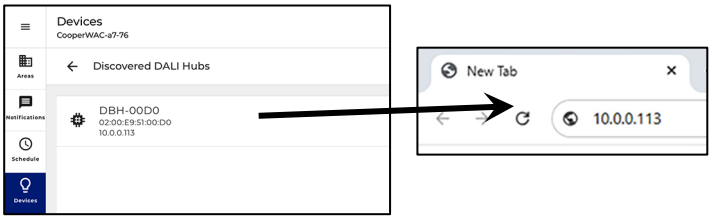
IMPORTANT NOTE: The DALI Hub is automatically set to allow DHCP configuration of the IP address. If the DALI Hub has been connected to a building LAN with a DHCP server, it will automatically obtain an IP address. When no DHCP server is detected on the network, after 3 minutes, the DALI Hub will self-assign an IP address in the range of 192.168.1.100 to 192.168.1.255 (randomized in this range to try to avoid IP conflict with other DALI Hubs that may be on the same network).

With either IP method, the status LED on the DALI Hub will turn ON solid green indicating an IP address has been set.

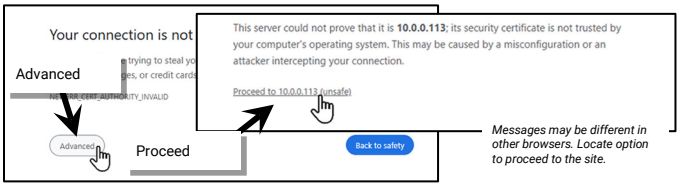
The DALI Hub's Configuration screen is accessed by connecting to the DALI Hub's IP address using a current web browser. Regardless of whether the DALI Hub is addressed using a DHCP address, an auto-assigned static IP address or a manually assigned static IP, the first step is to identify the IP address of the DALI Hub. Refer to page 41 to connect to and then discover the DALI Hub which will display the IP address in the WaveLinx Mobile App. The laptop being used for configuration must connect to the same network and be given an IP address on the same subnet as the DALI Hub and WaveLinx Area Controller for access.

Once the DALI Hub's IP address is determined and the laptop being used is connected and configured for an IP on the same Ethernet network, follow the steps below:

1: Open a current version web browser and enter the DALI Hub's IP address in the address bar.

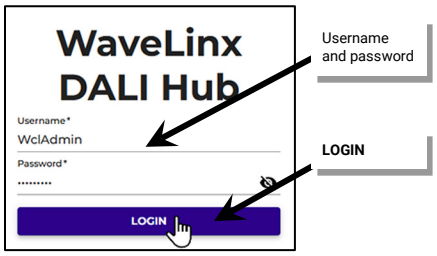


2: Bypass warnings and proceed to the site. This step is needed only for initial login or if browser cache is cleared.

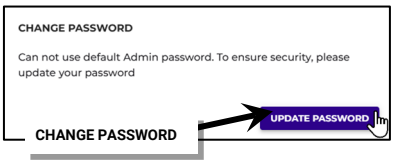


3: Login to the WaveLinx DALI Hub Configurator Webpage.

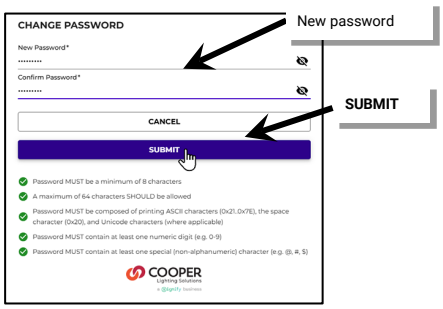
- Enter the admin username: **WclAdmin**,
- Enter the password:
  - Default for first time logging in: wclAdmin
  - Use assigned password after first log in
- Select **LOGIN**



4: If this is the first login, the system will force a password change. When prompted, submit a new password for the administrative user. Set a complex password when changing passwords, making sure it is something that can be remembered. Once changed, use the new password to login.



Any future login activity will require the use of the assigned password.



IMPORTANT! REMEMBER THE NEW PASSWORD AS IT WILL BE USED FOR ALL FUTURE ADMINISTRATOR LOGINS FOR THE DALI HUB WEBPAGE.

Using the Systems Page

The Systems page is used to update the DALI Hub name and view the general DALI Hub settings. It can also be used for basic DALI Bus status and test of the connected DALI devices.

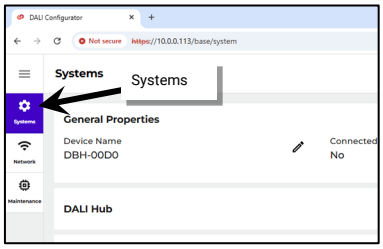
Viewing General Settings and Updating the DALI Hub Name

Use the General section in the Systems page to:

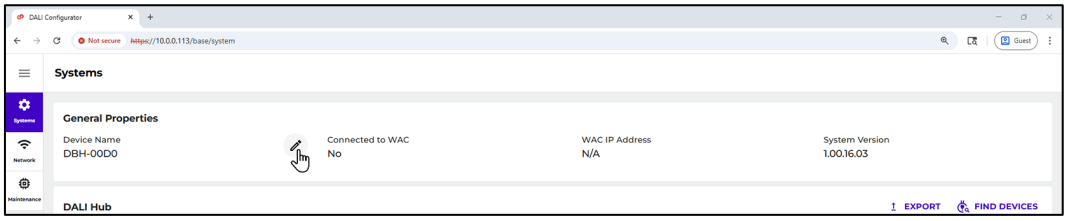
- View the DALI Hub name, connection status, IP address, and version.
- Edit the DALI Hub name.

To use the systems page to view settings or change the DALI Hub name:

1: If needed, login to the WaveLinx DALI Hub Configurator webpage and select **systems**.

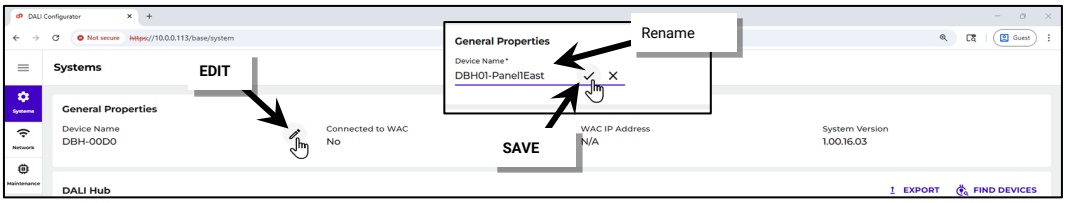


2: Review the General section details. The details include the DALI Hub name, the connected WAC information, and the DALI Hub software version.



3: To edit the DALI Hub name, select **EDIT** ✎, enter the new DALI Hub name, and then select ✓ to **SAVE**.

Note: The default name of a DALI Hub is DBH-XXXX where X is the last four characters of the DALI Hub's MAC address. If there are multiple DALI Hubs, update the name for easy identification in the WaveLinx Mobile Application. DALI Hub names should be unique. Avoid duplication. DALI Hub names are limited to a maximum 16 alphanumeric characters (hyphen character is allowed).



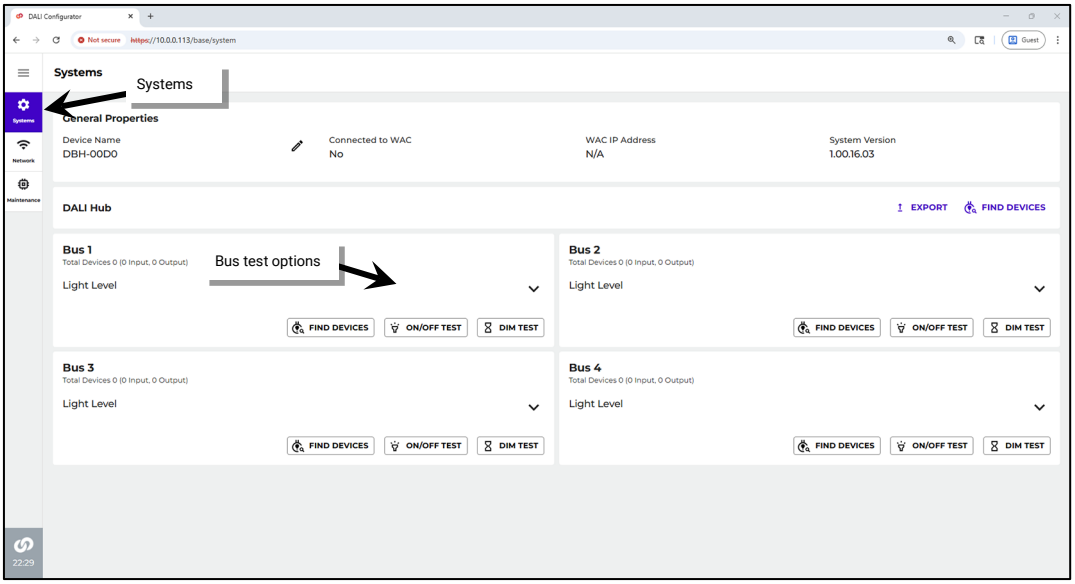
Note: If a DALI Hub name is changed AFTER the DALI Hub has been discovered and added to the WaveLinx Area Controller, the new name will not automatically appear. To read the new name, run a DALI Hub discovery command. The name will be updated.

Using the Systems DALI Bus section for Troubleshooting and DALI Bus Testing

The Systems page can be used to do basic troubleshooting and testing of the DALI Hub ports and connected DALI devices. This can be used both before and after the WaveLinx DALI Hub is discovered and added to the WaveLinx Area Controller.

To access testing functions:

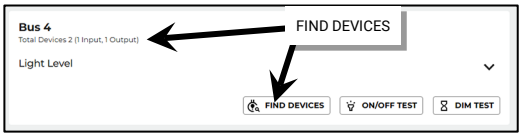
If needed, login to the WaveLinx DALI Hub Configurator webpage and select **systems**. The DALI Hub and the four DALI buses will display their test options.



The DALI Bus controls on the Systems page allow for the following functions:

- **FIND DEVICES**: Use the **FIND DEVICES** command at either the DALI Hub level (all buses scan) or at an individual DALI Bus to scan the DALI bus for the quantity and types of DALI devices connected. The scan can take several minutes if there are a large number of devices. When complete, the total quantity of devices along with the quantity of inputs (wallstations and sensors) and the quantity of outputs (lighting devices) will be displayed. This can be used as a quick check to verify that bus is wired to the expected quantity of devices.

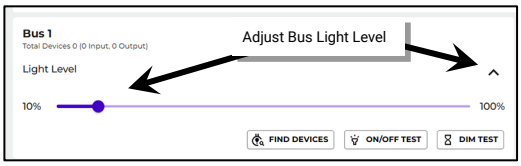
  Note: The Find Device command will not be available in the DALI Configurator tool if the DALI Hub has been discovered and connected to a WaveLinx Area Controller. Instead, use the WaveLinx App to find DALI devices after WAC connection.



- **TEST**: Select either the ON/OFF TEST or DIM TEST to check DALI Bus device operation and connection. Select the button again to go back to normal operation.
  - **ON/OFF TEST**: When **ON/OFF TEST** is activated, all connected lights will turn ON/100% for the first 20 seconds and then turn OFF for 5 seconds and repeat this cycle. All DALI Wallstations and Occupancy Sensors will flash their LEDs repeatedly. Lighting and devices will continue the test cycle until test mode is cancelled, either manually or by the automatic 60 minute timeout.
  - **DIM TEST**: When **DIM TEST** is activated, all connected dimmable lighting and dimmable devices will automatically dim to 10% brightness. All DALI Wallstations and Occupancy Sensors will flash their LEDs repeatedly. Lighting and devices will continue to display this behavior until test mode is cancelled, either manually or by the automatic 60 minute timeout.

  Note: The DALI Hub cannot run an ON/OFF test and a DIM test at the same time. When one test type is activated, the other test type button will be disabled for all DALI buses until the original test is cancelled.

- **Light Level**: Use the Light Level dropdown and drag the adjustment bar to manually change the light level of all dimmable loads to the percentage shown. **Lighting will remain at this level until the next command.**

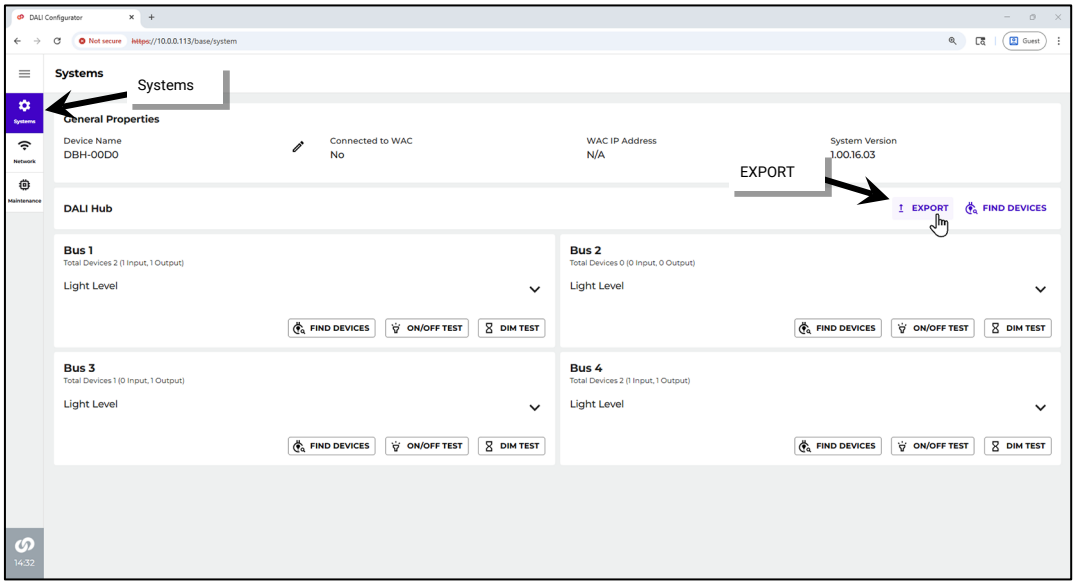


Exporting the DALI Hub Mapping

The Systems page DALI Hub EXPORT button can be used to export the details of the DALI Hub. This includes the total connected DALI bus count and status of each DALI bus as well as the details of the devices connected to each DALI bus including device type, the device's DALI address and DALI group.

To access the export function:

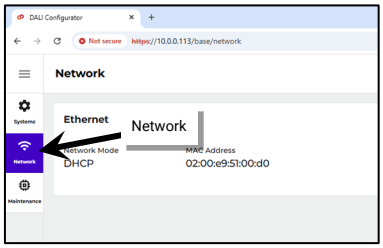
If needed, login to the WaveLinx DALI Hub Configurator webpage and select **systems**. From the **DALI Hub** section, select **EXPORT** to download the file.



Using the Network Page

The network page is used to view DALI-Hub's Ethernet details that will used by the WAC to assist with connection. Edit the Ethernet settings to change between using DHCP IP addressing, using the auto-assigned static IP address, or manually setting a static IP address.

1: If needed, login to the WaveLinx DALI Hub Configurator webpage and select **network**.

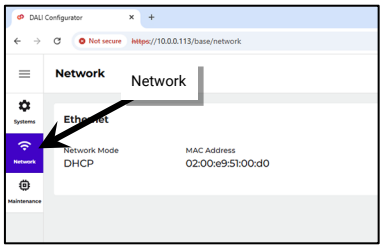


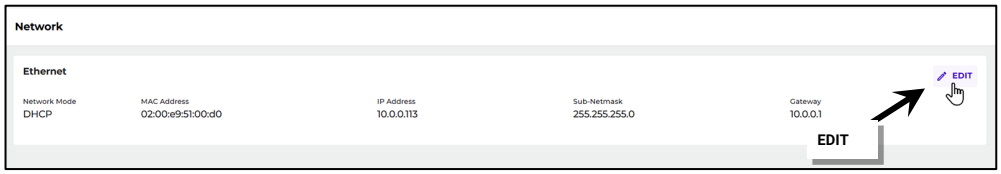
2: Review the **Ethernet** section details. Ethernet details include whether the DALI Hub is using static or DHCP mode, the current IP address information, and the MAC Address.

Changing Ethernet Settings

The WaveLinx DALI Hub is set to use DHCP by default. If using a DHCP server, no further IP address settings are needed. If not using DHCP, the WaveLinx DALI Hub is set up to automatically configure an initial IP address in the range of 192.168.1.100 through 192.168.1.255 to allow for initial operation and configuration. Because both the 192.168.100.X and 192.168.1.X networks on the 255.255.255.0 subnet are used for default random IP address assignment, it is recommended that a different subnet be chosen for the final static IP to avoid conflict with any new devices connected to the system. [410]

1: If needed, login to the WaveLinx DALI Hub Configurator webpage and select **network**. In the **Ethernet** section, select **EDIT** ✎.





2: Select between **Obtain an IP automatically (DHCP)** and **Use the following IP address (Static IP)**. If assigning a static IP, enter the desired **IP address**, **net mask**, and **gateway**. Select **UPDATE**.

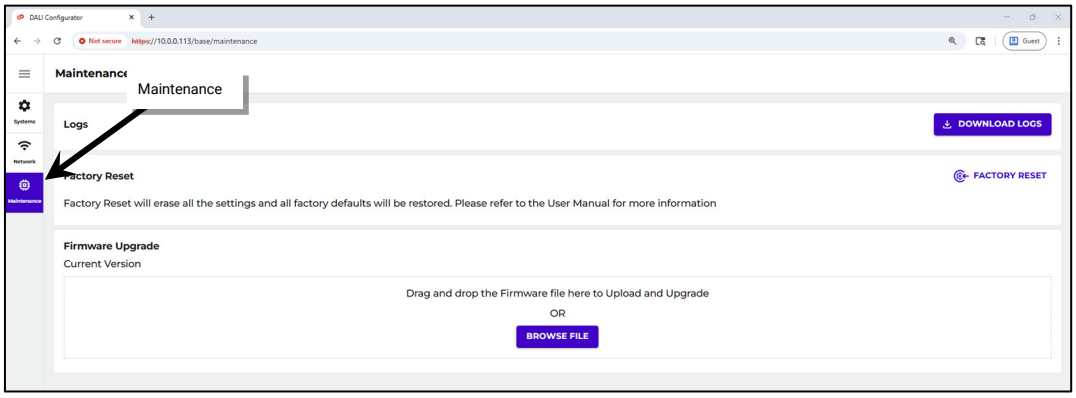
The WaveLinx DALI Hub will reboot automatically and operate with the new settings.

[410] Prior to release 14.1.x.x, all Area Hubs defaulted to the same IP address of 192.168.100.100. If connecting to a device with older firmware, isolate the Area Hub connection to the PoE switch and connect the laptop with a static IP address on this subnet to the network. Use the 192.168.100.100 IP address to open the Area Hub Configurator. Once configuration is complete, repeat with additional Area Hubs.

Using the Maintenance Page

The DALI Hub maintenance page can be used to download logs when requested by the technical support team, to Factory Reset the DALI Hub, and to perform a DALI Hub firmware upgrade.

If needed, login to the WaveLinx DALI Hub Configurator webpage and select **systems**. The DALI Hub and the four DALI buses will display their test options.

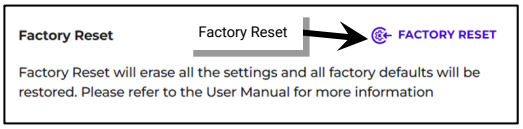


The controls on the Maintenance page allow for the following functions:

- **DOWNLOAD LOGS:** Use this command to download logs when requested by the technical support team. Logs can used by the technical support team to troubleshoot.

- **Factory Reset**.

USE WITH CAUTION!



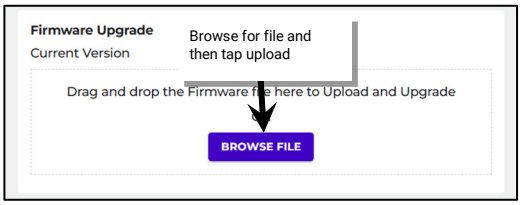
The factory reset will erase all configured DALI Hub settings including the DALI Hub name and network settings. Attached devices will revert to their out-of-the-box behavior.

- **Firmware Upgrade**: While the DALI Hub Configurator supports the option of updating firmware, this function should be done through the WaveLinx Area Controller. For details on updating firmware, see “Updating the Firmware of WaveLinx Devices” on page 386.

  If it is necessary to update firmware using this page:

  1: Tap BROWSE FILE and locate and select the necessary firmware file on the computer.

  2: Tap the UPLOAD button and wait for the upload to complete.



Additional DALI Hub Menu Options

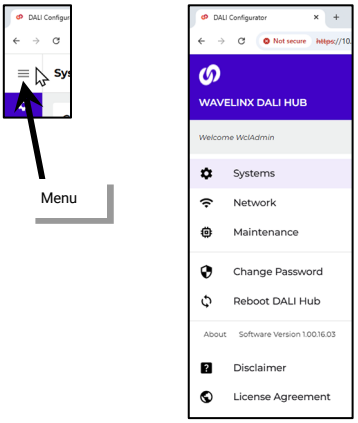
The DALI Hub Configurator also contains some additional menu options. This includes:

- Change Password
- Reboot DALI Hub
- Viewing Disclaimer and License Agreements

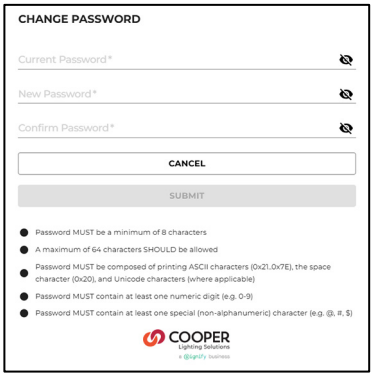
To access these options:

1: If needed, login to the WaveLinx DALI Hub Configurator.

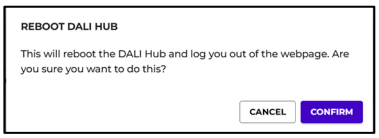
2: Select the **menu ≡** and then select the desired option:



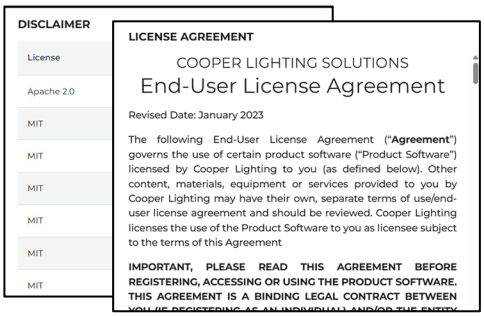
- **Change Password**: Enter the **current password** and then enter and confirm the **new password**. Choose **SUBMIT** to save the change.



- **Reboot DALI Hub**: Once **Reboot DALI Hub** is selected, choose **CONFIRM** to send the reboot command.



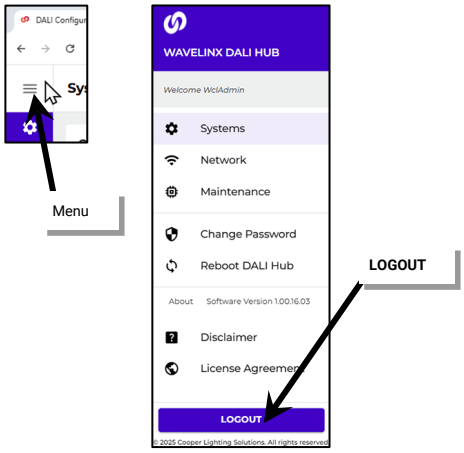
- **Disclaimer** and **License Agreement**: Select the desired item to display the information.



Logging Out of the WaveLinx DALI Hub Webpages

The WaveLinx DALI Hub Webpage contains a manual Logout option to exit the webpage. The DALI Hub will also automatically log the user out if the webpage is manually closed without logout or if the webpage is open for longer than 15 minutes with no activity.

To manually logout, select the **menu** ≡ and then select **LOGOUT**.



Replacing a WaveLinx DALI Hub

If a DALI Hub needs replacement, do not delete the DALI Hub from the WaveLinx App. Use the DALI Hub replacement feature.

Before disconnecting DALI buses from the DALI Hub, make sure to label which DALI bus port each DALI bus connects to. The connections will need to be made to the same ports on the replacement DALI Hub for proper operation.

To replace the DALI Hub:

1: Power down the existing DALI Hub and label each bus connection before disconnecting the DALI bus(es).

2: Configure the new DALI Hub as instructed in “Initial Configuration Steps for the WaveLinx DALI Hub” on page 41. Note: the new DALI Hub does not need to have the same IP address as the previous one but does need to be addressed in the same subnet.

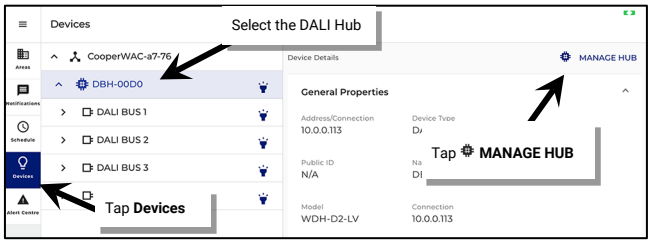
3: Reconnect DALI bus(es) to the new DALI Hub DALI bus terminals the same way they were connected on the original DALI Hub. Reapply power and wait for the DALI Hub to boot.

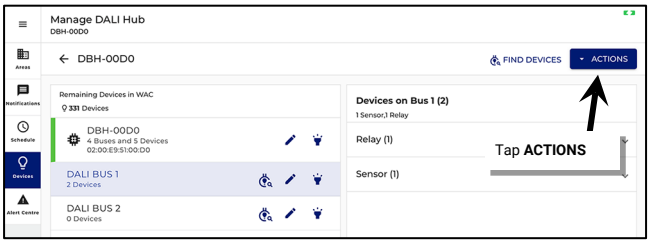
2: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

3. Select **Devices** on the sidebar or from the menu ☰, select **Devices**. From the **Devices** list, tap the **DALI Hub.**

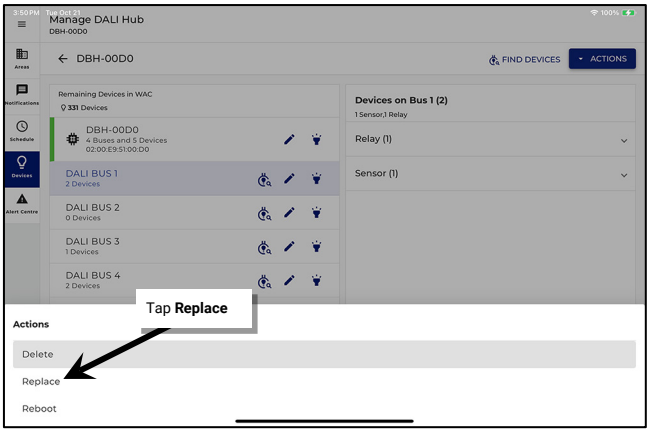
For phone devices being used in portrait view, tap ❶ ***Details***.

4: In **Device Details**, tap **MANAGE HUB** and then tap the **ACTIONS** dropdown.

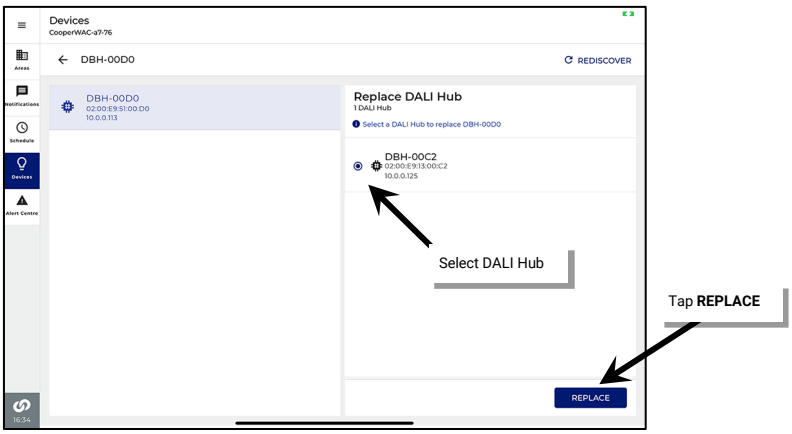




5: Select **Replace** and wait for the DALI Hub discovery to complete.



7: Select the desired DALI Hub and click on the **REPLACE** button.



Once replaced, the new DALI Hub and connected devices will operate with the same functionality as the original DALI Hub/devices.

Deleting a DALI Hub from the WaveLinx Area Controller

If a DALI Hub has been added to the incorrect WaveLinx Area Controller, the DALI Hub can be deleted. **If replacing a DALI Hub, DO NOT use this method**. Refer to “Replacing a WaveLinx DALI Hub” on page 417 for replacement procedures.

WARNING: Deleting a DALI Hub from the WaveLinx Area Controller will also delete all devices. Use with caution.

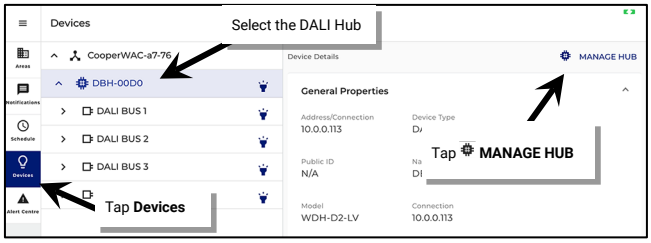
To delete the DALI Hub:

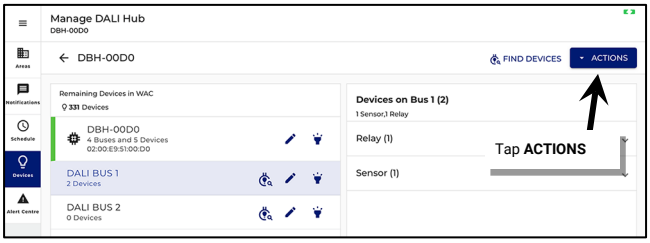
1: Using the WaveLinx Mobile App or the WaveLinx WAC Lighting App, login to the WaveLinx Area Controller as the administrator user.

2: Select **Devices** on the sidebar or from the menu ☰, select **Devices**. From the **Devices** list, tap the **DALI Hub.**

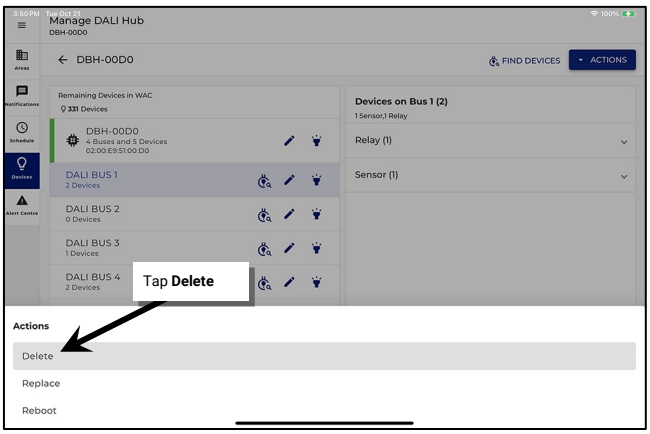
For phone devices being used in portrait view, tap ℹ ***Details***.

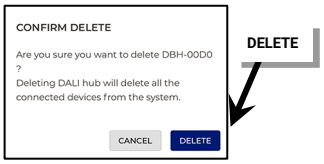
3: In **Device Details**, tap **MANAGE HUB** and then tap the **ACTIONS** dropdown.





4: Select **DELETE** and then tap **DELETE** again when asked to confirm.





The WaveLinx DALI Hub will return to factory defaults, ready to be added to another WaveLinx Area Controller. Any connected DALI devices will return to their out-of-the-box operation.

WaveLinx Networked Relay Panel Administration

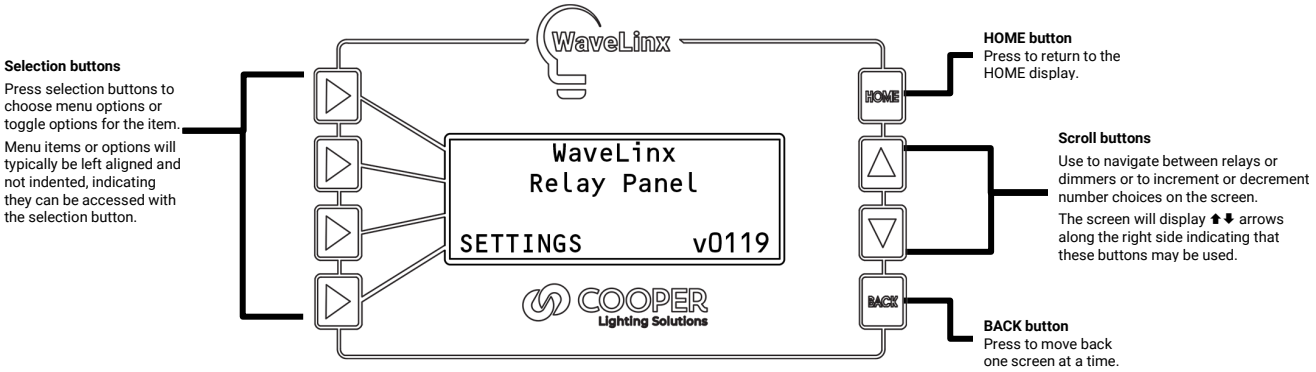
This section is dedicated to administrator tasks as they pertain to the WaveLinx Networked Relay Panel. This section will discuss:

- Using the Onboard Display of the WaveLinx Networked Relay Panel
- Using the Onboard Manual Relay Sweep ON/OFF Buttons
- Reconnecting after IP Address Changes
- Replacing a Relay Panel Controller
- Replacing a Relay or Dimming Module
- Deleting a WaveLinx Networked Relay Panel from a WaveLinx Area Controller
- Rebooting the WaveLinx Networked Relay Panel

Using the Onboard Display

The WaveLinx Networked Relay Panel has an onboard display used for initial configuration in preparation for connection to the WaveLinx Area Controller. The onboard display also allows for manual overrides to the relays and dimmer channels connected to that relay cabinet. This section will describe the onboard control functions.

The onboard display is a 4 line 20 character LCD display that is backlit when being used. It contains 8 soft key buttons, 4 selection buttons on the left and 2 scroll buttons, a HOME button, and a BACK button on the right.



Performing Relay Functions

The onboard display can be used to review relay status, command relays, and set relay options.

Viewing and Commanding Relays

Use the onboard display to view relays status or manually command individual relays or all relays in the enclosure.

Viewing Relay Status

From the **HOME** screen:

1: Press ▷**SETTINGS**.

2: Press ▷**RELAYS**.

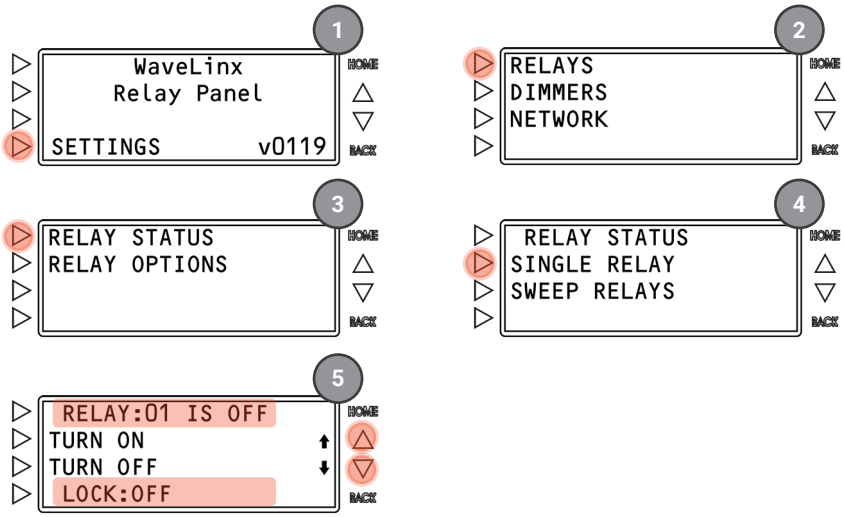
3: Press ▷**RELAY STATUS**.

4: Press ▷**SINGLE RELAY**.

5: Press the scroll buttons ▽△ until the desired relay number is displayed.

View the current **relay state** (ON or OFF) or view the current **LOCK** status (ON or OFF).

For details on RELAY LOCK see “Using the Relay Lock” on page 423.



Commanding Individual Relays

When possible, use the WaveLinx Mobile App or WaveLinx devices to command the relays. Before the panel is connected to the WAC, or if necessary, after WAC connection, individual relays can be commanded from the onboard display. The command will remain in effect until the next command from the display or WaveLinx system occurs. The change in status **will not** be reflected in the WaveLinx App.

From the **HOME** screen:

1: Press ▷**SETTINGS**.

2: Press ▷**RELAYS**.

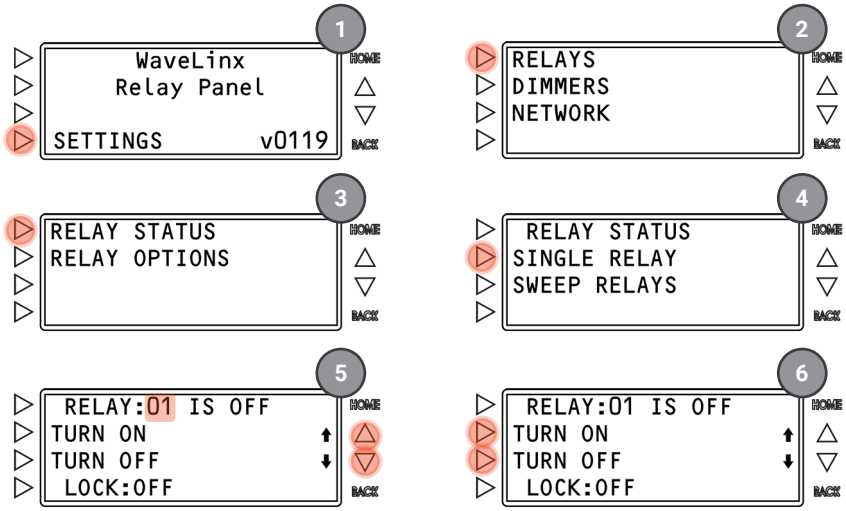
3: Press ▷**RELAY STATUS**.

4: Press ▷**SINGLE RELAY**.

5: Press the scroll buttons ▽△ until the desired relay number is displayed.

6: Press one of the command options:

- ▷**TURN ON** to force the relay ON.
- ▷**TURN OFF** to force the relay OFF.



Commanding All Relays

When possible, use the WaveLinx Mobile App or WaveLinx devices to command the relays. Before the panel is connected to the WAC, or if necessary, after WAC connection, ALL relays can be commanded at once from the onboard display. The command will remain in effect until the next command from the display or WaveLinx system occurs. The change in status **will not** be reflected in the WaveLinx App device details display.

From the **HOME** screen:

1: Press ▷**SETTINGS**.

