

4L-P-D-SC254

MOD™ 4 LED PENDANT DIRECT WITH SPECTRACLEAN™ GERMICIDAL TECHNOLOGY

SPECTRACLEAN™ 254
GERMICIDAL LIGHTING

FEATURES

- Safe and Effective Architecturally Styled LED lighting with UVC upper air disinfection
- MOD 4L, a 4" rectilinear formfactor available in 4' and 8' lengths (individual or continuous row)
- Direct visible light distribution with upper UVC coverage
- Specially designed "stacked V" UVC lamp baffle system to ensure UVC rays are targeting the required upper air zone
- Cable pendant mounting
- Minimum 7' mounting above finished floor to ensure proper safety for occupants per ANSI guidelines
- UL1598 annex L upper air UVC design guidelines.
- Simple time based "on/off" scheduling to control using onboard Hubbell NX controls or customer provided control system



RELATED PRODUCTS

- ⌘ [59L-P-ID-SC254](#) ⌘ [59L-P-I-SC254](#)



CONTROLS



SPECIFICATIONS

CONSTRUCTION

- Housing - Extruded aluminum with extruded aluminum end headers/row joining brackets
- End caps - Die cast aluminum with magnetic interface
- Overlaps diffuser at each fixture end to eliminate gaps/LED visibility

OPTICAL PERFORMANCE

- 2 SDCM color consistency, 80 or 90 CRI

INSTALLATION

- 3/64" diameter field-adjustable aircraft cable. Ships separately. Suspension required at every row joint. Low profile cable gripper limits visibility while providing maximum horizontal balance adjustment.
- Pendant locations at ends of rows (or individual fixtures) are 3/8" from fixture ends.
- Pendant attachment allows for horizontal adjustment to "fine-tune" side-to-side leveling.
- UVC Lamp provided by Litecontrol to be installed in the field

OPERATION

- Available via [web-browser](#) or download the free SpectraClean™ Estimator app from the [Google Play™](#) or [Apple® App Store](#).



ELECTRICAL

- 2C (2 Circuit UVC/downlight) UVC and downlight on their own circuit
- LED boards and drivers can be accessed and removed from fixture, while installed
- LED boards can be replaced either individually or as part of 2' module
- Non-feed-2" diameter (unless 5" non-feed cover is specified).
- 4-wire, 7 amps max; 5-wire, 5 amps max.

CERTIFICATIONS

- IBEW
- AF of L
- UL1598 ANNEX L
- ACGIH
- ICNRP

CERTIFICATIONS (CONTINUED)

- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction. Materials under Trade Agreements effective 8/14/2020. See [Buy American Solutions](#). Contact factory for configurations including SpectraSync, NX, or sensors.

WARRANTY

- LED boards - 5 years
- LED drivers (standard) - 5 years
- LED drivers (Lutron) - 3 years
- UVC Lamp service life is one year
- See [www.litecontrol.com](#) for details

WARNINGS AND SAFETY

- Installers and occupants should avoid exposure to UVC lamps as well as looking directly at the lamp source as UVC can be harmful to skin and eyes. UVC lamps contain mercury; please recycle accordingly.
- Please see [page 10](#) for safety information regarding the Estimator Tool.

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KEY DATA	
Lumen Range Per Foot	D: 300 - 1250
Wattage Range Per Foot	2.6 - 11.75
Efficacy (LPW)	118
Rated Life (Hours)	L70: >61,000 L90: >61,000

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ORDERING GUIDE

Example: 4L-P-D-SC254-8-8-SOF-C1-27K-D030-D01-2C-UNV-FA1

CATALOG # _____

4L	Mounting	Fixture Distribution	SpectraClean	Row Length (In Feet)	Max Length In Row	Direct Optical Distribution
Series 4L MOD	P Pendant	D Direct AD Asymmetric Direct	SC254 SpectraClean UVC 254 nm	—' Enter in foot increments	4 4', 1219mm 8 8', 2438mm	SOF Soft Diffuse Lens, Lambertian REG Regressed Diffuse Lens BWO Blade Baffle with Overlay ASYM Asymmetric Diffuse Lens ³ BAT Batwing Lens DRP Drop Lens ¹

