Fifth Light

Page

Electrical Contractor System Validation Manual



Contents

Description

Lighting Control Panel Power Test	2
Cat5e Network Test	3
DALI Communication Bus Test	4
Appendix A	6



DANGER

Line voltage is present in the areas covered with a red block in the picture below



IMPORTANT

Prior to energizing any fixture(s) ensure that there are no shorts between the following:

- The two DALI wires
- Each DALI Bus wire and ground
- · Each DALI Bus wire and the line voltage wiring

IMPORTANT

Terminate the DALI Bus wires in the Lighting Control Panel (LCP) first, before energizing the lighting circuits. After the lighting circuits are energized, ensure the line voltage is not present on the DALI Bus wires.

- Ensure that all lighting loads are powered
- Use a meter to check for line voltage on the wires as follows:
 - Between either DALI wire to ground
 - Across both DALI wires
- There should be a maximum of 24 VDC between the DALI wires and ground



All LCP connections must be verified for proper terminations according to the corresponding LCP schematics. For safety purposes, ensure that there are no faulty connections between line voltage, neutral and ground wires. Be sure that all low voltage wiring is connected or secured before energizing the LCP.

Table 1. Lighting Control Panel Power Test





Step 1:

Ensure all circuit breakers, branch breakers and circuit protection within all LCPs are in the $\ensuremath{\mathsf{Off}}$ position.

Step 2:

Energize the LCP by turning On the branch circuit breaker feeding the LCP. Verify that 120 VAC power is incoming at the LCP by measuring the voltage between the terminal blocks labeled "L" for line voltage and "N" for neutral.

	Step 3:
	Turn the 120 VAC breaker labeled "CB1" inside the LCP to the On position.
	Step 4:
	Verify that 24 VDC is present between the terminal blocks "OV" and "1P" off the power supply secondary.
	Step 5:
	Ensure all LCP's have a suitable ground connection and that neutral (0 VDC) and ground are at the same potential.
	Step 6:
	Repeat the steps 1-5 for all LCPs in the building.
Table 2. Cat5e Network Test	
	Step 1:
	The LCP requires Ethernet connections for communication with the Lighting Management Software and other integration pieces. Verify that Cat5e cabling has been pulled and terminated to each designated LCP location and that a connection has been provided between the Fifth Light system and the main network switch.
	Step 2:
	Verify that the data drops are in the correct locations (i.e. the data racks wor inside the LCP).

Step 3:

Using a network cable tester, verify that each Cat5e cable is functional and data can pass through it.

Electrical Contractor System Validation Manual Check List

Table 3. DALI Communication Bus Test

	Step 1: Energize the DBC by turning circuit breaker "CB2" to the On position.
	Step 2:
10 m	 Review the LED indicators on the DALI Bus Card: "DALLPWB": Should be illuminated. If not, verify the DALLPower Card is
G Power G USB Link	connected and that the supply breakers are On.
C USB Activity	short on the DALI Bus that should be rectified.
DALI Activity 2	 Error. The Error LED should be fading in and out or breathing. Note: If it is blinking, note the blink pattern and refer to the "DALI Card
Mode	LED Error Table" in Appendix A.
CX Mode	 Once the LEDs are verified to be in proper operation, proceed to Step 3 in this section.
	Step 3:
DALI Reset	Test Dimmable Devices – (This includes DALI Ballast/Drivers, Dimming Modules and
	 On the DALI Bus Card for the bus under test, set the DIP Switch setting to Commissioning Mode 1 (shown circled) with DIP Switch 1 set to On and 2, 3, 4 set to the Off position.
	Then press and hold the commissioning button, labeled Cx, (shown boxed) until the "Mode" LED Turns On. Next, follow the steps below:
DA+ DA	 All lamps in the fixtures should dim down to a low light level output. The lamps should then increase in light output and continue to cycle light output every 5 seconds.
DA-	 Verify that all dimmable fixtures that should be connected to the DALI Bus are cycling with this mode.
	 If any lamps in the fixtures do not dim, turn off power to the affected fixture and the DBC. Recheck all connections including the DALI Bus wire connection; then repeat the test.
	If the problem persists for a second time, set the device aside to be sent to Fifth Light to determine if the device is faulty.
Mode Node	 If fixtures are dimming that are not supposed to be connected to the DALI bus under test, turn Off power to the fixture and the DBC. Recheck all connections to ensure they are connected to the correct DALI Bus, then repeat the test.
DALI NULL ON C	To exit Commissioning Mode press and hold the commissioning button (shown boxed) until the "Mode" LED turns Off
CX 3 CFF	Note: Ensure that the Mode 2 DIP Switch is switched back to Off before entering another Commissioning Mode.

