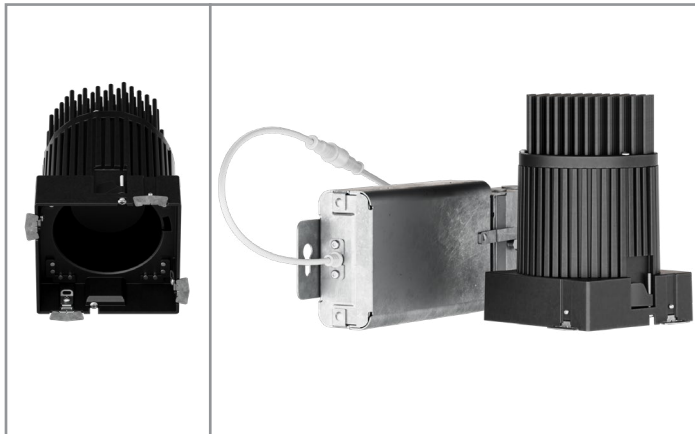


Project		Catalog #		Type	
Prepared by		Notes		Date	



# PORTFOLIO

## LDSQRT3D

3" Square Install From Below Downlight

### Typical Applications

Office • Education • Healthcare • Hospitality • Retail • Residential

### Interactive Menu

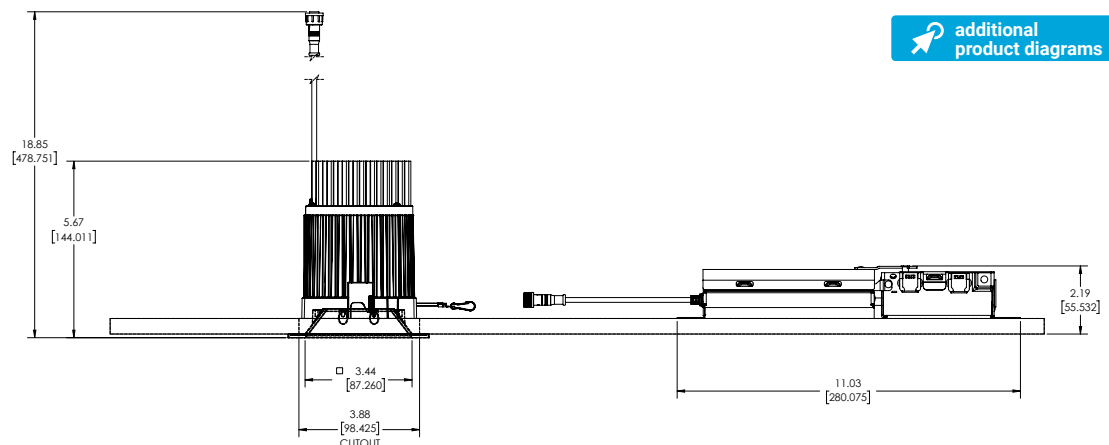
- Order Information [page 2](#)
- Product Specifications [page 4](#)
- Energy & Performance Data [page 7](#)
- Photometric Data [page 8](#)
- Connected Systems [page 11](#)
- Product Warranty

### 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: **LDSQRT3D09R259030DTR 3LSQCBUSR1MW**

Domestic Preferences <sup>(5)</sup>	Housing	Lumens <small>Nominal Lumens will vary depending on selected color, CRI, driver and reflector finish)</small>	Optics <sup>(1)(2)</sup>	CRI/CCT	
<p>[blank] = Standard  <b>BAA</b> = Buy American Act  <b>TAA</b> = Trade Agreements Act</p>	<p><b>LDSQRT3D</b> = 3" square downlight recessed install from below  <b>LDSQRT3DKE</b> = 3" square downlight recessed install from below for use with knife edge rimless plaster installations (order accessory separately)</p>	<p><b>90/97/98 CRI IC Rated</b>  <b>02</b> = 250 lumens  <b>05</b> = 500 lumens  <b>09</b> = 900 lumens</p> <p><b>Non-IC Rated</b>  <b>13</b> = 1300 lumens  <b>17</b> = 1700 lumens (90 and 97 CRI)</p> <p><b>D2W™ Dim-to-Warm <sup>(1)(2)</sup> IC Rated</b>  <b>02</b> = 250 lumens  <b>05</b> = 500 lumens  <b>09</b> = 900 lumens</p> <p><b>Non-IC Rated</b>  <b>13</b> = 1300 lumens</p> <p><b>W2N™ Tunable White <sup>(1)(2)</sup> IC Rated</b>  <b>05</b> = 500 lumens</p> <p><b>BioUp™ Melanopic Lighting <sup>(1)(2)</sup> IC Rated</b>  <b>05</b> = 500 lumens</p>	<p>[blank] = Order optic separately (Available for ≥15°)  <b>R08</b> = 8° (Offered in 250 lm; Requires DE010 or D5LT driver) <sup>(3)</sup>  <b>R10</b> = 10° (Offered for 250–900 lm) <sup>(3)</sup>  <b>R12</b> = 12° (Offered ≤900 lm) <sup>(3)</sup>  <b>R15</b> = 15°  <b>R20</b> = 20°  <b>R25</b> = 25°  <b>R30</b> = 30°  <b>R35</b> = 35°  <b>R40</b> = 40°  <b>R45</b> = 45°  <b>R50</b> = 50°  <b>R55</b> = 55°  <b>R60</b> = 60°  <b>R65</b> = 65°  <b>R70</b> = 70° (Required when using wall wash trims)</p> <p><b>Asymmetric Elliptical</b>  <b>2R2040</b> = 20° x 40°  <b>2R2050</b> = 20° x 50°  <b>2R2060</b> = 20° x 60°</p>	<p><b>90 CRI</b>  <b>9024</b> = 2400K  <b>9027</b> = 2700K  <b>9030</b> = 3000K  <b>9035</b> = 3500K  <b>9040</b> = 4000K  <b>9050</b> = 5000K</p> <p><b>97 CRI</b>  <b>9727</b> = 2700K  <b>9730</b> = 3000K  <b>9735</b> = 3500K  <b>9740</b> = 4000K</p> <p><b>98 CRI</b>  (250-1300 lumens)  <b>9824</b> = 2400K  <b>9827</b> = 2700K  <b>9830</b> = 3000K  <b>9835</b> = 3500K  <b>9840</b> = 4000K</p>	<p><b>D2W™ Dim-to-Warm <sup>(1)</sup></b>  (offered with ≥15° optics)  <b>9030D2W</b> = Dim-to-Warm, 3000K–1850K</p> <p><b>W2N™ Tunable White <sup>(1)</sup></b>  (specify with DE010 or D5LT driver, remote driver only; offered with ≥15° optics)  <b>W2N902050</b> = Tunable White, 2000K–5000K  <b>W2N902765</b> = Tunable White, 2700K–6500K</p> <p><b>BioUp™ <sup>(1)</sup></b>  (Specify with DE010 or D5LT driver, remote drive only; offered with ≥15° optics)  <b>B2750</b> = BioUp™ Boosted cyan tunable white, 2700K–5000K  <b>B35</b> = Static BioUp™, 3500K (500 lm, DE010 driver only)  <b>B40</b> = Static BioUp™, 4000K (500 lm, DE010 driver only)  <b>B50</b> = Static BioUp™, 5000K (500 lm, DE010 driver only)</p>

