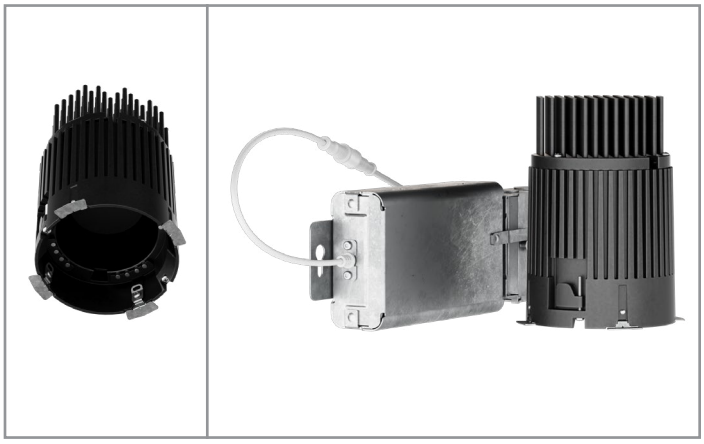
Project		Catalog #		Type	
Prepared by		Notes		Date	



PORTFOLIO

LDRT3D

3” Round Install From Below Downlight

Typical Applications

Office • Education • Healthcare • Hospitality • Retail • Residential

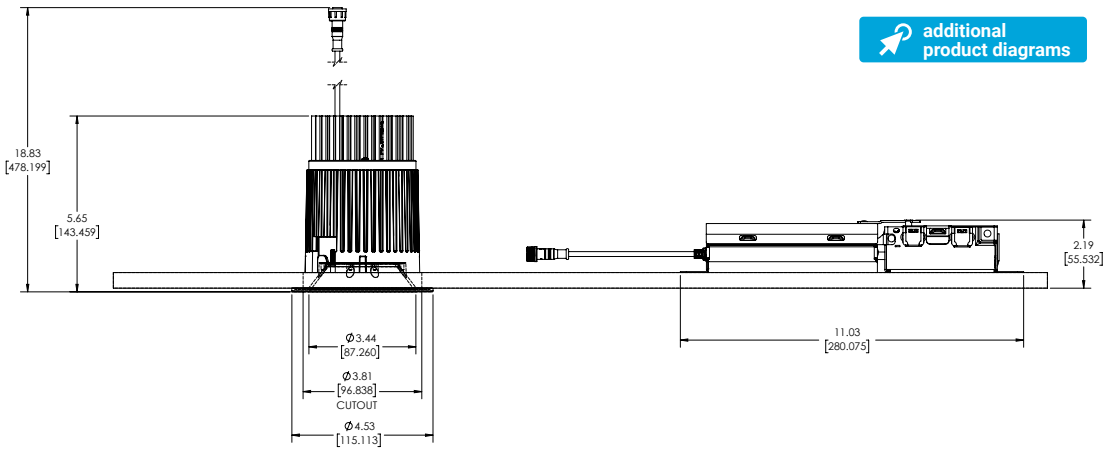
Interactive Menu

Top Product Features

- Install from below
- Interchangeable optics in 8°, 12°, 5° increments from 10°-70° and asymmetric patterns
- Available in 250 to 1700 lumens
- Offered in 90, 97 and 98 CRI
- Media holder accepts two lens media
- 2400K, 2700K, 3000K, 3500K, 4000K, 5000K; 2 SDCM
- D2W™ option from 3000K to 1850K
- W2N tunable white CCT range 2700K to 6500K or 2000K to 5000K
- BioUp tunable 2700K to 5000K and static white 3500K, 4000K, 5000K

Dimensional and Mounting Details

additional product diagrams



Order Information

SAMPLE ORDER NUMBER: **LDRT3D09R209030D010 E3BUSR1MW**

Domestic Preferences [6]

[blank]=Standard
BAA = Buy American Act
TAA = Trade Agreements Act

Housing

LDRT3D = 3" downlight recessed install from below
LDRT3DKE = 3" downlight recessed install from below for use with knife edge rimless plaster installations (order accessory separately)

Lumens
Nominal Lumens will vary depending on selected color, CRI, driver and reflector finish)

90/97/98 CRI
IC Rated
02 = 250 lumens
05 = 500 lumens
09 = 900 lumens

Non-IC Rated
13 = 1300 lumens
17 = 1700 lumens (90 and 97 CRI)

D2W™ Dim-to-Warm [1][2]
IC Rated
02 = 250 lumens
05 = 500 lumens
09 = 900 lumens

Non-IC Rated
13 = 1300 lumens

W2N™ Tunable White [1][2]
IC Rated
05 = 500 lumens

BioUp™ Melanopic Lighting [1][2]
IC Rated
05 = 500 lumens

Optics [1][2]

[blank] = Order optic separately (Available for ≥15°)
R08 = 8° (Offered in 250 lm; Requires DE010 or D5LT driver) [3]
R10 = 10° (Offered for 250–900 lm) [3]
R12 = 12° (Offered ≤900 lm) [3]
R15 = 15°
R20 = 20°
R25 = 25°
R30 = 30°
R35 = 35°
R40 = 40°
R45 = 45°
R50 = 50°
R55 = 55°
R60 = 60°
R65 = 65°
R70 = 70° (Required when using wall wash trims)

Asymmetric Elliptical
2R2040 = 20° x 40°
2R2050 = 20° x 50°
2R2060 = 20° x 60°

CRI/CCT

90 CRI
9024 = 2400K
9027 = 2700K
9030 = 3000K
9035 = 3500K
9040 = 4000K
9050 = 5000K

97 CRI
9727 = 2700K
9730 = 3000K
9735 = 3500K
9740 = 4000K

98 CRI
(250-1300 lumens)
9824 = 2400K
9827 = 2700K
9830 = 3000K
9835 = 3500K
9840 = 4000K

D2W™ Dim-to-Warm [1]
(90 CRI min, IC rated ≤900 lumens; offered with ≥15° optics)
9030D2W = Dim-to-Warm, 3000K–1850K

W2N™ Tunable White [1]
(Specify with DE010 or D5LT driver, remote driver only; offered with ≥15° optics)
W2N902050 = Tunable White, 2000K–5000K
W2N902765 = Tunable White, 2700K–6500K

BioUp™ [1]
(Specify with DE010 or D5LT driver, remote driver only; offered with ≥15° optics)
B2750 = BioUp™ Boosted cyan tunable white, 2700K–5000K
B35 = Static BioUp™, 3500K (500 lm, DE010 driver only)
B40 = Static BioUp™, 4000K (500 lm, DE010 driver only)
B50 = Static BioUp™, 5000K (500 lm, DE010 driver only)

Driver

Phase Cut Dimming
DTR = 120V phase cut 1% dimming

0-10V Dimming
D010 = UNV 120-277V, 0-10V 1% dimming
3D010 = 347V 0-10V 1% dimming, 900-1700 lumens
DE010 = UNV 120-277V, 0-10V linear, 0.1% dimming (≥250lm for D2W and ≥500 lm for other CRI/CCT)

DALI & Lutron® EcoSystem™
D5LT = UNV 120-277V DALI DT6 logarithmic 0.1% dimming (≥250lm for D2W and ≥500 lm for other CRI/CCT)
DLE = UNV 120-277V Lutron Ecosystem 1% dimming, 900 lumens and above

DMX (remove driver only) [4]
DMX = UNV 120-277V DMX/RDM logarithmic 0,1% dimming (≥250lm for D2W and ≥500 lm for other CRI/CCT)
DMXC5 = UNV 120-277V DMX/RDM logarithmic 0.1% dimming with RJ45 connection (≥250lm for D2W and ≥500 lm for other CRI/CCT)

Driver Options

[blank] = Integral driver (Offered with DTR, D010, 3D010, DLE, DE010 and D5LT driver)
R = Remote driver (Order remote driver separately. Required for DMX, BioUp and tunable white.)