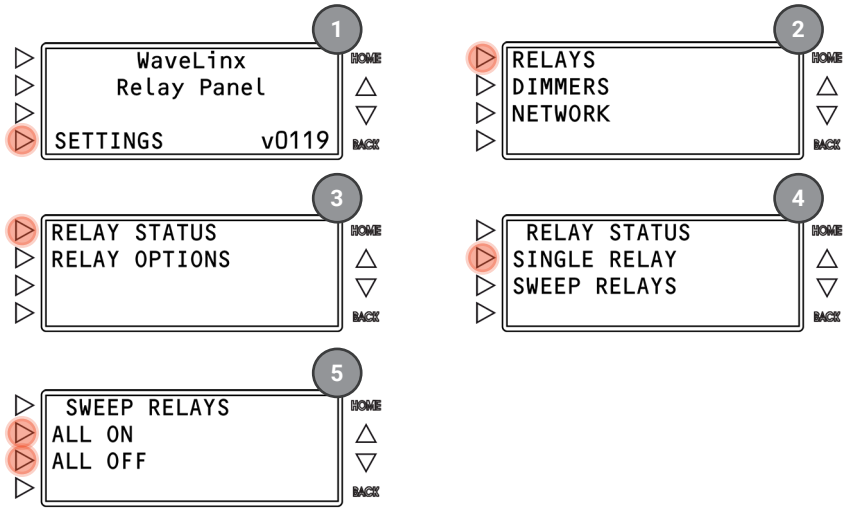
2: Press ▷**RELAYS**.

3: Press ▷**RELAY STATUS**.

4: Press ▷**SWEEP RELAYS**.

5: Press one of the command options:

- ▷**ALL ON** to force all relays ON.
- ▷**ALL OFF** to force all relays OFF.



Setting Relay Options

Use the Relay Options to perform the configuration of the relay **POLES**, setup **POWER-ON** options, and enable or disable the relay **LOCK** function.

Configuring Relay Poles

Relays are set for single pole relay configuration by default. If two or three pole relays are being used, they must be configured using the onboard display.

Single pole relays take up 1 relay position. Two pole relays take up 2 relay positions. Three pole relays take up 3 relay positions. Two and three pole relays will always operate from their top relay number once the relay is configured.

Do not attach single pole relays to two or three pole loads. Improper use of single pole relays to directly connect to two or three pole loads violates NEC, may be hazardous, and may void the warranty.

From the **HOME** screen:

1: Press ▷**SETTINGS**.

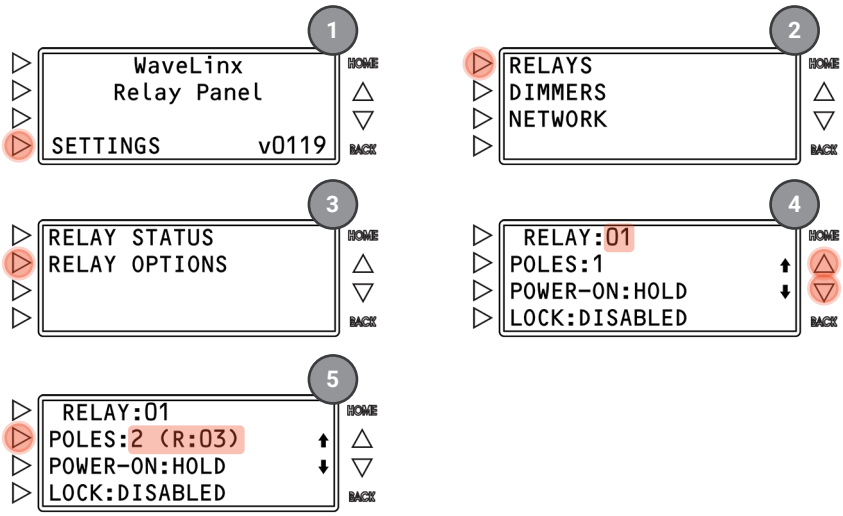
2: Press ▷**RELAYS**.

3: Press ▷**RELAY OPTIONS**.

4: Press the scroll buttons ▽△ until the desired relay number is displayed (For two or three pole relays, select the top relay number).

5: Press ▷**POLES** consecutively to toggle between **1**, **2**, or **3** poles or to select **VACANT** if there is no relay installed in the selected position,

If 2 or 3 poles are selected, the associated relay numbers will be displayed in brackets.



Configuring Relay Power-On State

Relays can be set to turn ON or OFF after power returns from a power disruption. Relays are set for **HOLD** power-up action by default meaning that they will remain in the state they were in prior to the outage occurring. Use the display to change the action to **TURN ON** or **TURN OFF** when power is applied. Once power returns and the relays go to their programmed power-on state, they will remain in that state until the next command is received from the onboard display or WaveLinx system. If the power-up state differs from the last relay state, the WaveLinx App **will not** reflect the correct status for the relay.

From the **HOME** screen:

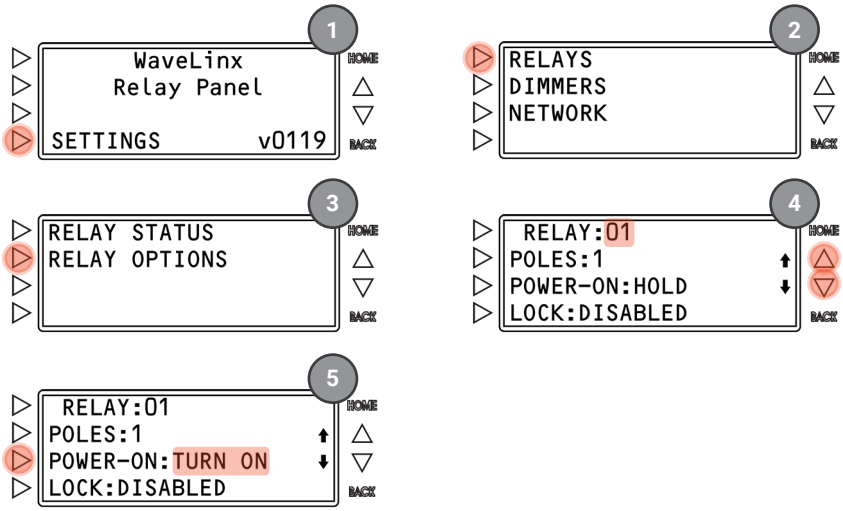
1: Press ▷**SETTINGS**.

2: Press ▷**RELAYS**.

3: Press ▷**RELAY OPTIONS**.

4: Press the scroll buttons ▽△ until the desired relay number is displayed.

5: Press ▷**POWER-ON** consecutively to toggle between **HOLD**, **TURN ON**, or **TURN OFF**.



Using the Relay Lock

The relay lock function disables control signals to the relay and prevents the relay from switching from the locked position. It is meant to temporarily suspend control from the WaveLinx system without the need to reprogram. By default, the relay lock function is disabled for all relays. The WaveLinx App **will not** reflect that the relay is in the locked state.

WARNING: The relay lock function is NOT a replacement for proper circuit breaker lockout/tagout procedures.

Enabling the lock function for a relay does not automatically lock the relay in the current state. **BOTH** the lock function for the relay must be enabled **AND** the physical lock switch on the relay must be engaged for the relay to be in a locked state.

- If the relay lock switch is **disabled** and the physical LOCK switch on the relay is **engaged**, the panel will process WaveLinx commands to that relay in the order they are received.
- If the relay lock switch is **enabled** and the physical LOCK switch on the relay is **disengaged**, the panel will process WaveLinx commands to that relay in the order they are received.
- If the relay lock switch is **enabled** and the physical LOCK switch on the relay is **engaged**, the panel will execute the LOCK command and ignore WaveLinx commands to that relay.

From the **HOME** screen:

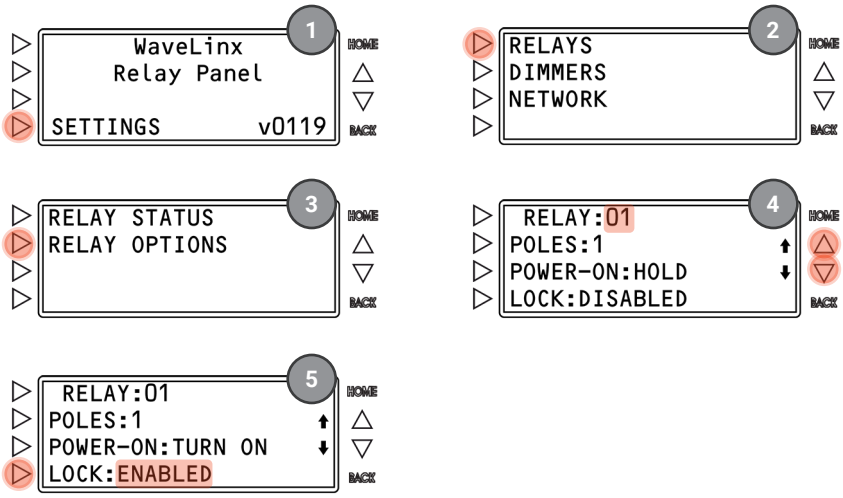
1: Press ▷**SETTINGS**.

2: Press ▷**RELAYS**.

3: Press ▷**RELAY OPTIONS**.

4: Press the scroll buttons ▽△ until the desired relay number is displayed.

5: Press ▷**LOCK** consecutively to toggle between **DISABLED** and **ENABLED**.

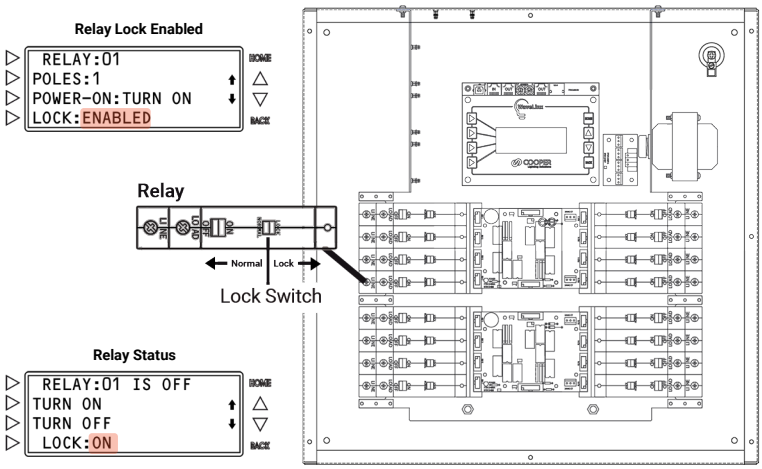


Once the lock is enabled through the onboard display, the physical relay lock switch can activate lock mode for the relay or return it to normal operating mode.

To engage the relay lock switch: Move the lock switch towards the center of the enclosure (**LOCK** position).

When LOCKED the relay will no longer respond to commands and will remain in the current state until the lock is disengaged. The relay status will show the relay locked.

To disengage the relay lock switch: Move the lock switch towards the outside of the enclosure (**NORMAL** position).



Performing Dimmer Functions

The onboard display can be used to review dimmer status, command dimmer levels, and set dimmer options.

Viewing and Commanding Dimmers

If the relay panel has been ordered with the optional panel mount or remote mount WaveLinx Panel Dimming Module, use the main display to view status and adjust the light level of the dimmers real-time. The adjusted light level will remain in effect until the next command is received.

Viewing Dimmer Status

From the **HOME** screen:

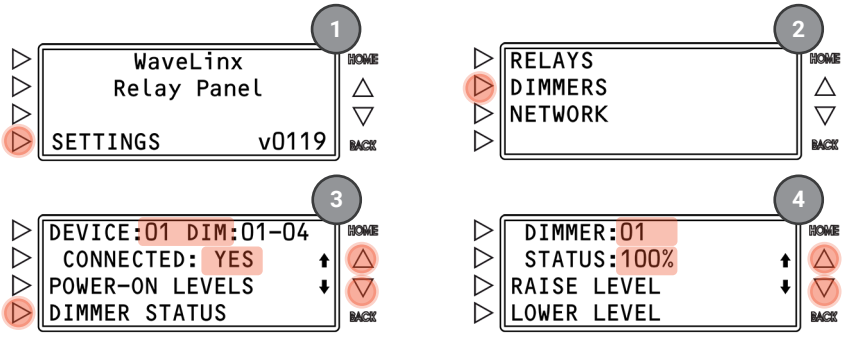
1: Press ▷**SETTINGS**.

2: Press ▷**DIMMERS**.

3: Press the scroll buttons ▽△ until the desired dimmer card address is displayed. If the card is connected it should show **YES** for connected status. Press ▷**DIMMER STATUS**.

4: Press the scroll buttons ▽△ until the desired dimmer number is displayed.

View the current dimmer status.



Commanding Individual Dimmers

When possible, use the WaveLinx Mobile App or WaveLinx devices to command the dimmers. Before the panel is connected to the WAC, or if necessary, after WAC connection, individual dimmers can be commanded from the onboard display. The command will remain in effect until the next command from the display or WaveLinx system occurs. The change in status **will not** be reflected in the WaveLinx App.

From the **HOME** screen:

1: Press ▷**SETTINGS**.

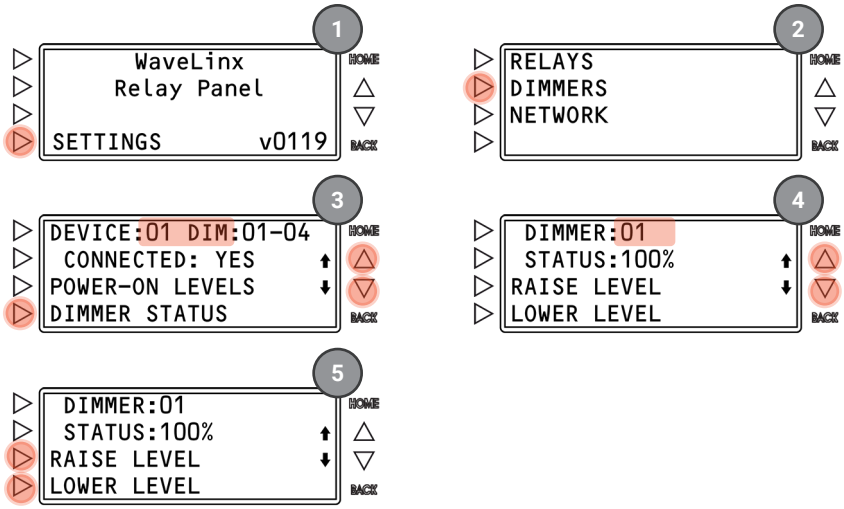
2: Press ▷**DIMMERS**.

3: Press the scroll buttons ▽△ until the desired dimmer card address is displayed. Press ▷**DIMMER STATUS**.

4: Press the scroll buttons ▽△ until the desired dimmer number is displayed.

5: Use ▷**RAISE LEVE**L or ▷**LOWER LEVEL**

- Press and release the button to adjust the level of the selected dimmer in 1% increments.
- Press and hold the button to adjust the level more quickly.



Configuring Dimmer Power-On Level

It is possible to set a **POWER-ON LEVEL** for each dimmer that is connected to the relay panel. By default, dimmers are set to go to 100% upon a power-up. Use the display to change the power-on level. Once power returns and the dimmers go to their programmed power-on level, they will remain at that level until the next command is received from the onboard display or WaveLinx system. If the power-on level differs from the last level issued, the WaveLinx App **will not** reflect the correct status for the dimmer.

From the **HOME** screen:

1: Press ▷**SETTINGS**.

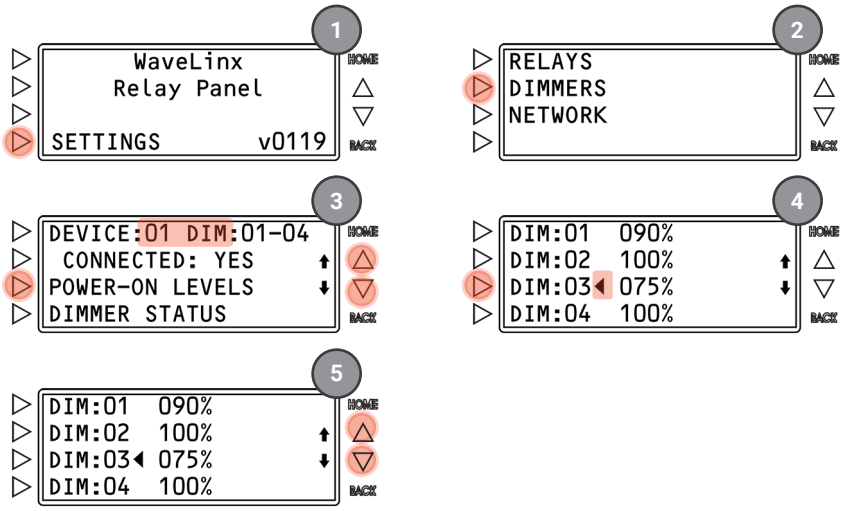
2: Press ▷**DIMMERS**.

3: Press the scroll buttons ▽△ until the desired dimmer card address is displayed. Press ▷**POWER-ON LEVELS**.

4: Press ▷**DIM** next to the dimmer number to select the dimmer. An arrow ◂ will appear next to the dimmer to indicate it is selected.

5: Use △to raise the level or ▽ to lower the level of the selected dimmer:

- Press and release the button to adjust the level of the selected dimmer in 1% increments.
- Press and hold the button to adjust the level more quickly.



Performing Network Functions

The Network Menu allows access to the TCP/IP configuration that the WaveLinx Area Controller will use to communicate with the relay panel. Use the options to view the current network status, set the network settings, reboot the network module, and perform a factory reset on the panel. **By default, the panel's Ethernet link will be disabled until configuration is performed**.

Configure Network Settings

The WaveLinx Networked Relay Panel communicates with the WaveLinx Area Controller over the building LAN. Before the relay panel can be added to the WaveLinx Area Controller, it must be configured with a unique IP address within the same network range as the WaveLinx Area Controller. By default, the Ethernet port on the relay panel is disabled. The Ethernet port can be set to use either DHCP or a static IP address.

IMPORTANT NOTE: If using DHCP to assign the IP address, reserve the IP for the relay panel on the DHCP server. If the IP addresses of the WaveLinx Area Controller or WaveLinx Networked Relay Panel changes after the devices are linked, they will lose communication and the relay panel will be offline until the connection is repaired (see "Reconnecting after an IP Address Change" on page 430).

To configure Network Settings:

From the **HOME** screen:

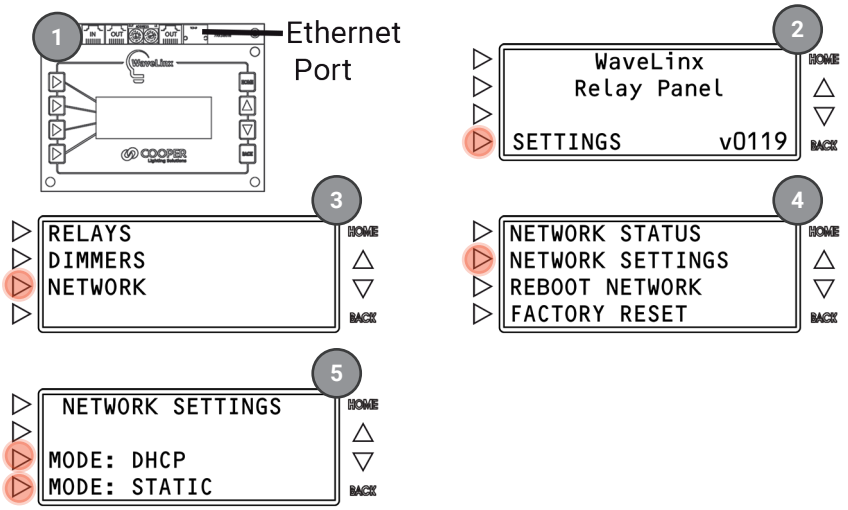
1: Make sure that the relay panel Ethernet port is connected to the Building LAN.

2: Press ▷**SETTINGS**.

3: Press ▷**NETWORK**.

4: Press ▷**NETWORK SETTINGS**

5: Select either ▷**MODE: DHCP** or ▷**MODE: STATIC**.



Using DHCP (continue step 6)

6: Press ▷**MODE: DHCP**.

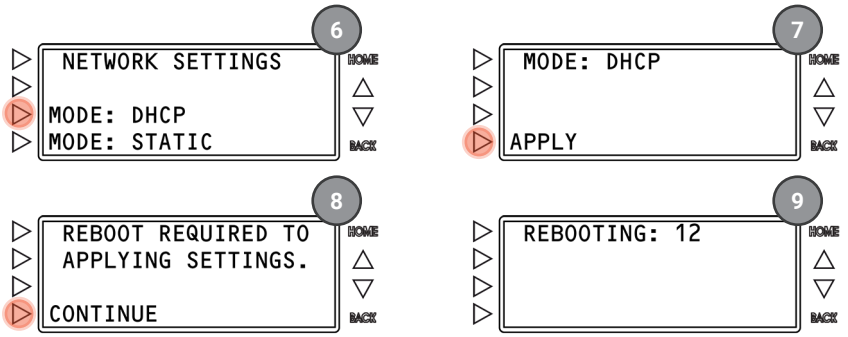
7: Press ▷**APPLY**.

8: Press ▷**CONTINUE**.

9: Wait for the reboot to occur.

Once rebooted, if a DHCP server is online, the panel should acquire an IP address.

Remember to have the network administrator reserve the relay panel's assigned IP address on the DHCP server.



Using a Static IP (continue step 6)

6: Press ▷**MODE: STATIC**.

7: Assign the **IP ADDRESS**:

a: Press ▷ ▸ or ▷ ◂ to move the cursor point ^ beneath the desired address segment.

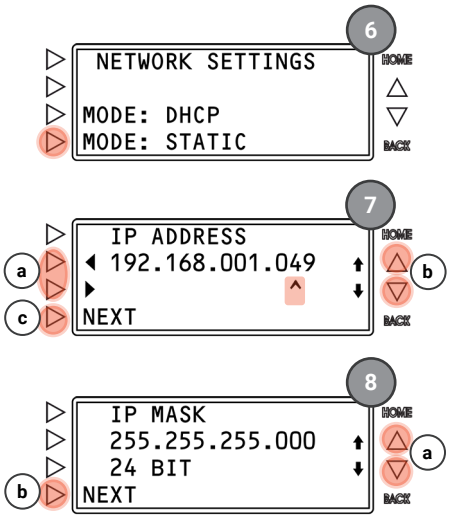
b: Press and release △ to increment or ▽ to decrement one digit at a time. Press and hold △ to increment or ▽ to decrement more quickly.

c: Press ▷**NEXT**.

8: Assign the **IP MASK**:

a: Press and release △ to increment or ▽ to decrement the number of subnet bits one number at a time until the correct subnet mask is displayed (refer to table).

b: Press ▷**NEXT**.



Step 8a: Subnet Mask Table

BITS	SUBNET MASK
01	128.000.000.000
02	192.000.000.000
03	224.000.000.000
04	240.000.000.000
05	248.000.000.000
06	252.000.000.000
07	254.000.000.000
08	255.000.000.000
09	255.128.000.000
10	255.192.000.000
11	255.224.000.000
12	255.240.000.000
13	255.248.000.000
14	255.252.000.000
15	255.254.000.000
16	255.255.000.000

BITS	SUBNET MASK
17	255.255.128.000
18	255.255.192.000
19	255.255.224.000
20	255.255.240.000
21	255.255.248.000
22	255.255.252.000
23	255.255.254.000
24	255.255.255.000
25	255.255.255.128
26	255.255.255.192
27	255.255.255.224
28	255.255.255.240
29	255.255.255.248
30	255.255.255.252
31	255.255.255.254

9: Assign the **GATEWAY ADDRESS**:

a: Press ▷ ▸ or ▷ ◂ to move the cursor point ^ beneath the desired address segment.

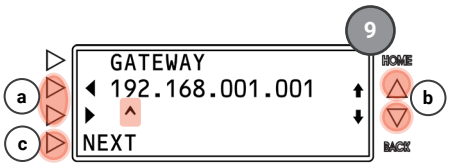
b: Press and release △ to increment or ▽ to decrement one digit at a time. Press and hold △ to increment or ▽ to decrement more quickly.

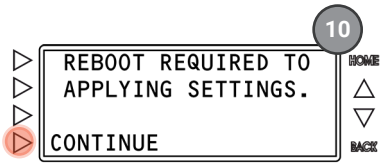
c: Press ▷**NEXT**.

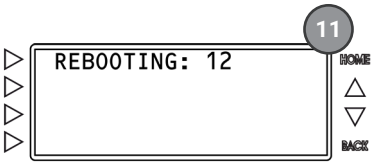
10: Press ▷**CONTINUE**.

11: Wait for the reboot to occur.

Once rebooted, the relay panel should be ready for connection via the assigned static IP address.







Viewing Network Status

The Network Status will show the status of the Ethernet port, the assigned IP address information, the Relay Panel MAC Address, the host name, the configuration file version, and the Ethernet port firmware version.

To view the network status:

From the **HOME** screen:

1: Press ▷**SETTINGS**.

2: Press ▷**NETWORK**.

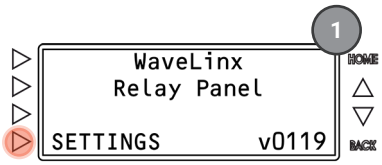
3: Press ▷**NETWORK SETTINGS**.

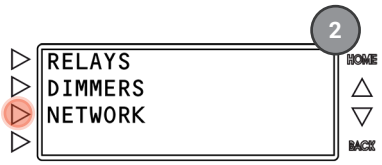
4: Wait for the relay panel to read the network status.

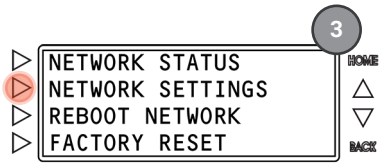
5: View the network **STATE** and **LINK** data and then press ▷**NEXT**.

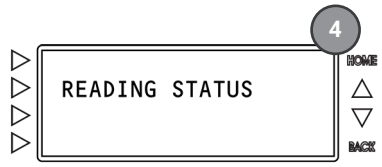
6: Review the **IP ADDRESS** and then press ▷**NEXT**.

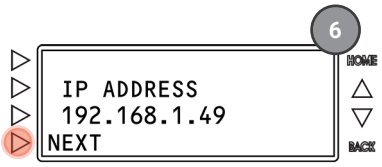
(continued next page)











STATE: Indicates if the Ethernet port is ready for connection to a WaveLinx Area Controller.

- **NOT READY:** Ethernet port is not configured.
- **READY:** Ethernet port is configured.
- **CONNECTED:** Ethernet port is configured and the panel has been added to a WaveLinx Area Controller.

LINK: Indicates whether the Ethernet link has been enabled.

- **DISABLED**: The network has not been configured.
- **DISCONNECTED**: The network has been configured but there is no LAN connection.
- **CONNECTED**: The panel has been configured and has a LAN connection.

IP ADDRESS: Displays the current IP address.

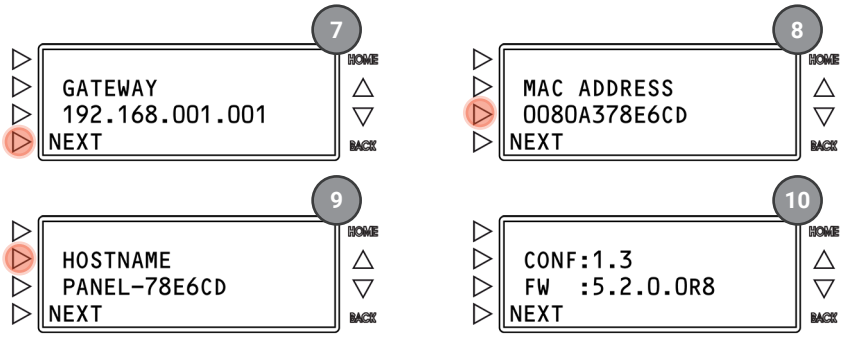
- The **IP address** that has been statically or DHCP assigned will be displayed.
- **192.168.1.100**: The default IP address when the port is still in a disabled state.
- **(DHCP)**: DHCP mode has been selected by the panel has not yet been given an IP address by the DHCP server.

7: Review the **GATEWAY** address and then press ▷**NEXT**.

8: Review the **MAC ADDRESS** and then press ▷**NEXT**.

9: Review the **HOSTNAME** and then press ▷**NEXT**.

10: Review the **CONF** (configuration file) version and the **FW** (Ethernet port) firmware version and then press ▷**NEXT** to complete the status review.



Rebooting the Network

In most cases, the panel will prompt for reboot if network changes are made. If it is necessary to reboot the network, it can be done at any time. Rebooting the network will temporarily disconnect the panel from the WaveLinx Area Controller until the reboot is complete.

To reboot the network:

From the **HOME** screen:

1: Press ▷**SETTINGS**.

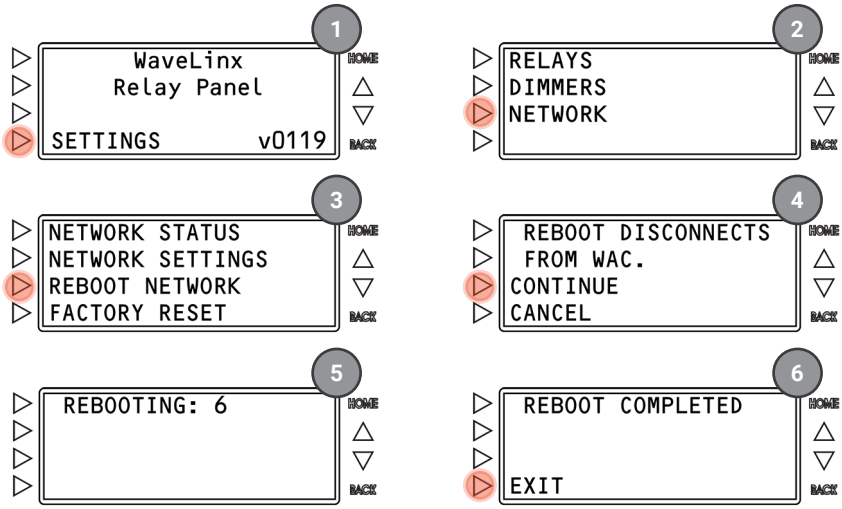
2: Press ▷**NETWORK**.

3: Press ▷**REBOOT NETWORK**.

4: Press ▷**CONTINUE**.

5: Wait for the panel to reboot.

6: Press ▷**EXIT**.



Factory Reset

A factory reset removes any configurations from the panel and returns configuration to factory default. The factory reset will remove any panel given settings such as relay pole configuration, power-up states/levels, relay lock settings, and network settings.

To factory reset the panel:

From the **HOME** screen:

1: Press ▷**SETTINGS**.

2: Press ▷**NETWORK**.

3: Press ▷**FACTORY RESET**.

4: Press ▷**CONTINUE**.

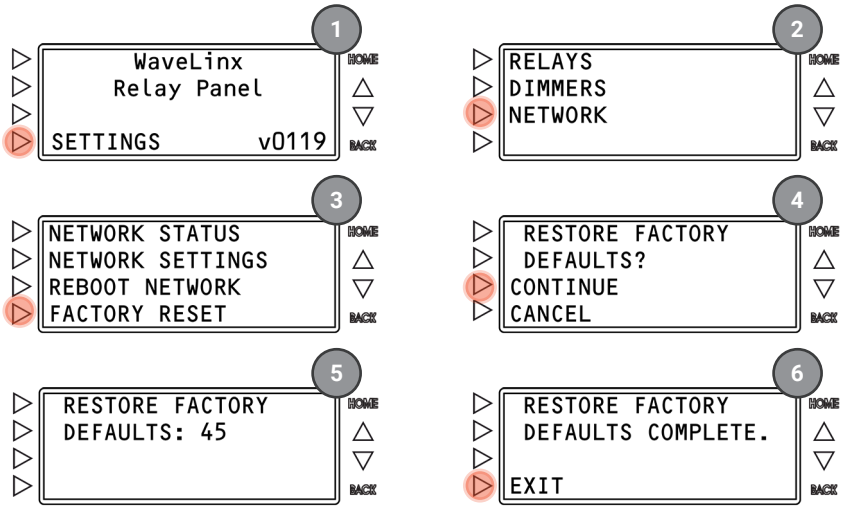
5: Wait for the panel to restore.

6: Press ▷**EXIT**.

Note: A panel factory reset WILL NOT remove the panel device programming from the WaveLinx Area Controller. The devices will display a disconnected status in the WaveLinx App.

To repair the connection, configure the IP address of the panel and then use the replace panel function in the Mobile App.

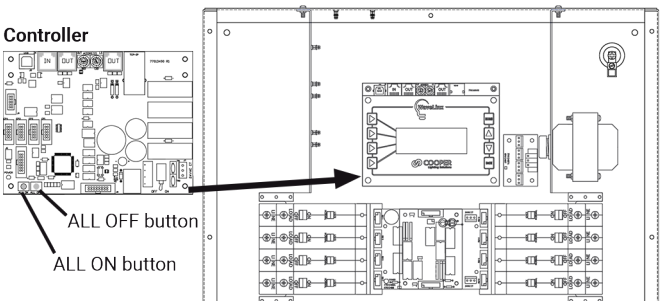
To completely remove the panel programming, after factory reset, delete the panel from the Mobile App.



Sweeping Relays ON/OFF using the WaveLinx Networked Relay Panel Controller Card Buttons

The WaveLinx Networked Relay Panel's Controller Card contains two pushbuttons that allow for manual override of all relays to either an ON or OFF state.

The controller card is located under the display. The two pushbuttons are in the lower left corner. Press the left button to turn ON all relays in the cabinet. Press the right button to turn OFF all relays in the cabinet. The command will remain in effect until the next command from the display or WaveLinx system occurs. The change in status **will not** be reflected in the WaveLinx App device details display.



Replacing a Relay Panel Controller

The WaveLinx Area Controller houses the programming for the panel. Do not delete the relay panel from the WaveLinx Mobile App.

If it is necessary to replace the WaveLinx Networked Relay Panel controller card, first, follow the instructions provided for the replacement. Once the controller card is replaced, follow the steps 4 through 7 in the setup instructions "Initial Configuration Steps for the WaveLinx Networked Relay Panel" on page 49 to factory reset the new controller, configure the relay poles, set an IP address and verify the IP settings. The new controller can be given the same IP as the old controller or can be given a new IP on the same subnet.

Once the IP address has been assigned, perform the steps below:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[411] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: From the **menu** ≡, select **Devices**.

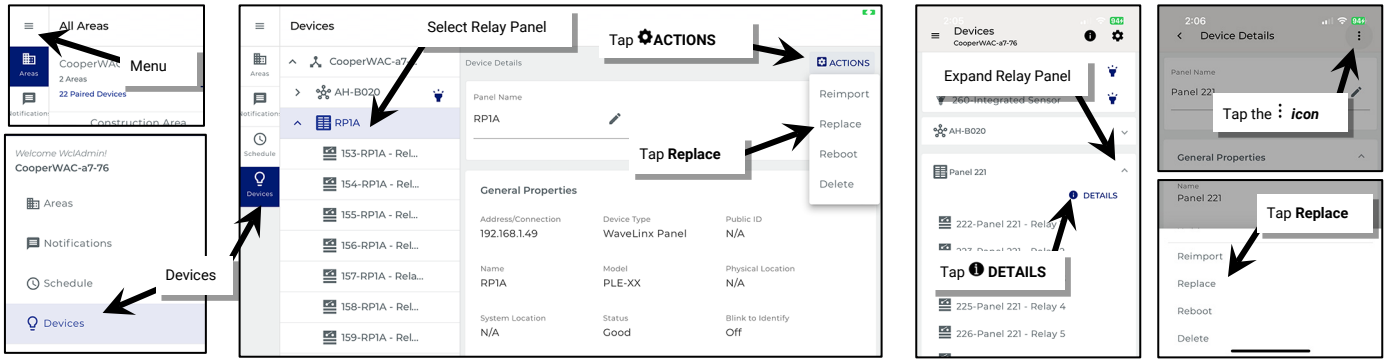
3: In the **Devices** list, locate and select the relay panel.

4: Tap ⚙**ACTIONS** and then select **Replace**.

For phone devices, expand the relay panel, tap ⓘ ***DETAILS*** *and then tap the more* ⋮ ***icon*** *to access the actions menu. Select* ***Replace****.*

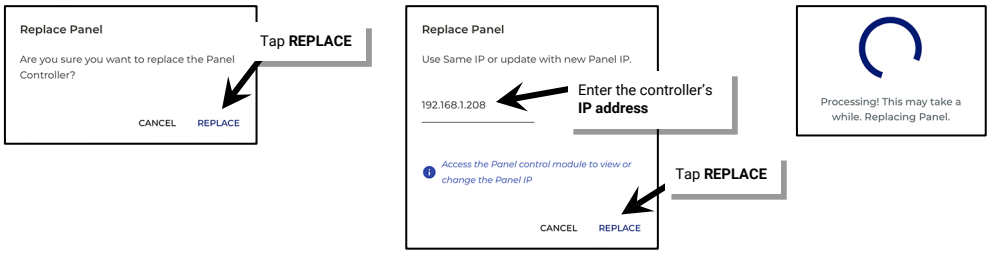
Tablet or Phone Landscape View/WAC Lighting App View

Phone Portrait View



5: Tap **REPLACE** again when prompted to confirm.

6: Enter the IP address of the replacement controller and tap **REPLACE**. Wait for the process to complete (may take several minutes).



Once the process is complete, the relays and dimmers will operate with the WaveLinx Area Controller's programmed commands.

[411] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Reconnecting after an IP Address Change

If the WaveLinx Networked Relay Panel's IP Address changes after it has been added to a WaveLinx Area Controller, the WaveLinx Area Controller will lose connection and control of the relays/dimmers in the relay panel. To fix this, the IP address must be refreshed in the Mobile App. Use this same process if the WaveLinx Area Controller IP is changed to a different subnet and the IP address of the relay panel is updated.

Do not delete the relay panel from the WaveLinx Mobile App. Once the IP address is changed, follow the same procedure for replacing a panel controller card, see "Replacing a Relay Panel Controller" on page 429. This will reconnect the panel to the WAC and allow it to operate from the original programming.

Replacing Relays and Dimming Modules

If it is necessary to replace the WaveLinx Networked Relay Panel relay or dimming module, follow the instructions provided for the replacement.

- For relays, make sure that the new relay is placed in the same location as the previous relay.
- For dimming modules, make sure the replacement module has the same address as the previous module and that the dimmer wiring is connected in the same order as the previous module.

No action is required through the WaveLinx Mobile App.