Finish/Color ²	Color Temperature	Direct Output/ft ⁵	Driver	Circuiting
C1 Matte White (Default)	27K 2700K ¹ 30K 3000K	D030 300 (min) to D125 1250 (max)	D01 1% Dimming, 0-10V D00 1% Dim-to-Off, 0-10V D05 SpectraSync 5% Dimming, 0-10V ⁹ DS1 1% Dimming w/ Soft Start, 0-10V DS0 1% Dim-to-Off w/ Soft Start, 0-10V LEC Hi-Lume 1% Ecosystem LED Driver DALI DALI ¹ DALIP Powered by DALI (2.0) ¹ NDM Non-Dimming	2C 2 Circuit; UVC and Downlight on their own circuit
C2 Textured Matte White	35K 3500K 40K 4000K			
C3 Light Silver	50K 5000K ¹			
C4 Machined Aluminum	27K9 2700K, 90 CRI 30K9 3000K, 90 CRI			
C5 Carbon Black	30K9 3000K, 90 CRI			
C6 Textured Camera Black	35K9 3500K, 90 CRI 40K9 4000K, 90 CRI			
CC Custom Color	50K9 5000K, 90 CRI ¹ 2230TD 2200K-3000K SpectraSync™ Dim-to-Warm ⁴ 2750T 2700K-5000K SpectraSync™ Tunable White ⁴ 2765T 2700K-6500K SpectraSync™ Tunable White ⁴			

OPTIONAL

Voltage	Suspension Kit ⁷	Nightlight	Emergency	Thru-wiring	T-Bar Clips ¹¹
UNV Universal Voltage (120V through 277V)	FA1 Suspension Kit, 51" FA2 Suspension Kit, 87" FA3 Suspension Kit, 219" FA4 Suspension Kit, 363"	NL Nightlight Circuit Required. Enter quantity. 2NL = 2 nightlight circuits/row	EF 10W Emergency Battery Pack. Enter quantity. 2EF = 2 emergency batteries/row. ⁸	W1 No Thru Wire W2 Provide Normal and Emergency/ Nightlight Thru Wiring ¹⁰ W3 Provide Normal Thru Wiring Only	CB1 T-bar clip - 15/16" CB2 T-bar clip - 9/16" CB3 T-bar clip - 9/16" SS
347 347 Volt ^{1,6}					

Control Options¹

NX Standalone

NXS NX, PIR BT Occupancy/Daylight Sensor, Slide Mount^{12, 13, 14}

NX Networked – Wired

NXE NX, Dual SmartPorts^{12, 13}

NXES NX, PIR BT Occupancy/Daylight Sensor, Slide Mount, Dual SmartPORTS^{12, 13}

NX Networked – Wireless

NXSW NX Wireless, PIR BT Occupancy/Daylight Sensor^{12, 13, 14}

NXWE NX Wireless Wireless Enabled^{12, 13}

NX Networked – Wired/Wireless

NXSWD NX Wireless, PIR BT Occupancy/Daylight Sensor, Dual SmartPORTS^{12, 13, 14}

NXWD NX Wireless, Dual Smart Ports^{12, 13}

Sensors

SD1 Daylight Sensor Required. Enter quantity. 2SD1 = 2 daylight sensors/row

SO1 Occupancy Sensor Required. Enter quantity. 2SO1 = 2 occupancy sensors/row

Notes:

- Additional lead time may be applicable. Contact factory.
- Visit www.litecontrol.com/finishes for details.
- Must be ordered with AD.
- Must be ordered with D05 Driver option.
- Specifiable in 50 lumen increments. Reference the Performance Data Table for full performance offering and exceptions.
- Excludes Emergency Battery Pack 'EF' Option. Excludes DALI, DALIP and Lutron (LEC) Dimming Drivers
- Suspension Kit: 3/64" diameter field-adjustable aircraft cable. Ships separately. Suspension required at every row joint. Low profile cable gripper limits visibility while providing maximum horizontal balance adjustment.
- EF - 10W battery powered driver. Provides a minimum of 90 minutes of emergency lighting. Inverter-Compatible. Provided by others. Available in 4+ fixtures.
- Must be ordered with 2230TD, 2750T or 2765T Option
- Only applicable when specified with Emergency/Nightlight.
- Includes Luminaire Canopy Box. For use with Grid Ceilings only
- NX In-Fixture Control Options:**
- Not available for row mounting. Only available with 0-10V Driver options. Contact factory for Length restrictions.
- Refer to NX Integrated Controls Reference Table for Functionality of Options.
- NX Sensors with Bluetooth, BLE, provides remote commission only.

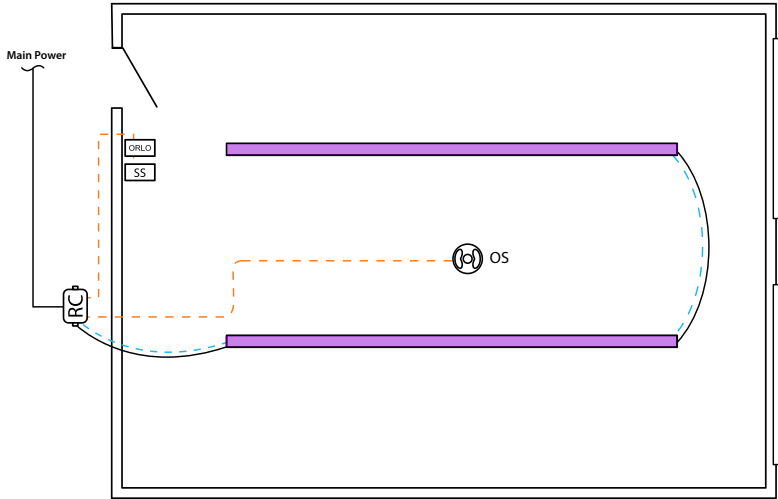
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MOD™ 4 LED PENDANT DIRECT WITH
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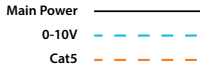
SPECTRACLEAN GERMICIDAL TECHNOLOGY

Controls Deployment with SpectraClean 254 enabled Luminaires

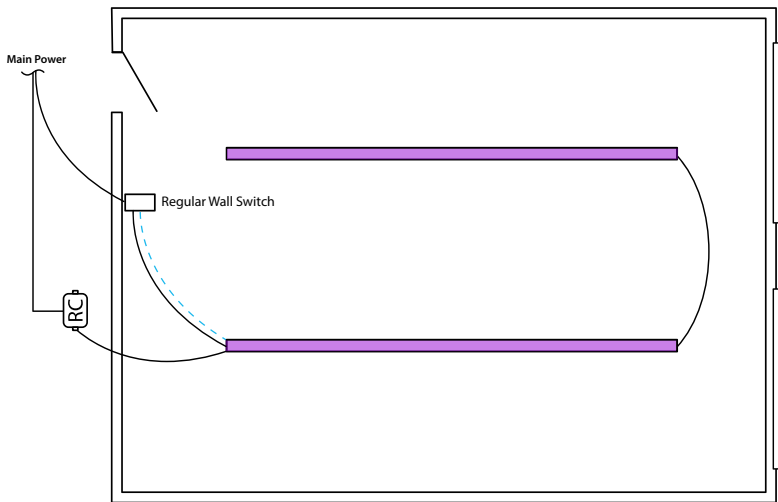
- The NX Room Controller provides the ability to control both SpectraClean 254 and Visible Light independently
- Integral Time-clock and Scheduling enable users to create custom schedules for regular disinfecting utilizing upper-air SpectraClean 254 luminaires
- NX Room Controllers can also be programmed to provide SpectraClean specific modes that allow for prescribed dosing levels and also post-occupancy dosing
- NX room devices such as Occupancy Sensors, Wall Stations, and Daylight Sensors can be utilized independently of the UVC portion of the SpectraClean 254 fixtures to control the normal visible lighting in the space