Options [7]

WaveLinx
WPN = WaveLinx PRO Wireless Node without sensor (specify with DE010 or D010)
WLN = WaveLinx LITE Wireless Node without sensor (specify with DE010 or D010)

Lutron® Athena™
AWN = Athena Wireless Node (specify with DE010 or D010 driver)

Round Spun Aluminum Reflectors

Standard Self-Flanged Trims
(Use with Self-flanged Styles 1, 2, or 5)
Downlight
3LBUSR = 3" Ultra-shallow bevel

Wall Wash
(Specify with 70° optic)
3LLSWWR = 3" Lensed single wall wash
3LLDWWR = 3" Lensed double wall wash
3LLCWWR = 3" Lensed corner wall wash

Knife Edge Trims
(Use with Flange Style 4)
Downlight
3LBUS = 3" Ultra-shallow bevel

Wall Wash
(Specify with 70° optic)
3LLSWW = 3" Lensed single wall wash
3LLDWW = 3" Lensed double wall wash
3LLCWW = 3" Lensed corner wall wash

Lens
(Lens required for outdoor use)

[blank] = Open or lensed wall wash

Lenses
(Required for outdoor use)
L = Textured clear lens
LP = Prismatic lens
LD = Diffuse lens

Flange

1 = Self-flanged (Flange matches reflector finish)
2 = Self-flanged (Flange is painted Matte White)
4 = Knife edge rimless for plaster (Requires Rimless plaster lathing ring accessory)
5 = Self-flanged (Flange is painted Matte Black)

Finish

LI = Specular clear
H = Semi-specular clear
WMH = Semi-specular warm haze
WH = Specular wheat
GPH = Semi-specular graphite
B = Specular black
MW = Matte white

Continued on next page.

Order Information

Round Die cast Aluminum and Non-conductive Trims (Standard self-flanged & Knife edge rimless plaster)	Lens (Lens required for outdoor use)	Flange Style and finish	Reflector Finish
Standard Self-Flanged Trims (Use with Self-flanged Styles 1, 2, or 5) **Downlight** **3LCBUSR** = 3˝ Ultra-shallow bevel **3LPINUSR** = 3˝ Pinhole ultra-shallow (Use with flange style 1) **Wall Wash** (Specify with 70º optic) **3LCLSWWR** = 3˝ Lensed single wall wash **3LLDWWR** = 3˝ Lensed double wall wash **3LCLCWWR** = 3˝ Lensed corner wall wash **Non-conductive** (Use with Self-flanged Style 1; Select Matte Black or Matte White finish; Lens selection required) **3LPBR** = 3˝ Bevel, Dead front	**[blank]** = Open, hyperbolic, lensed wall wash, or super adjustable **Lenses** (Required for outdoor use) **L** = Textured clear lens **LP** = Prismatic lens **LD** = Diffuse lens	**1** = Self-flanged (Flange matches reflector finish) **2** = Self-flanged (Flange is painted Matte White) **4** = Knife edge rimless for millwork and plaster (Requires accessories: adapters, and collars depending on ceiling material and thickness; Rimless plaster lathing ring required for plaster ceilings) **5** = Self-flanged (Flange is painted Matte Black)	**MW** = Matte White **MB** = Matte Black **MMS** = Matte metallic silver **BZ** = Bronze

Media and Optics					
Optics			Media Filters		Lens Options
2R15SP = 15° Beam **2R20** = 20° Beam **2R25NFL** = 25° Beam **2R30** = 30° Beam **2R35** = 35° Beam **2R40FL** = 40° Beam **2R45** = 45° Beam	**2R50** = 50° Beam **2R55WFL** = 55° Beam **2R60** = 60° Beam **2R65** = 65° Beam **2R70** = 70° Beam	**Asymmetric Elliptical** **2R2040** = 20° x 40° **2R2050** = 20° x 50° **2R2060** = 20° x 60°	**L112** = Red gel filter **L114** = Ultraviolet dichroic filter **L120** = Red dichroic filter **L121** = Amber dichroic filter **L122** = Yellow dichroic filter	**L123** = Green dichroic filter **L124** = Daylight blue dichroic filter **L125** = Blue dichroic filter **L127** = Cosmetic (2700K) dichroic filter **L131** = Amber gel filter	**L110N** = Diffuse Sandblasted Lens **L111** = Soft Focus Lens **L113** = Prismatic Spread Lens **L115** = Linear Spread Lens **L100MB** = Hex cell louver

Accessories		
Knife Edge Rimless Trim Installations (Required for use with Knife Edge rimless trim reflectors for plaster.) **RPR3** = Round rimless plaster lathing ring [5]	**WaveLinx Sensor Kits** **WPST** = Field installed WaveLinx PRO sensor Kit **WLST** = Field installed WaveLinx LITE Sensor Kit	**New Construction Mounting Frame** (Galvanized steel frame with 3/8" drywall collar for precise hole locating and cutting, integral bar hangers (7.25"–24") for traditional framing and T-grid ceilings, and captive thumbscrews for toolless driver/junction box attachment during rough-in.) **PMFR3** = 3" round mounting frame for use in traditional framing and T-grid ceilings

Continued on next page.

Order Information

Required if remote driver (R) is specified

Remote driver			
Domestic Preferences [6]	Flexible Metal Clad Conduit with Wires	Lumens	Color Control
[blank]=Standard **BAA** = Buy American Act **TAA** = Trade Agreements Act	**RN100** = Remote 100ft **RN50** = Remote 50ft **RN25** = Remote 25ft **RN15** = Remote 15ft **RN5** = Remote 5ft **RN2** = Remote 2ft	**IC Rated** **02** = 250 lm **05** = 500 lm **09** = 900 lm **Non-IC Rated** **13** = 1300 lm **17** = 1700 lm	**[blank]** = 90, 97 and 98 CRI (98 CRI; ≤1300 lm) **D2W™ Dim-to-Warm** (90 CRI min; ≤1300 lm) **9030D2W** = Dim-to-Warm, 3000K–1850K **W2N™ Tunable White** (Specify with D5LT or DE010 driver) **W2N902050** = Tunable white, 2000K–5000K CCT (500 lm) **W2N902765** = Tunable white, 2700K–6500K CCT (500 lm) **BioUp™** (Specify with D5LT, DE010 or LD2 driver) **B2750** = BioUp™ Boosted cyan tunable white 2700K–5000K (500 lm) **B35** = Static Bioup 3500K (500 lm, DE010 driver only) **B40** = Static Bioup 4000K (500 lm, DE010 driver only) **B50** = Static Bioup 5000K (500 lm, DE010 driver only)

Driver	Options
Phase Cut Dimming **DTR** = 120V phase cut 1% dimming **0-10V Dimming** **D010** = UNV 120-277V, 0-10V 1% dimming **3D010** = 347V 0-10V 1% dimming (900–1700 lm) **DE010** = UNV 120-277V, 0-10V linear, 0.1% dimming (500–1700 lm) **DALI & DMX** **D5LT** = UNV 120-277V DALI DT6 logarithmic 0.1% dimming (500–1700 lm) **DMX** = UNV 120-277V DMX/RDM logarithmic 0.1% dimming (500–1700 lm) [4] **DMXC5** = UNV 120-277V DMX/RDM logarithmic 0.1% dimming with RJ45 connection (500–1700 lm) [4] **Lutron® EcoSystem™ & DALI** **DLE** = UNV 120-277V Lutron® EcoSystem™ 1% dimming (≥900 lm; limited to 25ft.)	**EMBOD6ST** = Bodine® 6W Self Test Emergency Module with Remote Test Switch (500 lumens and above) **EM7** = 7W integral emergency backup battery with remote test switch (900 lumens and above) **EM14** = 14W integral emergency backup battery with remote test switch (1700 lumens and above) **EM14RSD** = 14W Self Diagnostic Replaceable Emergency Battery Pack with Remote Test Switch (1700 lumens and above) **ETRD** = Emergency transfer device **WaveLinx** **WPST** = Factory installed WaveLinx PRO sensor kit **WLST** = Factory installed WaveLinx LITE sensor kit **WPN** = WaveLinx PRO Wireless Node without sensor specify with DE010 or D010) **WLN** = WaveLinx LITE Wireless Node without sensor specify with DE010 or D010 **Lutron® Athena™** **AWN** = Athena Wireless Node specify with DE010 or D010