Adding Relays or Dimming Modules using Reimport

Use the WaveLinx Mobile App Reimport command if any of the following scenarios exists:

- the relay panel configuration changes after the relay panel is added to the WaveLinx Area Controller
- the relay panel did not import properly
- the relays or dimmers have been deleted from the WaveLinx Mobile App in error

The **Reimport** command will add any **new** relays or dimming module dimmers to the WaveLinx Area Controller. Any relays or dimmers previously imported into the WaveLinx Area Controller will not be affected by the reimport.

Once the import completes, all new devices found will be assigned to the Construction Area.

To use the **Reimport** command:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[412] and establish a connection with the WaveLinx Area Controller as the administrator user.

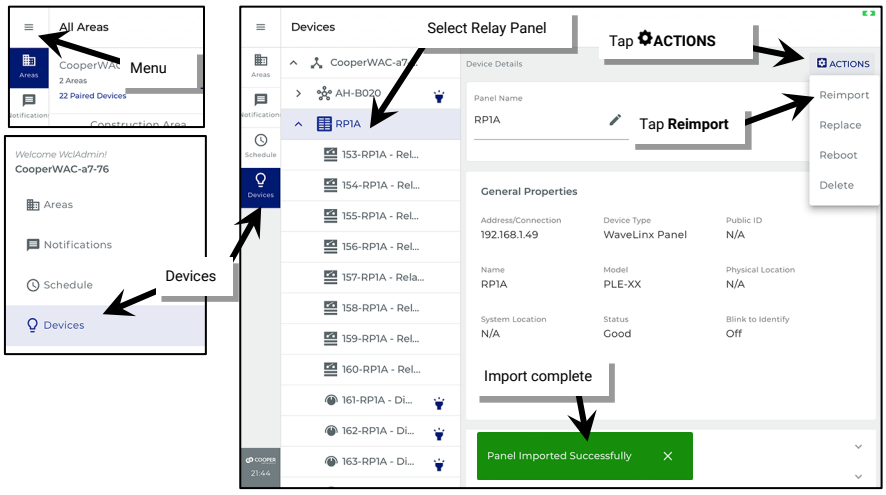
2: From the **menu** ≡, select **Devices**.

3: In the **Devices** list, locate and select the relay panel.

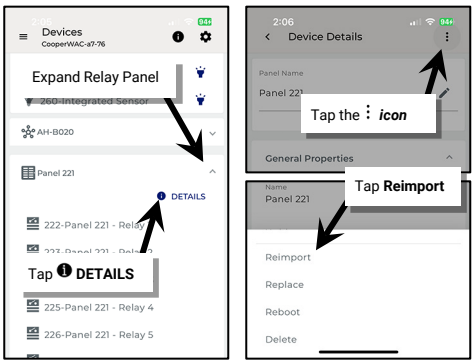
4: Tap ⚙**ACTIONS** and then select **Reimport**. Wait for the import to complete. The newly imported relays and dimmers will be available in the Construction Area.

For phone devices, expand the relay panel, tap ❶ ***DETAILS*** *and then tap the more* ⋮ ***icon*** *to access the actions menu. Select* ***Reimport****.*

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



[412] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Rebooting the WaveLinx Networked Relay Panel

Reboot the WaveLinx Networked Relay Panel from the WaveLinx Mobile App. A reboot is a soft reset which restarts the software in the WaveLinx Networked Relay Panel without affecting configured settings.

To reboot the WaveLinx Networked Relay Panel:

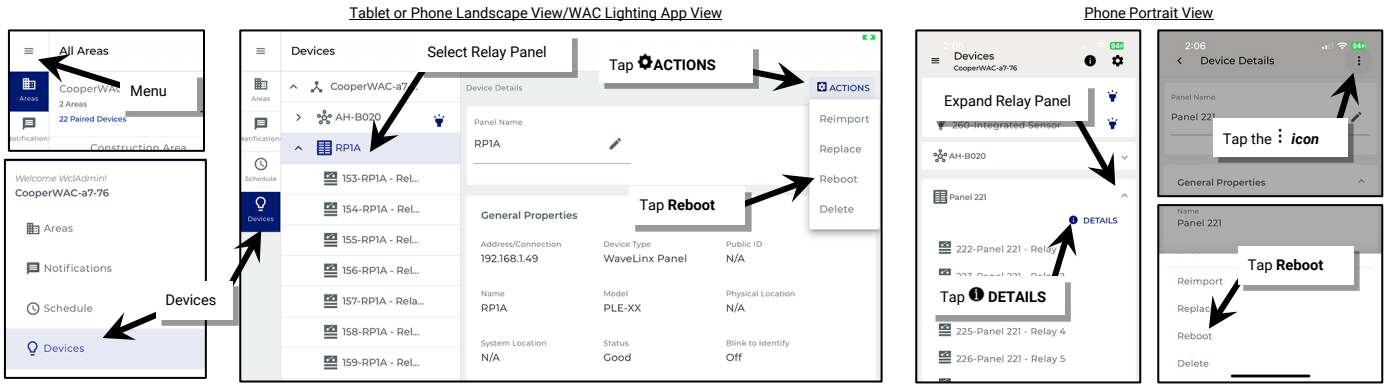
1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[413] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: From the **menu ≡**, select **Devices**.

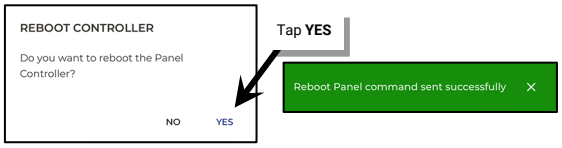
3: In the **Devices** list, locate and select the relay panel.

4: Tap **⚙ACTIONS** and then select **Reboot**.

*For phone devices, expand the relay panel, tap ⓘ **DETAILS** and then tap the more ⋮ **icon** to access the actions menu. Select **Reboot**.*



5: Tap **YES** when prompted to confirm the reboot.



Deleting a WaveLinx Networked Relay Panel from a WaveLinx Area Controller

Deleting a relay panel from the WaveLinx Mobile App will remove all relay and dimmer programming for that panel from the WaveLinx Area Controller. The panel will need to be added as a new device and the programming recreated.

WARNING: Deleting a relay panel from the WaveLinx Area Controller will also delete all the panel's relay and dimmer devices and programming associated with those relay and dimmer devices. Use with caution.

[413] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

To delete a WaveLinx Networked Relay Panel:

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[414] and establish a connection with the WaveLinx Area Controller as the administrator user.

2: From the **menu ≡**, select **Devices**.

3: In the **Devices** list, locate and select the relay panel.

4: Tap ⚙**ACTIONS** and then select **Delete**.

For phone devices, expand the relay panel, tap ❶ ***DETAILS*** *and then tap the more* ⋮ ***icon*** *to access the actions menu. Select* ***Delete****.*

5: Tap **DELETE** when prompted to confirm.

[414] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

WaveLinx Low-Voltage Power Module Administration

This section is dedicated to administrator tasks as they pertain to the WaveLinx Low-Voltage Power Module and Low-Voltage Fixtures. This section will discuss:

- Using the Internal Webpages of the WaveLinx Low-Voltage Power Module
- Identifying Low-Voltage Power Modules and Connected Fixtures
- Reconnecting after IP Address Changes
- Replacing a Low-Voltage Power Module
- Unpairing a Low-Voltage Power Module from a WaveLinx Area Controller
- Rebooting the Low-Voltage Power Module

Using the Internal Webpages of the Low-Voltage Power Module

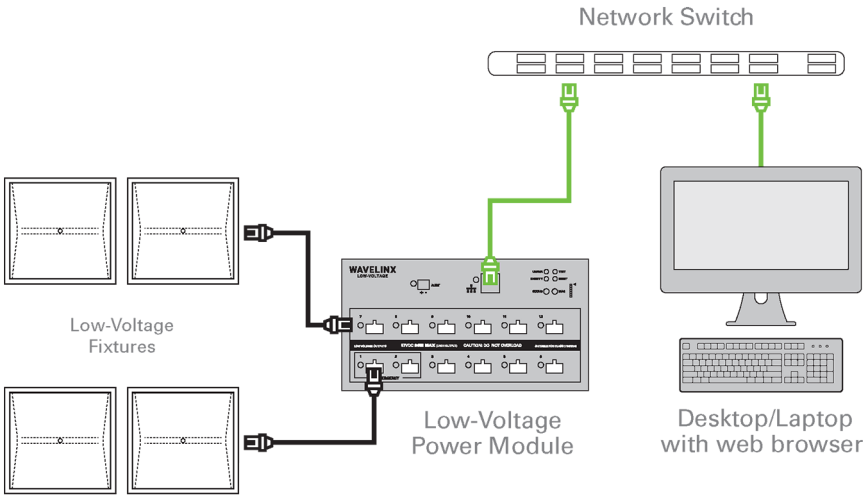
Use a current web browser when accessing the Low-Voltage Power Module's internal webpages. The internal webpages of the Low-Voltage Power Module allow for basic configuration functions including:

- Logging in to the Low-Voltage Power Module webpages
- Reviewing and changing general settings
- Updating Ethernet settings
- User setting administration
- Firmware updates

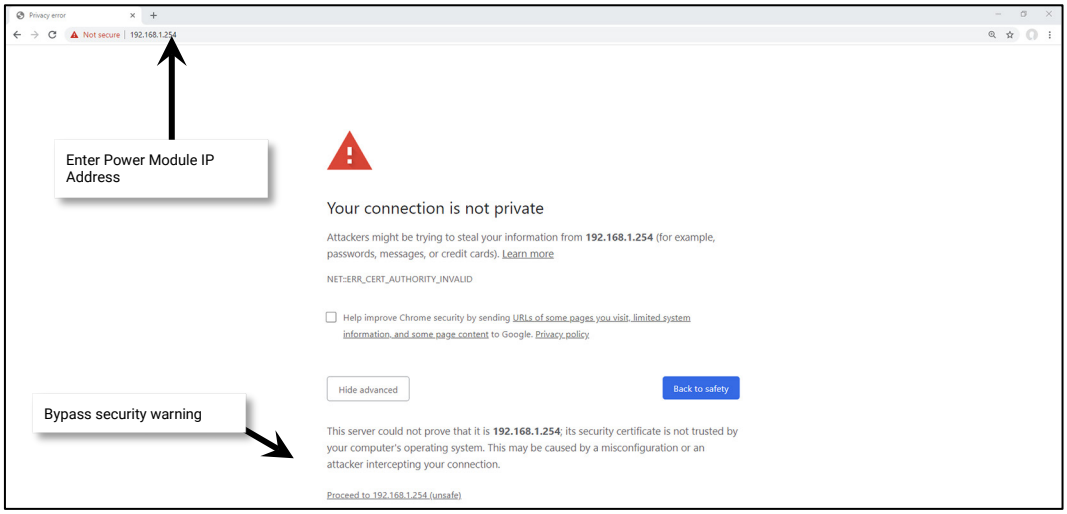
Logging in to the Low-Voltage Power Module Webpages

The steps in this section assume that the Low-Voltage Power Module is still in its factory default state and has not been connected to a DHCP server for IP address assignment. If not in its factory default state, please refer to the network administrator for access information. The Low-Voltage Power Module username and password are stored in the Low-Voltage Power Module and are separate from those used for the WaveLinx Area Controller.

1: The default IP address of a Low-Voltage Power Module that has not been configured is 192.168.1.254 on the 255.255.255.0 subnet. Connect a laptop that is configured with an IP address on this same subnet directly to the Low-Voltage Power Module or to the same router or switch the Low-Voltage Power Module is connected to.

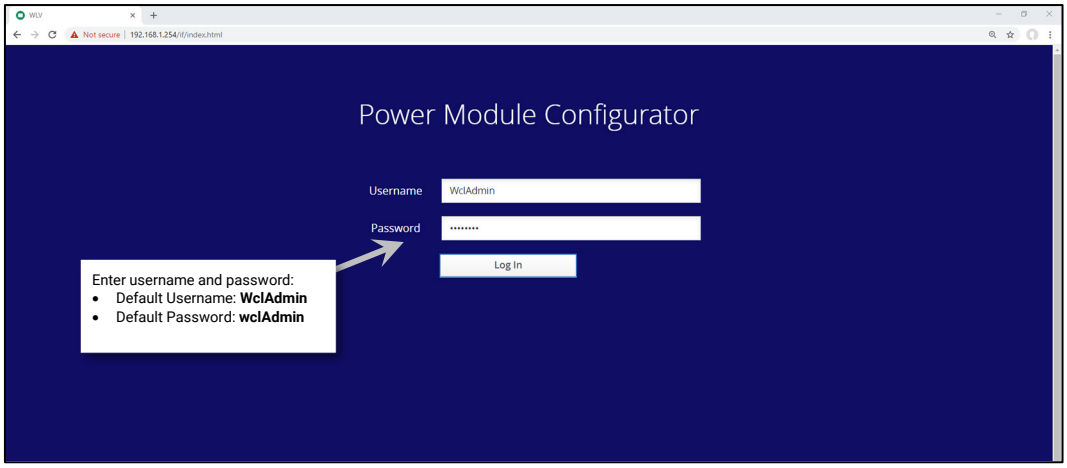


2: Open a current web browser. In the address bar, enter the IP address of the Low-Voltage Power Module (default 192.168.1.254). The browser may display a warning regarding site security. The display and wording of this message may differ. Locate the option to bypass the warning and proceed to the site.

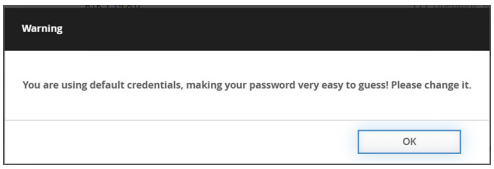


3: In the log in screen, enter the username and assigned password for the Power Module administrator user, and select **Log In**.

- Default Username: **WclAdmin**
- Default Password: **wclAdmin**



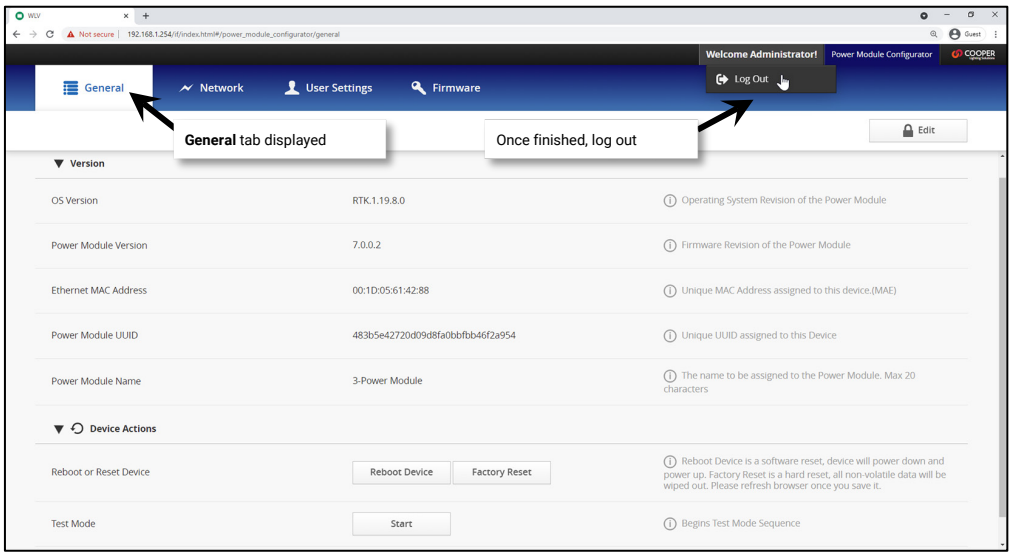
If the password is at the default wclAdmin, a message will display stating that the password should be changed.



For security purposes, change the default password. Users should set a complex password when changing passwords. See “User Settings Administration” on page 437 for this procedure.

4: The Low-Voltage Power Module webpage will open to the **General** tab.

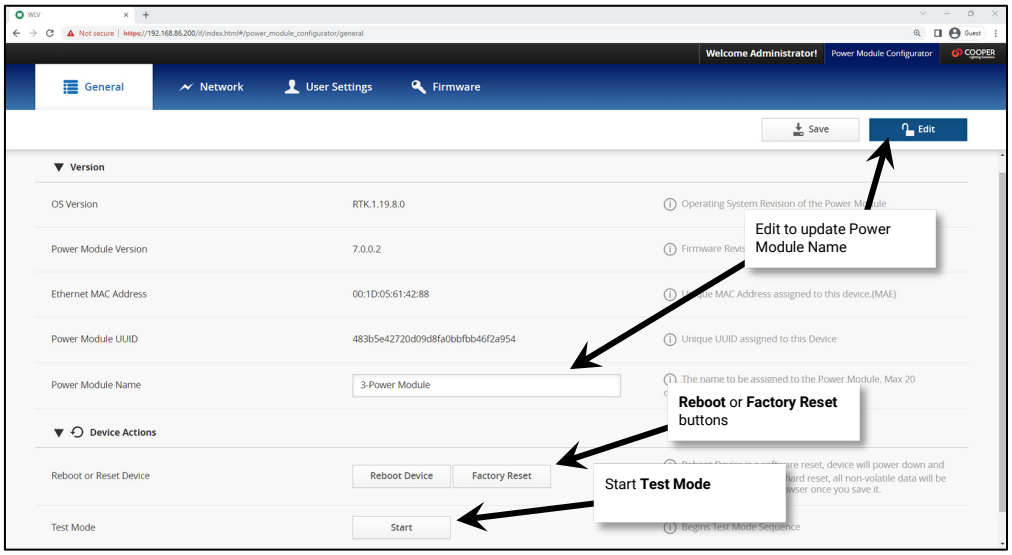
To log out of the page once the settings are reviewed, click on **Welcome Administrator**, and select **Log Out**.



Reviewing and Changing General Settings

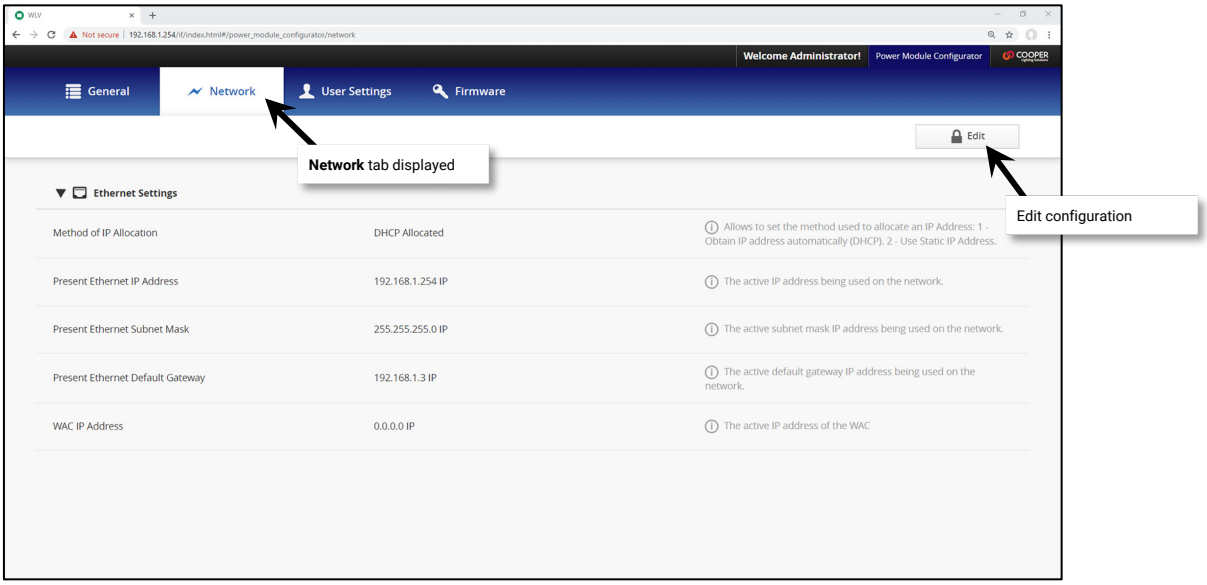
The **General** tab lists information about the Low-Voltage Power Module including the operating system, firmware version, and the **Power Module Name**.

- Select **Edit** to update the Low-Voltage Power Module to a new unique name to make it easier to identify on larger projects.
- Use the buttons for rebooting or factory resetting the Low-Voltage Power Module if necessary.
  - Reboot Device: This will cause the device to power down and then power up, forcing a software reset. Data will not be lost.
  - Factory Reset: Use with extreme caution. This will cause all settings to be removed, resetting the unit to factory defaults. Pairing information will be lost if the unit has been previously paired with a WaveLinx Area Controller.
- Select **Test Mode**: All lights connected to the Low-Voltage Power Module will cycle between OFF and ON for 15 seconds.



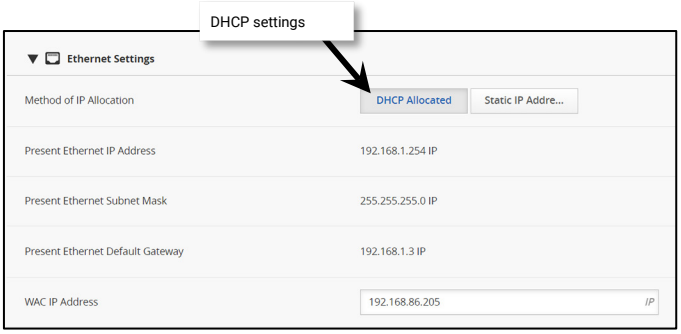
Updating Ethernet Settings

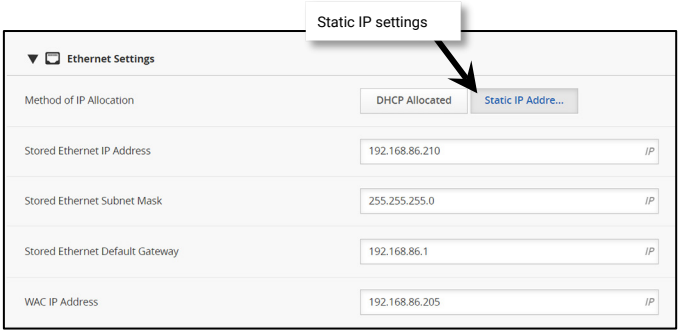
Select the **Network** tab to display the current Ethernet settings. Select **Edit** to modify the settings.



If editing, choose between DHCP and Static IP options. If using a Static IP, type in the desired IP Address, the appropriate subnet mask, and the default Gateway IP.

For best results, enter the WaveLinx Area Controller's IP address that should pair with this Low-Voltage Power Module. This ensures that during pairing, the Low-Voltage Power Module connects to the correct WaveLinx Area Controller. If the **WAC IP** is not entered, once the Low-Voltage Power Module is paired with a WaveLinx Area Controller, the WaveLinx Area Controller's IP will automatically populate in this field.



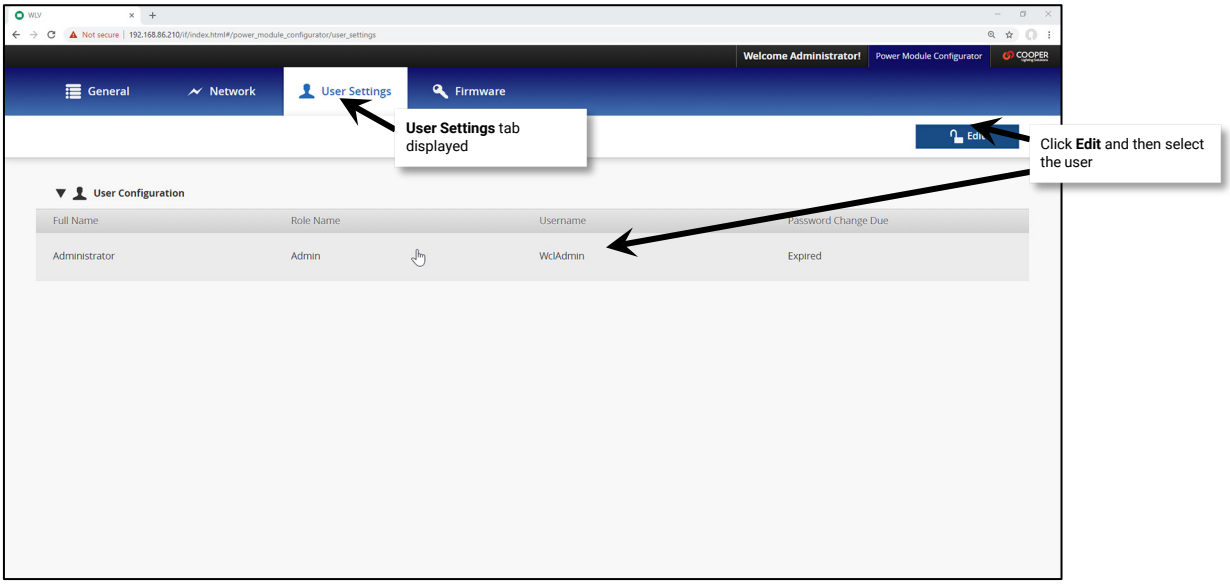


If changes were made, click on **SAVE** and then close the web browser. The Low-Voltage Power Module will automatically reboot once Ethernet setting changes are saved. If the web browser has been left open, it will be disconnected. A Low-Voltage Power Module reboot takes approximately 1 ½ minutes to complete.

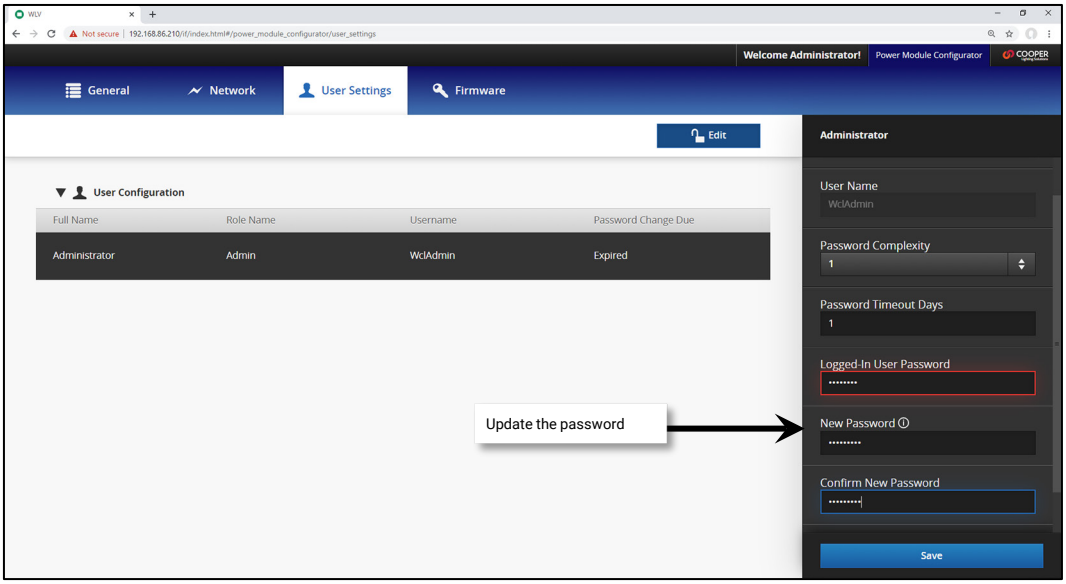
User Settings Administration

For security purposes, change the default password. Users should set a complex password when changing passwords.

Use the **User Settings** tab to change the password for the administrator login. Select Edit, then select the line for the Administrator User.

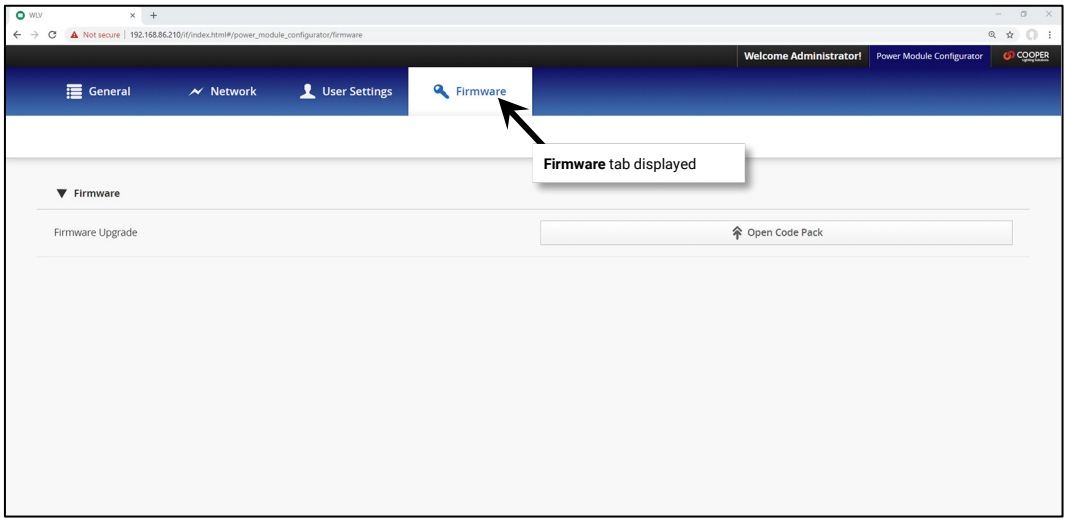


Use the **Administrator** user window to change the password. The remaining fields should be left at defaults. Click **SAVE** when changes are complete.



Firmware Administration

Although it is possible to update the firmware of the Low-Voltage Power Module and connected Low-Voltage devices through the firmware tab, it is recommended to perform this procedure using the WaveLinx Area Controller Webpages. Please see “Updating the Firmware of WaveLinx Devices” on page 386 for upgrade information.[415]



Identifying Power Modules and Connected Fixtures

Use **Blink to Identify** from the WaveLinx App to locate all Low-Voltage Fixtures connected to the Low-Voltage Power Module.

1: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[416] and establish a connection with the WaveLinx Area Controller as the administrator user.

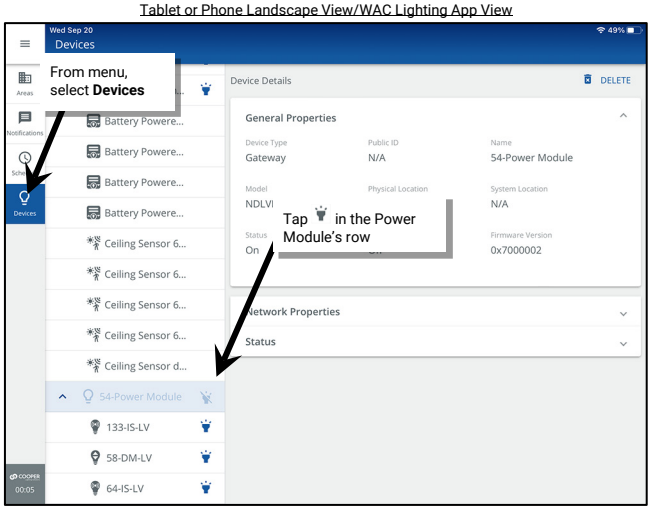
2: Open the **Devices** view from the menu and then locate the Low-Voltage Power Module in the device list.

3: Tap in the Low-Voltage Power Module’s row to place the device in **Blink to Identify** mode. When placed in **Blink to Identify** mode:

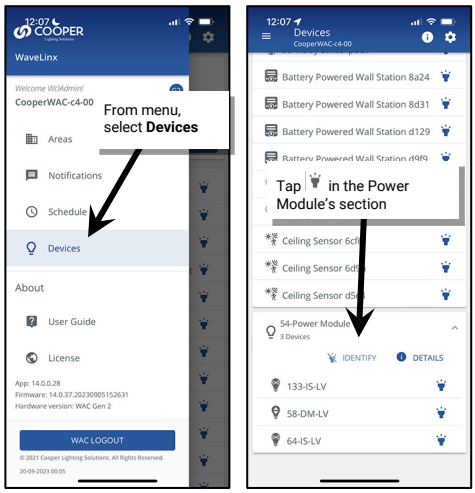
- All Low-Voltage Fixtures connected to this Low-Voltage Power Module will cycle ON for 1 second, turn OFF for 1 second repeatedly.
- The Status LED on the Low-Voltage Power Module will flash blue.

After 15 seconds, **Blink to Identify** will automatically time out and return to normal operation.

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



Note: Use the **Identify** button on the Low-Voltage Power Module to **reverse identify** the device in the **Devices** tab. When the **Identify** button is pressed, the icon in the Mobile App **Devices** list will appear to pulse for 15 seconds.

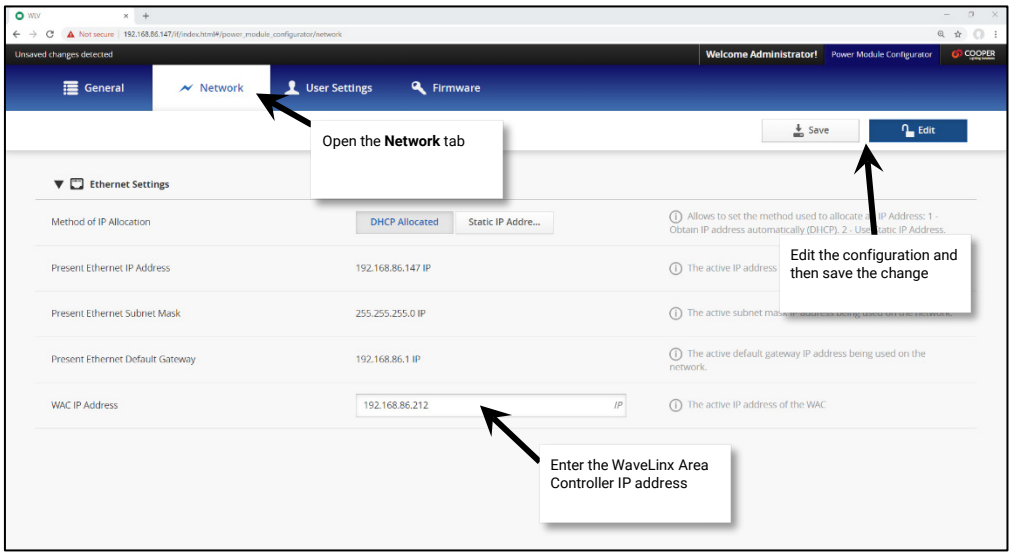
[415] If using the Power Module webpage to perform the upgrades, the webpage must stay active and open during the entire update.

[416] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Reconnecting after IP Address Changes

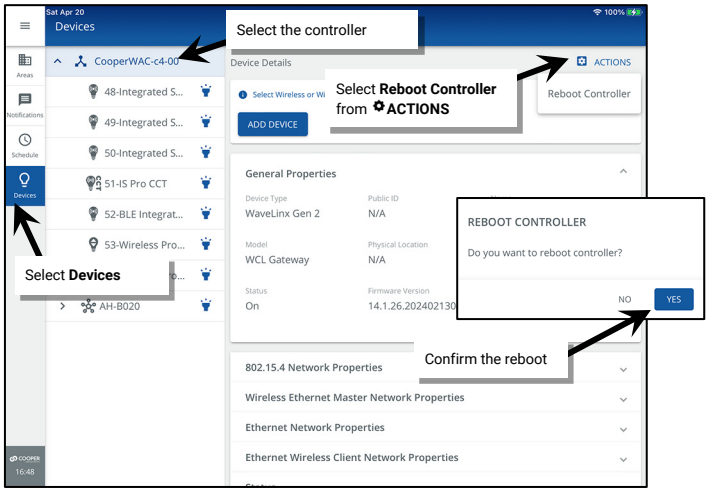
The WaveLinx Area Controller and Low-Voltage Power Module rely on their connection through the Ethernet to communicate information back and forth to the connected WaveLinx LV devices. During the initial pairing process, the IP addresses are stored for connection purposes. If the IP address of either device changes, the connection between them will be lost. To reestablish the connection, follow the steps below.

1: (Skip to step 2 if the WaveLinx Area Controller IP address has not changed.) Open the Low-Voltage Power Module internal webpage and update the WaveLinx Area Controller IP Address in the **Network** page. Once saved, wait two minutes so that the Low-Voltage Power Module has a chance to fully reboot.

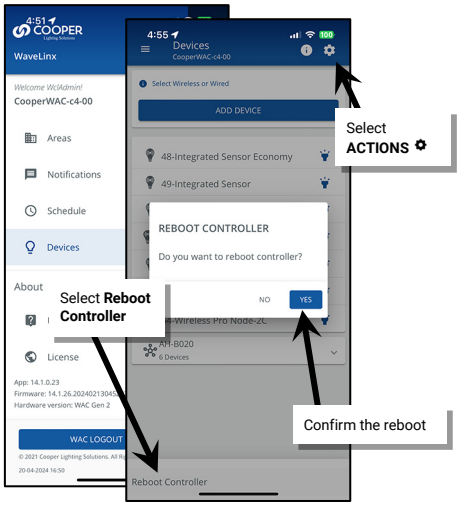


2: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[417]. Select the **Devices** option from the menu. Select the WaveLinx Area Controller and then tap the **ACTIONS** option. Tap **Reboot Controller** and then confirm. A reboot takes approximately 2 to 4 minutes to complete. During this time, the WaveLinx Area Controller and the Low-Voltage Power Module should reestablish their connection.

Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



It may take several additional minutes before the connected WaveLinx LV devices show online status and begin operation with programmed settings.

[417] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Replacing a WaveLinx Low-Voltage Power Module

If the Low-Voltage Power Module needs to be replaced after its connected devices are paired to the WaveLinx App, follow the procedure below.

1: Power down the existing Low-Voltage Power Module and disconnect it. **DO NOT** delete the device from the WaveLinx App.

2: Install the new Low-Voltage Power Module. Making sure that power to the new Low-Voltage Power Module is still OFF, reconnect all the Low-Voltage Fixture connections.

3: Reapply power and then press and release the Low-Voltage Power Module's **Test** button. Verify that all the lighting connected to the Low-Voltage Power Module is responding by cycling between 100% light output and OFF during the 15 second test period. Verify that the status LED is blinking orange, indicating that the Low-Voltage Power Module has not been paired.

4: If not using a DHCP server, use the procedure on page 436 to connect to the Low-Voltage Power Module's internal webpage and define the static IP address. Once configuration is complete, be sure to connect the Low-Voltage Power Module to the Building LAN.

5: Press and release (1 second press) the PAIR button located on the side or rear panel of the WaveLinx Area Controller or use the WaveLinx Mobile App to start pairing mode. Wait for the new Low-Voltage Power Module to pair with the WaveLinx Area Controller and display a steady green status LED. Manually cancel pairing mode by pressing and releasing the PAIR button on the WaveLinx Area Controller. The blue 802.15.4 LED should turn solid ON.

6: Wait at least five minutes after pairing and then open the WaveLinx Mobile App or WaveLinx WAC Lighting App[418]. Select the **Devices** option from the menu. Both the old and the new power module should be listed in the devices list.

7: Click on the **Blink to Identify** option for the newly paired Low-Voltage Power Module. Visually verify that all the Low-Voltage Fixtures connected to this Low-Voltage Power Module are cycling ON and OFF for the 15 second test period.