Driver	Driver Options	Options <sup>(6)</sup>
<p><b>Phase Cut Dimming</b>  <b>DTR</b> = 120V phase cut 1% dimming</p> <p><b>0-10V Dimming</b>  <b>D010</b> = UNV 120-277V, 0-10V 1% dimming  <b>3D010</b> = 347V 0-10V 1% dimming, 900-1700 lumens  <b>DE010</b> = UNV 120-277V, 0-10V linear, 0.1% dimming (≥250lm for D2W and ≥500 lm for other CRI/CCT)</p> <p><b>DALI &amp; Lutron® EcoSystem™</b>  <b>D5LT</b> = UNV 120-277V DALI DT6 logarithmic 0.1% dimming (≥250lm for D2W and ≥500 lm for other CRI/CCT)  <b>DLE</b> = UNV 120-277V Lutron Ecosystem 1% dimming, 900 lumens and above</p> <p><b>DMX (remove driver only) <sup>(4)</sup></b>  <b>DMX</b> = UNV 120-277V DMX/RDM logarithmic 0.1% dimming (≥250lm for D2W and ≥500 lm for other CRI/CCT)  <b>DMXC5</b> = UNV 120-277V DMX/RDM logarithmic 0.1% dimming with RJ45 connection (≥250lm for D2W and ≥500 lm for other CRI/CCT)</p>	<p>[blank] = Integral driver (Offered with DTR, D010, 3D010, DE010, DLE and D5LT driver)  <b>R</b> = Remote driver (Order remote driver separately. Required for DMX, BioUp and tunable white.)</p>	<p><b>WaveLinX</b>  <b>WPN</b> = WaveLinX PRO Wireless Node without sensor (specify with DE010 or D010)  <b>WLN</b> = WaveLinX LITE Wireless Node without sensor (specify with DE010 or D010)</p> <p><b>Lutron® Athena™</b>  <b>AWN</b> = Athena Wireless Node (specify with DE010 or D010 driver)</p>

Square <small>Die cast Aluminum and Non-conductive Trims (Standard self-flanged &amp; Knife edge rimless plaster)</small>	Lens <small>(Lens required for outdoor use)</small>	Flange Style and finish	Reflector Finish
<p><b>Standard Self-Flanged Trims</b>  (Use with Self-flanged Styles 1, 2, or 5)</p> <p><b>Downlight</b>  <b>3LSQCBUSR</b> = 3" Ultra-shallow bevel  <b>3LSQPUSUR</b> = 3" Pinhole ultra-shallow (Use with flange style 1)</p> <p><b>Wall Wash</b>  (Specify with 70° optic)  <b>3LSQCLSWWR</b> = 3" Lensed single wall wash  <b>3LSQCLDWWR</b> = 3" Lensed double wall wash</p> <p><b>Non-conductive</b>  (Use with Self-flanged Style 1; Select Matte Black or Matte White finish; Lens selection required)  <b>3LSQPBR</b> = 3" Bevel, Dead front</p>	<p><b>Knife Edge Trims</b>  (Use with Flange Style 4)</p> <p><b>Downlight</b>  <b>3LSQCBUS</b> = 3" Ultra-shallow bevel  <b>3LSQPUS</b> = 3" Pinhole ultra-shallow</p> <p><b>Wall Wash</b>  (Specify with 70° optic)  <b>3LSQCLSWW</b> = 3" Lensed single wall wash  <b>3LSQCLDWW</b> = 3" Lensed double wall wash</p> <p><b>Non-conductive</b>  (Select Matte Black or Matte White finish; Lens selection required)  <b>3LSQPB</b> = 3" Bevel, Dead front</p>	<p>[blank] = Open or lensed wall wash</p> <p><b>Lenses</b>  (Required for outdoor use)  <b>L</b> = Textured clear lens  <b>LP</b> = Prismatic lens  <b>LD</b> = Diffuse lens</p> <p>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)</p>	<p><b>MW</b> = Matte White  <b>MB</b> = Matte Black  <b>MMS</b> = Matte metallic silver  <b>BZ</b> = Bronze</p>

Continued on next page.

Order Information

Optics			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	<b>Asymmetric Elliptical</b> 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		
<b>Knife Edge Rimless Trim Installations</b> (Required for use with Knife Edge rimless trim reflectors for plaster.) RPSQ3 = Square rimless plaster lathing ring <sup>(5)</sup>	<b>WaveLinX Sensor Kits</b> WPST = Field installed WaveLinX PRO sensor Kit WLST = Field installed WaveLinX LITE Sensor Kit	<b>New Construction Mounting Frame</b> (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.)  PMFSQ3 = 3" square mounting frame for use in traditional framing and T-grid ceiling

Required if remote driver (R) is specified

Remote driver				
Domestic Preferences <sup>(5)</sup>	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	<b>IC Rated</b> 02 = 250 lm 05 = 500 lm 09 = 900 lm  <b>Non-IC Rated</b> 13 = 1300 lm 17 = 1700 lm	[blank] = 90, 97 and 98 CRI (98 CRI; ≤1300 lm)  <b>D2W™ Dim-to-Warm</b> (90 CRI min; ≤1300 lm) 9030D2W = Dim-to-Warm, 3000K–1850K  <b>W2N™ Tunable White</b> (Specify with D5LT or DE010 driver) W2N902050 = Tunable white, 2000K–5000K CCT (500 lm) W2N902765 = Tunable white, 2700K–6500K CCT (500 lm)	<b>BioUp™</b> (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)

Remote driver	
Driver	Options
<b>Phase Cut Dimming</b> DTR = 120V phase cut 1% dimming  <b>0-10V Dimming</b> 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)  <b>DALI &amp; DMX</b> 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) <sup>(4)</sup> DMXC5 = UNV 120-277V DMX/RDM logarithmic 0.1% dimming with RJ45 connection (500–1700 lm) <sup>(4)</sup>  <b>Lutron® EcoSystem™ &amp; DALI</b> 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  <b>WaveLinX</b> 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  <b>Lutron® Athena™</b> AWN = Athena Wireless Node specify with DE010 or D010