Notes:

1. Optic accommodates 2 media with 90, 97, and 98 CRI and 1 media with D2W™, W2N™, and BioUp™.
2. D2W™, W2N™, and BioUp™ are offered with ≥15° optics
3. Optic must be specified with the housing for ≤12°
4. DMX fixtures default to full ON upon loss of DMX signal
5. Adjustment angles are set at ideal ceiling thickness of 1/2". For each additional 1/8" ceiling thickness the adjustment angle is reduced by 2°.
6. Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements. Offered with spun aluminum narrow (N), medium (M) and wide (W) trims.
7. Non-IC

Product Specifications

Module
- One piece installs from below the ceiling with integral mounting clamps
- Mounting clamps tighten from below the ceiling with #2 Phillips screwdriver
- Accommodates 1/2" to 1-1/4" ceiling thickness
- Ships with an overspray protector installed
- Plaster lathing ring attaches to collar providing a flush transition with the ceiling

Thermal Management/Heat sink
- Forged aluminum heat sink conducts heat away from the LED array for optimum performance and longer life
- Heat sink with LED can be serviced from below the ceiling

Junction Box
- Four 1/2" conduit pry-outs
- Lever connectors for simple push in wiring

Optional Mounting Frame
- Galvanized steel mounting frame with offset aperture and 3/8" drywall collar for hole location includes a notch at 90° intervals for laser centering
- Mounting flange levels frame with ceiling
- Locking screws provide positive horizontal locking feature to shorten without removal
- Bar hangers adjust from 8" to 24" wide with pass through without removing
- Captive nail penetrates standard and engineered lumber
- Integral clip attaches directly to t-bar

LED Array
- Proximity phosphors over chip on board • Proximity phosphors over chip on board LEDs provide a uniform source with high efficiency and no pixilation
- Available in 2400, 2700, 3000, 3500, 4000 and 5000K CCT, 90 CRI minimum, R9 greater than 50 and color accuracy within 2 SDCM. L78 55,000
- Optional full spectrum color at 2400, 2700, 3000, 3500 and 4000 K CCT, 95 CRI minimum with R1-R15 values ranging from 92 to 100, excellent TM-30 metrics; Rf ranging from 96-98 and Rg from 99-100. L70 55,000 hours
- D2W™ – dim-to-warm shifts CCT from 3000K to 1850K as fixture dims mimicking halogen sources.
- W2N - Tunable white CCT range 2700K to 6500K or 2000K to 5000K, 90 CRI. Standard
- BioUp - Tunable white CCT range 2700K to 5000K Provides the biological effectiveness of natural sunlight, with color temperatures that are more comfortable for indoor environments

Optic
- Polarized turn and lock mounting aligns optic to source allowing rapid aim and focus in the field
- Silicone molded TIR optic produces smooth beams available from 8° to 70° distribution patterns in 5° increments
- Asymmetric options in 20x40, 20x50 and 20x60 distributions
- Integral media holder accepts one or two 2" diameter 3.0mm thick color filters, lenses or louvers, order media separately

Reflector
- Field interchangeable open and lensed reflectors are available in downlight and wall wash , also available in a pinhole aperture
- Available in open and lens versions, lens versions are wet location listed and suitable for use in shower and steam applications
- Lensed option offered in prismatic, diffuse and lightly textured translucent clear

Wall Wash Reflector
- Lensed wall wash reflector offered in single and double wall wash providing even vertical illumination with minimal source brightness
- Trim attaches simply and securely with 16 neodymium magnets
- Plaster lathing ring accessory provides a flush transition and snaps to the plaster collar

Driver - Remote or integral
- Standard UNV 120-277V or 347V constant current driver provides noise free operation
- 120V, flicker-free dimming from 100% to <1% with phase cut control
- Continuous, flicker-free dimming from 100% to 1% with 0-10V analog control
- Optional DALI, DMX and Lutron control
- Integral driver has quick disconnect for ease of replacement

Connected Lighting System
Two WaveLinx connected solutions to choose from. Refer to WaveLinx system specifications and application guides for details.

WaveLinx PRO Tilemount Sensor Kit
- WaveLinx PRO WPST tilemount sensor kit offers daylight dimming, PIR motion sensing, scene and zone configuration, automatic commissioning; and optional RLTS - Real Time Location Services available.

WaveLinx PRO Wireless Node
- WaveLinx PRO WPN wireless node provides luminaire-level control with scene and zone configuration without an integrated sensor; Connects wirelessly with daylight dimming sensor and PIR motion sensor if desired. Use with 0-10V driver only. Note: Not compatible with 347V or Chicago plenum.

WaveLinx LITE Tilemount Sensor Kit
- WaveLinx LITE WLST tilemount sensor kit offers daylight dimming and PIR motion sensing, scene and grouping configuration.

WaveLinx LITE Wireless Node
- WaveLinx LITE WLN wireless node provides luminaire level control with scene and zone configuration without an integrated sensor; Connects wirelessly with daylight dimming sensor and PIR motion sensor if desired. Use with 0-10V driver only. Note: Not compatible with 347V or Chicago plenum