8: Wait an additional five minutes to give the WaveLinx Area Controller time to process the changeover and then verify that the Low-Voltage Fixtures show online. Next, verify that the Low-Voltage Fixtures operate from the controls in the space.

9: Once operation is fully verified, in the WaveLinx App, select the original Low-Voltage Power Module and then tap **delete** 🗑. Confirm the deletion to remove the device from the application.

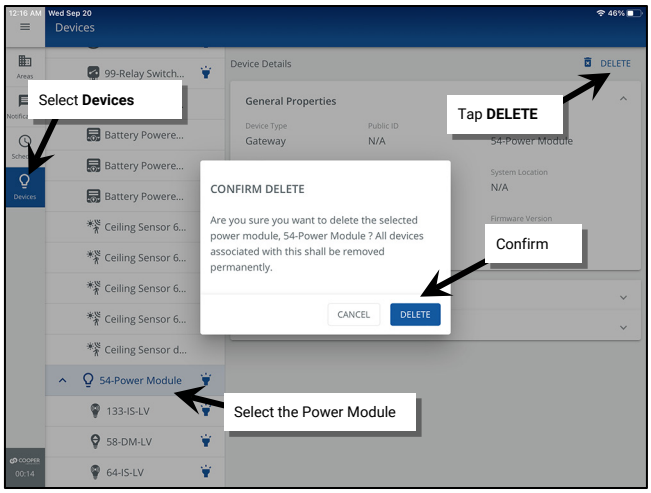
[418] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Unpairing a Low-Voltage Power Module from the WaveLinx Area Controller

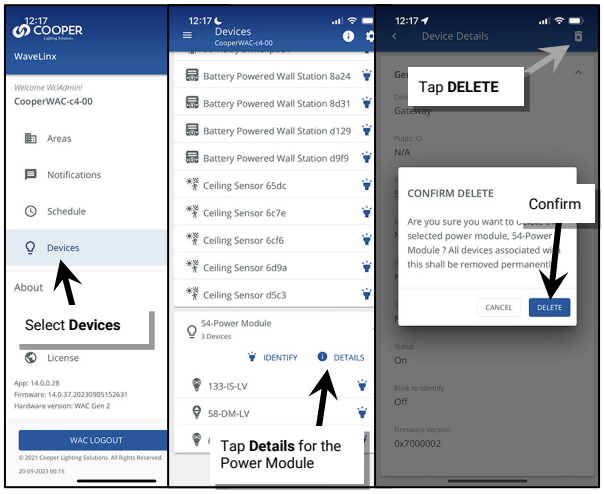
If a Low-Voltage Power Module has paired to the incorrect WaveLinx Area Controller, the Low-Voltage Power Module can be removed using one of two methods.

- **To remove the Low-Voltage Power Module Using the WaveLinx Mobile App or the WaveLinx WAC Lighting App**[419]: Open the WaveLinx App. In the **Devices** view, tap the Low-Voltage Power Module and verify that the status field in **General Properties** reads **Good**. In the **Devices** list, locate the Low-Voltage Power Module and then tap **DELETE** 🗑. When prompted, confirm the deletion. Allow several minutes for the WaveLinx Area Controller to process the change for all the connected low-voltage devices.

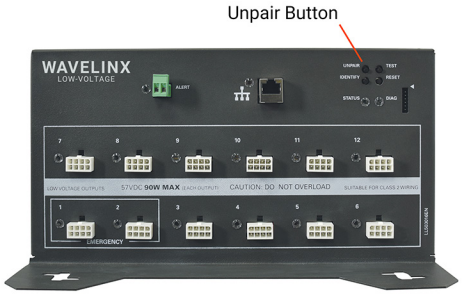
Tablet or Phone Landscape View/WAC Lighting App View



Phone Portrait View



- **To remove the Low-Voltage Power Module using the onboard pushbuttons:** Press and hold the **Unpair** button for longer than 10 seconds to unpair it from the WaveLinx Area Controller.



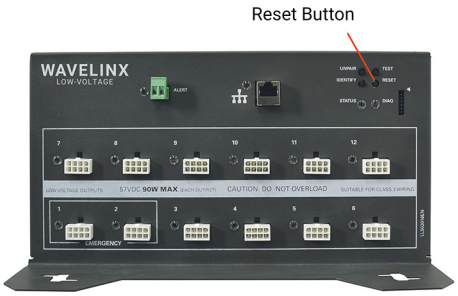
Any connected Low-Voltage Fixtures will return to out-of-the-box behavior once the Low-Voltage Power Module is unpaired.

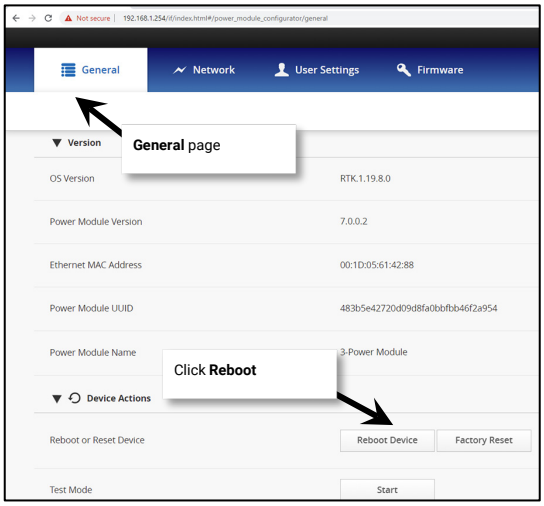
[419] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

Rebooting the Low-Voltage Power Module

Reboot the Low-Voltage Power Module from the onboard pushbuttons or from the Low-Voltage Power Module's internal webpages. A reboot is a soft reset which restarts the software in the Low-Voltage Power Module without affecting configured settings. Once started, the reboot will take approximately 1 ½ minutes to complete.

- To perform the reboot using the onboard pushbuttons, momentarily press the reset button (push and release).
- To perform the reboot from the Low-Voltage Power Module's internal webpages, log in and then select **Reboot** from the **General** page.





WaveLinx Device Administration

This section describes how to perform Device Maintenance tasks including how to:

- Replace and sync WaveLinx PRO devices
- Replace Low-Voltage Fixtures and Low-Voltage Fixtures with Integrated Sensors
- Perform a factory reset

Adding a New Device to the WaveLinx Area Controller

If a new device is added after the initial pairing/discovery and addition of devices to the WaveLinx Area Controller, the new device can be added. The method of how the device is added depends on the type of device it is.

Adding a WaveLinx PRO Device

To add a WaveLinx PRO device to the WaveLinx Area Controller:

1: Place the WaveLinx Area Controller into pairing mode. By either pressing (1 second press) the PAIR button or through the WaveLinx Mobile App (see page 167 for instructions). The blue 802.15.4 LED on the WaveLinx Area Controller will blink to indicate pairing mode is active.

2: Place the WaveLinx PRO device into pairing mode. Refer to the device reference sheets beginning on page 17 for details on how to place the device into pairing mode.

3: Wait a few minutes as the device pairs with the WaveLinx Area Controller and then cancel pairing mode.

Once paired, the devices should exhibit the successful paired device behavior described in the device reference sheets and be shown in the Construction Area and in the Unassigned Devices. Proceed with adding the device to a zone or area.

Adding a WaveLinx LV Device

To add a WaveLinx LV device to the WaveLinx Area Controller:

1: Power down the Low-Voltage Power Module. Hot swapping is not supported.

2: Install the new Low-Voltage Fixture or Low-Voltage Fixture with Integrated Sensor and then reapply power.

3: Wait at least two minutes for the Low-Voltage Power Module to fully boot and connect to the WaveLinx Area Controller. During this time, the Low-Voltage Power Module will communicate the new device's presence to its paired WaveLinx Area Controller and the device will join the construction area. The device may display a message briefly on the WaveLinx App as it joins the WAC.

Note: If the device does not pair automatically after the Low-Voltage Power Module is fully powered, place the WaveLinx Area Controller in pairing mode. The device should then pair to the construction area.

Once paired, the devices should exhibit the successful paired device behavior described in the device reference sheets and be shown in the Construction Area and in the Unassigned Devices. Proceed with adding the device to a zone or area.

Adding a WaveLinx CAT Device

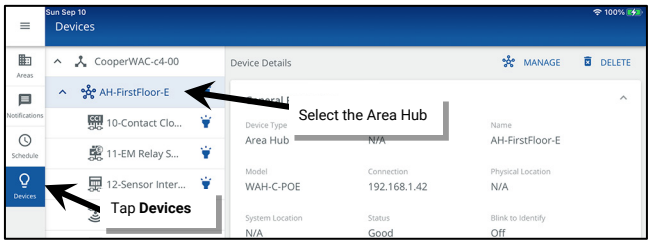
If a new WaveLinx CAT device is added to the system or a new room of devices is connected to an unused Area Hub port, follow the steps below to bring the device into the WaveLinx mobile app:

1: Power down the Area Hub and connect the new device or port of devices. Reapply power and wait for the Area Hub to boot and reconnect with the WaveLinx Area Controller.

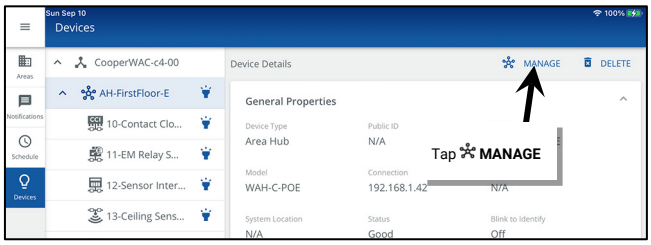
2: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

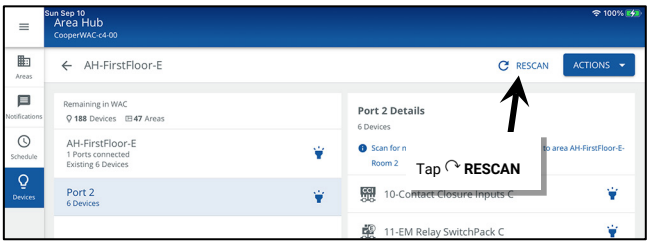
3. From the menu ☰, select **Devices**. From the **Devices** list, tap the **Area Hub.**

For phone devices being used in portrait view, tap ℹ ***Details***.

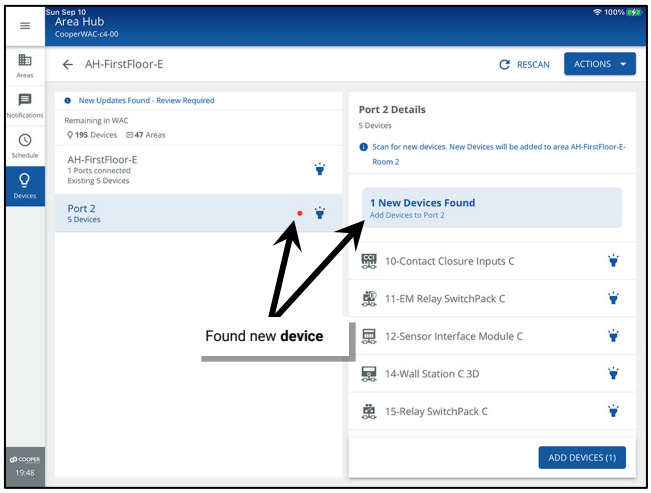


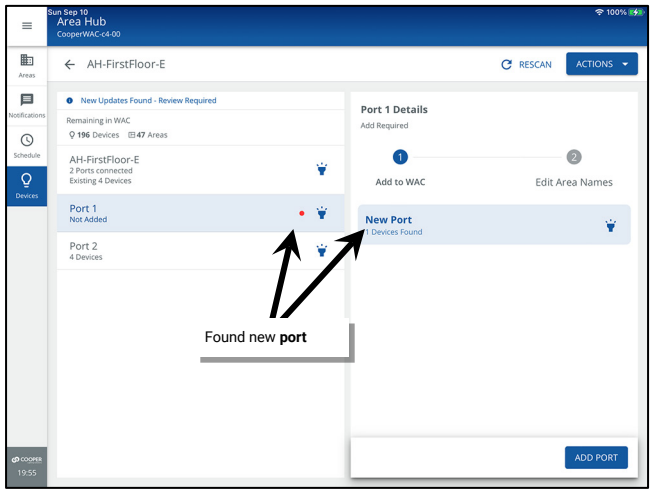
5: In **Device Details**, tap **MANAGE** and then tap **RESCAN**.





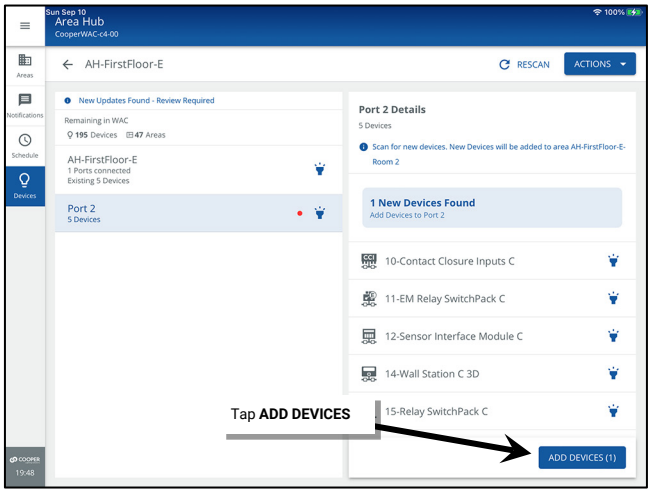
6: Wait for the scan to complete (may take several minutes.) Locate the row with the new item indicator and then tap it to open the details.



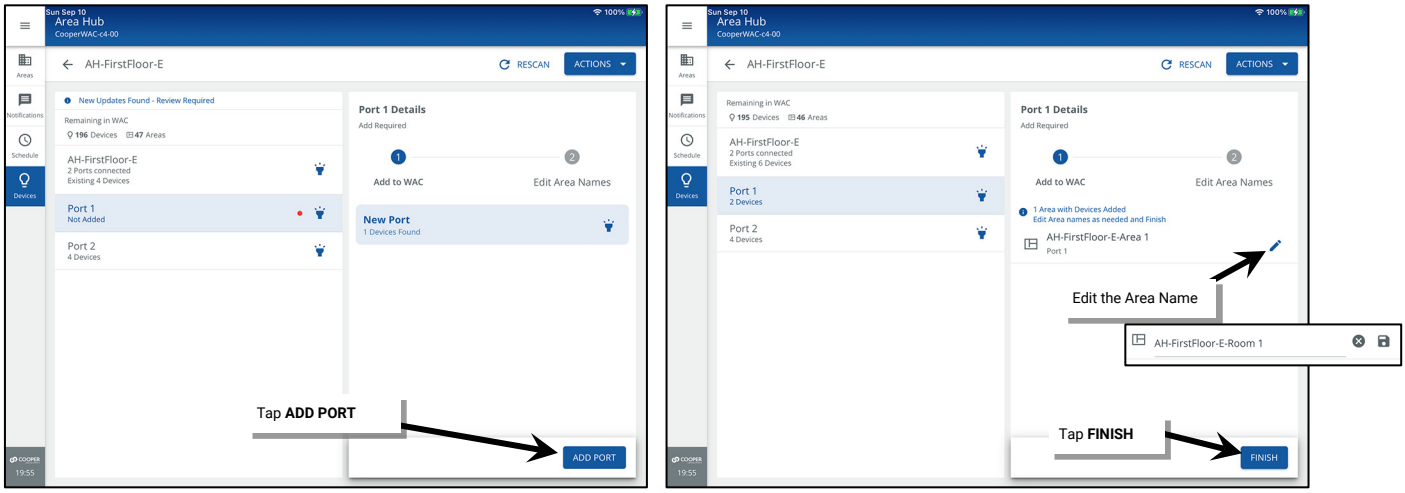


7: Add either the new device or the new port and devices:

- To add a device, tap **ADD DEVICES**. The device will be added to the WAC.



- To add a new port, tap **ADD PORT**. Optionally tap **edit** ✎ to change and save the default area name and then tap **FINISH**. The devices will be added to the WAC.



Once added, the new device(s) will show in the area created for the Area Hub port it is connected to.

Adding a WaveLinx DALI Device or DALI Fixture

If a new WaveLinx DALI device or DALI fixture is added to the system, follow the steps below to bring the device into the WaveLinx mobile app:

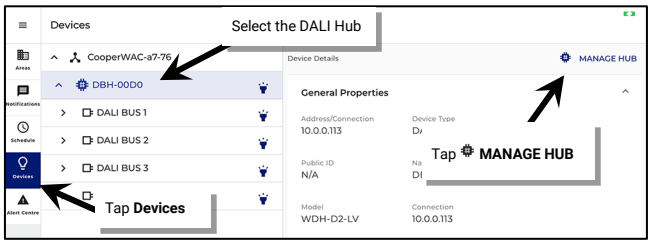
1: Connect the new device to a DALI bus and make certain the DALI bus is connected to the WaveLinx DALI Hub.

2: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

3. Select **Devices** on the sidebar or from the menu ☰, select **Devices**. From the **Devices** list, tap the **DALI Hub.**

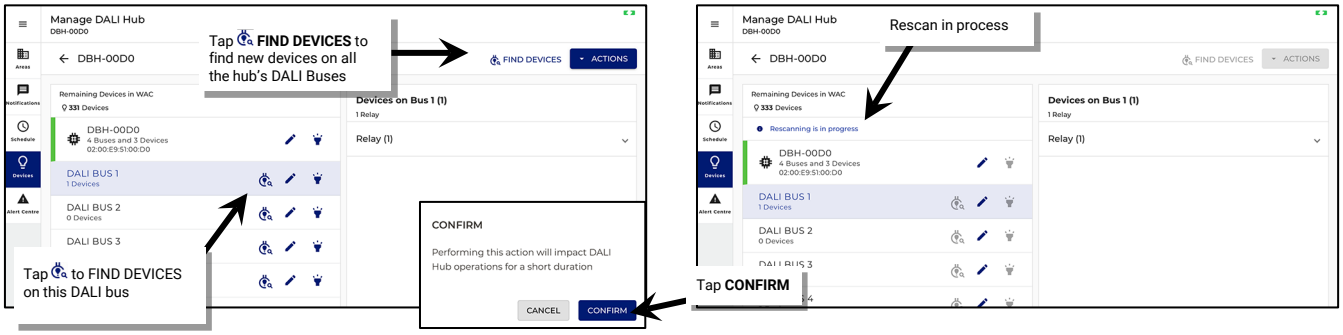
For phone devices being used in portrait view, tap ℹ ***Details***.

4: In **Device Details**, tap **MANAGE HUB.**

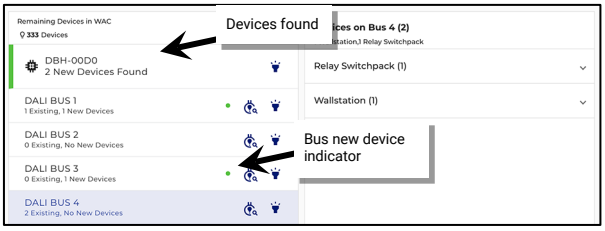


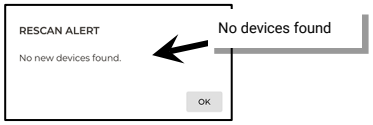
5: Tap **FIND DEVICES** at either the **hub** or **bus** section and **CONFIRM** the action.

The hub **FIND DEVICES** selection will scan for new devices connected to all the DALI buses. This may take longer than a single bus scan. DALI bus traffic slow down until the scan completes. The scan may take several minutes to complete. While the scan is running, all FIND DEVICES and Blink-to-Identify icons will be inactive.



6: Once the scan completes, review the found devices. A **green indicator** ● will show on any DALI Bus row that has a newly found device or a message will be displayed if no new devices are found.





7: Tap the DALI Bus row that has the new device and then tap the **ADD DEVICES** button. The device(s) will be added to the WaveLinx Area Controller.

8: Repeat step 7 to for any additional DALI bus(es) that have new devices.

Adding a WaveLinx Networked Relay Panel Relay or Dimmer

If a relay or dimming module is added to a WaveLinx Networked Relay Panel, add the new device using the details in “Adding Relays or Dimming Modules using Reimport” on page 430.

Deleting a Device from a WaveLinx Area Controller

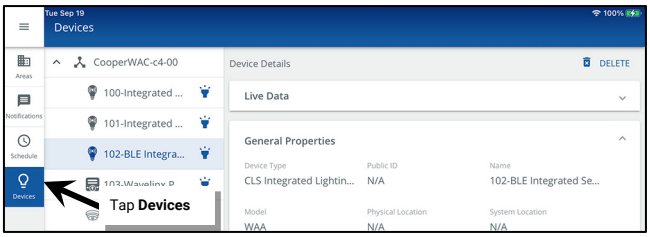
Devices can be deleted from the WaveLinx Area Controller if they are not being used in that WaveLinx Area Controller.

- With WaveLinx PRO devices, the device will be returned to factory defaults, ready to be paired with another WaveLinx Area Controller.
- With WaveLinx LV devices, the device will be deleted. However, if the device is still physically attached to the same WaveLinx Low-Voltage Power Module, the device may pair as a new device the next time the WaveLinx Area Controller is placed in pairing mode.
- With WaveLinx CAT devices, the device will be deleted. If the device is still physically attached to the same WaveLinx Area Hub, it can be readded through the WaveLinx Area Hub ↷ **RESCAN** command.
- With WaveLinx DALI Devices and DALI fixtures, the device will be deleted. If the device is still physically attached to the same WaveLinx DALI Hub, it can be readded through the WaveLinx DALI Hub **FIND DEVICES** command.
- With a WaveLinx Networked Relay Panel relay or dimmer, the device will be deleted. If the device is still attached to the same relay panel, it can be readded through the WaveLinx Relay Panel **REIMPORT** command.

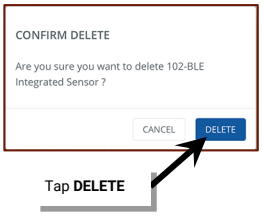
To delete a device:

1: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

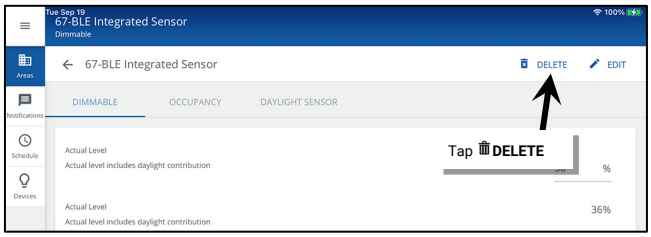
2. From the menu ☰, select **Devices**.



3: Locate and select the device in the **Devices** list and then tap 🗑 **DELETE**. When prompted, tap **DELETE** to confirm.



Note: Devices can also be deleted within the Areas view by accessing the device and tapping the DELETE option at the top of the page.



Adding a Deleted Device

If a WaveLinx device has been deleted in error, it is easy to re-add the device. The device will need to be reconfigured once added back to the WAC.

Pairing a Deleted WaveLinx PRO Device

If a WaveLinx PRO device is deleted in error, pair the device as if it is a new device.

1: Place the WaveLinx Area Controller into pairing mode.

2: Place the WaveLinx PRO device into pairing mode.

3: Wait a few minutes as the device pairs with the WaveLinx Area Controller and is added to the Construction Area and then cancel pairing mode.

Pairing a Deleted Low-Voltage Device

If a Low-Voltage Fixture or Low-Voltage Fixture with Integrated Sensor has been removed from the WaveLinx Area Controller, either by deleting it manually from the WaveLinx App, or by removing unpaired devices using the WaveLinx Area Controller advanced PAIR button functionality, the device will not automatically rejoin the Construction Area even though it is communicating to a paired Low-Voltage Power Module.

To pair a low-voltage device that was removed in error:

1: Place the WaveLinx Area Controller into pairing mode.

2: Wait for the Low-Voltage Device to pair with the WaveLinx Area Controller and be added to the Construction Area before cancelling pairing mode.

Adding a Deleted WaveLinx CAT Device

If a WaveLinx CAT device has been removed from the WaveLinx Area Controller by deleting it the device will not automatically rejoin the WAC even though it is communicating to a discovered WaveLinx Area Hub. It will be necessary to run the ↷ **Rescan** command just like adding a new CAT device. Refer to “Adding a WaveLinx CAT Device” on page 443 for these details.

Adding a Deleted WaveLinx DALI Device

If a WaveLinx DALI device has been removed from the WaveLinx Area Controller by deleting it the device will not automatically rejoin the WAC even though it is communicating to a discovered WaveLinx DALI Hub. It will be necessary to run the **FIND DEVICES** command just like adding a new DALI device. Refer to “Adding a WaveLinx DALI Device or DALI Fixture” on page 445 for these details.

Adding a WaveLinx Networked Relay Panel Deleted Relay or Dimmer

If a relay or dimming module is deleted to a WaveLinx Networked Relay Panel, re-add the device using the details in “Adding Relays or Dimming Modules using Reimport” on page 430.

Moving a WaveLinx LV Device to a Different Low-Voltage Output

Remember to always power down the Low-Voltage Power Module before disconnecting or connecting devices.

To avoid overloading or to make wire routing easier, it may be necessary to move a Low-Voltage Fixture connection to a different Low-Voltage Output after it has been through the pairing process.

- If the output is on the same Low-Voltage Power Module that the device was connected to originally, no further steps are necessary. After the reboot process, the device will automatically reconnect and begin to operate with the originally programmed settings.
- If the output is on a different Low-Voltage Power Module, and the Low-Voltage Power Module is paired to the same WaveLinx Area Controller as the original Low-Voltage Power Module, no further steps are necessary. After the reboot process, the device will automatically reconnect and begin to operate with the originally programmed settings.
- If the output is on a different Low-Voltage Power Module and the Low-Voltage Power Module is paired to a different WaveLinx Area Controller, the device will be treated as a new device. Once the Low-Voltage Power Module reboots and communicates the new device's presence to the WaveLinx Area Controller, the device will need to be programmed.

Replacing WaveLinx Devices

If a device is no longer operating properly and it is determined to be a device issue, replace the device. The WaveLinx App allows for device replacement without the need of reprogramming if the new device is the exact same type of device as the previous device.

Replacing WaveLinx PRO Devices

This section discusses the procedures to replace a WaveLinx PRO device.

DO NOT delete the device from the WaveLinx App.

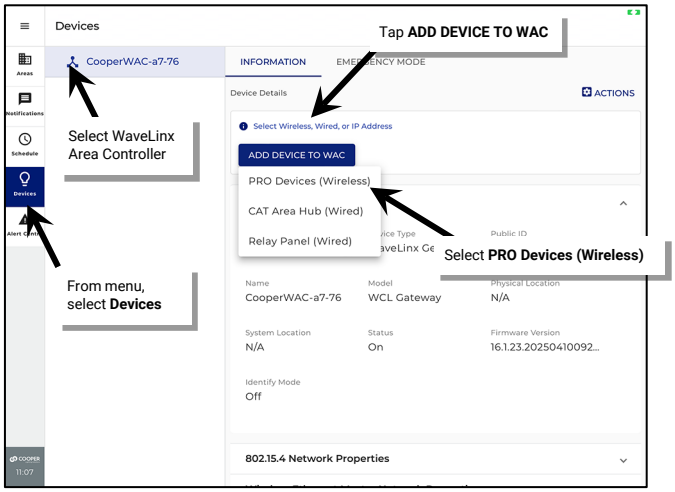
To perform the device replacement:

1: Install the replacement device per the device's installation instructions.

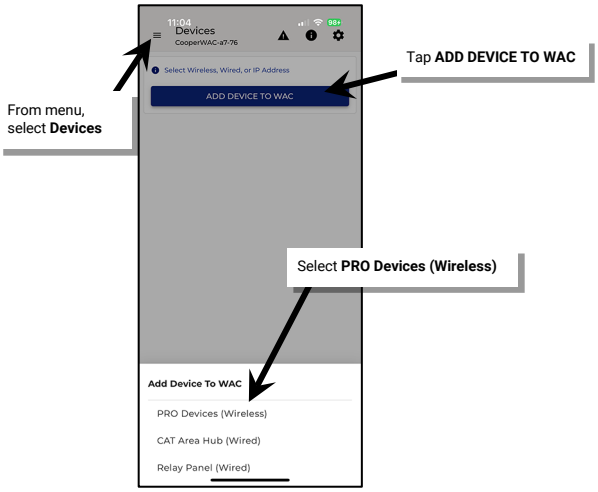
2: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[420] and establish a connection with the WaveLinx Area Controller as the administrator user.

3: Use the WaveLinx App to place the WaveLinx Area Controller into **Device Pairing Mode**. From the menu, select **Devices**. Select the **WaveLinx Area Controller**, and then tap **ADD DEVICE TO WAC**. Select **PRO Devices (Wireless)**.

Tablet or Phone Landscape View/WAC Lighting App View

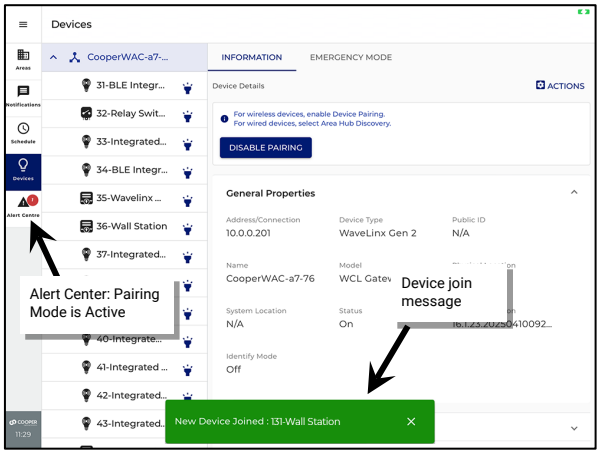


Phone Portrait View



4: Place the replacement device in pairing mode. Refer to the device reference sheets beginning on page 17 for how to place the device into pairing mode.

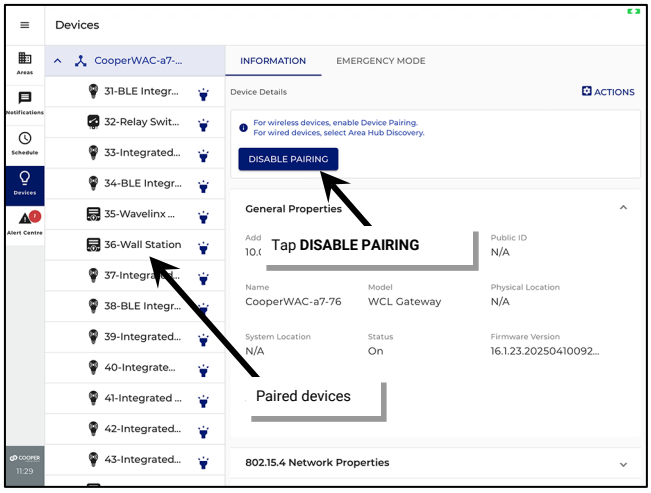
5: Wait a few minutes to give the system enough time to find the device. The device may display a message briefly on the WaveLinx App when it joins the paired construction group. The device will also be shown in the construction group and in the Unassigned Devices.



[420] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

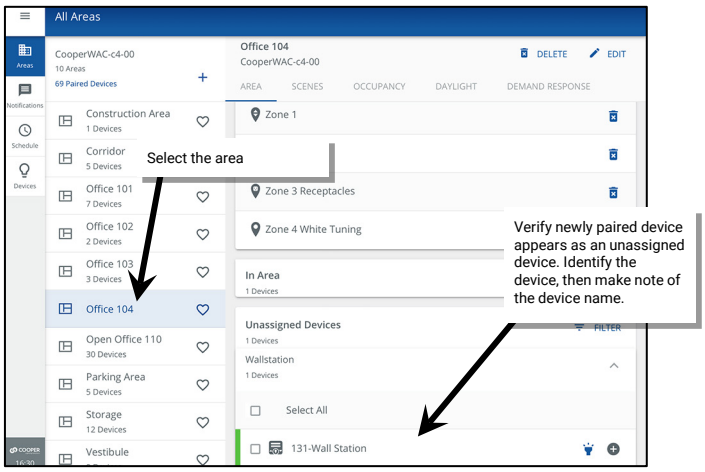
6: Once the device has joined, tap **DISABLE PAIRING**.

Tablet or Phone Landscape View/WAC Lighting App View

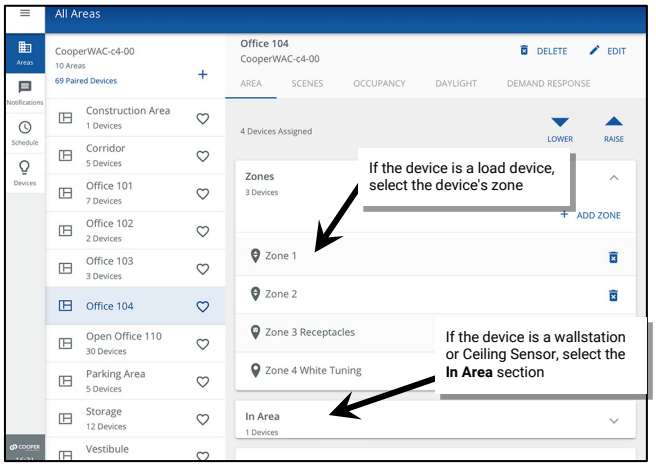


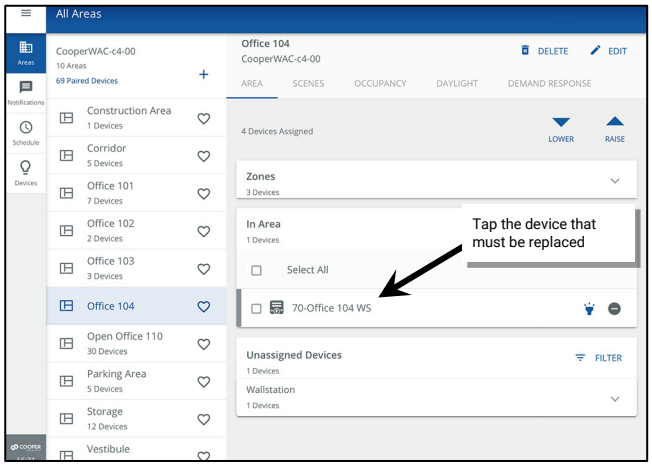
Phone Portrait View

7: In the **All Areas** list, select the area that the replacement has been installed in. Verify that a new device shows in unassigned devices section. While still in the area screen for the desired space, place the device into identification mode using one of the methods described in the device's reference sheet and ensure that the expected device responds. Make note of the device's default name.

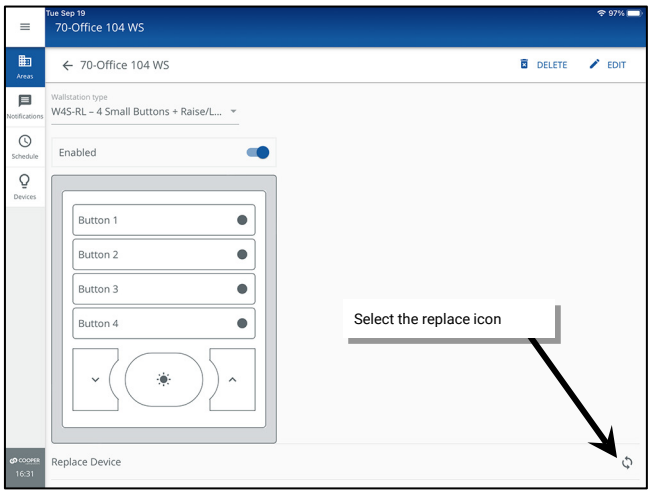


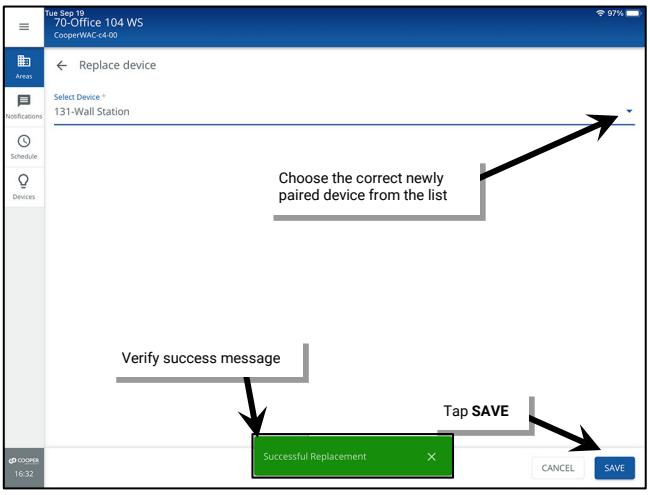
8: Locate the original device in the WaveLinx App. For load devices, open the appropriate control zone. For wallstations or WaveLinx Ceiling Sensors, locate the device in the **Devices in Area** section. Note that the online indicator for the device may be gray or red indicating that the device has lost communication. Tap the device to open it.





9: In the device's page tap **replace** , and when prompted, select the newly installed device, and **SAVE** it. A success message should be displayed, and the new device will take over the functionality of the previous device.





It may take up to ten minutes for some devices to begin operation with the new settings. Some device types may display a message regarding this delay during the replacement process. Do not adjust programming for the devices within the suggested time.

Replacing WaveLinx LV Devices

If it becomes necessary to replace a Low-Voltage Fixture or Low-Voltage Fixture with Integrated Sensor, the WaveLinx App can be used to sync the previous device's settings to the new device.

DO NOT delete the device from the WaveLinx App.

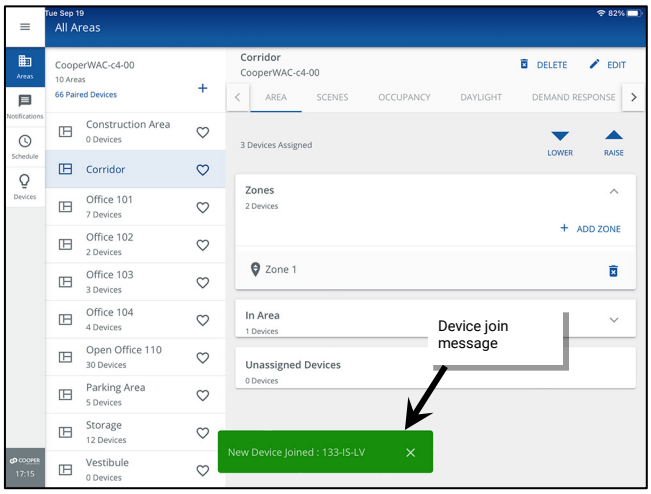
To perform the device sync:

1: Power down the WaveLinx Low-Voltage Power Module. Hot swapping is not supported.