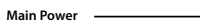
Control Scenario
Lighting and SpectraClean 254 Control



QTY.	Catalog #	Description
1	NXRC2-1RD-UNV	Room Controller with 1 Dimming Output
2	4L-P-D-SC254 Row	MOD 4L Pendant Direct with SpectraClean™ Germicidal Technology
1	NXSW-ORLO	ORLO Specialty Switch
1	NXSW-SS	6 Button Scene Switch
1	NXOS-OMNI-DT1	Occupancy Sensor



Control Scenario
SpectraClean 254 Control Only



QTY.	Catalog #	Description
1	NXRC2-1RD-UNV	Room Controller with 1 Dimming Output
2	4L-P-D-SC254 Row	MOD 4L Pendant Direct with SpectraClean™ Germicidal Technology
1	N/A	Regular Wall Switch

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SPECTRACLEAN 254 DOSAGE INFORMATION

4L Dosage Application				
CEILING HEIGHT	ROOM SIZE	# OF LUMINAIRES		
		1	2	3
10'	500 ft ²	17 min	<10 min	
	1500 ft ²	56 min	28 min	19 min
	2500 ft ²	95 min	48 min	32 min
	5000 ft ²	193 min	96 min	64 min
	10000 ft ²	387 min	194 min	129 min
12'	500 ft ²	21 min	11 min	<10 min
	1500 ft ²	36 min	18 min	12 min
	2500 ft ²	64 min	32 min	21 min
	5000 ft ²	134 min	67 min	45 min
	10000 ft ²	274 min	137 min	91 min

The SpectraClean 254 Dosage Reference Table provides guidance based upon stated assumptions and is no guarantee of performance. Actual performance may vary depending on the specific environment and supplemental cleaning routines.

DOSAGE SCALING TABLE	
Pathogen	Scale factor
COVID-19	0.76
Pneumoniae	1.05
Legionella	0.59
Hand, Foot, & Mouth	2.41

This table estimates UVC exposure times needed to reduce Influenza by up to 99% based on the following assumptions:

- 1 Luminaire mounting height is 7'
- 2 Ceiling or wall surface sets fluence boundary
- 3 Luminaires are uniformly placed
- 4 Recommended 6ACH or greater
- 5 ACGIH TLV must be verified based on application and installation

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CONTROLS



NX Distributed Intelligence™ Lighting Controls:

Supports both indoor and outdoor applications in a variety of deployment options- wired, wireless, hybrid. Integrates with and enables a wide array of luminaires including those with SpectraSync Color Tuning Technology.

NX INTEGRATED CONTROLS REFERENCE								
NX Option	Sensor	Networkable	Scheduling	Occupancy	Daylight Harvesting	0-10V Dimming	On/off Control	Bluetooth® App Programming
NX Standalone								
NXS	NXSMP-SMI	No	Yes	Yes	Yes	Yes	Yes	Yes
NX Networked – Wired								
NXE	N/A	Yes	Yes	No	No	Yes	Yes	Requires NXBTC/R ¹
NXES	NXSMP-SMI	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NX Networked – Wireless								
NXSW	NXSMP-SMI	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NXWE ²	N/A	Yes	Yes	No	No	Yes	Yes	No ³
NX Networked – Wired/Wireless								
NXSWD	NXSMP-SMI	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NXWD	N/A	Yes	Yes	No	No	Yes	Yes	Requires NXBTC/R ^{1,3}

- 1 NXBTC/R needs to be plugged into an available NX SmartPort™ on the fixture network
- 2 Programming via App requires factory assistance
- 3 To program NXWE option, need to consult factory. If connected to an area controller, programming can be done from that

SpectraSync™ Color Tuning Technology:

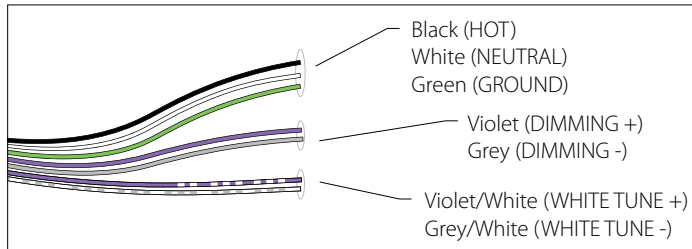
Control your space based on the needs of the application, specific activities throughout the day and preferences of the occupants with distinct SpectraSync™ Color Tuning Technologies.



SPECTRASYNCH COLOR TUNING TECHNOLOGY		
Mode	Kelvin Range	Description
Dim to Warm	2200K-3000K	Mimics the familiar warming effect that occurs with traditional incandescent sources as they are dimmed
Tunable White	2700K-5000K 2700K-6500K	Offers users the ability to tailor CCT to their personal preference, enhancing task visibility, material and colors or the aesthetics of the space
Scheduled White	2700K-5000K 2700K-6500K	Mimics the rhythm of natural light or follows an alternative user-defined schedule throughout the day, enhancing an occupant's mood and well-being

SpectraSync Tunable White

Available in two options: 2750T (2700K–5000K) or 2765T (2700K–6500K). Requires two 0–10V controllers, one for intensity and one for CCT. Minimum 5% dimming.

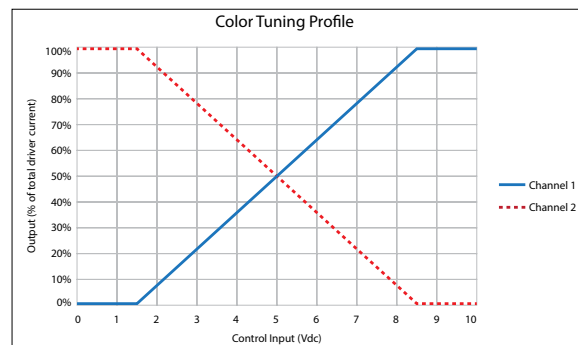


SpectraSync Tunable White luminaires are provided with two 0–10V circuits. The violet and grey circuit is for wiring to any qualified 0–10V controller for dimming. The violet/white and grey/white circuit is for wiring to any qualified 0–10V controller for Tunable White CCT control.

Controller Manufacturer Data

SpectraSync Tunable White was designed to be used with sinking style dimmers (provided by others) and is compatible with:

- Hubbell Control Solutions (HCS): NX Distributed Intelligence™ Room Controllers (NXRC) and In-fixture Controllers (NXFM)
- Lutron: DDTV, DVSTV, and NDTV dimmers
- Wattstopper: ADF120277 and CD4BL (Titan) dimmers



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PERFORMANCE DATA TABLE

The table below shows the delivered lumens for the various lumen outputs. Use this chart in connection with the output multiplier capability to deliver any output required.

Nomenclature	Lumens/Ft	W/Ft	Efficacy
D030 (min)	300	2.6	118
D050	500	3.8	118
D075	750	6.5	115
D110	1100	9.0	111

(wattage may vary up to 5% from published)

Output Multiplier Table

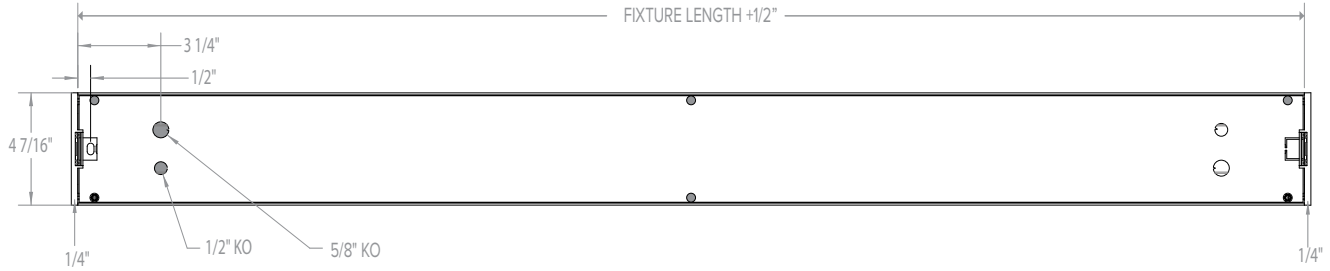
Photometrics for the 4L are published here at a nominal 3500K temperature. This table may be used to approximate the lumen values at different Kelvin temperatures. Power consumption would stay the same.