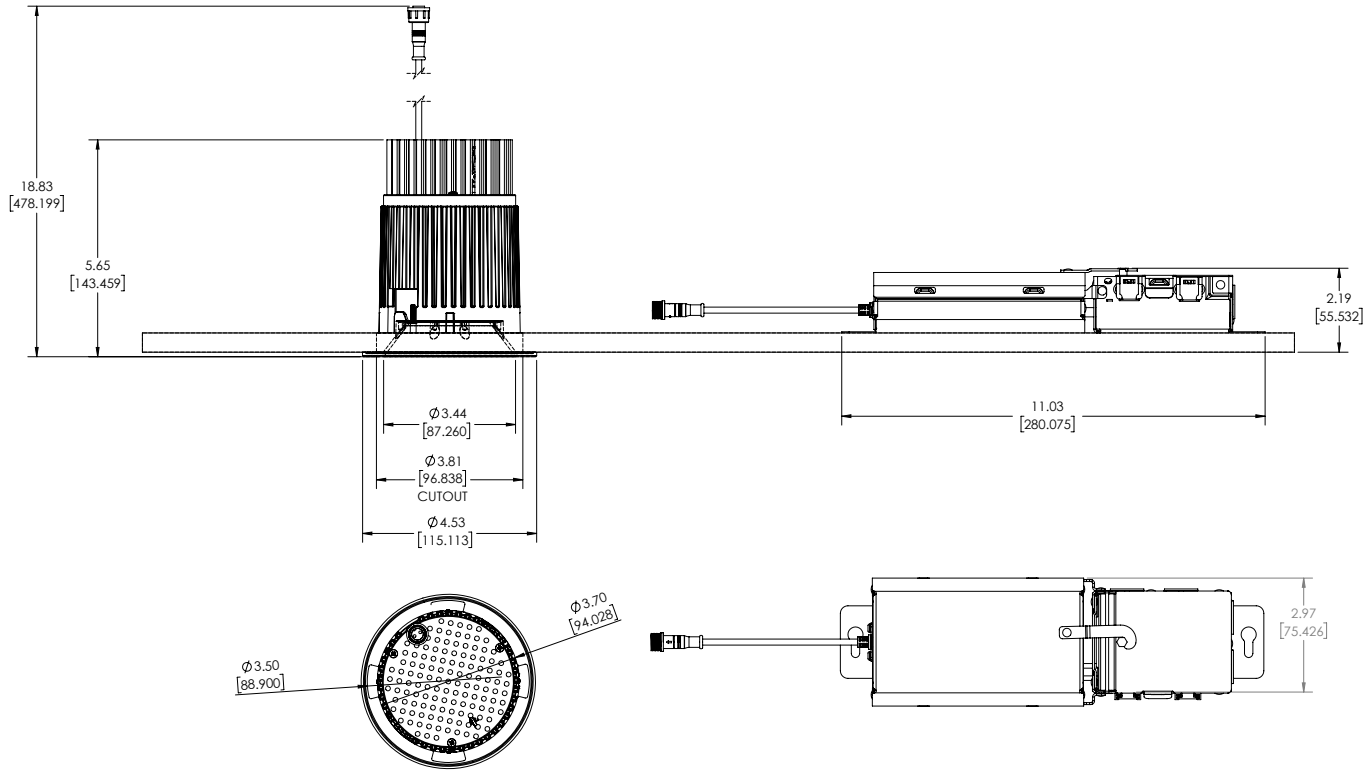
WaveLinx Tilemount Sensor Kits Application
- The WPST and WLST tilemount sensor kits include a control module mounted on the luminaire junction box via 1/2" knock-out, and a tilemount sensor on 54-inch whip; for ceiling installation by direct-mount spring clips or via mounting bracket in octagon ceiling boxes.
- The WPST and WLST tilemount sensor kits may be ordered as factory installed on the luminaire, or ordered separately as a field installed accessory kit.
- **Note: WaveLinx PRO devices are only compatible with the WaveLinx PRO system.**
- **Note: WaveLinx LITE devices are only compatible with the WaveLinx LITE system.**

Compliance
- cULus Certified to UL 1598 / C22.2 No. 250 suitable for wet locations with lensed trims; damp location with open trims. Lensed trims required for outdoor use.
- Wet location and steam room (up to 40°C / 104ºF, up to 500 lumens; 25°C up to 1700 lumens), covered ceilings only and IP65, below the ceiling only with lens trims
- cULus listed for 25°C ambient environments
- Insulated ceiling (IC) rated and non-IC rated refer to ordering information table
- Airtight per ASTM-E283 with lensed trim
- FCC CFR Title 47 Part 15 Class B at 120VAC and Class A at 277VAC
- Declare compliant, LBC Red List approved
- RoHS compliant
- Photometric testing in accordance with IES LM-79-08
- Lumen maintenance projections in accordance with IES LM-80-08 and TM-21-11
- Can be used for State of California Title 24 high efficacy LED compliance under JA8, reference Modernized Appliance Efficiency Database System (MAEDBS) for 2019 JA8 High Efficacy Lighting

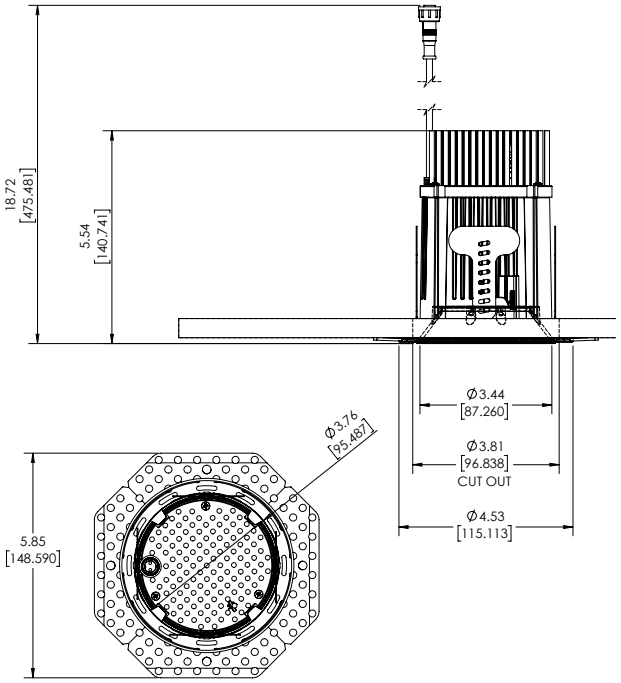
Warranty
- Five year limited warranty, consult website for details. www.cooperlighting.com/legal

Dimensional and Mounting Details

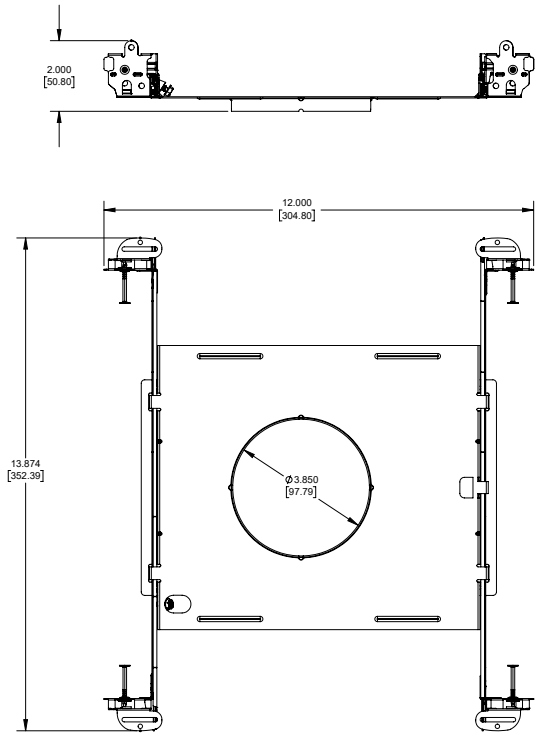
ROUND DOWNLIGHT SELF FLANGE



ROUND DOWNLIGHT KNIFE EDGE



MOUNTING FRAME ACCESSORY



Trim Finishes

Round Spun Anodized Finishes


Specular
(LI)


Haze
(H)


Warm Haze
(WMH)


Specular Wheat
(WH)


Graphite Haze
(GPH)


Specular Black
(B)

Round Painted Finishes

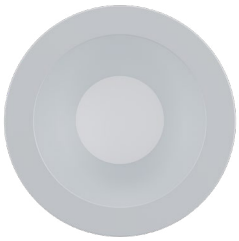

Matte Black
(MB)

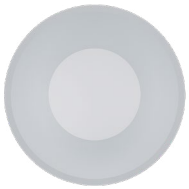

Matte White
(MW)


Bronze
(BZ)


Matte Metallic Silver
(MMS)

Trim Type


Standard Flange


Knife Edge

Energy and Performance Data

DTR DRIVER ENERGY DATA

	250 lumen	500 lumen	900 lumen	1300 lumen	1700 lumen
Input Power (W)	4.2	8.7	13.5	16.5	23.3
Input Current (A)	0.04	0.07	0.11	0.14	0.19
PF	>0.9	>0.9	>0.9	>0.9	>0.9
THDi (%)	18.01	7.8	7.64	8.32	7.6
Inrush Current (A)	1.6	1.7	4.9	0.5	4.8
Inrush Duration (µs)	33	30	33	32	30
Sound (dBA)	<22	<22	<22	<22	<22