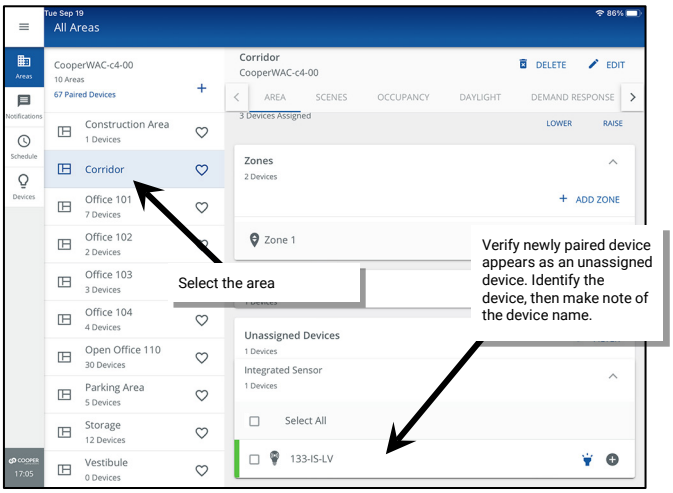
2: Install the replacement WaveLinx LV device and then reapply power to the Low-Voltage Power Module.

3: Wait at least two minutes for the WaveLinx Low-Voltage Power Module to fully power up. During this time, the Low-Voltage Power Module will communicate the new device's presence to its paired WaveLinx Area Controller and the device will join the construction area. The device may display a message briefly on the WaveLinx App when it joins the paired construction group.

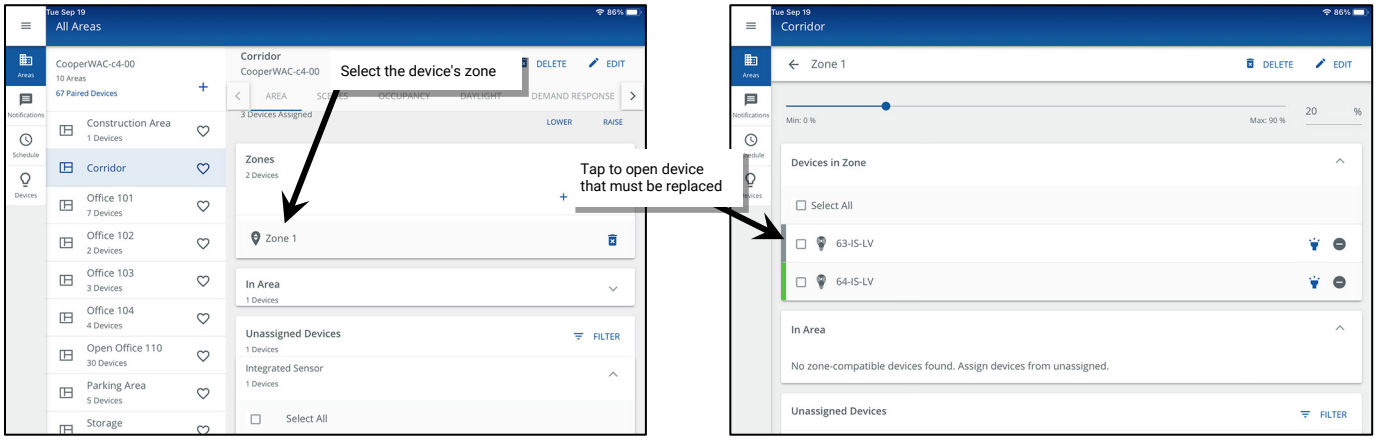
Note: If the device does not pair automatically after the Low-Voltage Power Module is fully powered, place the WaveLinx Area Controller in pairing mode. The device should then pair to the construction area.



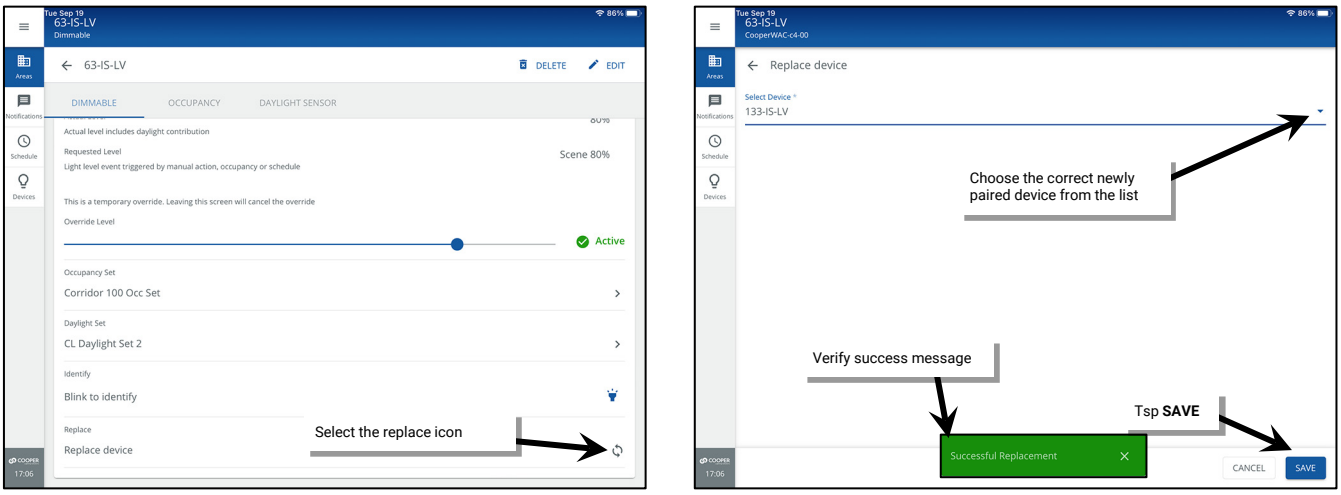
3: In the **All Areas** list, select the area that the replacement has been installed in. Verify that a new device shows in unassigned devices section. While still in the area screen for the desired space, place the device into identification mode using one of the methods described in the device's reference sheet and ensure that the expected device responds. Make note of the device's default name.



4: Locate the original device in the WaveLinx App. For Low-Voltage Fixtures or Low-Voltage Fixtures with Integrated Sensors, open the appropriate control zone. Note that the online indicator for the device may be gray or red indicating that the device has lost communication. Tap the device to open it.



5: In the device's page tap **replace** ⟲, and when prompted, select the newly installed device, and **SAVE** it. A success message should be displayed, and the new device will take over the functionality of the previous device (it may take up to five minutes for some devices to begin operation with the new settings).



Replacing WaveLinx CAT Devices

This section discusses the procedures to replace a WaveLinx CAT device.

DO NOT delete the device from the WaveLinx App.

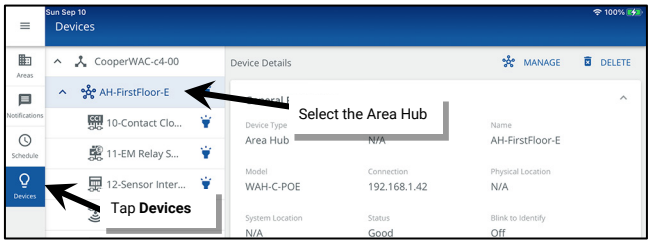
To perform the device replacement:

1: Install the replacement device per the device's installation instructions.

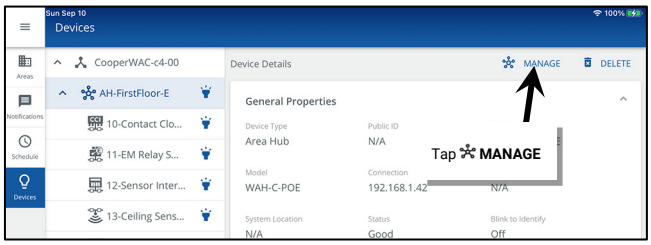
2: Open the WaveLinx Mobile App or WaveLinx WAC Lighting App[421] and establish a connection with the WaveLinx Area Controller as the administrator user.

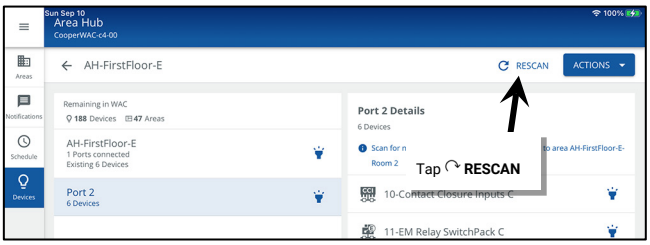
3: From the menu ☰, select **Devices**. From the **Devices** list, tap the **Area Hub.**

For phone devices being used in portrait view, tap ℹ ***Details***.

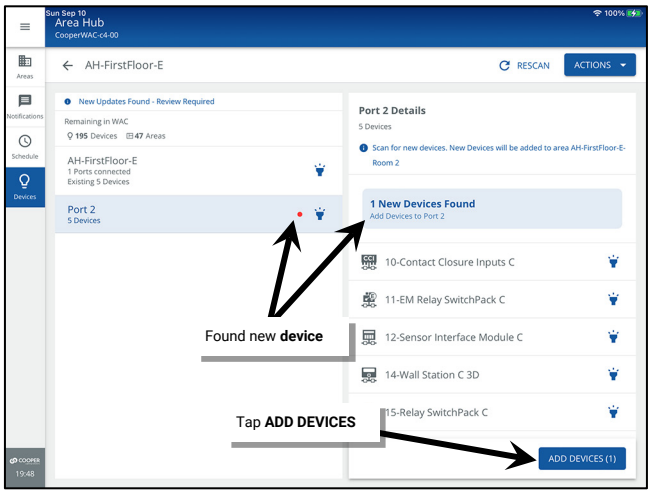


5: In **Device Details**, tap ⁂ **MANAGE** and then tap ↷ **RESCAN**.



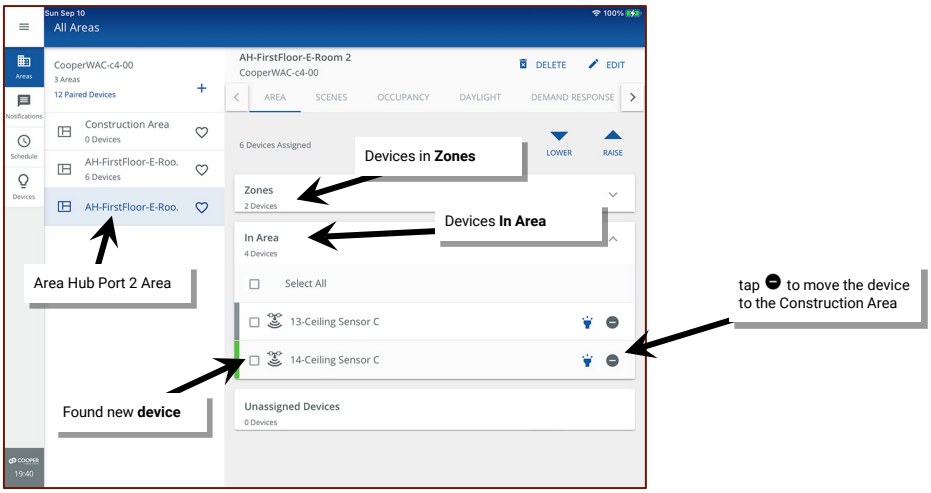


6: Wait for the scan to complete (may take several minutes.) Locate the row with the new item indicator ● and then tap it to open the details. Tap **ADD DEVICES**. The device will be added to the WAC.

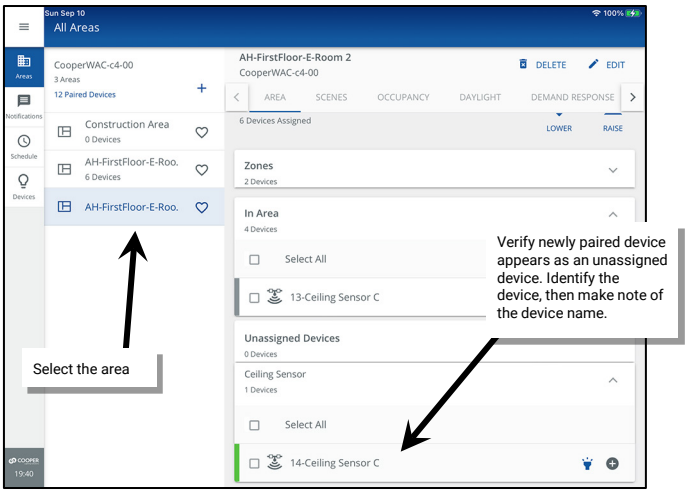


[421] The WaveLinx WAC Lighting App can be used with WaveLinx Area Controller minimum software version 11.x.x.x and higher.

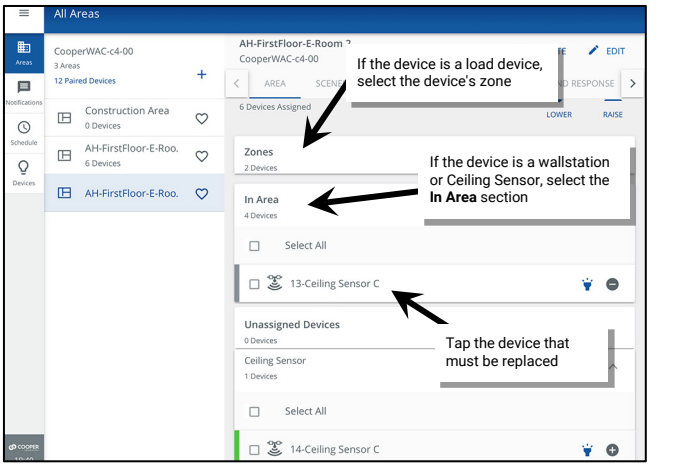
7: Locate the new device in the area created for the Area Hub port. WaveLinx CAT Switchpacks will show in the **Zone** while other devices will show in the **Devices in Area** section. Once found, tap ⊖ to remove the device from the area and move it to the **Construction Area**.



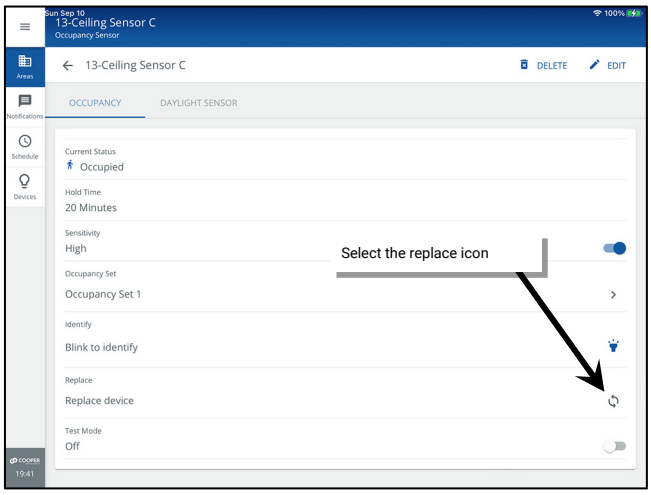
8: In the **All Areas** list, select the area that the replacement has been installed in. Verify that a new device shows in unassigned devices section. While still in the area screen for the desired space, place the device into identification mode using one of the methods described in the device's reference sheet and ensure that the expected device responds. Make note of the device's default name.

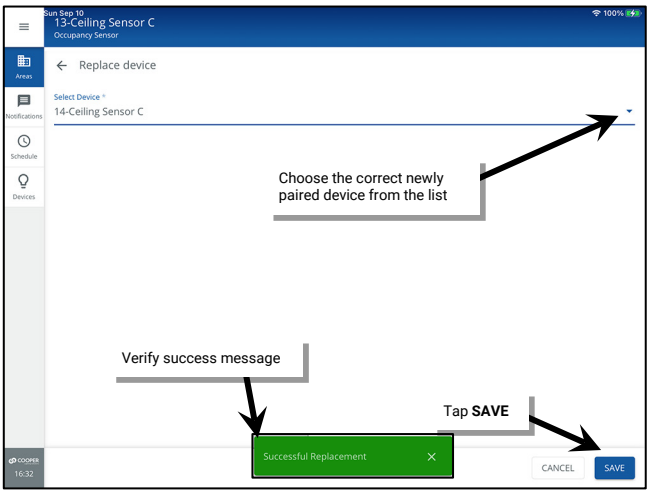


9: Locate the original device in the WaveLinx App. For load devices, open the appropriate control zone. For wallstations or WaveLinx Ceiling Sensors, locate the device in the **Devices in Area** section. Note that the online indicator for the device may be gray or red indicating that the device has lost communication. Tap the device to open it.



10: In the device's page tap **replace** , and when prompted, select the newly installed device, and **SAVE** it. A success message should be displayed, and the new device will take over the functionality of the previous device.





Replacing WaveLinx DALI Devices

This section discusses the procedures to replace a WaveLinx DALI device.

DO NOT delete the device from the WaveLinx App.

To perform the device replacement:

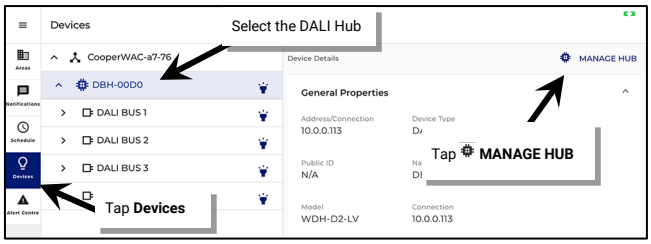
1: Install the replacement device per the device's installation instructions.

2: Open the WaveLinx App and login to the WaveLinx Area Controller as the administrator.

3. Select **Devices** on the sidebar or from the menu ☰, select **Devices**. From the **Devices** list, tap the **DALI Hub.**

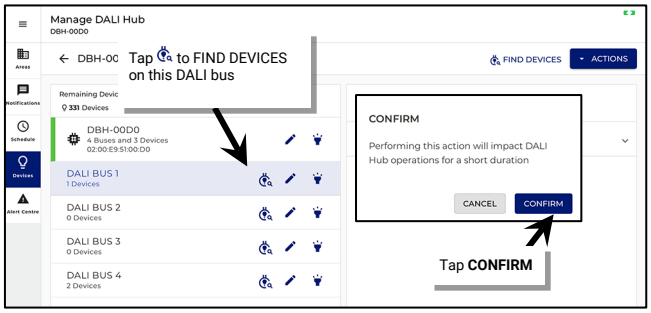
For phone devices being used in portrait view, tap ❶ ***Details***.

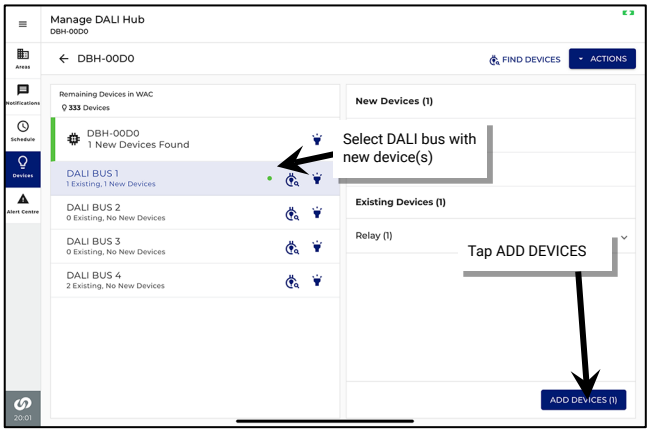
4: In **Device Details**, tap **MANAGE HUB.**



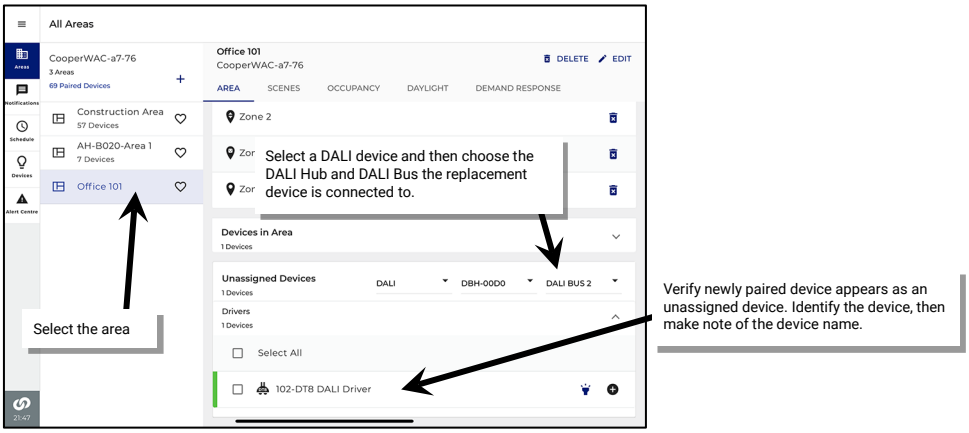
5: Tap **FIND DEVICES** next to the DALI **bus** that the new devices is connected to and **CONFIRM** the action.

6: Once the scan completes, the scanned row should have a **green indicator** ● to show that it has a newly found device. Tap the row and select **ADD DEVICE**.

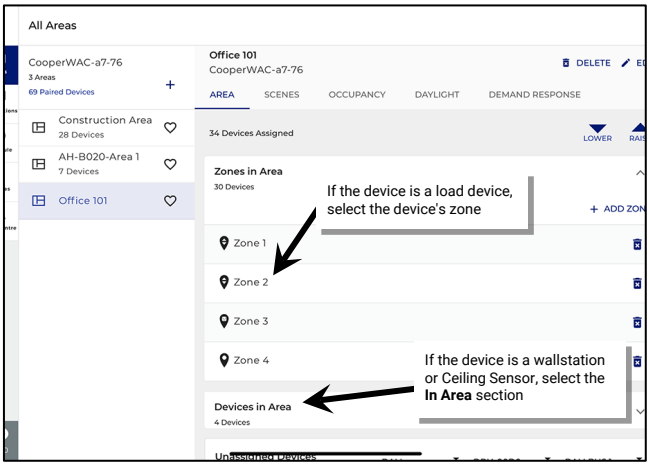


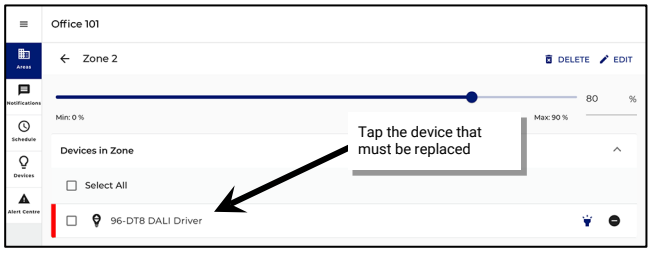


7: In the **All Areas** list, select the area that the replacement has been installed in. In the unassigned device section, select DALI and select the DALI Hub and DALI Bus that the new device is connected to. While still in the area screen for the desired space, place the device into identification mode using one of the methods described in the device's reference sheet and ensure that the expected device responds. Make note of the device's default name.

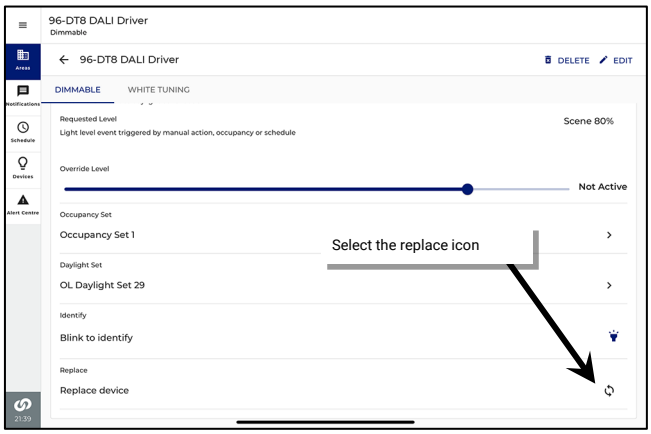


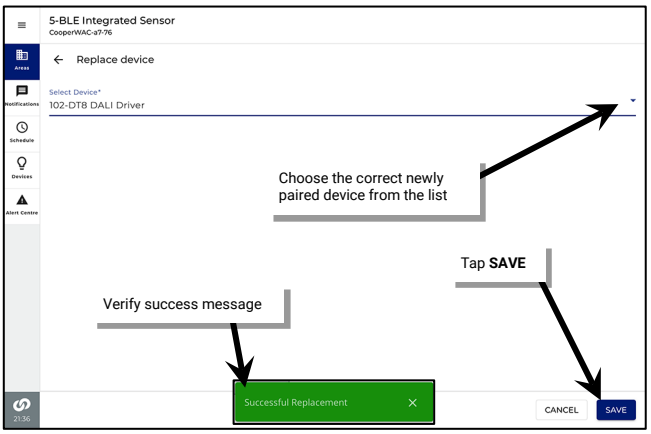
8: Locate the original device in the WaveLinx App. For load devices, open the appropriate control zone. For wallstations or WaveLinx Ceiling Sensors, locate the device in the **In Area** section. Note that the online indicator for the device may be gray or red indicating that the device has lost communication. Tap the device to open it.





9: In the device's page tap **replace** , and when prompted, select the newly installed device, and **SAVE** it. A success message should be displayed, and the new device will take over the functionality of the previous device.





Replacing WaveLinx Networked Relay Panel Devices

For details on replacing WaveLinx Networked Relay Panel devices such as the controller card, relays, and dimming modules, see the following pages:

- Controller Card Replacement: see "Replacing a Relay Panel Controller" on page 429
- Relays and/or Dimming Module Replacement: see "Adding Relays or Dimming Modules using Reimport" on page 430

Performing a Factory Reset

Most WaveLinx devices have a method of restoring the device to factory defaults. This command should be used with caution as settings will be lost when the factory default command is used. Please refer to the device reference sheets starting on page 17 for details on how to perform a factory reset in each device type.

WaveLinx Mobile App Administration

This section describes how to perform Mobile App administration tasks including how to:

- View application version details
- Update the Mobile App
- Delete a WaveLinx Mobile App Cloud Account

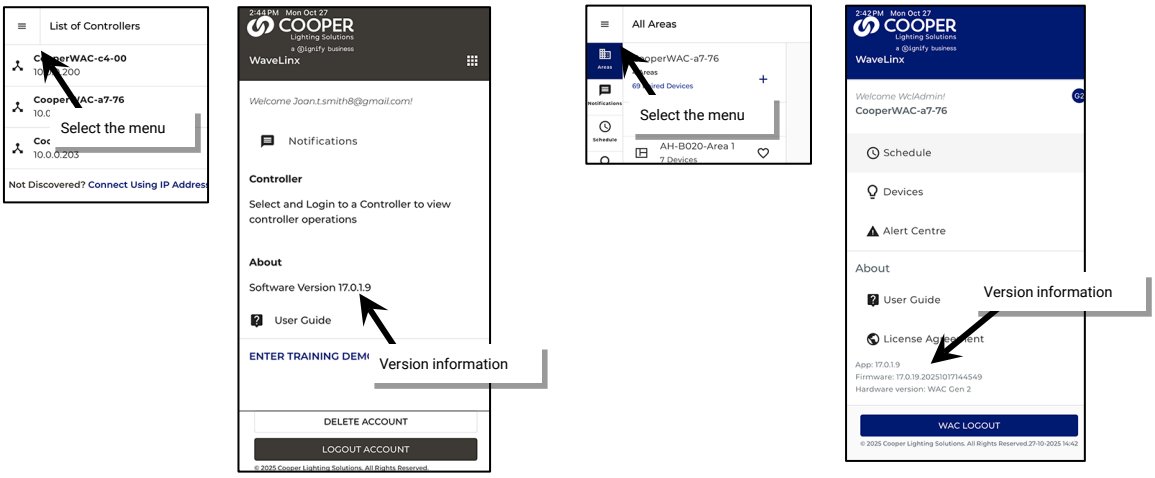
Viewing Mobile App Version

Use the WaveLinx Mobile App to view the current application version.

1: On the user's mobile device, open the WaveLinx Mobile App. The Mobile App does not need to be connected to the WaveLinx Area Controller to view the version information.

2: At the top-left corner of the screen, tap the menu icon and then select the information icon. The screen will display the application version.

Alternate option: Login to the WaveLinx Area Controller. The WaveLinx Area Controller firmware version will also be displayed.



Updating the Mobile App

From time to time, updates may be available for the WaveLinx Mobile App. Updates will be performed per the user's preference settings on each mobile device. If not updated automatically, updates may be installed manually from the updates section of the App Store or Google Play Store.

Deleting a WaveLinx Mobile App Cloud Account

The mobile app allows users to delete the cloud account created when the user first registered to login to the Mobile App. As the cloud account may be used for multiple Cooper Lighting Applications, deleting the cloud account will affect access to all Cooper Lighting Applications that use the same cloud account. Delete users with caution!

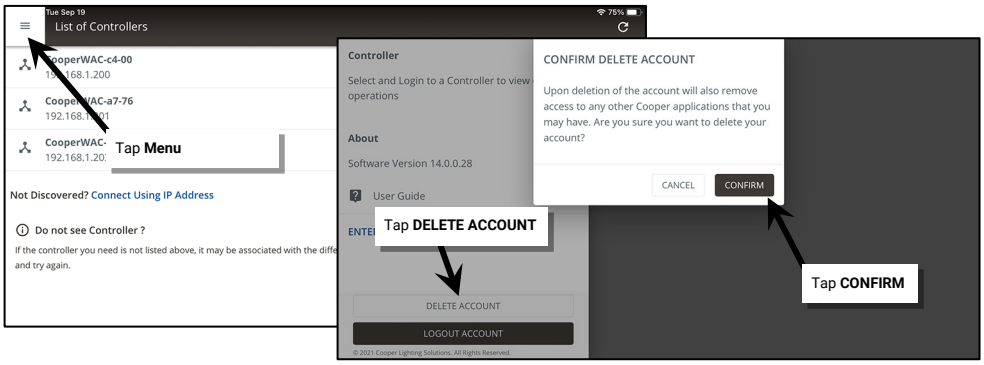
To delete a user's Cooper Lighting WaveLinx Mobile App user account:

1: Tap **Menu** ☰.

2: Select **DELETE ACCOUNT**.

3: Tap **CONFIRM**.

The user account will be deleted, and the mobile app will return to the login page.



Common Questions

This section has some commonly encountered scenarios that may occur when following the procedures in this manual. Refer to this section for solutions to these scenarios.

One of my devices does not display the correct out-of-the-box functionality. What should I do?

Refer to the following chart organized by device type for troubleshooting steps. After performing the resolution steps, if the unexpected condition is not resolved, contact technical support using one of the following communications methods:

- Phone: 1-800-553-3879
- Email:

  United States: Controltechsupport@cooperlighting.com

  Canada: CANSupport@cooperlighting.com

Device	Unexpected Condition	Resolution Steps

WaveLinx Area Controller
 	
	• The blue power/health LED is not illuminated.
	• The green LAN LED is not illuminated.
	• The blue 802.15.4 LED is not illuminated.
	• Other LEDs are illuminated on the unit.
		• Ensure the unit is connected to a PoE switch or injector for power.
		• Try to perform the pairing function. If the pairing operation works and the unit appears operational, continue with configuration.
		• Other LEDs may be illuminated depending on the other connections to the WaveLinx Area Controller.
		  • Blue Wi-Fi LED will be ON unless the Wi-Fi access point or client has been disabled. The LED may also flash depending on the enabled options.
		  • WAN LED will be ON if there is an active connection from a third-party device or WaveLinx CORE system.
		  • LAN LED will be ON if the WaveLinx Area Controller has a defined IP address (DHCP/static) and is on the building network. It will blink when the WaveLinx Area Controller is in pairing mode.
		  • PAN LED/Bluetooth LED should always be OFF.
		• If connected properly and the pairing functionality does not work, make note of the current LED statuses, and contact technical support.

WaveLinx Outdoor Area Controller 	• The power/health LED is not illuminated • The System Operation LED is OFF.	• Ensure the unit is connected to power. • If connected properly and the LEDs remain OFF or other functionality does not work, contact technical support. For LED operation/behavior explanations, see page 22.

Device	Unexpected Condition	Resolution Steps
WaveLinx PRO • Ambient Integrated Sensor • WaveLinx Tilemount Sensor • WaveLinx Industrial Integrated Sensor • WaveLinx Outdoor Integrated Sensor **Note** In high mount applications, it may be difficult to see the LED.	No LED in the sensor window and the connected fixture is OFF.	• For industrial and outdoor sensors, verify that the sensor is fully seated on the fixture mounting. • For outdoor sensors, during daytime hours, the sensor may have lighting turned OFF due to out-of-the-box ON at dusk, OFF at dawn operation. Verify operation after dusk. • Verify that the fixture's power source is connected and powered from the circuit breaker. • Ensure that there is motion activity within the sensor's viewing field. • Try to perform the pairing function. If the pairing operation works, the LED may be turned OFF via a software setting. Once the device is paired and accessible in the WaveLinx App, select the device to review the occupancy sensor settings and ensure that the LED function is enabled. • If the pairing function fails to find the fixture/sensor and the fixture/sensor is still not responding, contact technical support.
	No LED in the sensor window and the connected fixture is ON.	• Try to perform the pairing function. If the pairing operation works, the LED may be turned OFF via a software setting. Once the device is paired and accessible in the WaveLinx App, select the device to review the occupancy sensor settings and ensure that the LED function is enabled. • If the pairing function fails to find the fixture/sensor, contact technical support.
	LED in the sensor window blinks white with motion instead of green. Device has not been paired with the desired WAC. OR LED in the sensor window blinks yellow and repeats indefinitely. Device has not been paired with the desired WAC.	The sensor has been previously paired with a WaveLinx Area Controller. • Method 1: If there is more than one WaveLinx Area Controller at the facility, identify which WaveLinx Area Controller is paired by successively placing the WaveLinx Area Controllers into pairing mode to locate which unit prompts a dimming response in the load in question. Then, use the WaveLinx App to identify and delete the device manually from the incorrectly paired WaveLinx Area Controller. • Method 2: Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. The device's LED should then blink green with motion indicating its ready state for pairing.
	LED in the sensor window blinks green, then white every 3 seconds.	The sensor has been previously paired with a WaveLinx Area Controller but has lost communication with the controller. • Make certain that the WaveLinx Area Controller is powered and operational and that the device is within range. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. The device's LED should then blink green indicating its ready state for pairing.
	LED in sensor window flashes white and repeats the flash indefinitely.	The sensor has been previously paired with a WaveLinx Area Controller and has been disabled using either a time schedule event or manual disable through the WaveLinx App.[422]
	LED in sensor window flashes white, then yellow with motion.	The sensor has been previously paired with a WaveLinx Area Controller and daylighting is holding the lighting OFF due to the daylight exceeding the OFF threshold.

Device	Unexpected Condition	Resolution Steps
WaveLinx PRO • Outdoor Lighting Control Module	Connected load is OFF or ON continuously.	• This device will operate the connected fixture via the onboard daylight sensor until the device is paired with a WaveLinx Area Controller. To verify functionality, power down, then power up the device via the circuit breaker. Immediately after power up, verify that the lighting load turns ON to 100% initially. The daylight sensor will then dictate whether the load remains ON or turns OFF. • If load does not turn on initially upon power up, verify all connections and ensure the module is properly seated in the fixture's onboard mounting receptacle. • Contact technical support if the problem persists.

[422] If the device is a SWPD1 Integrated Sensor (IS), this flash pattern indicates that the lighting is OFF due to the daylight sensor exceeding the OFF threshold.

Device	Unexpected Condition	Resolution Steps
WaveLinx PRO • WaveLinx PRO Node	The connected fixture is OFF	• Verify that the fixture's power source is connected and powered from the circuit breaker. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • Try to perform the pairing function. • If the pairing function fails to find the device and the fixture is still not responding, contact technical support.

Device	Unexpected Condition	Resolution Steps
WaveLinx PRO • Wireless Fixture	The connected fixture is OFF.	• Verify that the fixture's power source is connected and powered from the circuit breaker. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • Try to perform the pairing function. • If the pairing function fails to find the device and the fixture is still not responding, contact technical support.

Device	Unexpected Condition	Resolution Steps

WaveLinx PRO
• WaveLinx Universal Voltage Dimming Switchpack
  • RSP-P-010-347
  • WSP-MV-010
  • WSP-UV-010
	LED and connected load are OFF.	• Press and release the onboard push button (1 second press) to try to toggle the load between ON and OFF.
		• If the load and LED do not respond, verify that the circuit wiring is properly connected and energized.
		• Disconnect 0-10V wiring from switchpack. The load should go to full bright when these wires are separated.
		• Contact technical support if the problem persists.

WaveLinx PRO • WaveLinx Universal Voltage Dimming Switchpack with Emergency • WSP-UV-010-EM	LED and connected load are OFF.	• Verify that the circuit wiring is properly connected and energized. • Disconnect 0-10V wiring from switchpack. The load should go to full bright when these wires are separated. • Contact technical support if the problem persists.
WaveLinx PRO • WaveLinx Universal Voltage Dimming Switchpack with contact closure • WSP-CA-010	Connected load is OFF.	• Verify that the circuit wiring is properly connected and energized. • Disconnect 0-10V wiring from switchpack. The load should go to full bright when these wires are separated. • Contact technical support if the problem persists.

Device	Unexpected Condition	Resolution Steps
WaveLinx PRO • Receptacle	The outlet LED does not illuminate and there is no power on both outlets.	• Verify that the circuit wiring is properly connected and energized. • Contact technical support if the problem persists.
	The outlet LED does not illuminate and there is no power to the controlled outlet. The constantly powered outlet is operational.	• Press the onboard manual push button to try to toggle the LED and outlet state. • If the problem persists, contact technical support.

Device	Unexpected Condition	Resolution Steps
WaveLinx PRO • Ceiling Sensor	LED does not flash	• Ensure that the sensor batteries are installed and charged. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17.

Device	Unexpected Condition	Resolution Steps
WaveLinx PRO • W-Series Wallstation	All the button LEDs are flashing quickly.	• The wallstation is in pairing mode and indicates a successful connection to a WaveLinx Area Controller. The wallstation will automatically time-out from this function after 1 hour. • If the WaveLinx Area Controller has exited pairing mode already, the press of the wallstation button should also cancel the LED flash behavior.
	When a button is pressed, no LEDs illuminate.	• Verify that the circuit wiring is properly connected and energized. • Contact technical support if the problem persists.
	When a button is pressed the LED flashes ON 500ms/OFF 1 sec. Repeats for 10 sec.	• The wallstation has not been paired with a WaveLinx Area Controller. Place WaveLinx Area Controller into paring mode to reinitialize the pairing process, and then press the button on the wallstation again to reissue the join request (the button LED will flash slowly for 10 seconds again to indicate the join request will be sent. As it joins the network, the LED may flash very rapidly for approximately 5 seconds and then flash all LEDs to indicate it is paired). • If the problem persists, verify that the distance of the wallstation to the WaveLinx Area Controller is within the expected range and that there are fewer than 150 devices paired before contacting technical support.
	When the button is pressed, the LED stays ON.	• The wallstation has been previously paired and is part of either a construction group or WaveLinx App defined area. If paired with the incorrect WaveLinx Area Controller, locate the WaveLinx Area Controller that is responding to the button presses. Then, use the WaveLinx App to identify and delete the device manually from the incorrectly paired WaveLinx Area Controller to allow pairing to the correct WaveLinx Area Controller.
	When a button is pressed the LED flashes ON 1 sec/OFF 1 sec. and repeats for 10 sec.	• The wallstation has been previously paired and is part of a WaveLinx App defined area and has been disabled using a time schedule event or manual WaveLinx App disable command. Verify that the wallstation is enabled and check for time schedule events that may be disabling the wallstation.