Notes:

- Optic accommodates 2 media with 90, 97, and 98 CRI and 1 media with D2W™, W2N™, and BioUp™.
- D2W™, W2N™, and BioUp™ are offered with ≤15° optics
- Optic must be specified with the housing for ≤12°
- DMX fixtures default to full ON upon loss of DMX signal
- 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.
- 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

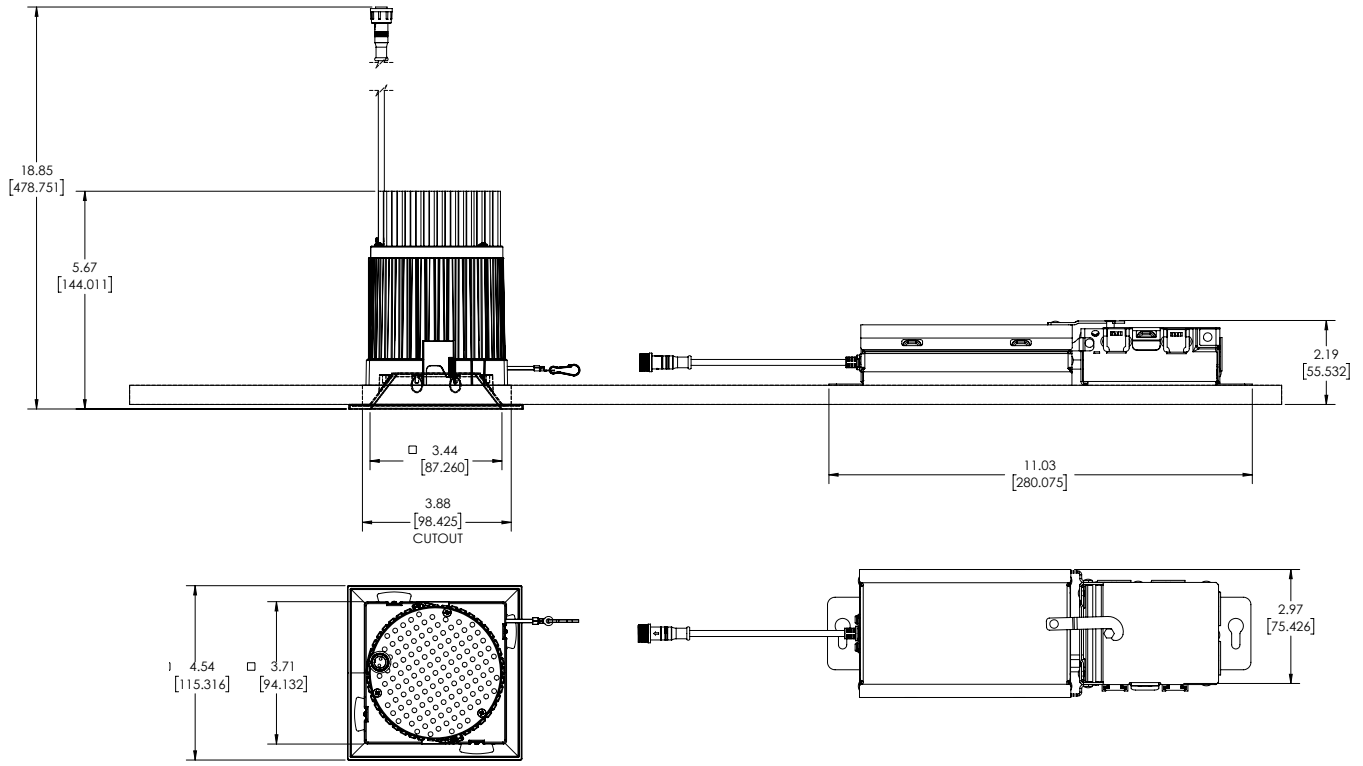
- cULus Certified to UL 1598 / C22.2 No. 250 suitable for wet locations with lensed trims; damp location with open trims. Lensed trims required for outdoor use.
- Wet location and steam room (up to 40°C / 104°F, up to 500 lumens; 25°C up to 1700 lumens), covered ceilings only and IP65, below the ceiling 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

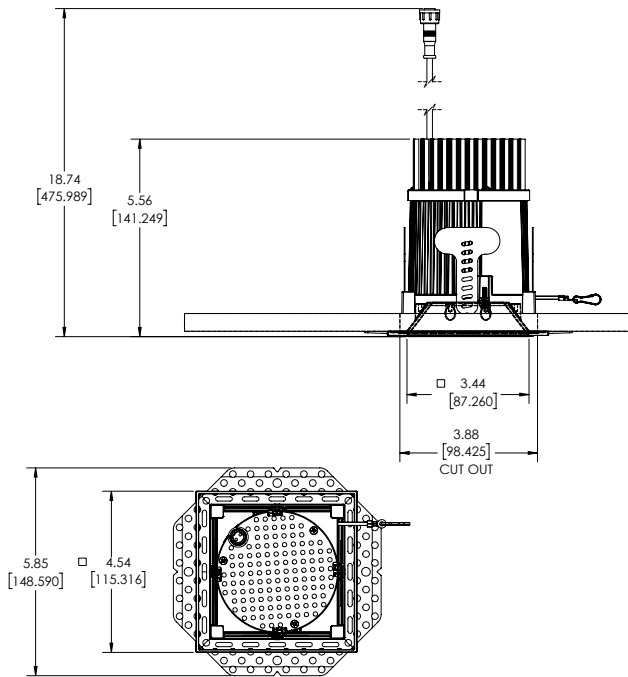
- Five year limited warranty, consult website for details. [www.cooperlighting.com/legal](http://www.cooperlighting.com/legal)