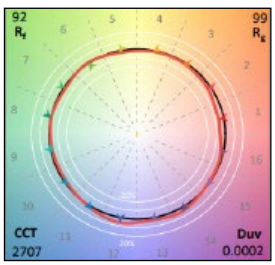
D010 DRIVER ENERGY DATA

	250 lumen		500 lumen		900 lumen		1300 lumen		1700 lumen	
	120V	277V	120V	277V	120V	277V	120V	277V	120V	277V
Input Power (W)	5.1	5.3	7.2	7.6	11.7	11.9	15.6	16.0	21.4	21.5
Input Current (A)	0.04	0.02	0.06	0.03	0.10	0.05	0.13	0.06	0.18	0.08
PF	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9
THDi (%)	18.7	19.0	8.25	12.8	6.96	9.2	6.11	10.2	6.74	8.1
Inrush Current (A)	4.5	9.7	4.6	10.5	4.6	10.5	5.2	11.9	5.3	11.9
Inrush Duration (µs)	41	19	43	19	43	19	40	19	46	17
Sound (dBA)	<22	<22	<22	<22	<22	<22	<22	<22	<22	<22

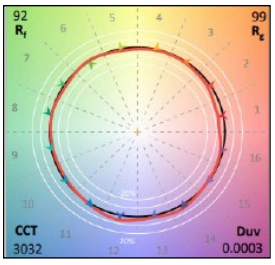
Minimum starting temperature -30°C (-22°F)* (Nominal input 120-277VAC & 100% of rated output power)
Sound Rating: Class A standards

Notes:
Emergency Battery packs are rated for a minimum starting temperature of 0°C.

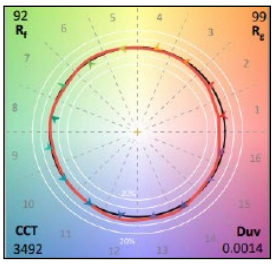
COLOR METRICS - TM-30-18 & CRI/CIE



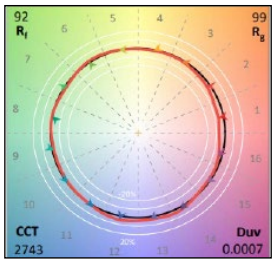
9027		
TM-30-18	R_f	92
	R_g	99
CRI/CIE	R_a	92
	R9	50



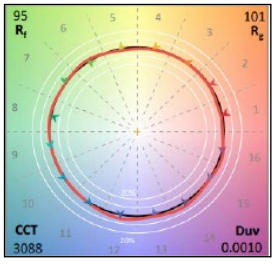
9030		
TM-30-18	R_f	92
	R_g	99
CRI/CIE	R_a	93
	R9	51



9035		
TM-30-18	R_f	92
	R_g	99
CRI/CIE	R_a	93
	R9	58



9727		
TM-30-18	R_f	92
	R_g	99
CRI/CIE	R_a	97
	R9	85



9730		
TM-30-18	R_f	101
	R_g	95
CRI/CIE	R_a	97
	R9	83

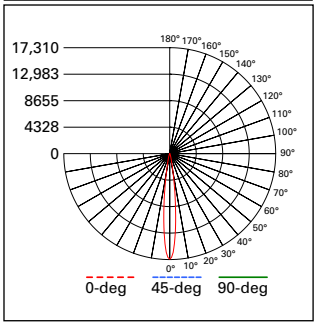
Photometric Data

12° Optic

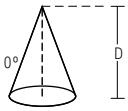
Test Number	P1219665
Housing	LDRT3D13R129035
Trim	3LCBUS1MW
Lumens	1175
Efficacy	75.8 Lm/W
SC	0.22
UGR	0

CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
6'	480.8	1.2	1.2
8'	270.5	1.6	1.6
10'	173.1	2	2
12'	120.2	2.6	2.6

CANDELA TABLE

Degrees Vertical	Candela
0	17310
5	11142
15	862
25	150
35	36
45	4
55	0
65	0
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1146	97.5
0-40	1170	99.6
0-60	1175	100
0-90	1175	100
90-180	0	0
0-180	1175	100

LUMINANCE

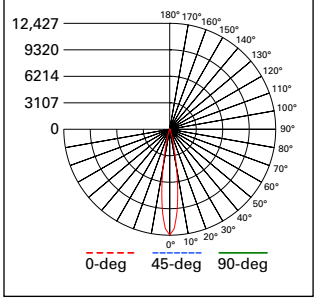
Average Candela Degrees	Average 0° Luminance
45	1147
55	0
65	0
75	0
85	0

15° Optic

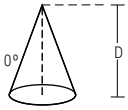
Test Number	P1219671
Housing	LDRT3D13R159035
Trim	3LCBUS1MW
Lumens	1275
Efficacy	87.3 Lm/W
SC	0.29
UGR	0

CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
6'	345.2	1.6	1.6
8'	194.2	2.2	2.2
10'	124.3	2.8	2.8
12'	86.3	3.4	3.4

CANDELA TABLE

Degrees Vertical	Candela
0	12427
5	9785
15	1267
25	143
35	15
45	0
55	0
65	0
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1262	99
0-40	1274	99.9
0-60	1275	100
0-90	1275	100
90-180	0	0
0-180	1275	100

LUMINANCE

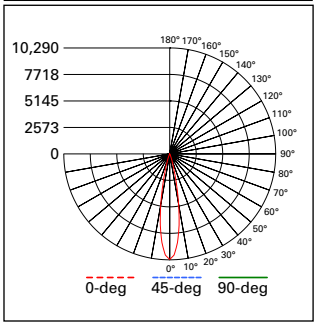
Average Candela Degrees	Average 0° Luminance
45	0
55	0
65	0
75	0
85	0

20° Optic

Test Number	P1219677
Housing	LDRT3D13R209035
Trim	3LCBUS1MW
Lumens	1332
Efficacy	91.2 Lm/W
SC	0.34
UGR	0

CANDLEPOWER DISTRIBUTION

Downlight



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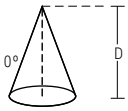


D	FC	L	W
6'	285.8	2	2
8'	160.8	2.6	2.6
10'	102.9	3.2	3.2
12'	71.5	4	4

CANDELA TABLE

Degrees Vertical	Candela
0	10290
5	8685
15	1682
25	139
35	19
45	2
55	0
65	0
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1318	98.9
0-40	1330	99.9
0-60	1332	100
0-90	1332	100
90-180	0	0
0-180	1332	100

LUMINANCE

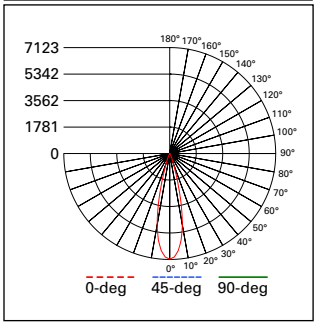
Average Candela Degrees	Average 0° Luminance
45	651
55	0
65	0
75	0
85	0

25° Optic

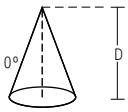
Test Number	P1219683
Housing	LDRT3D13R259035
Trim	3LCBUS1MW
Lumens	1354
Efficacy	92.7 Lm/W
SC	0.43
UGR	0

CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
6'	197.9	2.4	2.4
8'	111.3	3.4	3.4
10'	71.2	4.2	4.2
12'	49.5	5	5

CANDELA TABLE

Degrees Vertical	Candela
0	7123
5	6573
15	2230
25	255
35	21
45	0
55	0
65	0
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1337	98.8
0-40	1353	99.9
0-60	1354	100
0-90	1354	100
90-180	0	0
0-180	1354	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
45	0
55	0
65	0
75	0
85	0

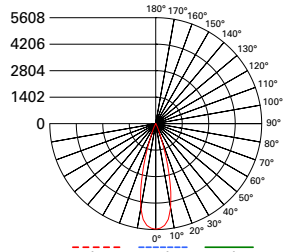
Photometric Data

30° Optic

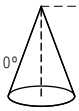
Test Number	P1219689
Housing	LDRT3D13R309035
Trim	3LCBUS1MW
Lumens	1371
Efficacy	93.9 Lm/W
SC	0.5
UGR	0

CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
6'	155.8	3	3
8'	87.6	4	4
10'	56.1	5	5
12'	38.9	6	6

CANDELA TABLE

Degrees Vertical	Candela
0	5608
5	5428
15	2683
25	255
35	24
45	0
55	0
65	0
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1353	98.7
0-40	1370	99.9
0-60	1371	100
0-90	1371	100
90-180	0	0
0-180	1371	100

LUMINANCE

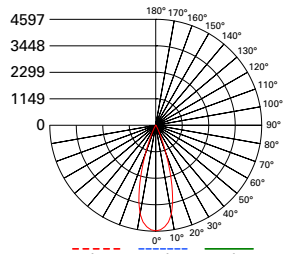
Average Candela Degrees	Average 0° Luminance
45	0
55	0
65	0
75	0
85	0

35° Optic

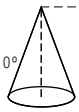
Test Number	P1219695
Housing	LDRT3D13R359035
Trim	3LCBUS1MW
Lumens	1376
Efficacy	94.2 Lm/W
SC	0.55
UGR	0

CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
6'	127.7	3.2	3.2
8'	71.8	4.4	4.4
10'	46	5.4	5.4
12'	31.9	6.6	6.6

CANDELA TABLE

Degrees Vertical	Candela
0	4597
5	4443
15	2714
25	398
35	41
45	0
55	0
65	0
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1346	97.8
0-40	1374	99.9
0-60	1376	100
0-90	1376	100
90-180	0	0
0-180	1376	100

LUMINANCE

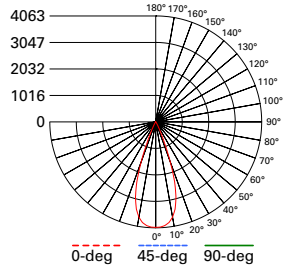
Average Candela Degrees	Average 0° Luminance
45	0
55	0
65	0
75	0
85	0

40° Optic

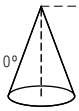
Test Number	P1219701
Housing	LDRT3D13R409035
Trim	3LCBUS1MW
Lumens	1449
Efficacy	99.2 Lm/W
SC	0.64
UGR	0

CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
6'	112.9	3.8	3.8
8'	63.5	5	5
10'	40.6	6.2	6.2
12'	28.2	7.6	7.6

CANDELA TABLE

Degrees Vertical	Candela
0	4063
5	4009
15	3012
25	454
35	36
45	0
55	0
65	0
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1422	98.1
0-40	1448	99.9
0-60	1449	100
0-90	1449	100
90-180	0	0
0-180	1449	100

LUMINANCE

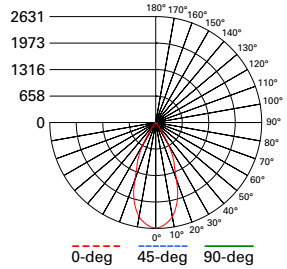
Average Candela Degrees	Average 0° Luminance
45	0
55	0
65	0
75	0
85	0

50° Optic

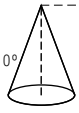
Test Number	P1219707
Housing	LDRT3D13R509035
Trim	3LCBUS1MW
Lumens	1431
Efficacy	98 Lm/W
SC	0.71
UGR	1.3

CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
6'	73.1	4.2	4.2
8'	41.1	5.6	5.6
10'	26.3	7	7
12'	18.3	8.4	8.4

CANDELA TABLE

Degrees Vertical	Candela
0	2631
5	2558
15	2059
25	1075
35	195
45	0
55	0
65	0
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1279	89.4
0-40	1427	99.7
0-60	1431	100
0-90	1431	100
90-180	0	0
0-180	1431	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
45	0
55	0
65	0
75	0
85	0

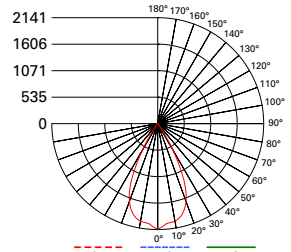
Photometric Data

55° Optic

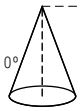
Test Number	P1219713
Housing	LDRT3D13R559035
Trim	3LCBUS1MW
Lumens	1413
Efficacy	96.8 Lm/W
SC	0.87
UGR	2.7

CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
6'	59.5	5.2	5.2
8'	33.5	6.8	6.8
10'	21.4	8.6	8.6
12'	14.9	10.4	10.4

CANDELA TABLE

Degrees Vertical	Candela
0	2141
5	2036
15	1912
25	1257
35	171
45	0
55	0
65	0
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1271	89.9
0-40	1408	99.7
0-60	1413	100
0-90	1413	100
90-180	0	0
0-180	1413	100

LUMINANCE

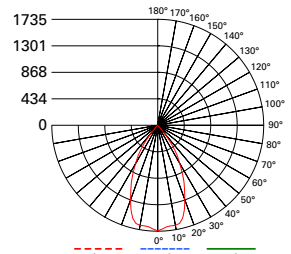
Average Candela Degrees	Average 0° Luminance
45	0
55	0
65	0
75	0
85	0

60° Optic

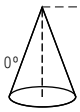
Test Number	P1219719
Housing	LDRT3D13R609035
Trim	3LCBUS1MW
Lumens	1351
Efficacy	92.5 Lm/W
SC	0.86
UGR	5.7

CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
6'	48.2	5	5
8'	27.1	6.8	6.8
10'	17.4	8.4	8.4
12'	12.1	10.2	10.2

CANDELA TABLE

Degrees Vertical	Candela
0	1735
5	1678
15	1583
25	1021
35	473
45	0
55	0
65	0
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1054	78
0-40	1334	98.8
0-60	1351	100
0-90	1351	100
90-180	0	0
0-180	1351	100

LUMINANCE

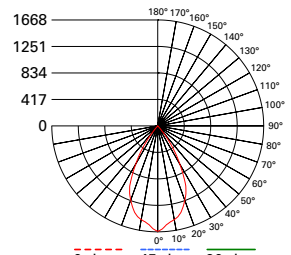
Average Candela Degrees	Average 0° Luminance
45	0
55	0
65	0
75	0
85	0

65° Optic

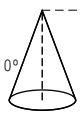
Test Number	P1219725
Housing	LDRT3D13R659035
Trim	3LCBUS1MW
Lumens	1248
Efficacy	85.5 Lm/W
SC	0.89
UGR	6.9

CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
6'	46.3	5.2	5.2
8'	26.1	7	7
10'	16.7	8.8	8.8
12'	11.6	10.6	10.6

CANDELA TABLE

Degrees Vertical	Candela
0	1668
5	1569
15	1415
25	1049
35	381
45	0
55	0
65	0
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1003	80.4
0-40	1237	99.1
0-60	1248	100
0-90	1248	100
90-180	0	0
0-180	1248	100

LUMINANCE

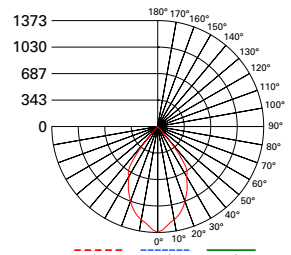
Average Candela Degrees	Average 0° Luminance
45	0
55	0
65	0
75	0
85	0

70° Optic

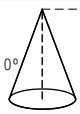
Test Number	P1219731
Housing	LDRT3D13R709035
Trim	3LCBUS1MW
Lumens	1238
Efficacy	84.8 Lm/W
SC	0.92
UGR	10.4

CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
6'	38.1	5.4	5.4
8'	21.5	7.2	7.2
10'	13.7	9	9
12'	9.5	11	11