Option	2700K	3000K	3500K	4000K	5000K	2700K 90 CRI	3000K 90 CRI	3500K 90 CRI	4000K 90 CRI	5000K 90 CRI
SOF	0.95	0.98	1.00	1.03	1.05	0.83	0.85	0.88	0.90	0.93
REG	0.73	0.75	0.77	0.79	0.81	0.64	0.65	0.68	0.69	0.72
BWO	0.67	0.69	0.70	0.72	0.76	0.63	0.53	0.47	0.42	0.39
ASYM	0.95	0.98	1.00	1.03	1.05	0.83	0.85	0.88	0.90	0.93
BAT	0.95	0.98	1.00	1.03	1.05	0.83	0.85	0.88	0.90	0.93
DRP	0.95	0.98	1.00	1.03	1.05	0.83	0.85	0.88	0.90	0.93

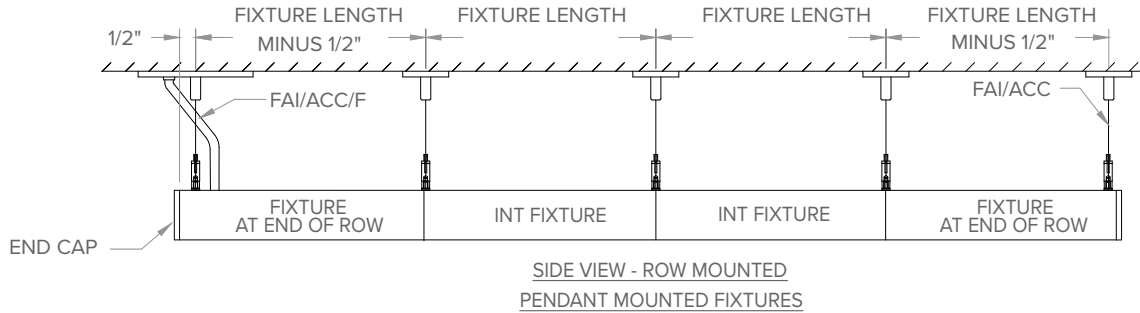
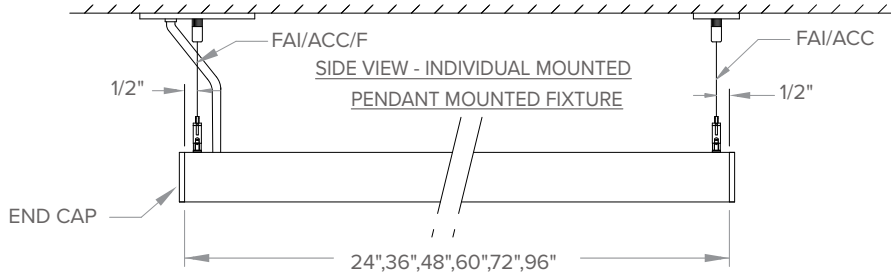
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DIMENSIONS

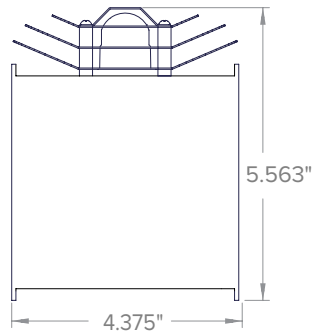


INDIVIDUAL MOUNTING



SIDE VIEW - ROW MOUNTED
PENDANT MOUNTED FIXTURES

ROW MOUNTING



UVC LAMP AND BALLAST

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PHOTOMETRY

For application specific guidance, please refer to the [Estimator Tool User Guide](#).