Dimensional and Mounting Details

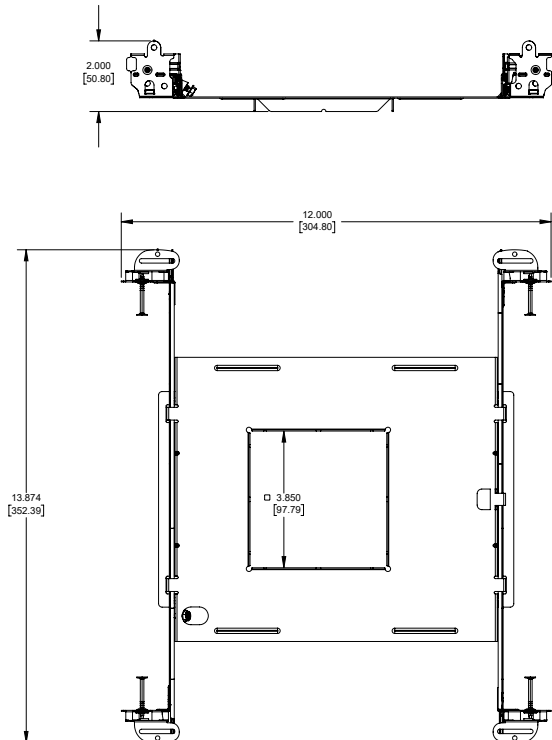
SQUARE DOWNLIGHT SELF FLANGE



SQUARE DOWNLIGHT KNIFE EDGE



MOUNTING FRAME ACCESSORY



Trim Finishes

Square Painted Finishes



Matte Black  
(MB)



Matte White  
(MW)



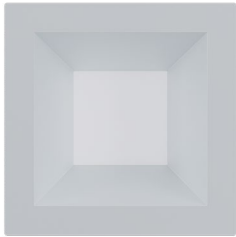
Bronze  
(BZ)



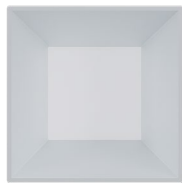
Matte Metallic Silver  
(MMS)

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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

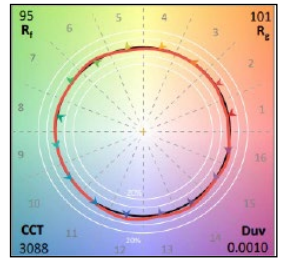
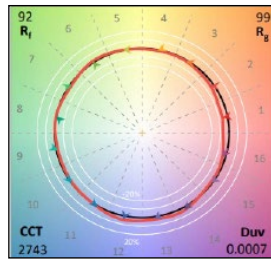
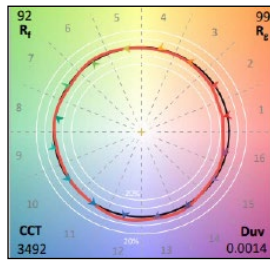
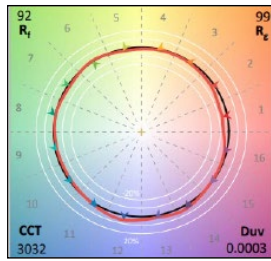
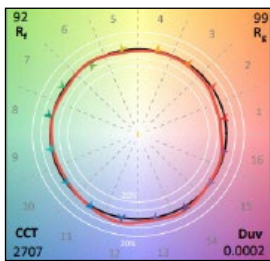
	250 lumen		500 lumen		900 lumen		1300 lumen		1700 lumen	
	120V	277V	120V	277V	120V	277V	120V	277V	120V	277V
Input Power (W)	5.1	5.3	7.2	7.6	11.7	11.9	15.6	16.0	21.4	21.5
Input Current (A)	0.04	0.02	0.06	0.03	0.10	0.05	0.13	0.06	0.18	0.08
PF	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9
THDi (%)	18.7	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 <sub>f</sub>	92
	R <sub>g</sub>	99
CRI/CIE	R <sub>a</sub>	92
	R <sub>9</sub>	50