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Mode	Step 4:	
PAN Reset	Test DALI Field Relays	
Cx Sol Charles	 On the DALI Bus Card for the bus under test, set the DIP Switch setting to Commissioning Mode 2 (shown circled) with DIP Switch 2 set to On and 1, 3, 4 set to the Off position. 	
	Then press and hold the Commissioning button, labeled Cx, (shown boxed) until the "Mode" LED turns On. Next, follow the steps below:	
Cx	 Once Commissioning Mode 2 takes effect, all fixtures including those connected to a DALI Field Relay will turn On and Off every 5 seconds. 	
	 Verify that all fixtures/relays that should be connected to the DALI Bus are cycling with this mode. 	
	 If the fixtures do not turn On and Off, then turn Off power to the them and the DBC. Recheck connections and repeat the test. 	
	If the problem persists for a second time, set the device aside for further investigation by Fifth Light.	
Mode	 If fixtures are switching that are not supposed to be connected to the DALI Bus under test, turn Off power to the fixture and the DBC. Recheck all connections to ensure they are connected to the correct DALI Bus then repeat the test. 	
DA+	 To exit Commissioning Mode, press and hold the commissioning button (shown boxed) until the "Mode" LED turns Off. 	
DA	Note: Ensure that the Mode 1 DIP Switch is switched back to Off before entering another Commissioning Mode.	
Mode PAN Reset	Step 5:	
	Test DALI Multi-Sensors and Wallstations	
	 On the DALI Bus Card for the bus under test set the DIP Switch to Commissioning Mode 2 (shown circled) with DIP Switch 2 set to 0n and 1, 3, 4 set to the Off position. 	
	Then press and release the commissioning button (shown boxed). Follow the steps below to start the test:	
Cx	 Once Commissioning Mode 2 takes effect, the LEDs on all of the DALI Multi- Sensors and wallstations on this DALI Bus will blink 5 times rapidly every 5 seconds. 	
	 Verify that all Multi-Sensors and wallstations that should be connected to the DALI Bus are cycling their LEDs with this mode. 	
	 If the DALI Multi-Sensor's or wallstation's LEDs do not blink, recheck connections; then repeat the test. 	
unde 🛋 4	If the problem persists for a second time, set the device aside for further investigation by Fifth Light.	
	 If Multi-Sensors and wallstations that are not supposed to be connected to this DALI Bus are blinking their LED's recheck all connections to ensure they are connected to the correct DALI Bus, then repeat the test. 	
	2. To exit Commissioning Mode, press and hold the commissioning button (shown	
DA+	boxed) until the "Mode" LED turns Off.	

Appendix A

Table 4. DALI Card LED Error Table

Priority	Condition Identified	Status LED Pattern	Caused By
1 (highest)	Critical fault	100ms On, 100ms Off (periodic)	Non-volatile memory (EEPROM) data error detected Equipment requires service or replacement
2	Over-voltage condition on DALI Bus	4 short 250ms blinks separated by a 250ms Off time followed by 1750ms Off (periodic)	An over voltage condition has recently been or is currently being sensed on the DALI interface circuitry
3	USB communications watchdog time-out	3 short 250ms blinks separated by a 250ms Off time followed by 1750ms Off (periodic)	Interval between receiving two valid USB commands exceeded watchdog timer interval
4	DALI Bus fault	2 short 250ms blinks separated by a 250ms Off time followed by 1750ms Off (periodic)	DALI Power Supply absent on DALI Bus device holding DALI Bus in active state DALI Bus held in a sustained active state by short circuit fault on DALI Bus
5 (lowest)	Normal operation (default)	50ms On, 1950ms Off (periodic)	No other fault or status conditions to display

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