4L-P-D-4-DRP-X-CX-35K-D100

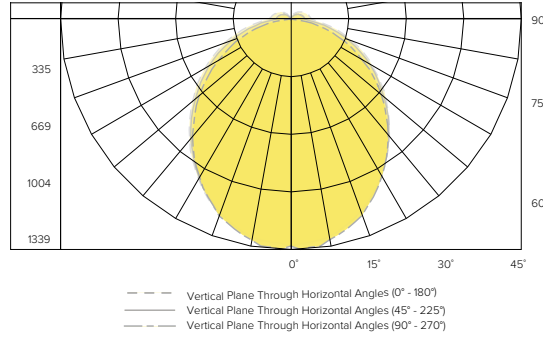
LUMINAIRE DATA

Test No.	R19.00221-01
Description	4L Pendant Direct, Drop Lens, 3500K
Delivered Lumens	3969
Watts	36.0W
Efficacy	110
Mounting	Pendant

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
0-40	1613	40.6
0-60	2798	70.5
0-90	3678	92.7
0-180	3969	100.0

POLAR GRAPH



4L-P-D-4-BAT-X-CX-35K-D100

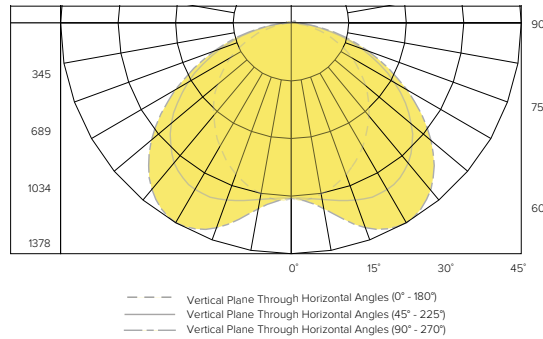
LUMINAIRE DATA

Test No.	R18.01614-01
Description	4L Pendant Direct, Batwing Lens, 3500K
Delivered Lumens	4000
Watts	36.0W
Efficacy	111
Mounting	Pendant

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
0-40	1626	40.6
0-60	3056	76.4
0-90	3948	98.7
0-180	4000	100.0

POLAR GRAPH



4L-P-D-SC254

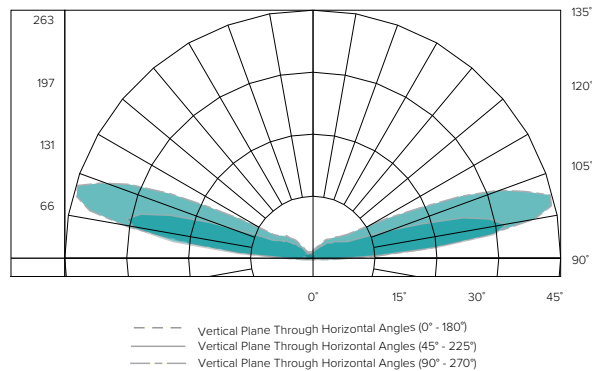
LUMINAIRE DATA

Description	4L Pendant Direct, Upper Air Disinfection
Radiant Intensity (mW/sr)	377
Watts	31.5W
Efficacy	NA
Mounting	Pendant

ZONAL RADIANT INTENSITY SUMMARY

Zone	Radiant Intensity	% Luminaire
80-90	15.50	4.10
90-110	236.86	62.80
90-120	304.10	80.70
90-130	330.01	87.50
90-150	354.45	94.00
90-180	361.52	95.90
110-180	124.66	33.10
0-180	377.03	100.0