9030		
TM-30-18	R <sub>f</sub>	92
	R <sub>g</sub>	99
CRI/CIE	R <sub>a</sub>	93
	R <sub>9</sub>	51

9035		
TM-30-18	R <sub>f</sub>	92
	R <sub>g</sub>	99
CRI/CIE	R <sub>a</sub>	93
	R <sub>9</sub>	58

9727		
TM-30-18	R <sub>f</sub>	92
	R <sub>g</sub>	99
CRI/CIE	R <sub>a</sub>	97
	R <sub>9</sub>	85

9730		
TM-30-18	R <sub>f</sub>	101
	R <sub>g</sub>	95
CRI/CIE	R <sub>a</sub>	97
	R <sub>9</sub>	83

Photometric Data

15° Optic		CANDLEPOWER DISTRIBUTION	CONE OF LIGHT	CANDELA TABLE	ZONAL LUMEN SUMMARY	LUMINANCE																																																									
Test Number	P1219744	<b>Downlight</b> 		<table border="1"> <thead> <tr> <th>Degrees Vertical</th> <th>Candela</th> </tr> </thead> <tbody> <tr><td>0</td><td>11348</td></tr> <tr><td>5</td><td>9193</td></tr> <tr><td>15</td><td>1284</td></tr> <tr><td>25</td><td>201</td></tr> <tr><td>35</td><td>24</td></tr> <tr><td>45</td><td>3</td></tr> <tr><td>55</td><td>2</td></tr> <tr><td>65</td><td>1</td></tr> <tr><td>75</td><td>1</td></tr> <tr><td>85</td><td>0</td></tr> <tr><td>90</td><td>0</td></tr> </tbody> </table>	Degrees Vertical	Candela	0	11348	5	9193	15	1284	25	201	35	24	45	3	55	2	65	1	75	1	85	0	90	0	<table border="1"> <thead> <tr> <th>Zone</th> <th>Lumens</th> <th>% Fixture</th> </tr> </thead> <tbody> <tr><td>0-30</td><td>1243</td><td>97.6</td></tr> <tr><td>0-40</td><td>1267</td><td>99.4</td></tr> <tr><td>0-60</td><td>1272</td><td>99.9</td></tr> <tr><td>0-90</td><td>1274</td><td>100</td></tr> <tr><td>90-180</td><td>0</td><td>0</td></tr> <tr><td>0-180</td><td>1274</td><td>100</td></tr> </tbody> </table>	Zone	Lumens	% Fixture	0-30	1243	97.6	0-40	1267	99.4	0-60	1272	99.9	0-90	1274	100	90-180	0	0	0-180	1274	100	<table border="1"> <thead> <tr> <th>Average Candela Degrees</th> <th>Average 0° Luminance</th> </tr> </thead> <tbody> <tr><td>45</td><td>731</td></tr> <tr><td>55</td><td>601</td></tr> <tr><td>65</td><td>408</td></tr> <tr><td>75</td><td>665</td></tr> <tr><td>85</td><td>0</td></tr> </tbody> </table>	Average Candela Degrees	Average 0° Luminance	45	731	55	601	65	408	75	665	85	0
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Efficacy	87.3 Lm/W																																																														
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20° Optic		CANDLEPOWER DISTRIBUTION	CONE OF LIGHT	CANDELA TABLE	ZONAL LUMEN SUMMARY	LUMINANCE																																																									
Test Number	P1219745	<b>Downlight</b> 		<table border="1"> <thead> <tr> <th>Degrees Vertical</th> <th>Candela</th> </tr> </thead> <tbody> <tr><td>0</td><td>9383</td></tr> <tr><td>5</td><td>7878</td></tr> <tr><td>15</td><td>1640</td></tr> <tr><td>25</td><td>181</td></tr> <tr><td>35</td><td>24</td></tr> <tr><td>45</td><td>4</td></tr> <tr><td>55</td><td>2</td></tr> <tr><td>65</td><td>1</td></tr> <tr><td>75</td><td>0</td></tr> <tr><td>85</td><td>0</td></tr> <tr><td>90</td><td>0</td></tr> </tbody> </table>	Degrees Vertical	Candela	0	9383	5	7878	15	1640	25	181	35	24	45	4	55	2	65	1	75	0	85	0	90	0	<table border="1"> <thead> <tr> <th>Zone</th> <th>Lumens</th> <th>% Fixture</th> </tr> </thead> <tbody> <tr><td>0-30</td><td>1262</td><td>97.6</td></tr> <tr><td>0-40</td><td>1285</td><td>99.4</td></tr> <tr><td>0-60</td><td>1292</td><td>99.9</td></tr> <tr><td>0-90</td><td>1293</td><td>100</td></tr> <tr><td>90-180</td><td>0</td><td>0</td></tr> <tr><td>0-180</td><td>1293</td><td>100</td></tr> </tbody> </table>	Zone	Lumens	% Fixture	0-30	1262	97.6	0-40	1285	99.4	0-60	1292	99.9	0-90	1293	100	90-180	0	0	0-180	1293	100	<table border="1"> <thead> <tr> <th>Average Candela Degrees</th> <th>Average 0° Luminance</th> </tr> </thead> <tbody> <tr><td>45</td><td>974</td></tr> <tr><td>55</td><td>601</td></tr> <tr><td>65</td><td>408</td></tr> <tr><td>75</td><td>0</td></tr> <tr><td>85</td><td>0</td></tr> </tbody> </table>	Average Candela Degrees	Average 0° Luminance	45	974	55	601	65	408	75	0	85	0
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Efficacy	88.6 Lm/W																																																														
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25° Optic		CANDLEPOWER DISTRIBUTION	CONE OF LIGHT	CANDELA TABLE	ZONAL LUMEN SUMMARY	LUMINANCE																																																									
Test Number	P1219746	<b>Downlight</b> 		<table border="1"> <thead> <tr> <th>Degrees Vertical</th> <th>Candela</th> </tr> </thead> <tbody> <tr><td>0</td><td>6215</td></tr> <tr><td>5</td><td>5719</td></tr> <tr><td>15</td><td>2179</td></tr> <tr><td>25</td><td>281</td></tr> <tr><td>35</td><td>30</td></tr> <tr><td>45</td><td>4</td></tr> <tr><td>55</td><td>2</td></tr> <tr><td>65</td><td>1</td></tr> <tr><td>75</td><td>1</td></tr> <tr><td>85</td><td>0</td></tr> <tr><td>90</td><td>0</td></tr> </tbody> </table>	Degrees Vertical	Candela	0	6215	5	5719	15	2179	25	281	35	30	45	4	55	2	65	1	75	1	85	0	90	0	<table border="1"> <thead> <tr> <th>Zone</th> <th>Lumens</th> <th>% Fixture</th> </tr> </thead> <tbody> <tr><td>0-30</td><td>1272</td><td>96.9</td></tr> <tr><td>0-40</td><td>1303</td><td>99.3</td></tr> <tr><td>0-60</td><td>1311</td><td>99.8</td></tr> <tr><td>0-90</td><td>1313</td><td>100</td></tr> <tr><td>90-180</td><td>0</td><td>0</td></tr> <tr><td>0-180</td><td>1313</td><td>100</td></tr> </tbody> </table>	Zone	Lumens	% Fixture	0-30	1272	96.9	0-40	1303	99.3	0-60	1311	99.8	0-90	1313	100	90-180	0	0	0-180	1313	100	<table border="1"> <thead> <tr> <th>Average Candela Degrees</th> <th>Average 0° Luminance</th> </tr> </thead> <tbody> <tr><td>45</td><td>974</td></tr> <tr><td>55</td><td>601</td></tr> <tr><td>65</td><td>408</td></tr> <tr><td>75</td><td>665</td></tr> <tr><td>85</td><td>0</td></tr> </tbody> </table>	Average Candela Degrees	Average 0° Luminance	45	974	55	601	65	408	75	665	85	0
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Trim	3LSQCDR1MW																																																														
Lumens	1313																																																														
Efficacy	89.9 Lm/W																																																														
SC	0.45																																																														
UGR	0																																																														

30° Optic		CANDLEPOWER DISTRIBUTION	CONE OF LIGHT	CANDELA TABLE	ZONAL LUMEN SUMMARY	LUMINANCE																																																									
Test Number	P1219747	<b>Downlight</b> 		<table border="1"> <thead> <tr> <th>Degrees Vertical</th> <th>Candela</th> </tr> </thead> <tbody> <tr><td>0</td><td>4987</td></tr> <tr><td>5</td><td>4832</td></tr> <tr><td>15</td><td>2476</td></tr> <tr><td>25</td><td>281</td></tr> <tr><td>35</td><td>33</td></tr> <tr><td>45</td><td>5</td></tr> <tr><td>55</td><td>2</td></tr> <tr><td>65</td><td>1</td></tr> <tr><td>75</td><td>1</td></tr> <tr><td>85</td><td>0</td></tr> <tr><td>90</td><td>0</td></tr> </tbody> </table>	Degrees Vertical	Candela	0	4987	5	4832	15	2476	25	281	35	33	45	5	55	2	65	1	75	1	85	0	90	0	<table border="1"> <thead> <tr> <th>Zone</th> <th>Lumens</th> <th>% Fixture</th> </tr> </thead> <tbody> <tr><td>0-30</td><td>1255</td><td>96.7</td></tr> <tr><td>0-40</td><td>1287</td><td>99.2</td></tr> <tr><td>0-60</td><td>1295</td><td>99.8</td></tr> <tr><td>0-90</td><td>1297</td><td>100</td></tr> <tr><td>90-180</td><td>0</td><td>0</td></tr> <tr><td>0-180</td><td>1297</td><td>100</td></tr> </tbody> </table>	Zone	Lumens	% Fixture	0-30	1255	96.7	0-40	1287	99.2	0-60	1295	99.8	0-90	1297	100	90-180	0	0	0-180	1297	100	<table border="1"> <thead> <tr> <th>Average Candela Degrees</th> <th>Average 0° Luminance</th> </tr> </thead> <tbody> <tr><td>45</td><td>1218</td></tr> <tr><td>55</td><td>601</td></tr> <tr><td>65</td><td>408</td></tr> <tr><td>75</td><td>665</td></tr> <tr><td>85</td><td>0</td></tr> </tbody> </table>	Average Candela Degrees	Average 0° Luminance	45	1218	55	601	65	408	75	665	85	0
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Trim	3LSQCDR1MW																																																														
Lumens	1297																																																														
Efficacy	88.8 Lm/W																																																														
SC	0.51																																																														
UGR	0																																																														