Device	Unexpected Condition	Resolution Steps
WaveLinx PRO • WB-Series Battery Powered Wallstations	When a button is pressed, no button LEDs illuminate.	• Out-of-the-box, this is the correct behavior.
	When my hand is in proximity to the wallstation, the red LED under the bottom button does not flash.	• Verify that the batteries are installed properly for the wallstation and that they are fully charged. • Verify that your hand is within approximately 5cm of the wallstation. • Contact technical support if the problem persists.
	When the button is pressed, the LED on the button illuminates then turns OFF. When I have my hand close to the station, the LED on the button turns ON again.	• The wallstation has been previously paired and is part of either a construction group or WaveLinx App defined area. If paired with the incorrect WaveLinx Area Controller, locate the WaveLinx Area Controller that is responding to the button presses. Then, use the WaveLinx App to identify and delete the device manually from the incorrectly paired WaveLinx Area Controller to allow pairing to the correct WaveLinx Area Controller. • The LEDs will turn OFF automatically to the conserve battery life conserving energy until the wallstation is used again.

Device	Unexpected Condition	Resolution Steps
WaveLinx PRO • WW-Series Wallstation	When a button is pressed, no LEDs illuminate	• Verify that the circuit wiring is properly connected and energized. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • Contact technical support if the problem persists.
	When a button is pressed, the LED flashes white for 300ms/OFF for 1.7 sec and repeats for 10 seconds instead of green.	The wallstation has been previously paired with a WaveLinx Area Controller. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • The device's LED should then blink green when a button is pressed indicating its ready state for pairing.
	The LED is flashing yellow repeatedly OR The LED is flashing magenta repeatedly	The wallstation has been previously paired with a WaveLinx Area Controller. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • The device's LED should then blink green when a button is pressed indicating its ready state for pairing.
	When a button is pressed, the LED flashes green, and then white, repeating for 10 seconds.	The wallstation has been previously paired with a WaveLinx Area Controller but has lost communication with the controller. • Make certain that the WaveLinx Area Controller is powered and operational and that the device is within range. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • The device's LED should then blink green when a button is pressed indicating its ready state for pairing.
	When a button is pressed, the LED flashes white for 1 sec./OFF for 1 sec. and repeats for 10 seconds.	• The wallstation has been previously paired and is part of a WaveLinx App defined area and has been disabled using a time schedule event or manual WaveLinx App disable command. Verify that the wallstation is enabled and check for time schedule events that may be disabling the wallstation.

Device	Unexpected Condition	Resolution Steps
WaveLinx PRO • WWB-Series Battery Powered Wallstation	When a button is pressed, no LEDs illuminate	• Verify that the batteries are installed properly for the wallstation and that they are fully charged. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • Contact technical support if the problem persists.
	When a button is pressed, the LED flashes white* (300ms ON/1.7sec. OFF) for 15 seconds instead of green. OR When a button is pressed the LED flashes white then magenta* for 15 seconds instead of green.	The wallstation has been previously paired with a WaveLinx Area Controller. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. The device's LED should then blink green when a button is pressed indicating its ready state for pairing. *Note: may be followed by a yellow or red flash indicating a low or very low battery status.
	When a button is pressed, the LED flashes green and then white*, repeating for 10 seconds.	The wallstation has been previously paired with a WaveLinx Area Controller but has lost communication with the controller. • Make certain that the WaveLinx Area Controller is powered and operational and that the device is within range. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • The device's LED should then blink green when a button is pressed indicating its ready state for pairing. *Note: instead of white, the green flash may be followed by a yellow or red flash indicating a low or very low battery status.

Device	Unexpected Condition	Resolution Steps
CONTINUED • WWB-Series Battery Powered Wallstation	When a button is pressed, the LED flashes white* (1 sec. ON/1 sec. OFF) for 15 seconds	• The wallstation has been previously paired and is part of a WaveLinx App defined area and has been disabled using a time schedule event or manual WaveLinx App disable command. Verify that the wallstation is enabled and check for time schedule events that may be disabling the wallstation. *Note: may be followed by a yellow or red flash indicating a low or very low battery status.

Device	Unexpected Condition	Resolution Steps
WaveLinx PRO • Contact Closure Input Module	No LEDs illuminate on the device	• Verify that the circuit wiring is properly connected and energized. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • Contact technical support if the problem persists.
	The device LED is flashing white but nothing is happening when the contacts are closing	• The contact closure module has been added to a WaveLinx Area Controller but may not be programmed. Verify that the device is set for the proper operation mode and that the contact closure actions have been programmed for the desired actions through the WaveLinx Mobile App.

Device	Unexpected Condition	Resolution Steps
WaveLinx • Low-Voltage Power Module	All LEDs and connected lighting are OFF	• Verify that the Low-Voltage Power Module is properly connected to a powered circuit breaker. • Contact technical support if the problem persists.
	ALL LEDs are OFF Some of the fixtures are ON	• Verify that the power circuit wiring is properly connected. The Low-Voltage Power Module has separate wiring compartments that allow outputs 1 and 2 to operate from an emergency circuit. Make certain that both powering circuits are connected and powered. If not using an emergency circuit, make sure to remove the wiring barrier and route the normal power circuit to both the normal and emergency connection.
	The Status LED is Solid RED	• The Low-Voltage Power Module has encountered an error condition. Press and release (1 second press) the onboard RESET button to reboot the Low-Voltage Power Module. Wait approximately 2 minutes for the reboot to complete. If Status LED is still RED, contact technical support.
	The Alert LED is solid RED.	• The Low-Voltage Power Module is receiving a contact closure on its **Alert** wiring terminal. Remove the terminal to clear the alert. Review the connected device operation is set properly.
	An Output LED is blinking	• The output voltage is out of specification. The output channel may be overloaded. Power down the Low-Voltage Power Module and try redistributing the load on that channel. Continue to redistribute until when powered up, the Output LED remains lit continuously.
	The Output LEDs are OFF on channels 1 and 2	• Verify that the power circuit wiring is properly connected. The Low-Voltage Power Module has separate wiring compartments that allow outputs 1 and 2 to operate from an emergency circuit. Make certain that both powering circuits are connected and powered. If not using an emergency circuit, make sure to remove the wiring barrier and route the normal power circuit to both the normal and emergency connection.

Device	Unexpected Condition	Resolution Steps
WaveLinx LV • Low-Voltage Fixture with Integrated Sensor	No LED in the sensor window and the connected fixture is OFF.	• Verify that the Low-Voltage Power Module is connected and energized. The status LED may flash orange when not configured. • Verify that the Low-Voltage Fixture's low-voltage connection cable is securely plugged into the output channel. Power down the Low-Voltage Power Module whenever plugging or unplugging connection cable. Hot swapping is not supported. • Verify that the Low-Voltage output channel's green LED is lit continuously. If blinking, the output voltage is out of specification (too low or too high). Power down the Low-Voltage Power Module and re-distribute the connected loads. • Press and release the Low-Voltage Power Module's TEST button. All lights connected to the Low-Voltage Module will cycle between OFF and ON for 15 seconds. • If other loads are responding properly, try moving this load to the good location and connect with the known good cabling. Power down the Low-Voltage Power Module whenever plugging or unplugging connection cable. Hot swapping is not supported. If load is still not responsive, contact technical support.
	No LED in the sensor window and the connected fixture is ON.	• Press and release the Low-Voltage Power Module's TEST button. All lights connected to the Low-Voltage Module will cycle between OFF and ON for 15 seconds. Verify that the fixture responds. • Try to perform the pairing function. If the pairing operation works, the LED may be turned OFF via a software setting. Once the device is paired and accessible in the WaveLinx App, select the device to review the occupancy sensor settings and ensure that the LED function is enabled. • If the problem persists, contact technical support.
	LED in the sensor window blinks white instead of green (tricolor model)	• The Low-Voltage Power Module has been previously paired with a WaveLinx Area Controller and paired its connected Low-Voltage devices. The status LED on the Low-Voltage Power Module may be solid GREEN. The Low-Voltage Fixture with Integrated Sensor does not have a unique Factory Reset command. Refer to the Low-Voltage Power Module reference sheet on page 106 for information on how to perform a Factory Reset for the Low-Voltage Power Module if it has been paired in error.

Device	Unexpected Condition	Resolution Steps
WaveLinx LV • Low-Voltage Fixture	Connected load is OFF.	• Verify that the Low-Voltage Power Module is connected and energized. The status LED may flash orange when not configured. • Verify that the Low-Voltage Fixture's low-voltage connection cable is securely plugged into the output channel. Power down the Low-Voltage Power Module whenever plugging or unplugging connection cable. Hot swapping is not supported. • Verify that the Low-Voltage output channel's green LED is lit continuously. If blinking, the output voltage is out of specification (too low or too high). Power down the Low-Voltage Power Module and re-distribute the connected loads. • Press and release the Low-Voltage Power Module's TEST button. All lights connected to the Low-Voltage Module will cycle between OFF and ON for 15 seconds. • If other loads are responding properly, try moving this load to the good location and connect with the known good cabling. Power down the Low-Voltage Power Module whenever plugging or unplugging connection cable. Hot swapping is not supported. If load is still not responsive, contact technical support.

Device	Unexpected Condition	Resolution Steps
WaveLinx • Area Hub	All LEDs on the Area Hub are OFF	• Verify that the Area Hub is connected to PoE network switch and that the network switch is powered. • Contact technical support if the problem persists.
	WaveLinx Mobile App is not discovering the WaveLinx Area Hub	• Confirm that the Area Hub is powered and connected to the PoE network switch. • Verify that the Area Hub Status LED is ON solid green. If ON solid white, the Area Hub has already been added to a WaveLinx Area Controller and will not allow discovery. • If using static IP addresses, confirm that the IP addresses given to the WaveLinx Area Controller and the WaveLinx Area Hub are in the same subnet. • In the WaveLinx Mobile app Devices menu, run Area Hub Discovery to rescan. • Factory reset the Area Hub. Hold down the reset button on the Area Hub for 10 seconds until the status LED turns yellow. Reconfigure the Area Hub and open the WaveLinx Mobile App to retry discovery. • Contact technical support if the problem persists.
CONTINUED WaveLinx • Area Hub	The Main Status LED and/or a CAN Bus port LED is Solid RED	• A fault is present on the connected CAT bus. Power down the Area Hub and disconnect any CAT bus connections. Power up with no CAT buses attached and verify the status LED resumes normal operation. Power down the Area Hub and connect one CAT bus. Power up the Area Hub. If the status LED stays clear, continue this process to add back a bus at a time until the bus that is causing the issue is located. Troubleshoot the bus to determine the cause of the fault (improper CAT cabling/broken or shorted wiring, etc.…)
	The LED is off on one of the connected CAT Bus Ports and the devices are not being read.	• Verify that the Area Hub is powered and the main status LED is ON either green or white. • Verify that the devices on the connected CAT bus are connected to the CAT Bus with a WaveLinx CAT Dimming Switchpack (not emergency model). This device provides power to the CAT bus. • Verify that the connected WaveLinx CAT Dimming Switchpack is wired properly and that the circuit breaker is ON. • Verify that all devices on the CAT bus are connected properly and that the end device has the termination port connector installed. • Power down the Area Hub and try connected the CAT bus to a different Area Hub port. Power up. • If the problem persists, contact technical support.
	My CAT devices are not operating with their programming but appear to have some response to motion and wallstation presses. The LED on the Area Hub is flashing green/white/OFF and repeating.	• The Area Hub has lost communications with the connected WaveLinx Area Controller and the CAT devices are operating in Distributed Mode. • Verify that the WaveLinx Area Controller is powered and operational. • Verify that the IP address of the WaveLinx Area Controller is still in the same subnet as the IP address of the Area Hub. • Try issuing a soft reset to the WaveLinx Area Controller and the Area Hub. • If the problem persists, contact technical support.

Device	Unexpected Condition	Resolution Steps
WaveLinx CAT • Dimming Switchpack • RSP-C-010-Z1	LED and connected load are OFF.	• Try using a wall switch wired to the same CAT bus to turn lighting ON. • Verify that the circuit wiring is properly connected and energized. • Disconnect 0-10V wiring from switchpack. The load should go to full bright when these wires are separated. • Contact technical support if the problem persists.
	The LED is Blue and the device is not responding properly	• The device is operating in Distributed Mode and has not yet added to a WaveLinx Area Controller. The device may respond to devices on the same CAT bus when in Distributed Mode. • Verify that the device's CAT bus is connected to an Area Hub port. • Use the WaveLinx Mobile App to discover the connected Area Hub and Add Devices. The LED should turn White and the device should be available for programming. • Contact technical support if the problem persists.

Device	Unexpected Condition	Resolution Steps
WaveLinx CAT • Emergency Dimming Switchpack • ESP-C-010-Z1	LED and connected load are OFF.	• Try using a wall switch wired to the same CAT bus to turn lighting ON. • Verify that the circuit wiring is properly connected and energized. • Disconnect 0-10V wiring from switchpack. The load should go to full bright when these wires are separated. • Contact technical support if the problem persists.
	The connected lighting remains ON and cannot be controlled. The LED may be flashing Red.	• The device is in Emergency Mode. Verify that normal power is present for the non-emergency devices on the same CAT bus. • For proper operation, at least one WaveLinx CAT Dimming Switchpack (non-emergency model) on the same CAT bus must be assigned to the same Emergency Set as the Emergency Dimming Switchpack to generate the normal power present signal that the WaveLinx CAT Emergency Dimming Switchpack requires. Please refer "Modifying Emergency Sets and Testing Emergency Mode Operation" on page 340. • If the emergency mode has been properly set for the WaveLinx CAT Dimming Switchpack(s) and normal power is present for the devices that send the normal power present signal to the emergency switchpack, contact technical support for additional assistance.
	The LED is Blue and the device is not responding properly	• The device is operating in Distributed Mode and has not yet added to a WaveLinx Area Controller. The device may respond to devices on the same CAT bus when in Distributed Mode. • Verify that the device's CAT bus is connected to an Area Hub port. • Use the WaveLinx Mobile App to discover the connected Area Hub and Add Devices. The LED should turn White and the device should be available for programming. • Contact technical support if the problem persists.

Device	Unexpected Condition	Resolution Steps
WaveLinx CAT • Occupancy Ceiling Sensor	LED does not flash with motion	• Verify that the devices on the connected CAT bus are connected to the CAT Bus with a WaveLinx CAT Dimming Switchpack (not emergency model). This device provides power to the CAT bus. • Verify that the connected WaveLinx CAT Dimming Switchpack is wired properly and that the circuit breaker is ON. • Verify that all devices on the CAT bus are connected properly and that the end device has the termination port connector installed. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • Contact technical support if the problem persists.
	The LED flashes blue and the device is not controlling lighting properly	• The device is operating in Distributed Mode and has not yet added to a WaveLinx Area Controller. The device may respond to devices on the same CAT bus when in Distributed Mode. • Verify that the device's CAT bus is connected to an Area Hub port. • Use the WaveLinx Mobile App to discover the connected Area Hub and Add Devices. The LED should turn White and the device should be available for programming. • Contact technical support if the problem persists.
	LED in sensor window flashes white and repeats the flash indefinitely.	• The sensor has been added to a WaveLinx Area Controller and has been disabled using either a time schedule event or manual disable through the WaveLinx App.

Device	Unexpected Condition	Resolution Steps
WaveLinx CAT • WST-C Series Wallstation	When a button is pressed, no LEDs illuminate	• Verify that the devices on the connected CAT bus are connected to the CAT Bus with a WaveLinx CAT Dimming Switchpack (not emergency model). This device provides power to the CAT bus. • Verify that the connected WaveLinx CAT Dimming Switchpack is wired properly and that the circuit breaker is ON. • Verify that all devices on the CAT bus are connected properly and that the end device has the termination port connector installed. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • Contact technical support if the problem persists.
	When a button is pressed, the LED flashes blue for 300ms/OFF for 1.7 sec and repeats for 10 seconds instead of white.	• The device is operating in Distributed Mode and has not yet added to a WaveLinx Area Controller. The device may respond to devices on the same CAT bus when in Distributed Mode. • Verify that the device's CAT bus is connected to an Area Hub port. • Use the WaveLinx Mobile App to discover the connected Area Hub and Add Devices. The LED should flash white when a button is pressed and the device should be available for programming. • Contact technical support if the problem persists.
	The LED flashes white continuously.	• The wallstation has been added to a WaveLinx Area Controller and has been disabled using either a time schedule event or manual disable through the WaveLinx App.

Device	Unexpected Condition	Resolution Steps
WaveLinx CAT • Contact Closure Input Module	No LEDs illuminate on the device	• Verify that the devices on the connected CAT bus are connected to the CAT Bus with a WaveLinx CAT Dimming Switchpack (not emergency model). This device provides power to the CAT bus. • Verify that the connected WaveLinx CAT Dimming Switchpack is wired properly and that the circuit breaker is ON. • Verify that all devices on the CAT bus are connected properly and that the end device has the termination port connector installed. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • Contact technical support if the problem persists.
	The device LED is flashing blue but nothing is happening when the contacts are closing	• The device is operating in Distributed Mode and has not yet added to a WaveLinx Area Controller. The device may issue basic commands to devices on the same CAT bus when in Distributed Mode. • Verify that the device's CAT bus is connected to an Area Hub port. • Use the WaveLinx Mobile App to discover the connected Area Hub and Add Devices. The LED should flash white and the device should be available for programming. • Contact technical support if the problem persists.
	The device LED is flashing white but nothing is happening when the contacts are closing	• The contact closure module has been added to a WaveLinx Area Controller but may not be programmed. Verify that the contact closure actions have been programmed for the desired actions through the WaveLinx Mobile App.

Device	Unexpected Condition	Resolution Steps
WaveLinx CAT • Sensor Input Module	No LEDs illuminate on the device	• Verify that the devices on the connected CAT bus are connected to the CAT Bus with a WaveLinx CAT Dimming Switchpack (not emergency model). This device provides power to the CAT bus. • Verify that the connected WaveLinx CAT Dimming Switchpack is wired properly and that the circuit breaker is ON. • Verify that all devices on the CAT bus are connected properly and that the end device has the termination port connector installed. • Perform a factory reset on the device. Refer to the procedure in the device reference sheet starting on page 17. • Contact technical support if the problem persists.
	The device LED is flashing blue but the programming does not seem to be operating as expected	• The device is operating in Distributed Mode and has not yet added to a WaveLinx Area Controller. The device may issue basic commands to devices on the same CAT bus when in Distributed Mode. • Verify that the device's CAT bus is connected to an Area Hub port. • Use the WaveLinx Mobile App to discover the connected Area Hub and Add Devices. The LED should flash white and the device should be available for programming. • Contact technical support if the problem persists.
	The LED flashes white continuously.	• The module has been added to a WaveLinx Area Controller and has been disabled using either a time schedule event or manual disable through the WaveLinx App.

Pairing mode timed out before I was done adding my devices or before I confirmed that my devices paired properly. What should I do?

Simply press the PAIR button or use the WaveLinx Mobile App to place the WaveLinx Area Controller into pairing mode. All paired devices that are in the construction group will respond with the paired behavior and additional devices may be added. Review the details for how each device should respond in pairing mode in the WaveLinx device reference sheets starting on page 17.

One or more of my devices did not pair to the WaveLinx Area Controller or does not appear in my WaveLinx App. What should I do?

First verify that the device still exhibits the proper out-of-the box behavior described in the device refence sheets starting on page 17. If not displaying the proper behavior, refer to the troubleshooting chart beginning on page 22 to determine the cause before proceeding.

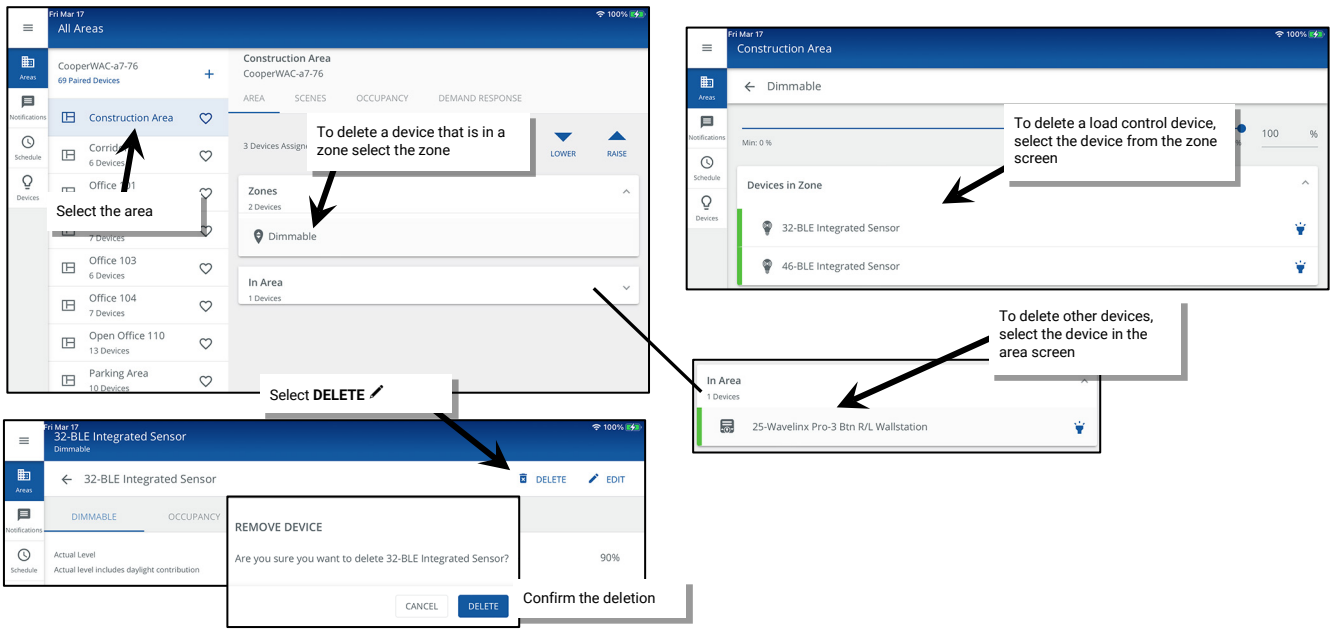
If the device is exhibiting the proper behavior press the PAIR button or use the WaveLinx Mobile App to place the WaveLinx Area Controller into pairing mode and then place the device into pairing mode as described in the device reference sheets starting on page 17. If the device still does not pair properly, verify that the distance is within the expected range and that the WaveLinx Area Controller supports the quantity of devices paired with it before contacting technical support.

How do I remove devices that have paired with the wrong WaveLinx Area Controller?

In the WaveLinx Mobile Application or WaveLinx WAC Lighting App, these devices will appear in the **Unassigned Devices** section of the WaveLinx App and should be in the default construction area.

To remove a single device

For a single device, select the device to open the device screen, then select the trash can icon and confirm the deletion. The device should exhibit out-of-the-box behavior and be ready to pair with the correct WaveLinx Area Controller.



To remove multiple devices

For the WaveLinx Area Controller, remove all devices still assigned to the default construction group by pressing and holding the PAIR button for 4 seconds. Wait up to 15 minutes for the devices to be removed from the WaveLinx Area Controller. Then, go through the pairing process to pair the devices with the correct WaveLinx Area Controller. This command will only affect devices that are still in the default construction area. For Outdoor WaveLinx Area Controllers or WaveLinx Area Controller. devices still in the default construction area can also be removed by using the WaveLinx Area Controller's debug page. See page 393 for steps on using this feature.

How do I manually force a device to unpair?

If a device is showing paired behavior but it is not visible in the WaveLinx App, it may have been paired previously with a different WaveLinx Area Controller. It is possible to manually force a device to unpair by performing a Factory Reset. For device specific instructions, refer to the "WaveLinx Device Reference Sheets" beginning on page 17.

I am done assigning my devices to areas, but devices still show in the WaveLinx App's Unassigned Devices. What should I do?

If this is the only WaveLinx Area Controller in the facility: A device may have been added that is not shown on the plans. Connect to the WaveLinx Area Controller Using the WaveLinx Mobile App or the WaveLinx WAC Lighting App. Refer to the "WaveLinx Device Reference Sheets" beginning on page 17 for how the specific device should behave in **Blink to Identify** and then open the device configuration and select the **Blink to Identify** option located at the bottom of the screen. Walk around the space until the device is identified, continuing to refresh the **Blink to Identify** command as needed.[423]

[423] Battery powered WaveLinx Ceiling Sensors and WaveLinx Battery Powered Wallstations do not have the option to blink to identify.

If there are other WaveLinx Area Controllers in the facility: The device may have paired with the incorrect WaveLinx Area Controller. Follow the steps on page 470 to remove the device and to prepare it for pairing to the correct WaveLinx Area Controller.

I installed a new device or I found a device that was not powered during the pairing process. How do I pair the new device?

To pair an additional device after the initial construction pairing is complete, press the PAIR button on the WaveLinx Area Controller to reinitialize pairing and then place the device in pairing mode per the steps found in the device reference sheets starting on page 17.The device should join the existing construction group within the 60-minute pairing process.

How do I switch users?

It is easy to change users in the WaveLinx App. Simply logout and then login as the desired user.

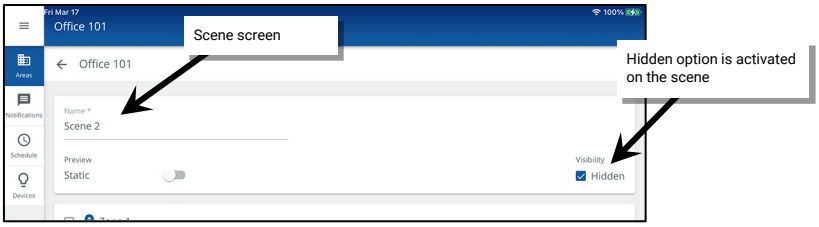
When I open the Mobile App, I get an error message. What should I do?

Review the displayed message. If it is a connection error, verify that the mobile device is still connected to the proper wireless network.

If it is not a connection error, completely close the app. Disconnect and then reconnect to the correct wireless network and then open the application. Contact technical support if the problem persists.

When I log in as the personal control user, not all the scenes are showing when I go to the scene screen. Why is this happening?

It is possible that the administrator of the system has hidden the scene during the configuration process. If this was done in error, log in to the system as the administrator user, and then select the area to modify. In the area's scene editor, select the affected scene and ensure that the hidden option is not active for the scene.



In personal control, I selected a scene, but the lighting did not appear to change. Why?

First, try selecting a different scene, or adjusting a zone. If there is still no change in the light level, ensure that the loads respond to basic ON and OFF control commands. If loads do not respond, look at the device LEDs or log in as the administrator user and verify that the devices have not lost communication with the system.

If ON and OFF commands operate but the light level remains dim or if the light level remains OFF, the daylight sensors or an active demand response signal may be lowering the light output level. If demand response is not being used and the light level remains at a low level or OFF, ensure that the daylight sensors are properly calibrated by following the procedures on page 304 or page 309.

The lights are dimmed but the personal control screen or other screen indicators says that they are at 100%. Why?

This can occur on WAC and WAC2 with versions prior to 12.0.x.x. In these earlier WAC versions, the system may have any of the following active commands that can cause the lights to be dimmed:

- The maximum level (high-end trim) assigned to the device's zone
- Active demand response signals
- Daylight sensor signals

If any of these items is calling for a light reduction, the system response is a reduced light output. Therefore, it is possible to have the light range reduced by the daylight sensor and still see that the light zone is at 100%. This reflects that the electric light is at the full 100% potential of the calibrated daylight level. If the light level does not seem to be correct for the space, ensure that the daylight sensors are properly calibrated by following the procedures on page 304 or page 314.

For WAC2 and WaveLinx Outdoor Area Controllers with version 12.0.x.x or higher, the actual level should be shown for most devices.

I work between two different spaces in my facility. Can I control both rooms through the Mobile App?

It is possible to control any area as a personal control user. During setup, one of the areas may have been assigned as a favorite area, meaning the application will open to that area by default. To navigate to a different area, simply tap the other area or touch the back button at the top-left corner of the screen, and then select the desired area in the list.

If the area is controlled through a different WaveLinx Area Controller, you may need to logout of the first WaveLinx Area Controller and then login to the second to access the additional area. If the WaveLinx Area Controllers are not connected to the facility's building LAN, it may be necessary to switch the mobile device connection to a different wireless network to control the additional area.

I am not using demand response. How do I disable it?

There is no need to disable the demand response feature. If a demand response system is not connected, the system will not trigger a demand response command unless placed into test mode through the WaveLinx App. The test mode may be cancelled through the WaveLinx App or will time-out automatically after 30 minutes if it is triggered in error.

I want to use demand response. How do I make the connection to my demand response system?

If connecting via a contact closure input, the WaveLinx CAT Contact Closure Input can be used to issue the demand response signal. If integrating via Ethernet or other means, refer to the WaveLinx CORE Lighting System Configuration Guide.

My schedule events are running but they are running at the incorrect time. What could be causing this?

The WaveLinx Area Controller may not be on the correct time and date or may be set for the incorrect time zone. Refer to page 372 to set the time, date, and time zone in the WaveLinx Area Controller. Also, make sure that the schedule event time has been entered in military time format and has been configured to operate on the desired days of the week.

How do I define the astronomic clock's latitude and longitude?

The astronomic clock's latitude and longitude as well as the time zone are set through the WaveLinx Area Controller's internal webpages. Refer to page 372 to set the location and time zone for the WaveLinx Area Controller.

I am installing a replacement WaveLinx Area Controller. Do I need to go through the construction grouping process to pair the devices with the new WaveLinx Area Controller?

During database restoration, the previous WaveLinx Area Controller's ID and device tables will be populated into the new WaveLinx Area Controller negating the need to pair the devices with the new WaveLinx Area Controller. Simply restore the backup to the new WaveLinx Area Controller and once the backup is completed, the devices will begin to operate. The restoration process may take approximately 1½ hours to propagate to all devices.

My backup was done prior to a firmware update. Can I restore the older backup if I have updated the firmware in my devices?

Yes, you can. The backup contains not only the saved settings, but also a backup of the firmware that was present in the WaveLinx Area Controller at the time that the backup was created. During the restoration, the WaveLinx Area Controller firmware will be replaced with the version that was present during the backup.[424] The firmware of paired devices will remain and will continue to run. This may cause some incompatibilities that will need to be resolved once the restoration is complete. Once restored, wait approximately 1 ½ hours to allow devices to rejoin the network and then ensure that the WaveLinx Area Controller and devices are updated to the latest firmware. Make sure to create a new backup.

After I calibrated the closed loop sensors, I noticed that the light output is different for each fixture. Why is this occurring?

Each sensor in a closed loop system maintains a light level for its directly connected fixture(s). This can result in a different electric light output for each separately controlled fixture making the ceiling light output look uneven. Keep in mind that the goal of closed loop is to keep the light level at the work surface consistent, not the light output at the ceiling.

The lights over my desk appear to adjust to different dimming levels even though the daylight does not appear to change. Why is this happening?

Sensor placement is critical to proper daylight function. With both open and closed loop sensors, what the sensor is viewing will affect the reading of the sensor. Darker furnishing may be less reflective, resulting in the electric light being brighter. Lighter furnishing may be more reflective, resulting in electric light being dimmer. Placement of a sensor over a surface that frequently changes will affect the overall performance. This also includes papers on the desk surface, or even what the occupant of the space is wearing.

After I programmed the open loop daylight sets, the work surface light level is not consistent over the controlled zone. Why is this occurring?

In open loop daylighting, because larger areas are controlled, the uniformity of the work surface light level across the zone may vary due to differences in daylight exposure, furniture placement, as well as surface colors within the space. Ceiling light output is more uniform with open

[424] When restoring a WAC database into a WAC2 or WAC2 R4, the WAC firmware files will not be restored. Once restored, the WAC2 will function with the restored database.

loop daylight approaches, but the work surface level may be less consistent for larger controlled zones. It may be necessary to create additional zones to group lighting in smaller control groups that can be controlled by different open loop daylight sets so that different light levels may be set to accommodate these differences.

My exterior lighting does not respond ON or OFF at the same time. Why is this occurring?

If Outdoor Integrated Sensors are being used in closed loop daylighting, each fixture responds to its own sensor for daylighting commands. While calibration should get fixture response to daylighting close, there is no way of ensuring that all lighting will respond in the same manner at the same time. If fixture response seems very disparate, refer on the process on page 304 to recalibrate the sensors or configure for open loop daylighting, selecting one sensor to control the group of fixtures. See page 309 for details on configuring open loop control.

If WaveLinx Outdoor Lighting Control Modules are being used, it is possible to have one sensor control daylighting for the fixture it is mounted on or for a defined group of fixtures. If fixtures are not responding at the same time to daylighting commands, they may be assigned to different daylight sets. In this circumstance, determine which sensor will be the sensor in control and ensure that it is assigned to a single daylight set controlling all lighting zones in the area. See page 309 for further configuration details.

My wallstation or occupancy sensors only work at night. Why is this occurring?

First check that there is not a schedule event disabling the devices from operating during the day. If there is no disable event, this could also be due to daylighting. Daylighting filters the fixture's response to other control commands. A command from a wallstation button or occupancy sensor to go to 100% will adjust the electric light level output to meet the calibrated daylight level. A command from a wallstation button or occupancy sensor to go to 50% will adjust the electric light level to meet 50% of the calibrated daylight level. The actual electric light level output with these commands will vary based on the available amount of daylight in the space and how much electric light needs to be contributed to maintain the commanded target. If the electric light has daylight dimmed to OFF, lighting will remain OFF if wallstation, schedule events or occupancy commands are received, preventing unnecessary energy waste when adequate daylight is present. If the space is too dim during the daytime hours, recalibrate the sensors.

I get the message, Scheduling details are editable via WaveLinx CORE since this controller is being centrally managed. Why is this message appearing?

For sites using a WaveLinx CORE, if schedules are administered in the WaveLinx CORE applications, the WaveLinx App will not allow schedule modification and will display a message box in the scheduling screen. If this occurs, continue to administer any necessary schedule changes through the WaveLinx CORE applications.

My schedule event actions do not always appear to run. Why is this occurring?

There are a few items to check if schedule events do not appear to be running. First, check that the schedule event has been correctly configured AND is enabled. Also, verify that the time in the WaveLinx Area Controller has been set properly. If these settings are correct, there are other factors that may affect schedule event operations.

First, if a time schedule event that issues a scene or zone level command is assigned to an area that has occupancy sensors, at the time of the schedule event, if the area is occupied, the lighting and receptacle loads will go to the commanded levels. If the area is not occupied, the lighting and receptacle loads will remain at the unoccupied commanded levels.

Second, daylighting filters the fixture's response to other control commands and may be reducing the light level due to adequate daylight being present. If daylighting strategies are being used, the actual electric light level output from schedule event commands will vary based on the available amount of daylight in the space and how much electric light needs to be contributed to maintain the commanded target. If the electric light has daylight dimmed to OFF, lighting will remain OFF if wallstation, schedule or occupancy commands are received, preventing unnecessary energy waste when adequate daylight is present.

What will my devices do if they lose communication with the WaveLinx Area Controller?

A load device will maintain its current command for approximately a 15-minute period (some devices may respond faster). If a device cannot communicate with the WaveLinx Area Controller for more than 15 minutes, the device will begin its loss of communications mode. Refer to the device reference sheets starting on page 17 for information on the expected behavior of each device. Once communication with the WaveLinx Area Controller is re-established, the device will begin to operate per the programmed parameters.

I am using a WaveLinx Universal Voltage Dimming Switchpack's contact closure input. My switchpack does not have the additional icon showing in the Devices in Area section of the WaveLinx App or I do not see the option to set the input type. Why is this icon/input type not showing?

If the Universal Voltage Dimming Switchpack does not show the secondary icon for the contact closure in the **Devices in Area** section of the WaveLinx App, verify the following things:

- Make certain that the device has been correctly identified in the WaveLinx App.
- Make certain that the WaveLinx App is the latest version.
- Make certain that the switchpack being used is the correct model. Only the WaveLinx Universal Dimming Switchpack model WSP-CA-010 supports connection to a contact closure device and will display this additional icon and input type selection.
- If the switchpack is connected to a lighting load as well as a contact input, make sure that the device has been assigned to the correct area

and zone. If the switchpack has been left in the **Devices in Area** section, it will not display the link icon but will still allow for selection of an input type.

- After verifying that the correct switchpack model is being used, make sure that the switchpack firmware is updated to the latest version. Firmware must be version 0x2180560 or later to support the contact closure functionality. Refer to “Updating the Firmware of WaveLinx Devices” on page 386 for details on updating device firmware. (The model WSP-CA-010 Universal Voltage Dimming Switchpack will display as a **347 Switchpack** device type in the WaveLinx internal webpages).

Appendix A: Assigning Point Guards in WaveLinx PRO

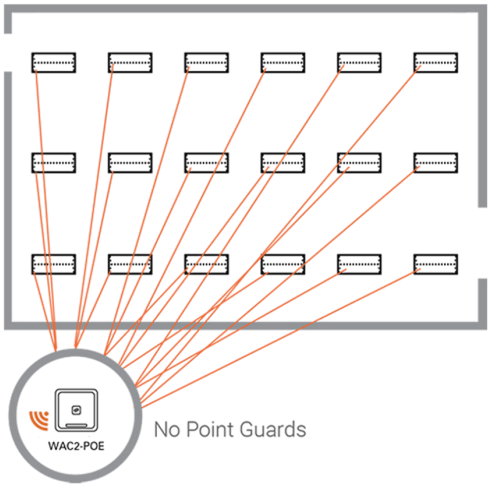
This section is for advanced technician use only for WaveLinx PRO devices. Use these steps with caution and upon the advice of technical support. Changing settings other than those shown in this section can produce unexpected results.