CANDELA TABLE

Degrees Vertical	Candela
0	1373
5	1302
15	1152
25	906
35	636
45	0
55	0
65	0
75	0
85	0
90	0

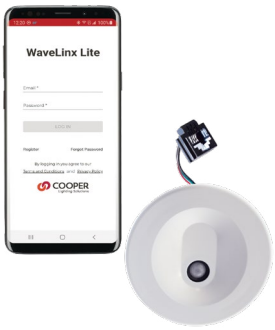
ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	856	69.1
0-40	1212	97.9
0-60	1238	100
0-90	1238	100
90-180	0	0
0-180	1238	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
45	0
55	0
65	0
75	0
85	0

Connected Systems



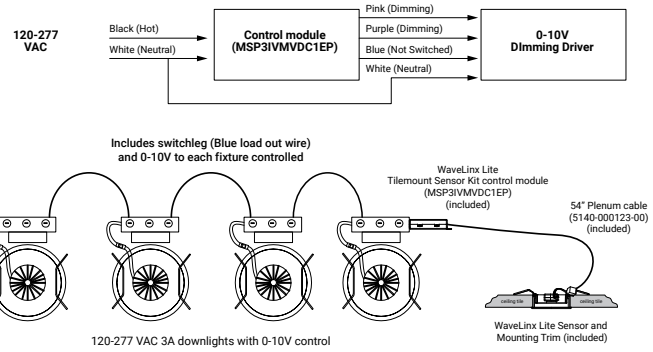
WaveLinx LITE - WLST Tilemount Sensor

WaveLinx LITE devices only compatible with the WaveLinx LITE system.

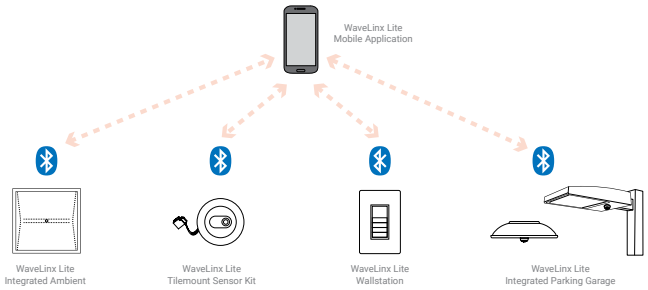
- Intuitive Android™ or Apple® iOS® app for basic system code compliant set up and configuration via Bluetooth
- Up to 28 unique areas per project site (WaveLinx LITE Bluetooth network)
- Up to 50 devices for an area, any one of 16 control zones, up to 6 occupancy sets, and custom lighting scenes
- Automatic occupancy or vacancy, sensor sensitivity, daylight dimming, etc. configurable through the app
- Refer to the WaveLinx system specifications for details

Device Security | Manual Dimmer | Occupancy Sensor | Daylighting Control | Manually Switched ON/OFF | Tuning Control | Lumen Maintenance Control | Scenes

WaveLinx LITE WLST Tilemount Wiring Diagram



WaveLinx LITE Bluetooth Enabled System



WaveLinx PRO Wireless – WPST Tilemount Sensor

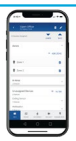
WaveLinx PRO devices only compatible with the WaveLinx PRO system.

- WaveLinx PRO Wireless functionality configures zones and customizes settings from one secure mobile app
- Automatic code commissioning that meets the strictest codes
- Fixtures and sensors integrate with Wireless Area Controller, Wall Stations, and Control Devices
- Stand-Alone Offices or Entire Building Network Installations

Downlights with tilemount sensor wireless communication
Highly efficient LED fixtures

WaveLinx Area Controller
Provides centralized coordination of multiple area control options

Wireless Wall Station/Receptacle
Provides customized wireless control of each area

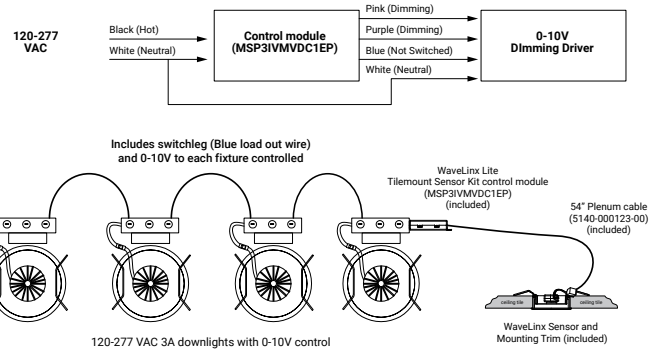


Mobile Applications
Provides personalized, local control from a tablet or smartphone

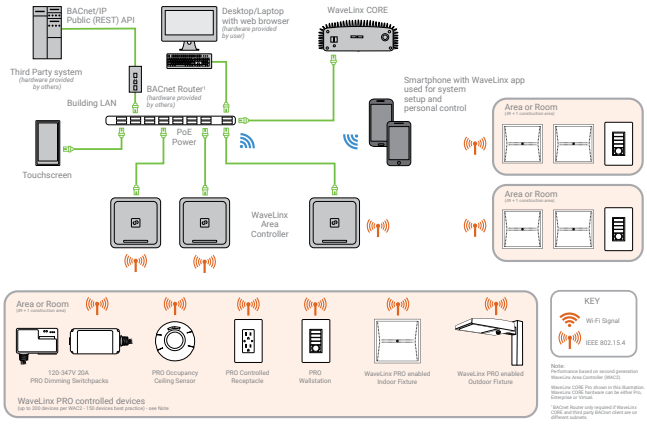
WaveLinx mobile app settings

Manual Dimmer | Occupancy Sensor | Lumen Maintenance Control | Daylighting Control | Receptacle Control | Tuning Control | Scheduling | Manually Switched ON/OFF | Demand Response

WaveLinx PRO WPST Tilemount Wiring Diagram



WaveLinx CORE Building Management Integration



Connected Solutions

WaveLinx LITE Wireless Node - WLN

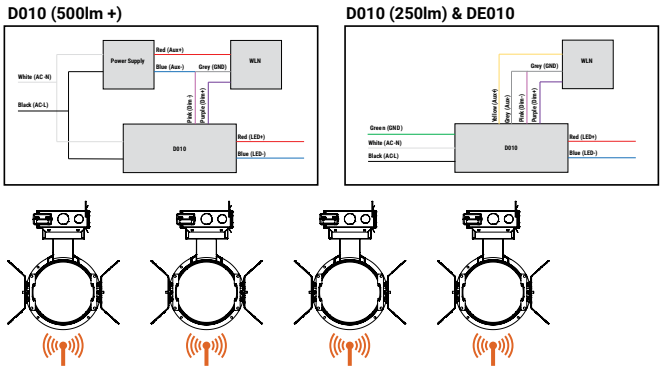
WaveLinx LITE devices only compatible with the WaveLinx LITE system.

- Intuitive Android™ or Apple® iOS® app for basic system code compliant set up and configuration via Bluetooth
- Up to 28 unique areas per project site (WaveLinx LITE Bluetooth network)
- Up to 50 devices for an area, any one of 16 control zones, up to 6 occupancy sets, and custom lighting scenes
- Refer to the WaveLinx system specifications for details
- Not available with BioUp or Tunable White

WaveLinx mobile app settings

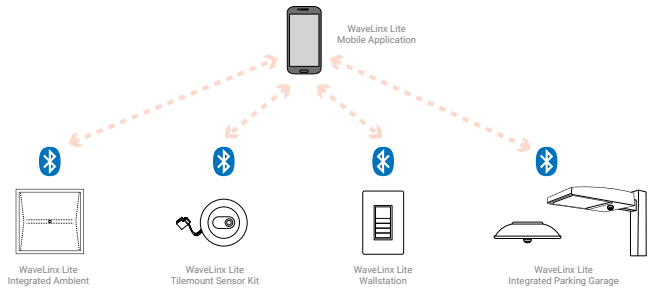
Device Security · Manual Dimmer · Occupancy Sensor · Daylighting Control · Manually Switched ON/OFF · Tuning Control · Lumen Maintenance Control · Scenes

WaveLinx LITE Wireless Node (WLN) Wiring Diagram



120-277 VAC 3A downlights with 0-10V control

WaveLinx LITE Bluetooth Enabled System



WaveLinx PRO Wireless Node - WPN

WaveLinx PRO devices only compatible with the WaveLinx PRO system.