Photometric Data

35° Optic		CANDLEPOWER DISTRIBUTION		CONE OF LIGHT		CANDELA TABLE		ZONAL LUMEN SUMMARY			LUMINANCE	
Test Number	P1219748					Degrees Vertical	Canдела	Zone	Lumens	% Fixture	Average Candela Degrees	Average 0° Luminance
Housing	LDSQRT-3D13R359035D010					0	3816	0-30	1219	95.1	45	1218
Trim	3LSQCDR1MW					5	3690	0-40	1268	98.9	55	901
Lumens	1282					15	2349	0-60	1279	99.7	65	815
Efficiency	87.8 Lm/W					25	420	0-90	1282	100	75	665
SC	0.58	35	56	90-180	0	0	85	0				
UGR	0	45	5	0-180	1282	100						
		55	3									
		65	2									
		75	1									
		85	0									
		90	0									

40° Optic		CANDLEPOWER DISTRIBUTION		CONE OF LIGHT		CANDELA TABLE		ZONAL LUMEN SUMMARY			LUMINANCE	
Test Number	P1219749					Degrees Vertical	Canдела	Zone	Lumens	% Fixture	Average Candela Degrees	Average 0° Luminance
Housing	LDSQRT-3D13R409035D010					0	3360	0-30	1375	96.7	45	731
Trim	3LSQCDR1MW					5	3325	0-40	1412	99.3	55	601
Lumens	1422					15	2733	0-60	1420	99.8	65	408
Efficiency	97.4 Lm/W					25	621	0-90	1422	100	75	665
SC	0.69	35	42	90-180	0	0	85	0				
UGR	0	45	3	0-180	1422	100						
		55	2									
		65	1									
		75	1									
		85	0									
		90	0									

45° Optic		CANDLEPOWER DISTRIBUTION		CONE OF LIGHT		CANDELA TABLE		ZONAL LUMEN SUMMARY			LUMINANCE	
Test Number	P1219750					Degrees Vertical	Canдела	Zone	Lumens	% Fixture	Average Candela Degrees	Average 0° Luminance
Housing	LDSQRT-3D13R459035D010					0	2622	0-30	1247	91.9	45	1461
Trim	3LSQCDR1MW					5	2625	0-40	1340	98.7	55	901
Lumens	1357					15	2070	0-60	1354	99.8	65	815
Efficiency	92.9 Lm/W					25	920	0-90	1357	100	75	665
SC	0.73	35	112	90-180	0	0	85	0				
UGR	1.6	45	6	0-180	1357	100						
		55	3									
		65	2									
		75	1									
		85	0									
		90	0									

50° Optic		CANDLEPOWER DISTRIBUTION		CONE OF LIGHT		CANDELA TABLE		ZONAL LUMEN SUMMARY			LUMINANCE	
Test Number	P1219751					Degrees Vertical	Canдела	Zone	Lumens	% Fixture	Average Candela Degrees	Average 0° Luminance
Housing	LDSQRT-3D13R509035D010					0	2186	0-30	1237	87.8	45	1218
Trim	3LSQCDR1MW					5	2135	0-40	1391	98.7	55	901
Lumens	1409					15	1826	0-60	1406	99.8	65	815
Efficiency	96.5 Lm/W					25	1203	0-90	1409	100	75	665
SC	0.85	35	190	90-180	0	0	85	0				
UGR	1.3	45	5	0-180	1409	100						
		55	3									
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Photometric Data

55° Optic		CANDLEPOWER DISTRIBUTION	CONE OF LIGHT	CANDELA TABLE	ZONAL LUMEN SUMMARY	LUMINANCE																																																									
Test Number	P1219752			<table border="1"> <thead> <tr> <th>Degrees Vertical</th> <th>Candela</th> </tr> </thead> <tbody> <tr><td>0</td><td>1715</td></tr> <tr><td>5</td><td>1684</td></tr> <tr><td>15</td><td>1680</td></tr> <tr><td>25</td><td>1143</td></tr> <tr><td>35</td><td>179</td></tr> <tr><td>45</td><td>10</td></tr> <tr><td>55</td><td>3</td></tr> <tr><td>65</td><td>2</td></tr> <tr><td>75</td><td>1</td></tr> <tr><td>85</td><td>0</td></tr> <tr><td>90</td><td>0</td></tr> </tbody> </table>	Degrees Vertical	Candela	0	1715	5	1684	15	1680	25	1143	35	179	45	10	55	3	65	2	75	1	85	0	90	0	<table border="1"> <thead> <tr> <th>Zone</th> <th>Lumens</th> <th>% Fixture</th> </tr> </thead> <tbody> <tr><td>0-30</td><td>1137</td><td>86.4</td></tr> <tr><td>0-40</td><td>1293</td><td>98.3</td></tr> <tr><td>0-60</td><td>1311</td><td>99.7</td></tr> <tr><td>0-90</td><td>1315</td><td>100</td></tr> <tr><td>90-180</td><td>0</td><td>0</td></tr> <tr><td>0-180</td><td>1315</td><td>100</td></tr> </tbody> </table>	Zone	Lumens	% Fixture	0-30	1137	86.4	0-40	1293	98.3	0-60	1311	99.7	0-90	1315	100	90-180	0	0	0-180	1315	100	<table border="1"> <thead> <tr> <th>Average Candela Degrees</th> <th>Average 0° Luminance</th> </tr> </thead> <tbody> <tr><td>45</td><td>2436</td></tr> <tr><td>55</td><td>901</td></tr> <tr><td>65</td><td>815</td></tr> <tr><td>75</td><td>665</td></tr> <tr><td>85</td><td>0</td></tr> </tbody> </table>	Average Candela Degrees	Average 0° Luminance	45	2436	55	901	65	815	75	665	85	0
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60° Optic		CANDLEPOWER DISTRIBUTION	CONE OF LIGHT	CANDELA TABLE	ZONAL LUMEN SUMMARY	LUMINANCE																																																									
Test Number	P1219753			<table border="1"> <thead> <tr> <th>Degrees Vertical</th> <th>Candela</th> </tr> </thead> <tbody> <tr><td>0</td><td>1433</td></tr> <tr><td>5</td><td>1353</td></tr> <tr><td>15</td><td>1374</td></tr> <tr><td>25</td><td>966</td></tr> <tr><td>35</td><td>446</td></tr> <tr><td>45</td><td>11</td></tr> <tr><td>55</td><td>5</td></tr> <tr><td>65</td><td>3</td></tr> <tr><td>75</td><td>2</td></tr> <tr><td>85</td><td>1</td></tr> <tr><td>90</td><td>0</td></tr> </tbody> </table>	Degrees Vertical	Candela	0	1433	5	1353	15	1374	25	966	35	446	45	11	55	5	65	3	75	2	85	1	90	0	<table border="1"> <thead> <tr> <th>Zone</th> <th>Lumens</th> <th>% Fixture</th> </tr> </thead> <tbody> <tr><td>0-30</td><td>940</td><td>73.6</td></tr> <tr><td>0-40</td><td>1219</td><td>95.4</td></tr> <tr><td>0-60</td><td>1272</td><td>99.5</td></tr> <tr><td>0-90</td><td>1278</td><td>100</td></tr> <tr><td>90-180</td><td>0</td><td>0</td></tr> <tr><td>0-180</td><td>1278</td><td>100</td></tr> </tbody> </table>	Zone	Lumens	% Fixture	0-30	940	73.6	0-40	1219	95.4	0-60	1272	99.5	0-90	1278	100	90-180	0	0	0-180	1278	100	<table border="1"> <thead> <tr> <th>Average Candela Degrees</th> <th>Average 0° Luminance</th> </tr> </thead> <tbody> <tr><td>45</td><td>2679</td></tr> <tr><td>55</td><td>1501</td></tr> <tr><td>65</td><td>1223</td></tr> <tr><td>75</td><td>1331</td></tr> <tr><td>85</td><td>1976</td></tr> </tbody> </table>	Average Candela Degrees	Average 0° Luminance	45	2679	55	1501	65	1223	75	1331	85	1976
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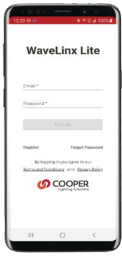
65° Optic		CANDLEPOWER DISTRIBUTION	CONE OF LIGHT	CANDELA TABLE	ZONAL LUMEN SUMMARY	LUMINANCE																																																									
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Connected Systems