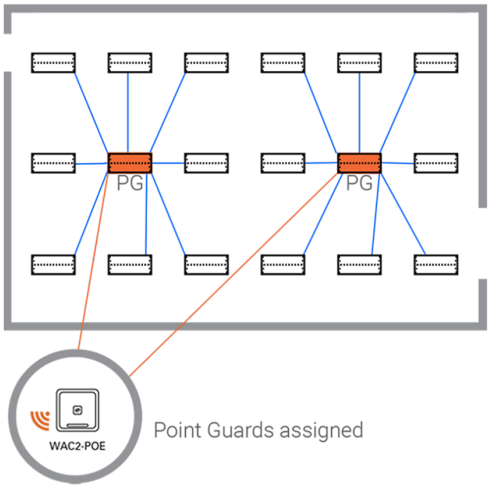
Setup technicians: Use this section to assign Point Guards in a user defined area that has a large quantity of devices reporting to a single zone. This feature assumes advanced knowledge and is intended to be used by technicians familiar with large zone applications or when working under guidance from technical support.

What is a Point Guard?

In a zone that has a large quantity of devices, a **Point Guard** is an assigned device that receives and passes WaveLinx PRO wireless communications to other devices in the zone to streamline communications. One zone may contain multiple Point Guards. The zone may also be referred to as a DomZone when the Point Guard is assigned.

In a large zone, WaveLinx PRO devices that are further away from the WaveLinx Area Controller may have a delay in response to commands. For instance, if the zone is turned ON, lighting devices that are closer to the WaveLinx Area Controller may turn ON earlier than others that are farther away, generating a “popcorn” effect. In addition, if not all lights in a zone respond to zone level changes consistently and it not always the same fixtures have the inconsistent response, this could indicate the need to assign a Point Guard. Assigning a Point Guard(s) may be helpful to bring about a more uniform device response in these scenarios.





Zones that contain Industrial or Outdoor Integrated Sensors will automatically be disabled from DomZone/Point Guard operation unless manually enabled.[425] Other WaveLinx PRO lighting control devices such as WaveLinx PRO Ambient and Tilemount sensors, WaveLinx PRO Nodes, and WaveLinx PRO Dimming Switchpacks are automatically enabled for DomZone operation when a Point Guard is assigned.

Point Guard Details

- With zones that contain eight (8) or fewer devices, typically no point guard is necessary. All the devices in the zone will communicate individually with the WaveLinx Area Controller. No Point Guard will be assigned.
- With zones that contain nine (9) or more devices, the WaveLinx Area Controller will automatically select the first device added to the zone to be the Point Guard once the ninth device is added. The Point Guard receives the messages from the WaveLinx Area Controller and then shares the message with the additional devices in the zone. Approximately 30 devices can communicate with the Point Guard.
- The WaveLinx Area Controller automatically selects the first device in its list of paired devices to be the Point Guard if the device has a “good” device status. If the WaveLinx Area Controller senses a problem with the first device, it will assign the next status “good” device as the Point Guard for the communication. It monitors the device status with each communication, changing the Point Guard as needed.
- In larger zones, a single Point Guard may not be adequate. In addition, the automatic Point Guard device selected may not be in the ideal location. Typically, the Point Guard should be selected in a central location for the devices being controlled.

[425] If the remote or /wlm page is used to set an Outdoor or Industrial Integrated Sensor to be a Point Guard, the /wlm engine page for the zone will show the device as a Point Guard. However, the point guard will not be active unless the zone is enabled for DomZone function.

- Point Guards can be assigned through the method described in this chapter using the WaveLinx Area Controller webpages or by using the WaveLinx Programming Remote (IR remote works on devices that contain sensors). Using one of these methods, assign more devices to be Point Guards within any zone (max. 5 point guards for the IR remote assignment method), optimizing communications for larger zones (approx. 30 devices per Point Guard). For details on using the WaveLinx Programming Remote for this procedure, refer to the WaveLinx PRO IR Remote User Guide.

Point Guard Best Practices

When dealing with larger zones, there are some best practices to aid with Point Guard assignment.

- During the initial setup of large zones with more than 8 devices, identify the device that is within 150 feet (approx. 45 meters) of the WaveLinx Area Controller and is centrally located in the zone.
- When placing devices into the Zone, place the identified device into the zone first. This will automatically assign it as the Point Guard for the zone once the ninth device is added to the zone. This process may also be referred to as creating a DomZone.

Using the WaveLinx Area Controller Webpage to Assign Point Guards/Create DomZones

This section describes the steps necessary to assign Point Guards/Create DomZones. This includes:

- Enabling the /wlm webpage
- Logging in to the /wlm webpage
- Enable the HBIS DomZone (Industrial and Outdoor Integrated Sensors Only)
- Assign the Point Guard
- Close and Log Out

Step 1: Enabling the /wlm Webpage

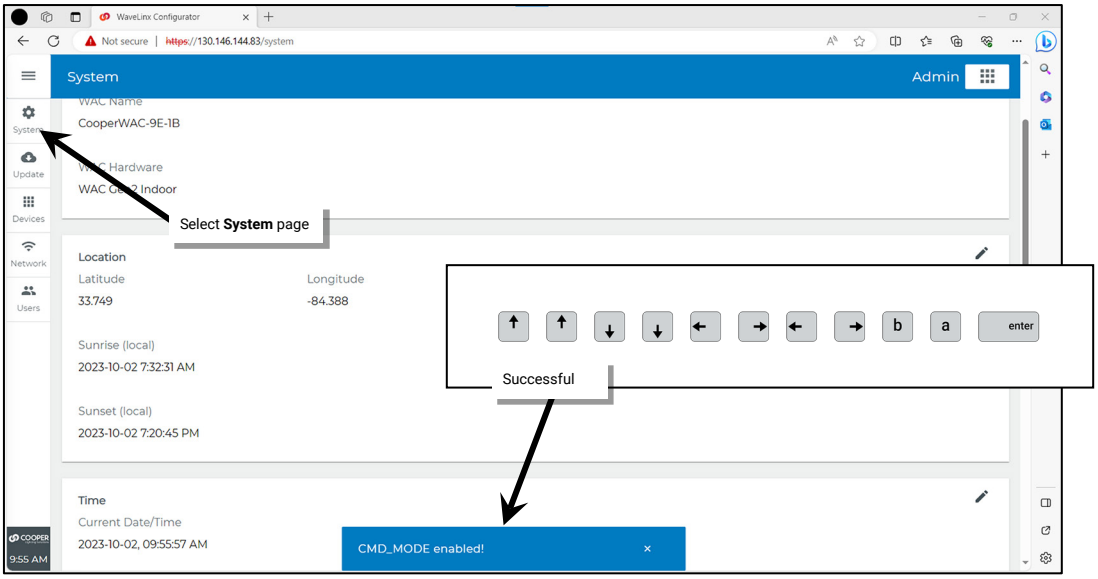
To use the WaveLinx Area Controller Webpage for DomZone/Point Guard assignment, access to the /wlm feature must be enabled. Use the steps in this section to enable this feature. Once the /wlm access is enabled, it will remain enabled for two hours or until the WAC reboots, whichever comes first.

To enable /wlm:

1: Establish a connection from the computer to the WaveLinx Area Controller webpage as the administrator user.

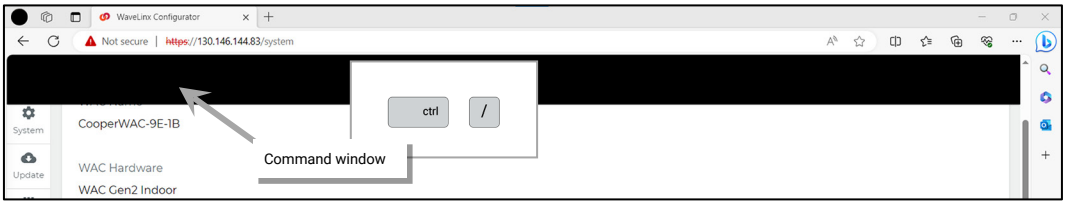
2: Open the **System** page and then, using the keyboard press the following key sequence:

A message should display stating **CMD_MODE enabled!**

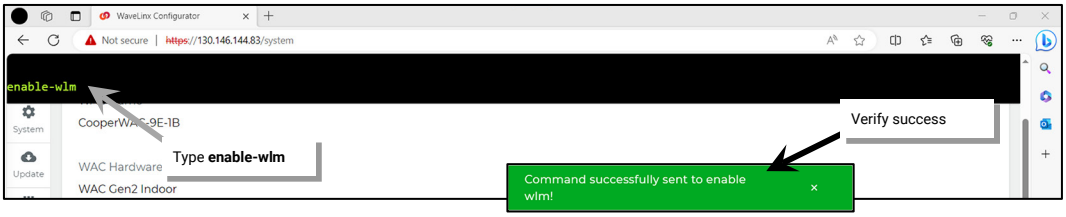


3: Next press **ctrl** followed by **/**.

A command window will open at the top of the screen.



4: Type **enable-wlm** and then press **enter.** Confirm that the message displays that the command was successfully sent.

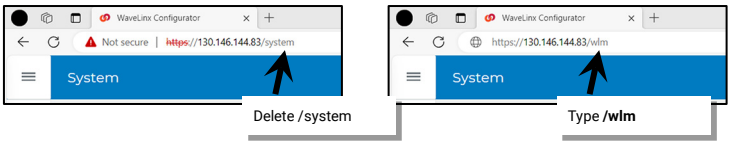


At this point, the WaveLinx Configurator may automatically sign out the administrator. Continue to the next step.

Step 2: Logging in to the /wlm Webpage

1: Establish a connection from the computer to the WaveLinx Area Controller webpage as the administrator user.

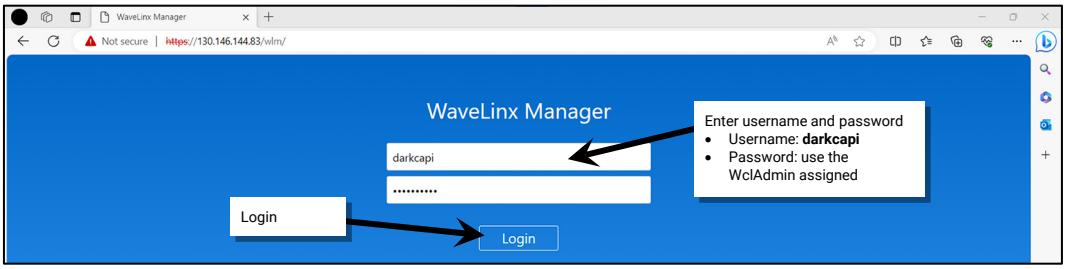
2: Open the **System** page and then in the web address/URL bar, **delete /system** and **type in /wlm**.



3: When prompted, login to the WaveLinx Manager using the following details:

- Username: **darkcapi**
- Password: use the password assigned the WclAdmin administrator user

Click **Login**.



Once logged in, continue to the next step.

Step 3: Enable the HBIS DomZone (Industrial and Outdoor Integrated Sensors Only)

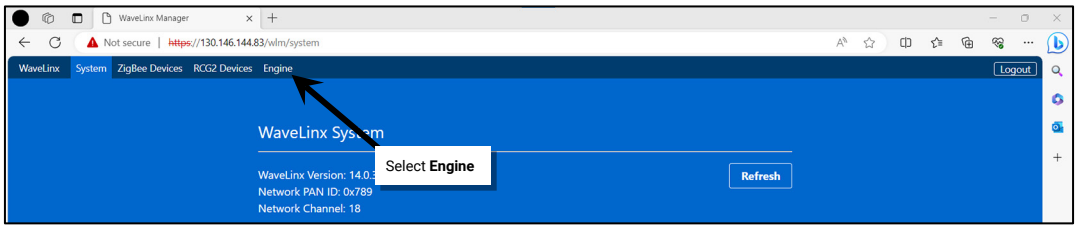
If the zone only contains WaveLinx PRO Ambient Integrated Sensors, WaveLinx PRO Tilemount Sensors, WaveLinx PRO Nodes, or WaveLinx PRO Dimming Switchpacks, skip this step.

WaveLinx PRO Industrial and Outdoor Integrated Sensors do not have DomZone functionality enabled by default. This capability must be turned ON prior to the assignment of Point Guards if the Zone contains these device types.

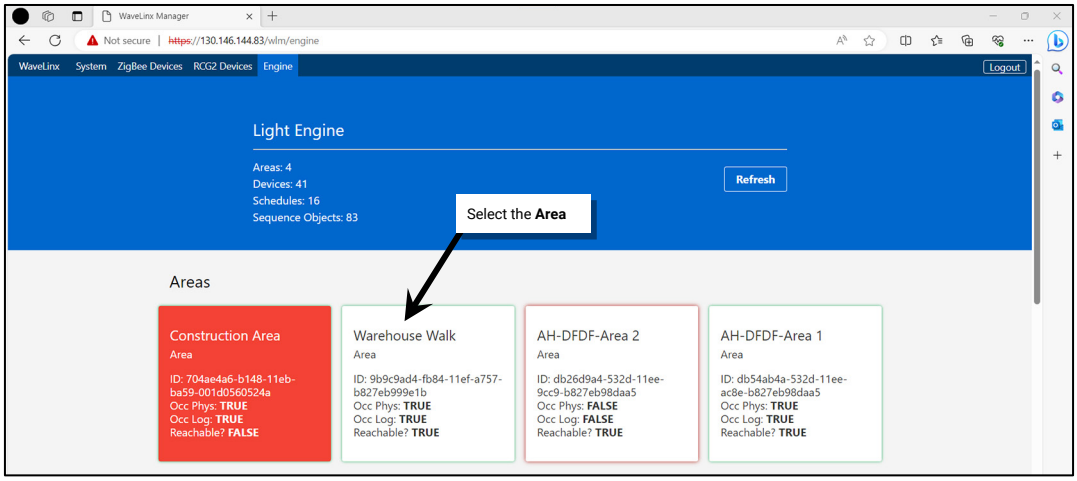
To enable the HBIS DomZone:

1: Establish a connection from the computer to the WaveLinx Area Controller webpage as the administrator user and then login to the /wlm WaveLinx Manager as the darkcapi user.

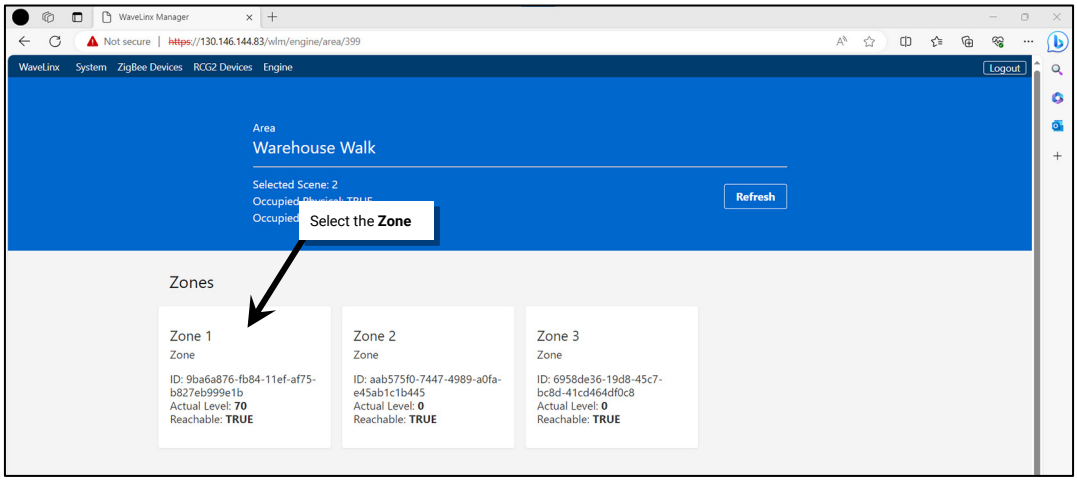
2: Select **Engine** from the /wlm page toolbar.



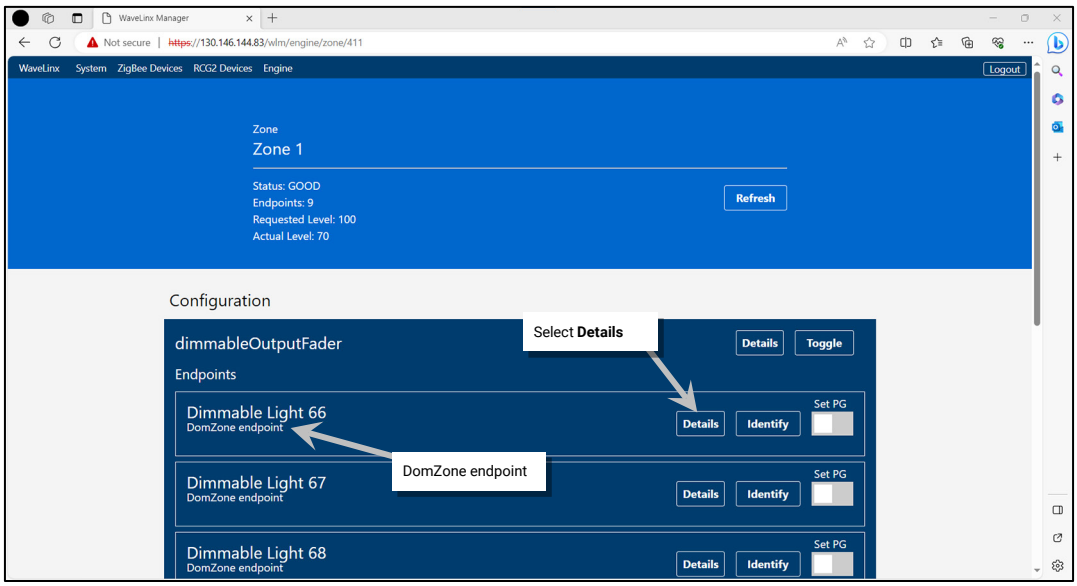
3: Click on the **Area** that contains the zone.



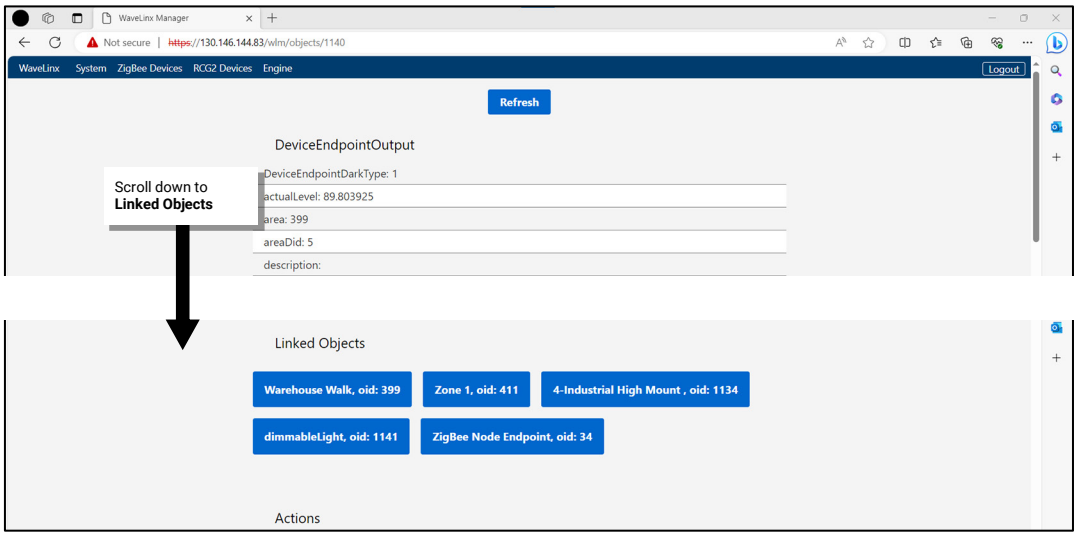
4: Click on the desired **Zone**.



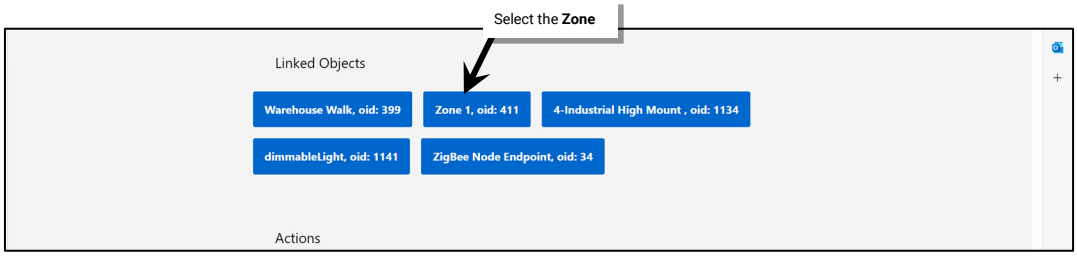
5: On any listed DomZone endpoint, select **Details**.



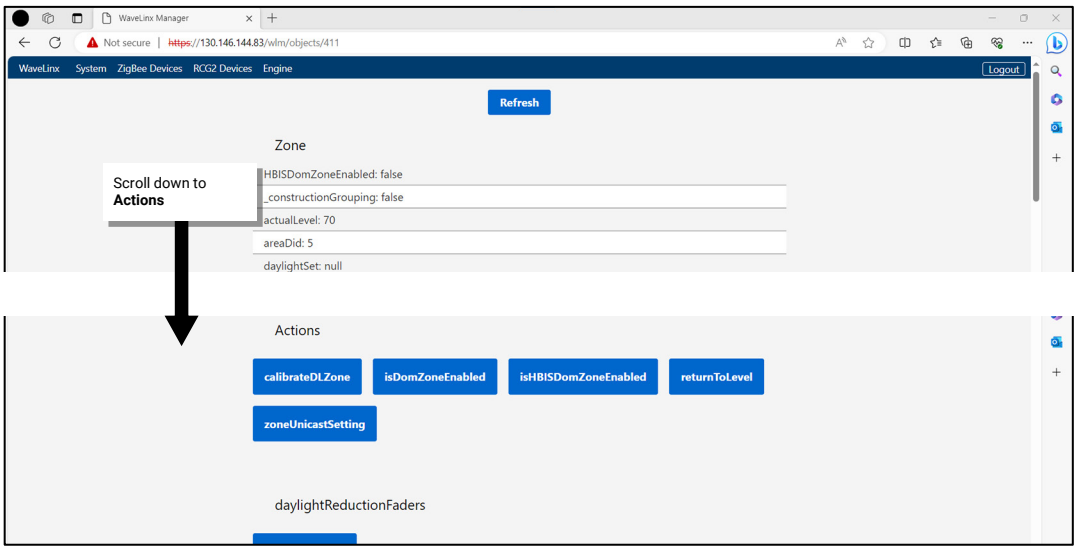
6: Scroll down the **DeviceEndpointOutput** page until the **Linked Objects** are shown.



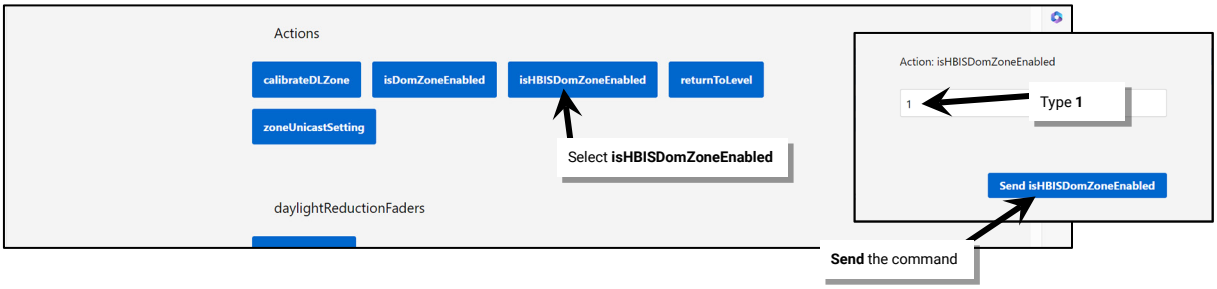
7: Locate and then select the **Zone** name in the **Linked Objects**.



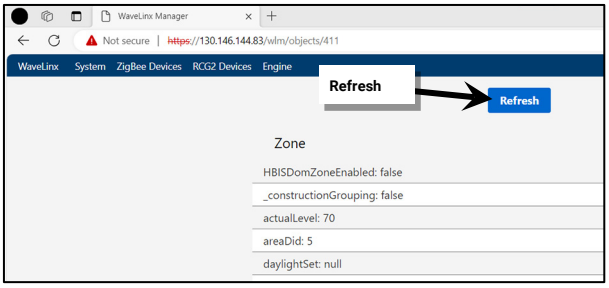
8: Scroll down the **Zone** page until the **Actions** are shown.

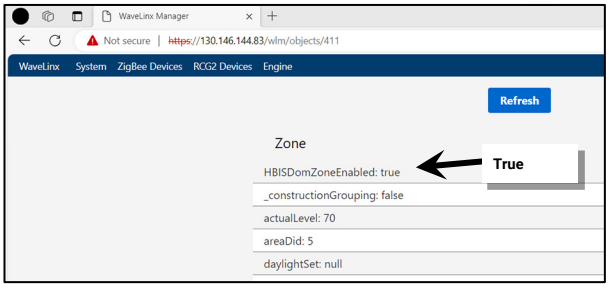


9: Select **isHBISDomZoneEnabled**. In the popup, type **1** in the entry window and then select **Send isHBISDomZoneEnabled**.

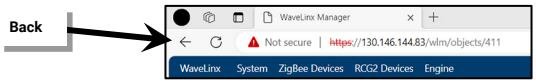


10: In the **Zone** page, click **Refresh** and then make sure that the **HBISDomZoneEnabled** property is set to **true**.





11: Tap the browser **back** button to return to the **Zone** or **Area** page and then repeat these steps for other zones in the area that contain Industrial or Outdoor Integrated Sensors. If other areas contain Industrial or Outdoor Integrated Sensors and need Point Guards assigned, repeat for these additional areas.



It is easy to lose track of what screen is active due to many screens looking similar in the /wlm WaveLinx Manager. Multiple screens may contain similar buttons. If unsure if the screen is the correct one, return to the Engine menu from the toolbar and then restart these steps.

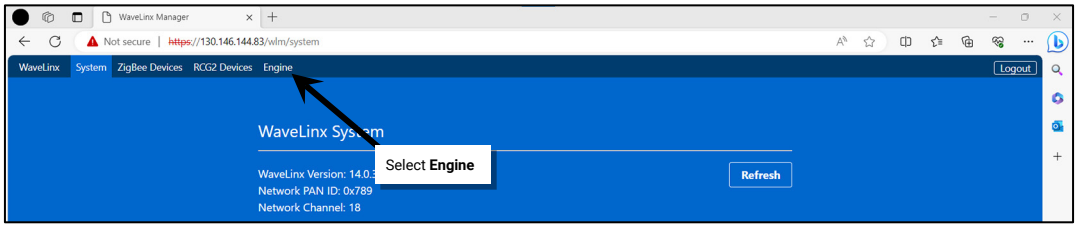
Step 4: Assign the Point Guard(s)

Before beginning this step, identify the best device(s) to be Point Guard(s), ideally within 150 feet (approx. 45 meters) of the WaveLinx Area Controller and centrally located in the zone.

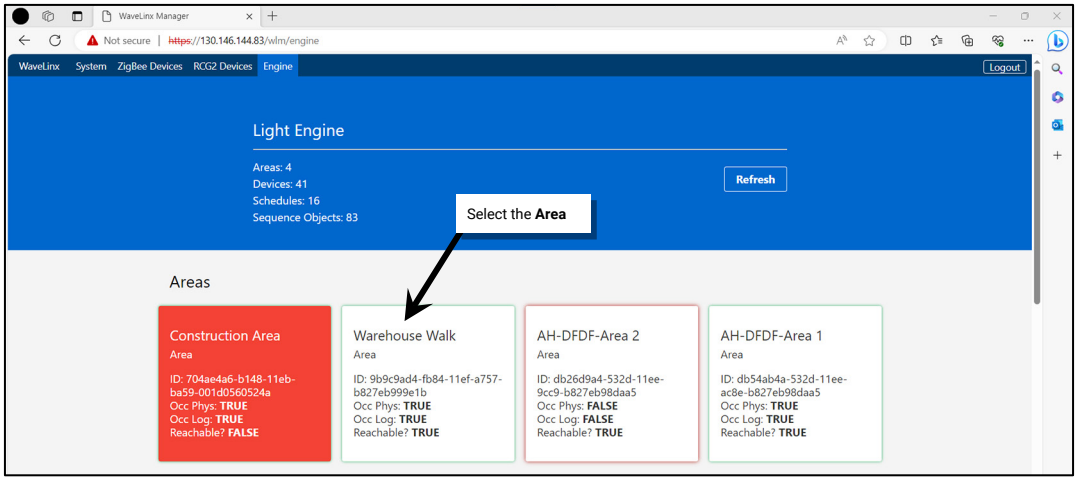
To assign the desired Point Guard(s):

1: Establish a connection from the computer to the WaveLinx Area Controller webpage as the administrator user and then login to the /wlm WaveLinx Manager as the darkcapi user.

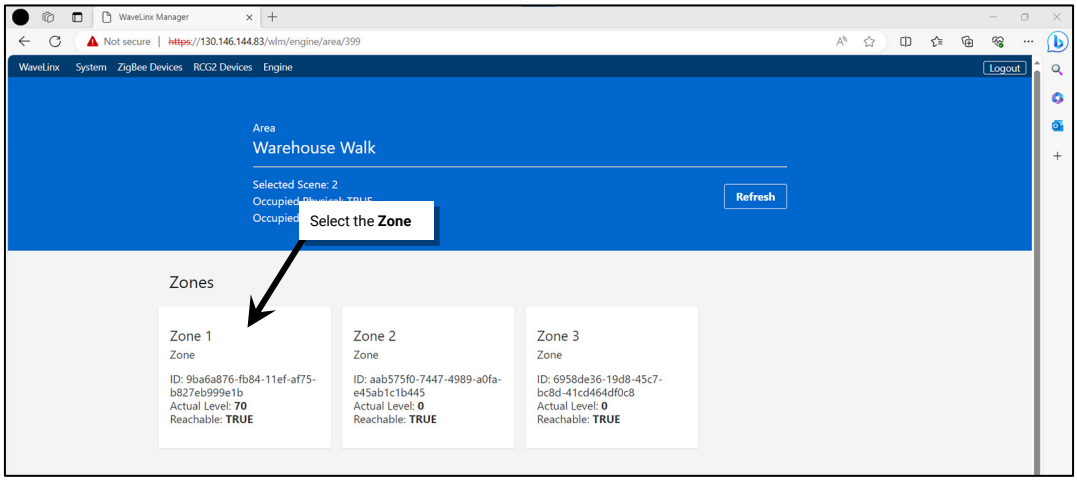
2: Select **Engine** from the /wlm page toolbar.



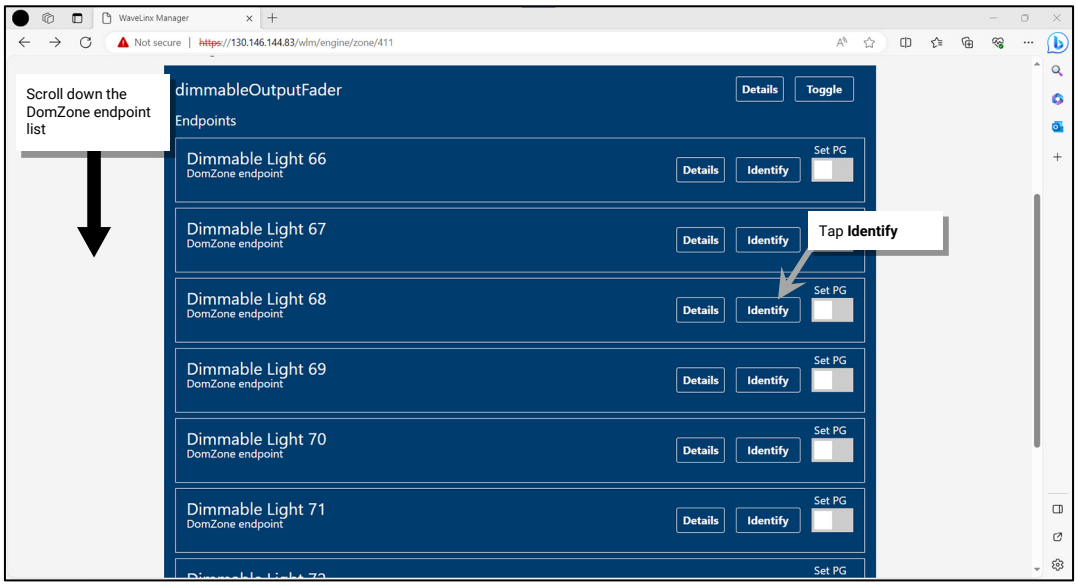
3: Click on the **Area** that contains the zone.



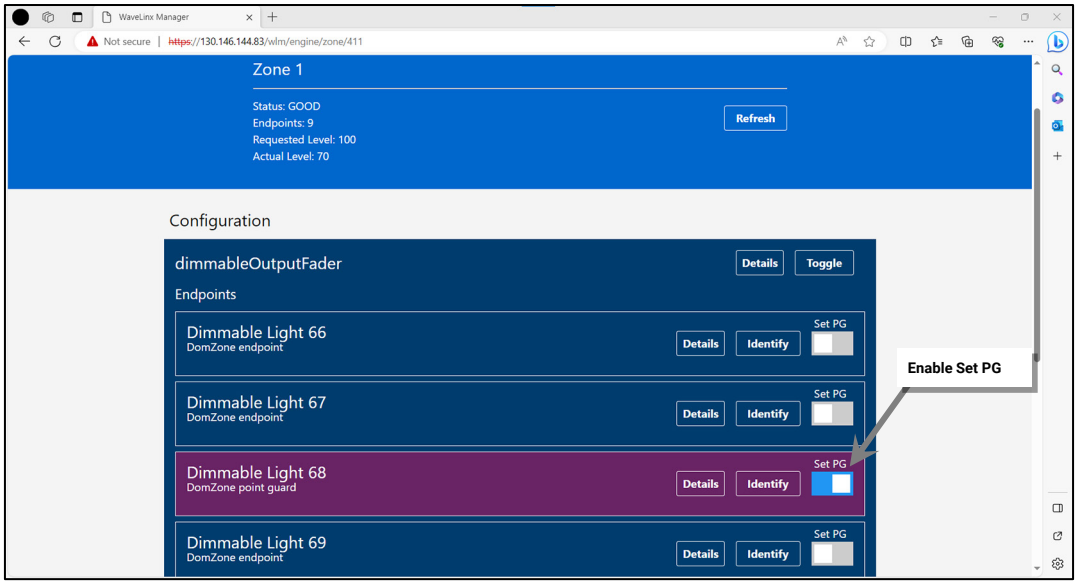
4: Click on the desired **Zone**.



5: Scroll down the list of DomZone endpoints in the zone. Each endpoint corresponds with a device in the zone. Click **Identify** on the first device to place one of the device in **Blink to Identify** mode. If it is not the desired device, continue to click on **Identify** until the correct device is located.

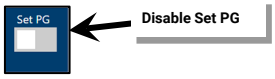


6: In the row for the desired device, click the **Set PG** toggle to **enabled**. The row will turn purple indicating the device is activated as a Point Guard.



7: Repeat steps 5 and 6 for additional devices that need to act as Point Guards in this zone.

8: If the zone contained more than 8 devices, typically the first device added has been automatically assigned as the Point Guard. If this is not one of the desired devices, click **Set PG** to **disable** the Point Guard for this device.



9: Repeat these steps for additional zones in the area and then for additional areas as needed.

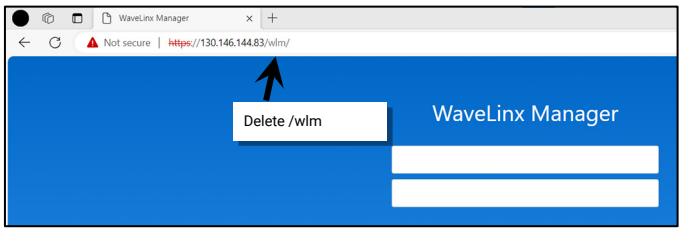
Step 5: Logout and Close

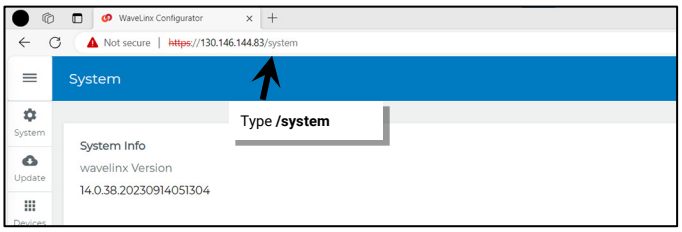
Once the changes are complete, logout and close the WaveLinx Manager and the WaveLinx Area Controller webpages.

To logout and close:

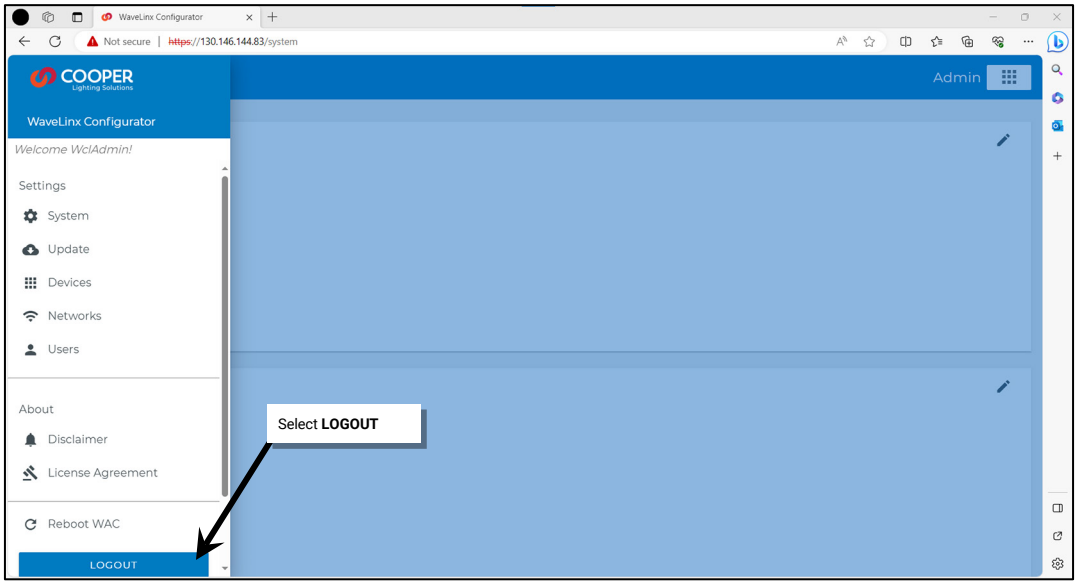
1: At the top of the /wlm webpage, select **Logout**.

2: In the web address/URL bar, delete /wlm and type in **/system**.





3: From the **menu**, select **LOGOUT**.



Close the web browser window.

Appendix B: Accessing the WaveLinx CORE through a WaveLinx Area Controller

This section is for advanced technician use. This section applies only for WaveLinx Area Controllers that are connected to a WaveLinx CORE.