POLAR GRAPH

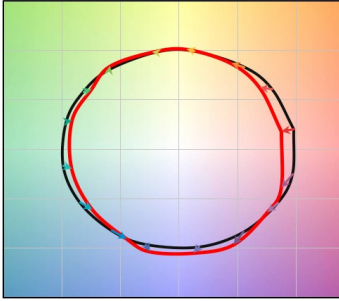


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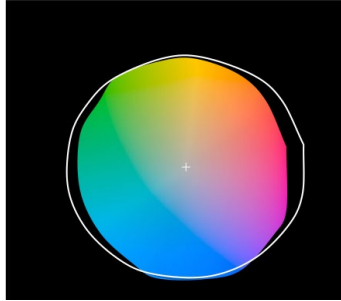
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TM-30 DATA

COLOR VECTOR GRAPHIC



COLOR DISTORTION GRAPHIC



*Graphics shown are at 35K

— Reference Illuminant — Test Source

TEST RESULTS - 3500K	
Value	80+ CRI
CCT (K)	3494
CIE R _a	83
D _{UV}	-0.0004
R _f	82
R _g	96
x	0.4052
y	0.3898

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ADDITIONAL INFORMATION

Output (VI Technology)

Variable Intensity (VI) technology allows precise specification of fixture output/wattage. Fixture will be programmed and labeled to specification. See output section for available increments.

Driver

D01	100%-1% dimming range. Fixture will be wired for low voltage 0-10V dimming control.
D00	Dim-to-Off 100%-1% dimming range. Fixture will be wired for low voltage 0-10V dimming control.
D05	100%-5% dimming range. Fixture will be wired for low voltage 0-10V dimming control. Only applicable if either 2230TD, 2750T or 2765T is selected.
DS1	Soft-Start 100%-1% dimming range. Fixture will be wired for low voltage 0-10V dimming control.
DS0	Soft-Start Dim-to-Off 100%-1% dimming range. Fixture will be wired for low voltage 0-10V dimming control.
LEC	Hi-Lume 1% EcoSystem LED Driver with Soft-On, Fade-to-Black dimming technology.
DALI	DALI compatible.
DALIP	Self-Powered DALI bus (e.g. DEXAL)
NDM	Non-dimming. Fixture will be wired for fixed light output.

Rated Life

Tested in accordance to LM79-2008 & derived from EPA TM-21 calculator
 L70: 280,000 (calculated per TM-21 extrapolated curve)
 L70: >61,000 (reported per TM-21/LM80 6x's limitation)
 L90: 72,000 (calculated per TM-21 extrapolated curve)
 L90: >61,000 (reported per TM-21/LM80 6x's limitation)

Rated Life (Driver)

Standard = 100,000 hours
 Lutron = 50,000 hours

Fixture Weight

4 lbs/ft.

Estimator Tool Terms and Conditions:

The Estimator Tool may only be used to provide preliminary estimates for luminaire quantity, placement and operation time. It should not be relied upon to determine the actual maximum operation time or min/max dosing time range. It is the responsibility of the installer to determine the maximum operation time, min/max dosing time range, and maximum irradiance values using field measurements for the specific application per International Electrotechnical Commission (IEC) 62471 acceptable risk groups and American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV). An installer should conduct a post-commissioning operation audit of irradiance levels in the space before a room is occupied. Hubbell is not responsible for ensuring that occupants of the space will not be exposed to excessive UV or optical radiation during equipment operation.

Sensor

SD1	Daylight sensor (Wattstopper part #FD301). Installs on integrated sleeve.
SO1	Occupancy sensor (Wattstopper part #FS205). Installs on integrated sleeve.

See separate [LC-Controls](#) spec sheet for additional details.

Downlight Diffusers

SOF	Soft diffuse acrylic lens.
REG	½" regressed softglo lens with painted steel inserts. Output multiplier (.77)
BWO	White blade baffle with softglo lens overlay. Output multiplier (.70).
ASYM	Highly transmissive diffuse acrylic lens with linear prisms.
BAT	Highly transmissive diffuse acrylic lens with linear prisms.
DRP	1/2" protruding soft diffuse lens.

Please see the installation instruction sheets for more details.