WaveLinx LITE - WLST Tilemount Sensor

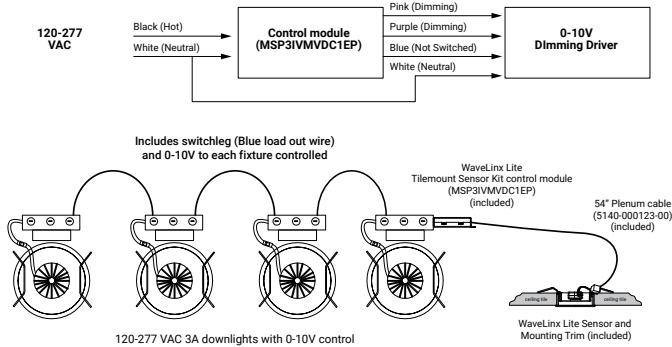
WaveLinx LITE devices only compatible with the WaveLinx LITE system.



- 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



WaveLinx LITE WLST Tilemount Wiring Diagram



WaveLinx LITE Bluetooth Enabled System



WaveLinx PRO Wireless – WPST Tilemount Sensor

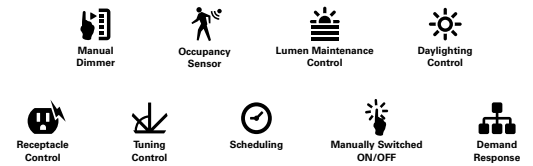
WaveLinx PRO devices only compatible with the WaveLinx PRO system.



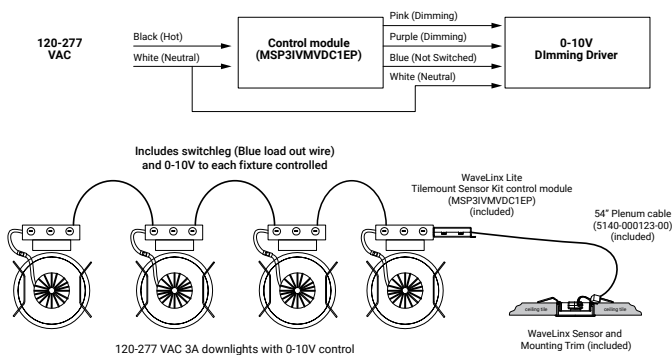
- WaveLinx PRO Wireless functionality configures zones and customizes settings from one secure mobile app
- Automatic code commissioning that meets the strictest codes
- Fixtures and sensors integrate with Wireless Area Controller, Wall Stations, and Control Devices
- Stand-Alone Offices or Entire Building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



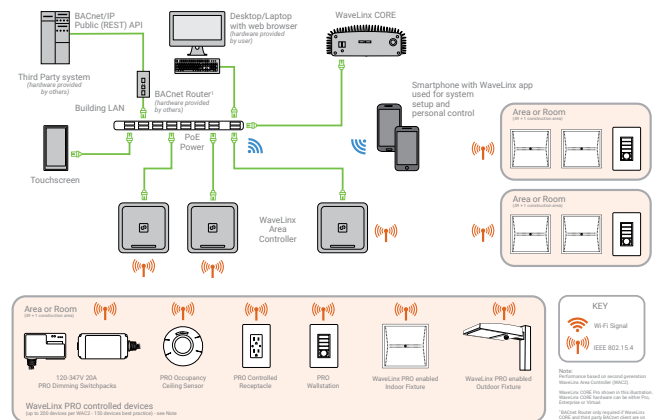
WaveLinx mobile app settings



WaveLinx PRO WPST Tilemount Wiring Diagram



WaveLinx CORE Building Management Integration



Connected Solutions



WaveLinX LITE Wireless Node - WLN

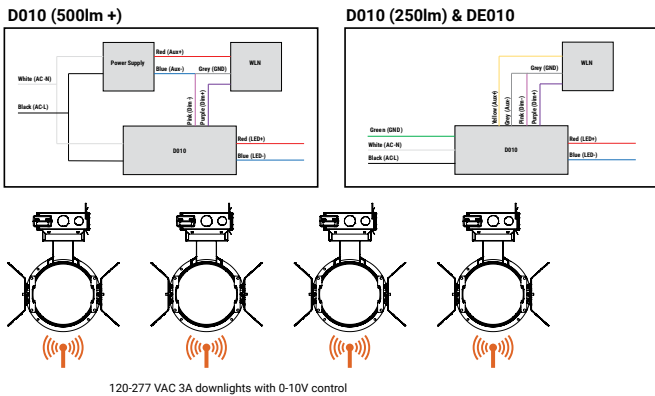
WaveLinX LITE devices only compatible with the WaveLinX LITE system.