Setup technicians: WaveLinx v15.1 and higher allows technicians to use the WaveLinx Area Controller's Wi-Fi Access Point to access the WaveLinx CORE. This allows technicians to access the WaveLinx CORE without needing to connect to the Building LAN/WAN. The temporary access will remain accessible for up to 2 hours and can be re-enabled for additional time if needed.

To use the WaveLinx Area Controller Wi-Fi Access Point as a portal to the WaveLinx CORE:

- The WaveLinx Area Controller's Wi-Fi Access Point must be Enabled.
- The WaveLinx Area Controller must be centralized (discovered and imported into the WaveLinx CORE)
- The WaveLinx Area Controller's Access to the CORE must be Enabled.
- The technician must have knowledge of the administrator user name and password for the WaveLinx Area Controller and the WaveLinx CORE as well as the WaveLinx Area Controller's Wi-Fi Access Point password.

Step 1: If Disabled, Enable the WaveLinx Area Controller's Wi-Fi Access Point

Skip to "Step 2: Setup Access for the WaveLinx CORE" if the Wi-Fi Access Point is already enabled.

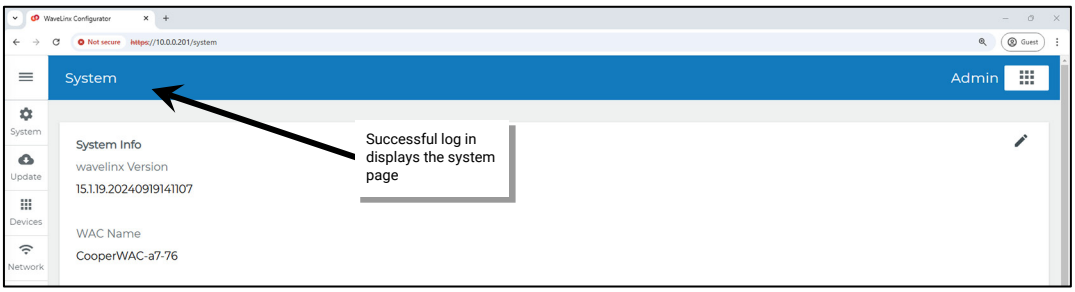
The WaveLinx Area Controller's Wi-Fi Access Point is enabled by default but can be turned off during the controller's setup process. The Wi-Fi Access Point must be enabled to allow access to the CORE. Follow the steps below to enable the access point if it has been disabled during the initial WaveLinx Area Controller's Configuration:

To enable the WaveLinx Area Controller's Wi-Fi Access Point:

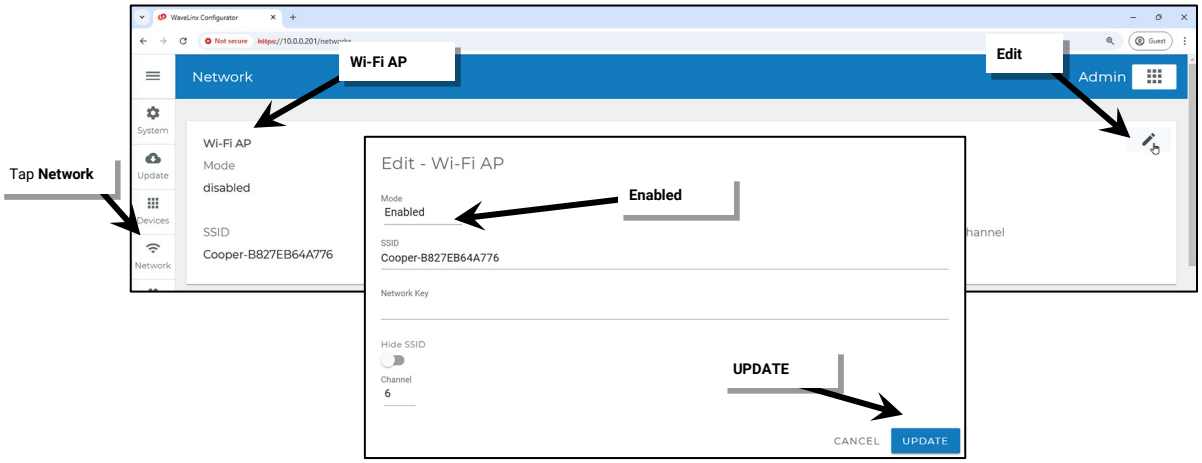
1: Connect the computer/device to the Building LAN/WAN that the WaveLinx Area Controller is operating within.

2: Open the web browser and enter the IP address of the WaveLinx Area Controller in the address bar.

3: In the log in screen, enter the username and password assigned to the WaveLinx Area Controller for the administrator user (default admin user name is **WclAdmin**). The configurator will open to the system page.



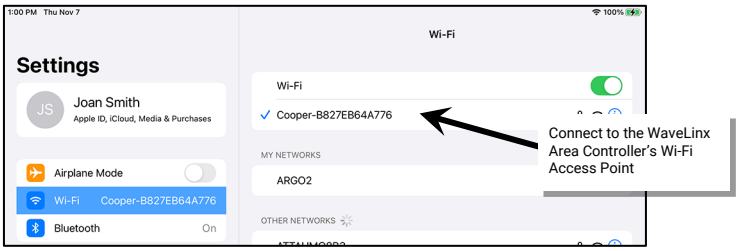
4: Tap **Network**. In the Wi-Fi AP section, tap **EDIT** ✎ and then set **Mode** to **Enabled**. Make note of the SSID or, if needed, modify the **SSID** and **Network Key**. Tap **Update**.



Step 2: Setup Access for the WaveLinx CORE

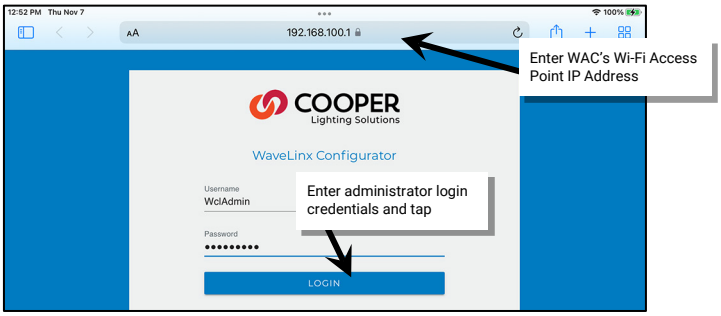
The WaveLinx Area Controller must be centralized/imported into a WaveLinx CORE to use it as an access point for the CORE. Access to the CORE from the Wi-Fi Access Point must also be Enabled.

1: Connect the computer/device's Wi-Fi to the WaveLinx Area Controller's Wi-Fi Access Point SSID. Enter the AP password if requested.



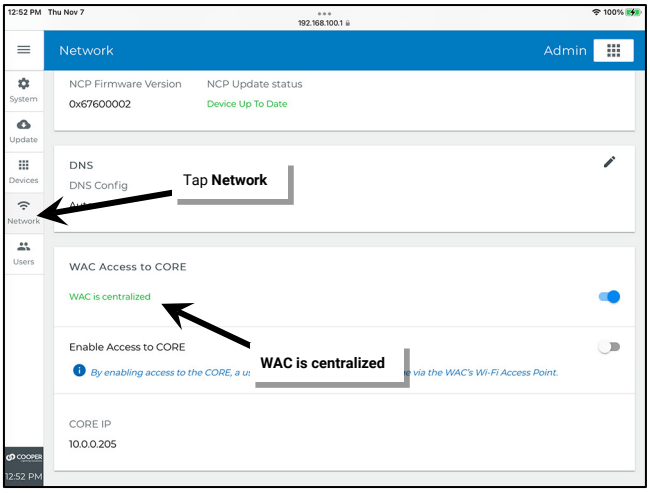
2: Open the web browser and enter the WaveLinx Area Controller's Wi-Fi Access Point IP address. (The default Wi-Fi Access Point's IP address is 192.168.100.1).

3: In the log in screen, enter the username and password assigned to the WaveLinx Area Controller for the administrator user (default admin user name is **WclAdmin**) and then tap **LOGIN**. The configurator will open to the system page.



4: Tap **Network** and scroll down the page to view the **WAC Access to CORE** section.

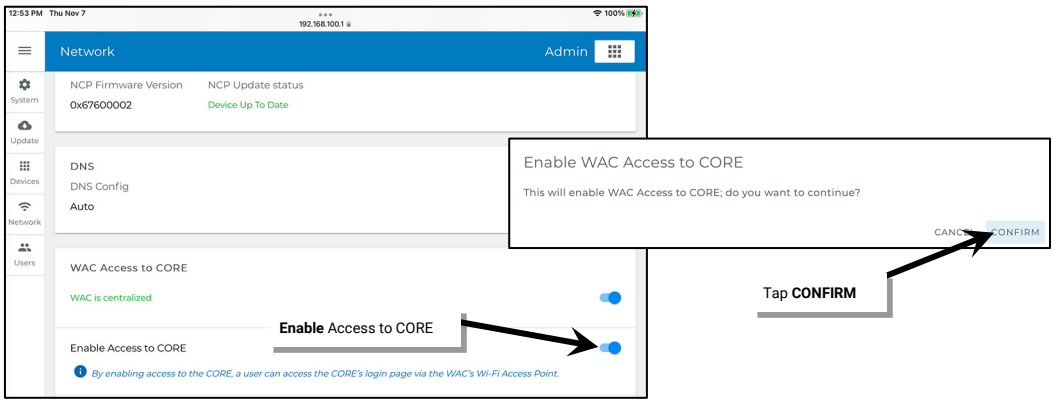
5: Verify that the words **WAC is centralized** appear.



Note: If the display shows **WAC is not centralized**, refer to the *WaveLinx CORE Lighting System Configuration Guide* for details on device discovery, import, and configuration.

6: Next, set the switch next to **Enable Access to CORE** to **enabled**/ON.

7: When prompted, tap **CONFIRM**.

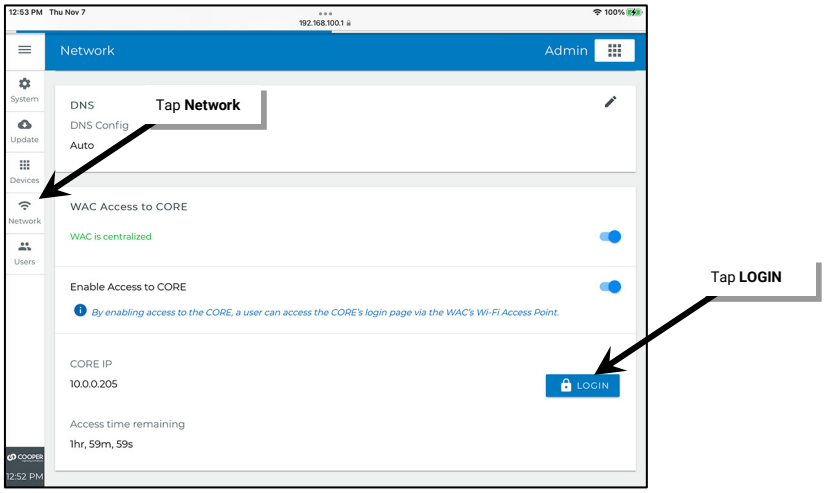


Once access is enabled, a 2 hour timer will begin counting down. Once the timer expires, access to the CORE will be disabled and will need to be enabled again if needed.

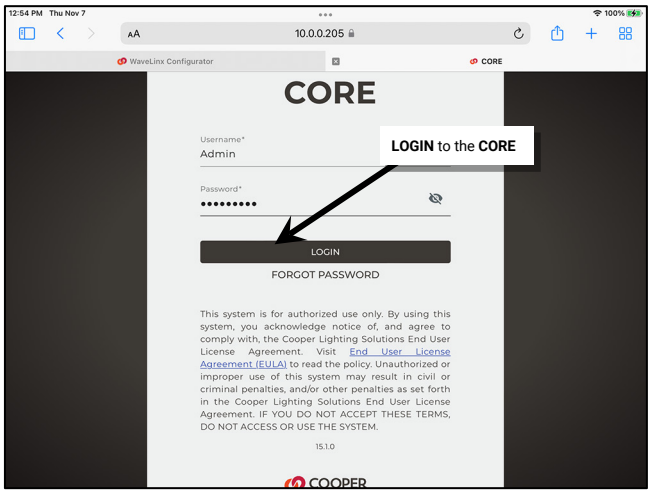
Step 3: Access the CORE

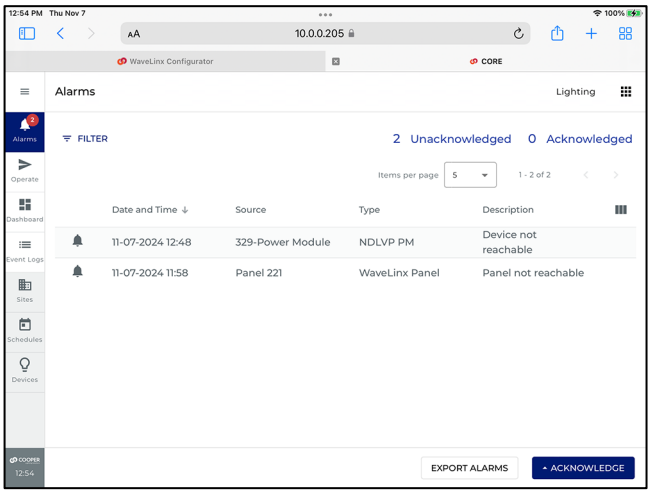
Once Step 2 above is completed, the WaveLinx Area Controller will allow access to the CORE for up to 2 hours. To access:

1: In the **Network** page, locate the **WAC Access to CORE** section, and then tap **LOGIN**. A connection will be made to the CORE.



2: Enter the administrator login credentials for the WaveLinx CORE and tap **LOGIN**. The WaveLinx CORE interface should be displayed and ready for use to make the desired changes.





Appendix C: Cross-WAC Sharing in WaveLinx CORE

This section is for WaveLinx Area Controllers and devices that are administered by a WaveLinx CORE system.

The WaveLinx System version 16.1 and higher allows for **Cross-WAC Sharing** when WaveLinx Area Controllers within the same building are connected through a WaveLinx CORE. **Cross-WAC Sharing** is sending a command from one WaveLinx Area Controller to any number of WaveLinx Area Controllers (max. 100 WACs) in the same CORE building. Commands that can be shared include commands issued by:

- WaveLinx Wallstation Buttons
- WaveLinx Contact Closure Inputs
- WaveLinx Occupancy Sets

Cross-WAC Sharing allows larger facilities to have cohesive control strategies for bigger spaces that may have devices connected to more than one WaveLinx Area Controller. It also allows for certain devices in one WaveLinx Area Controller to control areas in different WaveLinx Area Controllers (Cross-WAC multi-area control).

Cross-WAC Sharing Considerations

- Cross-WAC Sharing requires the use of a WaveLinx CORE.
- Cross-WAC Sharing is limited to 100 WACs.
- WACs that share data must be part of the same WaveLinx CORE building. WaveLinx Wired spaces are excluded.
- Partitioned area wallstations and contact closure inputs must be local to the partitioned area's WAC and cannot be shared. Wallstation and contact closure inputs outside of a partitioned area will not allow control of a partitioned area.
- Wallstation buttons or other inputs issuing Hold/Release Occupied, Wall Status Toggle, and Network Action commands are excluded from Cross-WAC Sharing.
- Touchscreen control cannot span Cross-WAC.

Using the CORE Lighting App to Program Cross-WAC Sharing

Before proceeding, make certain that the WaveLinx CORE system has been configured, the WaveLinx Area Controllers have been imported, the areas have been created, and the devices have assigned to their areas.

This section describes the steps necessary to assign inputs to control areas in other WaveLinx Area Controllers using the WaveLinx CORE Lighting App. This includes:

- Programming Wallstation Buttons for Cross-WAC Sharing
- Programming Contact Closure Inputs for Cross-WAC Sharing
- Associating Occupancy Sets for Cross-WAC Control

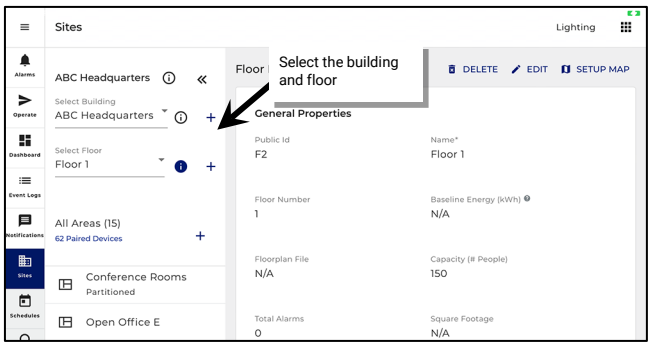
Programming Wallstation Buttons for Cross-WAC Sharing

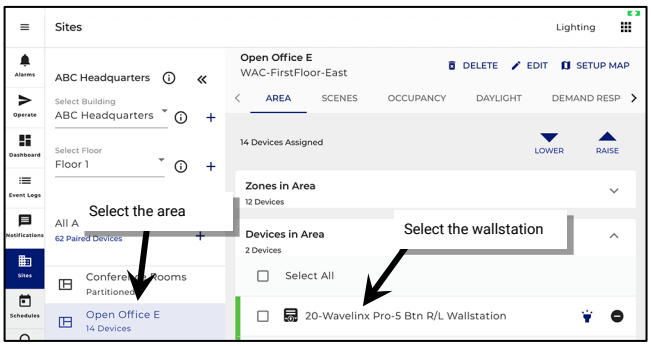
Note: Wallstation buttons issuing Hold/Release Occupied, Wall Status Toggle, and Network Action commands are excluded from Cross-WAC Sharing. To program other commands for Cross-WAC Sharing:

1: Open the WaveLinx CORE Lighting App.

2: In **Sites**, select the **building** and **floor**.

3: Locate wallstation in its current area and select the device.





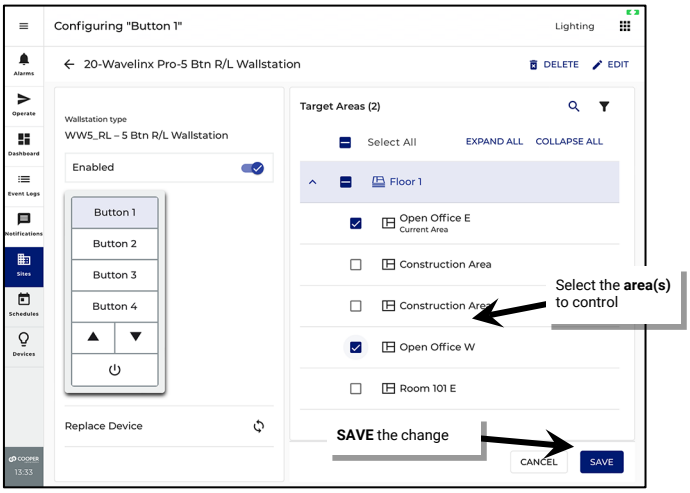
4: Select the button to modify and define the button action.

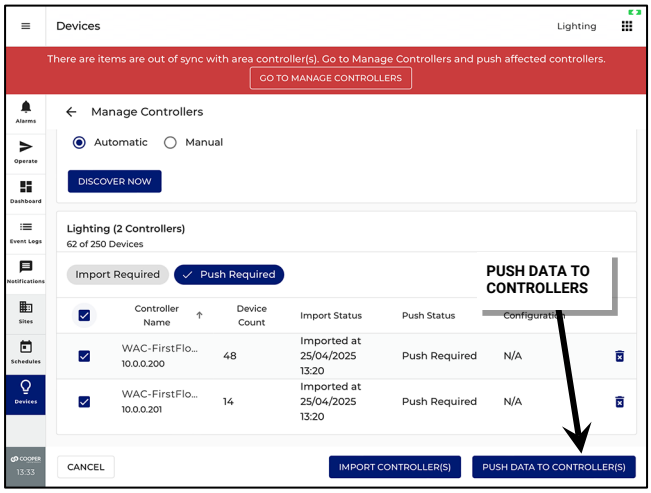
5: In the **target area** section, all standard (non-partitioned) areas in the building will be listed. Locate and select the **target area(s)** that the button should command.

Tip: Use the provided **search** icon or **filter** icon to simplify the selection of the target areas.

- **Search**: Tap and type part of or the whole area name. Tap again to display areas that contain that text.
- **Filter**: Tap to filter areas by floor.

6: Tap **SAVE**. Once all changes are complete, use the **PUSH DATA TO CONTROLLERS** command.





Programming Contact Closure Inputs for Cross-WAC Sharing

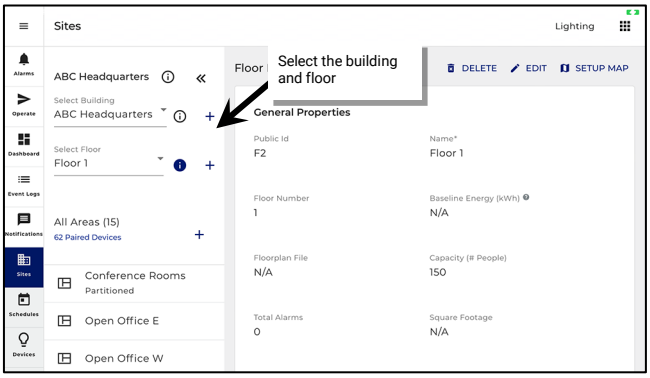
Use the following steps to configure contact inputs connected to the WaveLinx PRO Universal Voltage Dimming Switchpack (model WSP-CA-010), the WaveLinx PRO Contact Closure Input Module, and the WaveLinx CAT Contact Closure Input Module.

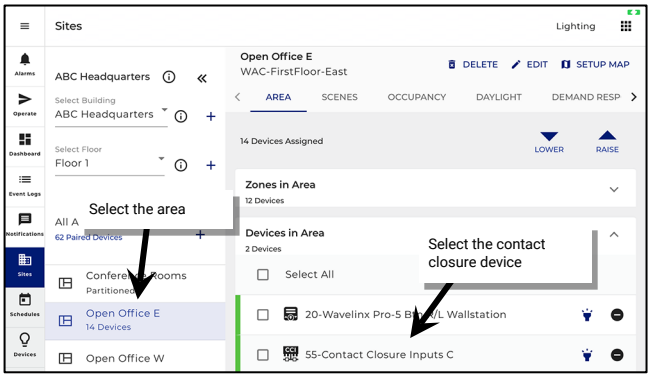
Note: Inputs issuing Wall Status Toggle commands are excluded from Cross-WAC Sharing. To program other commands for Cross-WAC Sharing:

1: Open the WaveLinx CORE Lighting App.

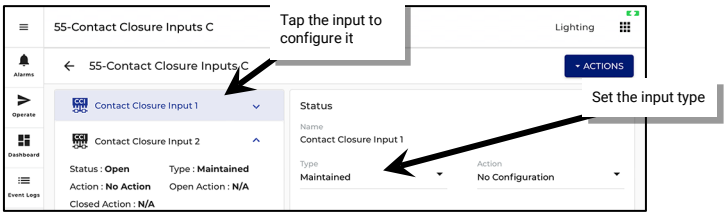
2: In **Sites**, select the **building** and **floor**.

3: Locate the Contact Closure Input device in its current area and select it.





4: Select the input to modify and define the input type (maintained or momentary).



5. Select the desired action type and parameters (momentary inputs will automatically be assigned to the manual action type).

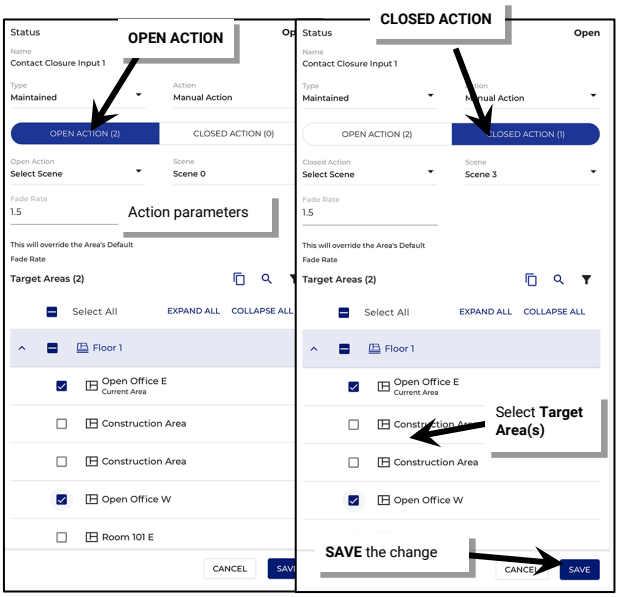
Manual Action Type

- For **momentary** inputs, there will be a single action screen.
- For **maintained** inputs, define the **OPEN ACTION** first, select the target(s) and then repeat to define the **CLOSED ACTION** and target(s).

For **Manual Action** type, select whether the input activates **Scene** or **Zone Level** commands and define the parameters. If the device type is momentary, the option for **Scene Toggle** and **Zone Toggle** will also be available.

For **Scene** commands, use the **target** section, to locate and select the **target area(s)** that the input should command (all standard areas (non-partitioned) in the building will be listed). Tap **SAVE**.

For **Zone** commands, select a target zone type of **CUSTOM**, **ALL** or **AFFECTED** and locate and select the desired areas (and zones if CUSTOM chosen).



Tip: Use the provided **search** icon or **filter** icon to simplify the selection of the target areas.

- **Search**: Tap and type part of or the whole area name. Tap again to display areas that contain that text.
- **Filter**: Tap to filter areas by floor.
- **Copy**: Once the target areas are selected for the OPEN ACTION, go to the CLOSE ACTION. Define the action and parameters and then tap to copy the same target area(s) from the open action to the closed action.

Other Action Types[426]

Select the desired action type:

- **After Hours Mode**
- **Alert Mode**
- **Demand Response**

Once the action type is selected, choose whether the **open** or **closed action activates** or **deactivates** the mode.

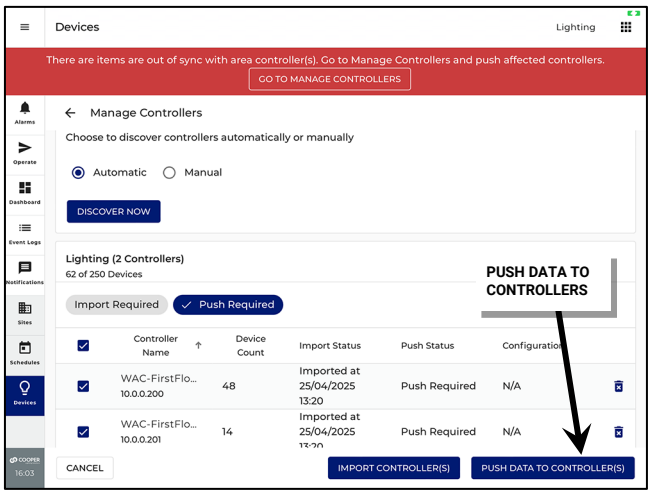
In the **target** section, all WaveLinx Area Controllers in the building will be listed. Locate and select the **target WAC(s)** that the input should command. Tap **SAVE**.

Tip: Use the provided **search** icon or **filter** icon to simplify the selection of the target WACs.

- **Search**: Tap and type part of or the whole WAC name. Tap again to display WACs that contain that text.
- **Filter**: Tap to filter WACs by floor.

[426] This function available for maintained input type only.

6: Once all changes are complete, use the **PUSH DATA TO CONTROLLERS** command.



Associating Occupancy Sets for Cross-WAC Control

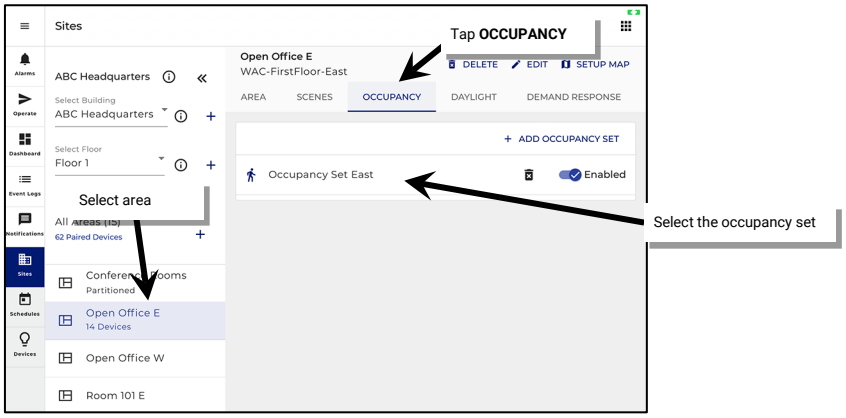
Although individual occupancy sensors cannot be shared across WaveLinx Area Controllers, Occupancy Sets can be shared through association. This allows a larger space that may have devices connected to different WaveLinx Area Controllers to be controlled as one cohesive space or allows for overlapping/cascading occupancy control across WaveLinx Area Controllers.

To associate occupancy sets across WaveLinx Area Controllers:

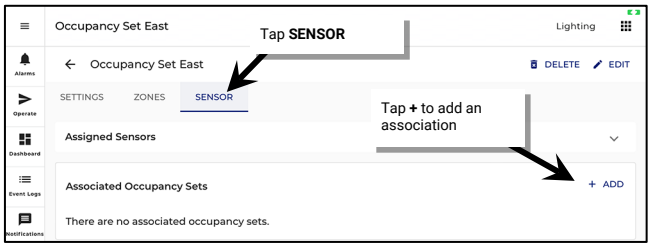
1: Open the WaveLinx CORE Lighting App.

2: In **Sites**, select the **building** and **floor**.

3. Open the area that has the desired occupancy set. As a rule, start by modifying the occupancy set that needs to receive signals from the other occupancy set. For instance, if the area named Open Office E needs to operate from sensors within its own occupancy set **and** from sensors in another occupancy set in another WaveLinx Area Controller, then modify the occupancy set in the Open Office E area.

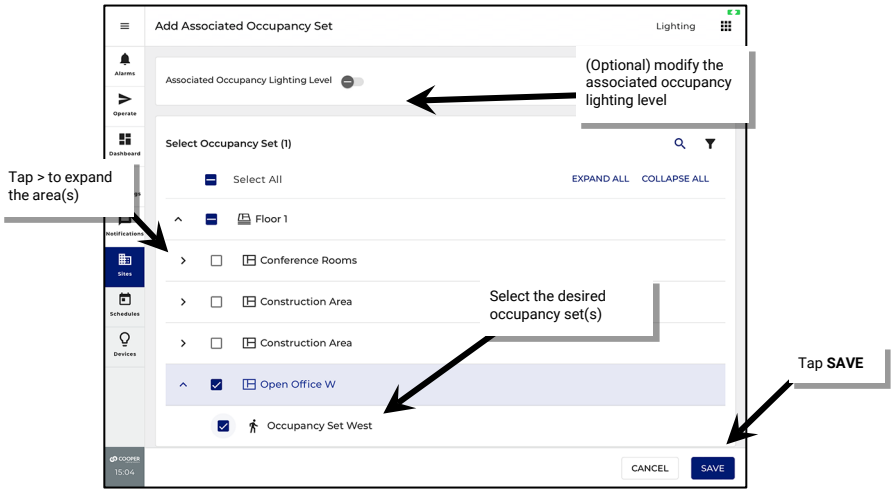


4. Tap the **SENSOR** tab. Tap **+ ADD** in the **Associated Occupancy Sets** section.

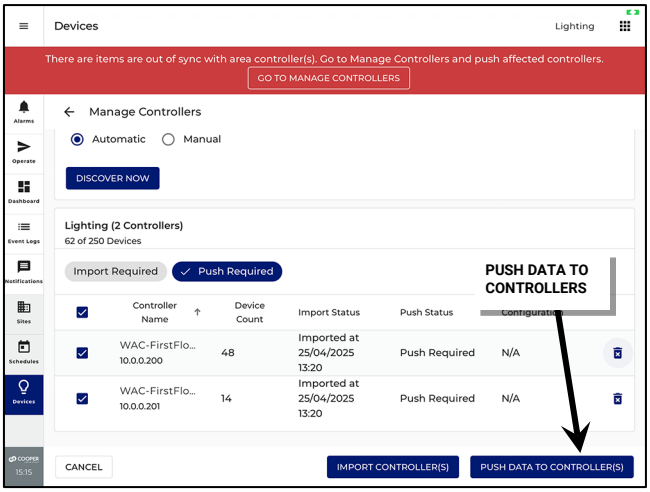


5: Locate the area(s) and tap > to expand the area(s) and show the occupancy sets. Select the occupancy set(s) that should pass commands to this one (for example, if Open Office E's occupancy set needs to respond to commands from Open Office W's occupancy set, select the Open Office W's occupancy set).

6: If desired, modify the **Associated Occupancy Lighting Level** settings and then tap **SAVE.**



7: Once all changes are complete, use the **PUSH DATA TO CONTROLLERS** command.



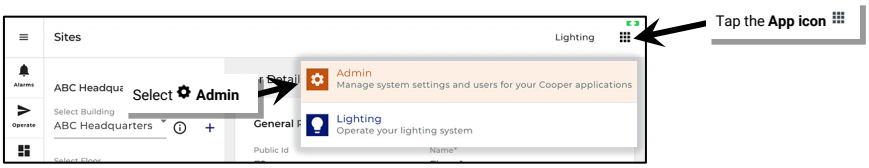
Setting Coordinators for Cross-WAC Sharing

In the WaveLinx CORE System, when wallstation buttons, contact inputs, or occupancy sets are set up for Cross-WAC sharing, the CORE will automatically select one of the WaveLinx Area Controller's to function as the primary coordinator to manage these Cross-WAC communications for the building. A backup secondary coordinator WAC will also be assigned. If the primary coordinator WAC fails/goes offline, the secondary coordinator WAC will take over management of the shared communications. After the CORE acts as the user interface to set up the Cross-WAC Sharing and assigned coordinator, the WaveLinx Area Controllers will communicate directly with each other to share the commands (peer-to-peer) with the aid of the assigned WAC coordinator.

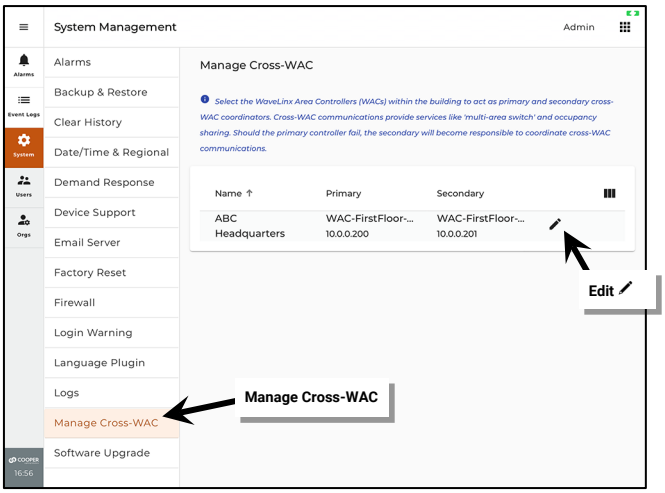
It is possible to change the selection of primary and secondary coordinator WACs from the automatic (*preferred*) selection. To change WAC coordinator selections:

1: Login to the WaveLinx CORE.

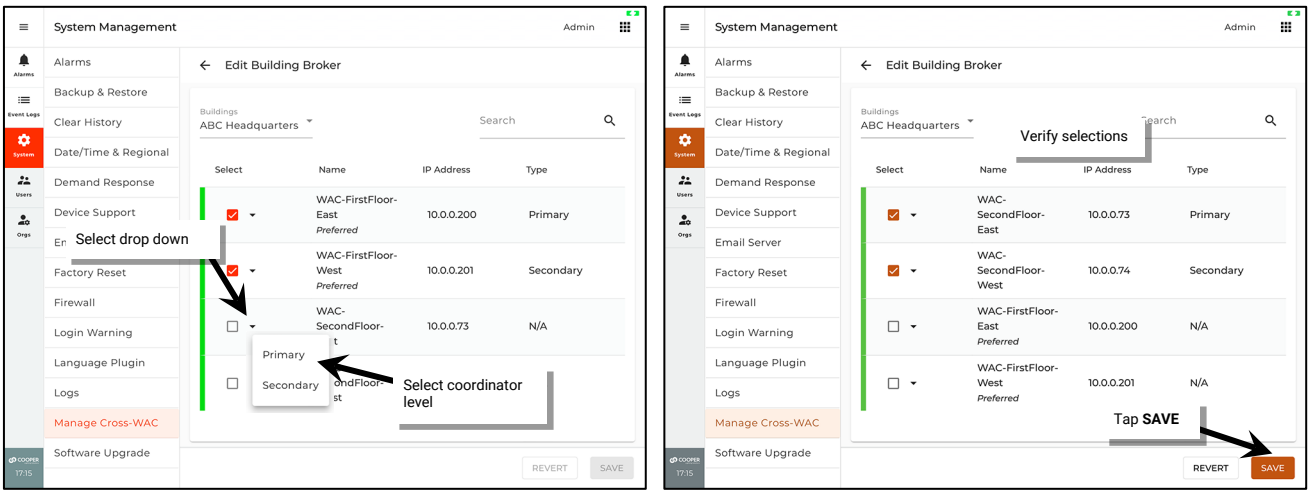
2: In the top right of the Lighting App, click on the **App icon** ⠿ and then select ⚙ **Admin** to open the Admin App.



3: Select **System** and select **Manage Cross-WAC**. The assigned primary and secondary coordinators will be displayed for the building. To change the selected coordinator(s), select **edit** ✎.



4: Locate the WAC that should be assigned as the primary coordinator. Next to the checkbox, use the **drop down arrow** ▼ and select the **Primary**. Repeat this process to assign a different WAC as **secondary** if desired. Tap **SAVE**.



Note: The originally assigned WACs will be deselected and replaced with the selected devices.

FCC Statement

- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

  (1) This device may not cause harmful interference.

  (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

Note: The equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons.

Warranties and Limitation of Liability

Please refer to **www.cooperlighting.com** for our terms and conditions.

Garanties et limitation de responsabilité

Veuillez consulter le site **www.cooperlighting.com** pour obtenir les conditions générales.

Garantías y Limitación de Responsabilidad

Visite **www.cooperlighting.com** para conocer nuestros términos y condiciones.

COOPER Lighting Solutions
a signify business

Cooper Lighting Solutions
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.cooperlighting.com
For service or technical assistance:
1-800-553-3879

Canada Sales
5925 McLaughlin Road
Mississauga, Ontario L5R 1B8
P: 905-501-3000
F: 905-501-3172

© 2026 Cooper Lighting Solutions
All Rights Reserved
Printed in USA
Publication No. MN50389026
January 2026

Cooper Lighting Solutions is a registered trademark.

All other trademarks are property of their respective owners.

Product availability, specifications, and compliances are subject to change without notice.