- WaveLinx Wireless functionality configures zones and customizes settings from one secure mobile app
- Automatic code commissioning that meets the strictest codes
- Fixtures and sensors integrate with WaveLinx Area Controller, Wall Stations, and Control Devices
- Stand-Alone Offices or Entire Building Network Installations

Downlights with wireless communication
Highly efficient LED fixtures

WaveLinx Area Controller
Provides centralized coordination of multiple area control options

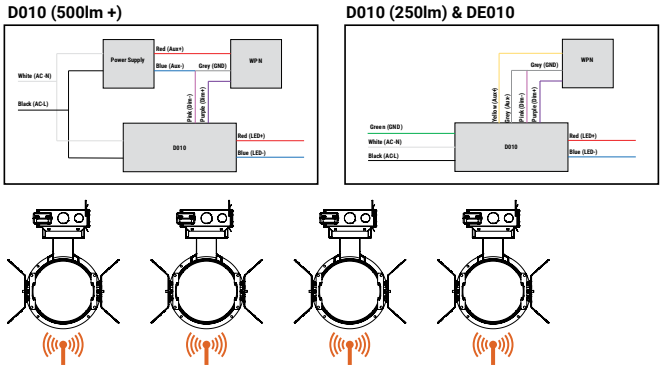
Wireless Wall Station/Receptacle
Provides customized wireless control of each area

Mobile Applications
Provides personalized, local control from a tablet or smartphone

WaveLinx mobile app settings

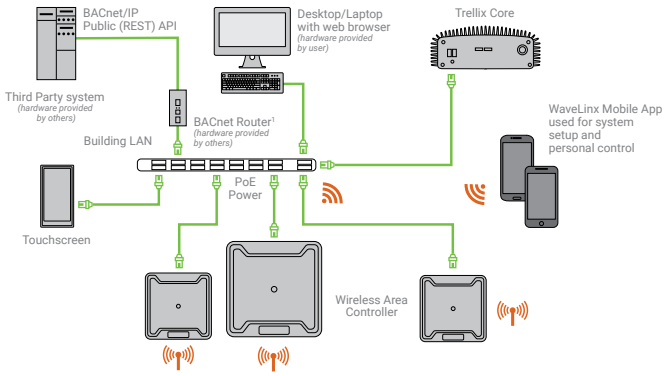
Manual Dimmer · Occupancy Sensor · Lumen Maintenance Control · Daylighting Control · Receptacle Control · Tuning Control · Scheduling · Manually Switched ON/OFF · Demand Response

WaveLinx PRO Wireless Node (WPN) Wiring Diagram



120-277 VAC 3A downlights with 0-10V control

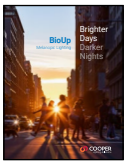
WaveLinx CORE Building Management Integration



Proven Research. Industry Recognized.

BioUp
Melanopic Lighting

See better | Feel better | Function better



See BioUp brochure for more details

ANSI/IES RP-46-23

Illuminating Engineering Society

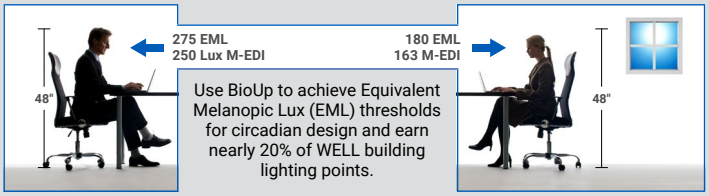
RECOMMENDED PRACTICE:
SUPPORTING THE PHYSIOLOGICAL AND BEHAVIORAL EFFECTS OF LIGHTING IN INTERIOR DAYTIME ENVIRONMENTS
AN AMERICAN NATIONAL STANDARD

ANSI/IES RP-46-23 / TM18 published March 2024 based on over 40 years of research.

"…circadian clock synchronization is paramount to the body's efficient and appropriate functioning." – TM18

INTERNATIONAL WELL BUILDING INSTITUTE™

BioUp solutions maximize WELL points for Circadian Lighting Design (L03):



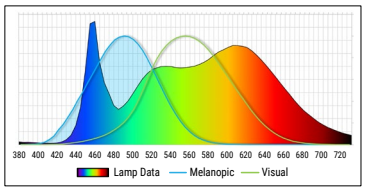
Use BioUp to achieve Equivalent Melanopic Lux (EML) thresholds for circadian design and earn nearly 20% of WELL building lighting points.

MDER, M-EDI and **EML** are key metrics used to quantify non-visual performance of indoor lighting systems.

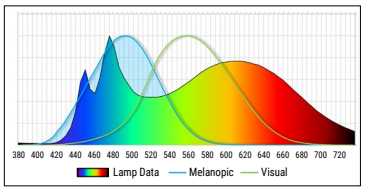
See BioUp white paper for more details

MDER - Melanopic Daylight Efficacy Ratio (MDER) measures the amount of light stimulating to the melanopsin receptors.

Standard 4000K LED
MDER = .62



BioUp 4000K LED
MDER = .82



30% boost Biological impact
compared to traditional LED sources

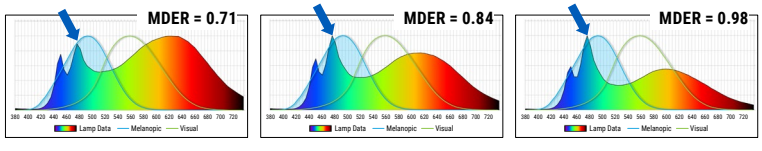
CCT	LED @ ~83 CRI	BioUp Static		BioUp Dynamic	
		MDER	CRI	MDER	CRI
2700K	0.45	-	-	0.43	95
3000K	0.50	-	-	0.57	94
3500K	0.57	0.71	90	0.71	90
4000K	0.65	0.84	87	0.84	87
5000K	0.79	1.00	84	1.00	84

BioUp enhances the LED spectrum with cyan light at 475nm increasing the biological impact of the light to enhance our circadian rhythm which regulates our sleep/wake cycle, daytime engagement, and mood – ***all without distorting visual color impression.***

Static (non-tunable)

Static BioUp is used when simple Melanopic Lighting is desired at all times.

Arrow in graph shows BioUp spectrum boost is at 475nm where non-visual biological response is enhanced.



3500K or 4000K or 5000K

Cyan light component always present

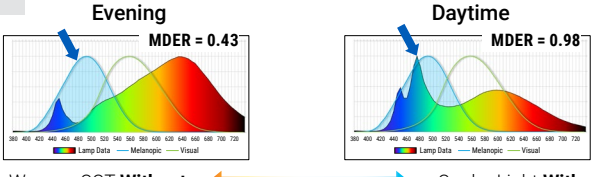
Dimming Control

› no CCT control needed

Dynamic - (Tunable)

Dynamic BioUp is used when Melanopic Lighting is desired to adjust during the day.

Evening | Daytime



Warmer CCT **Without** Cyan content ⟷ Cooler Light **With** Cyan content

2700K – 5000K

CCT Control

Dimming Control

› Control with Wavelinx, 2ch 0-10V, or DALI

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Specifications and dimensions subject to change without notice.