- 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**

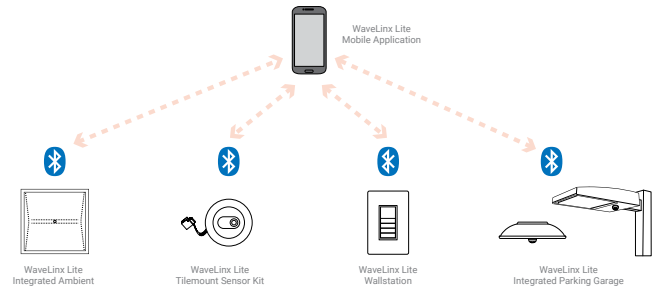
WaveLinX mobile app settings



WaveLinX LITE Wireless Node (WLN) Wiring Diagram



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

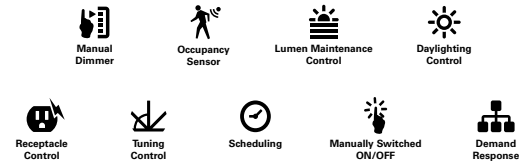
**Downlights with wireless communication**  
Highly efficient LED fixtures

**WaveLinX Area Controller**  
Provides centralized coordination of multiple area control options

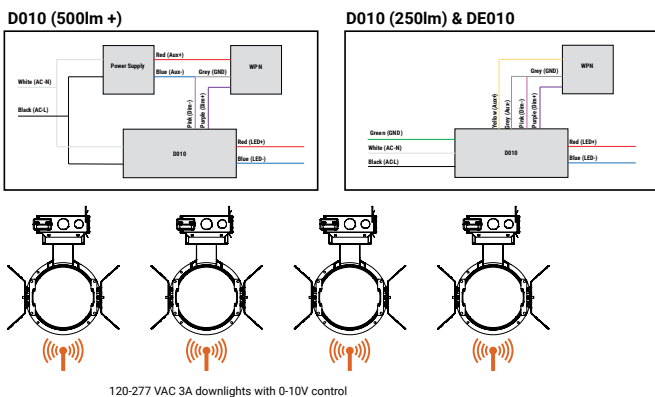
**Wireless Wall Station/Receptacle**  
Provides customized wireless control of each area

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

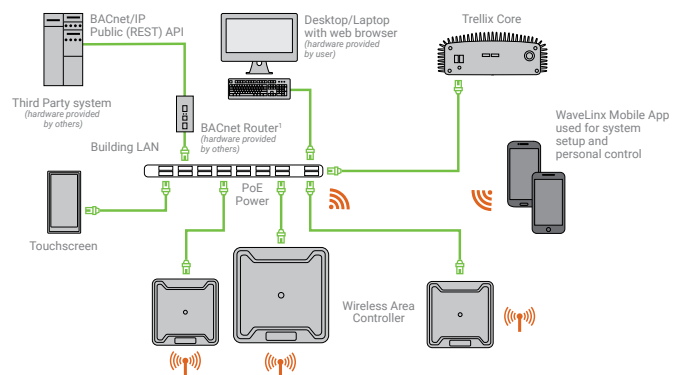
WaveLinX mobile app settings



WaveLinX PRO Wireless Node (WPN) Wiring Diagram



WaveLinX CORE Building Management Integration



# Proven Research. Industry Recognized.

## BioUp Melanopic Lighting



See better



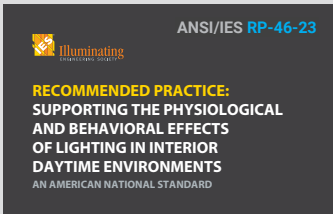
Feel better



Function better



See [BioUp brochure](#) for more details

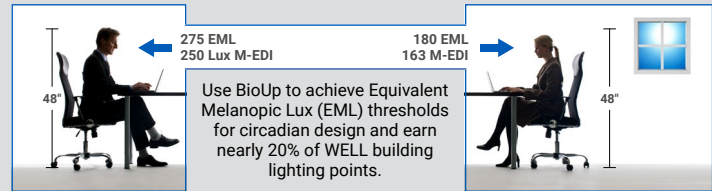


**ANSI/IES RP-46-23 / TM18 published March 2024 based on over 40 years of research.**

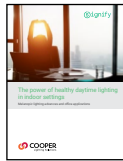
"...circadian clock synchronization is paramount to the body's efficient and appropriate functioning." – TM18



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



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



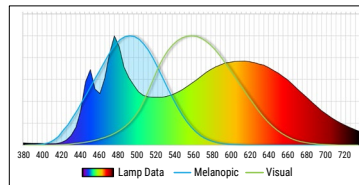
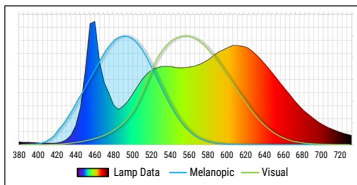
See [BioUp white paper](#) for more details

## 30% boost Biological impact compared to traditional LED sources

**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



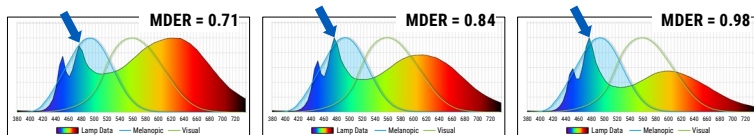
CCT	LED @ ~83 CRI	BioUp Static		BioUp Dynamic	
		MDER	CRI	MDER	CRI
2700K	0.45	-	-	0.43	95
3000K	0.50	-	-	0.57	94
3500K	0.57	0.71	90	0.71	90
4000K	0.65	0.84	87	0.84	87
5000K	0.79	1.00	84	1.00	84

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**

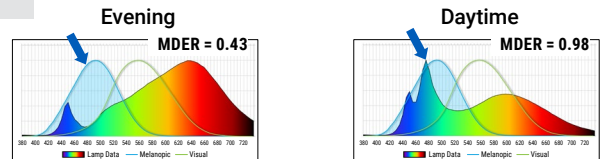
Cyan light component always present



> no CCT control needed

### Dynamic - (Tunable)

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



Warmer CCT Without Cyan content ← → Cooler Light With Cyan content

**2700K – 5000K**



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