CRAIG GAULDEN DAVIS, INC.
19 WASHINGTON PARK
GREENVILLE, SOUTH CAROLINA 29601
Telephone (864) 242-0761
Email jhansen@cgdarch.com

March 6, 2020

ADDENDUM NO. 3:

TO: **All Prospective Bidders**

RE: City of Fountain Inn
Activities Center Renovation
Mauldin, SC 29644
CGD Project No. 18064

Please note the following changes that shall become part of the Prequalification Proposal for the above referenced project. The requirements are modified only to the extent stated herein.

GENERAL:

A3-G1   n/a

SPECIFICATIONS:

A3-S1   n/a

DRAWINGS:

A1-D1   **Replace the listed 30 x 42 drawing sheets below with the enclosed drawings (revised on 03/06/2020):**

   M101   Mechanical Plans

APPROVED EQUALS:

The following manufacturers have been given prior approval for bidding, subject to plans and specifications. Manufacturer's grades, weights, finishes or qualities shall equal or exceed those specified items.

Product	Specification Section	Manufacturer
See Attachment for description	E001 (drawing)	Cooper
See Attachment for description	E001 (drawing)	MULE LIGHTING, INC.

END OF ADDENDUM NO. 2

CRAIG GAULDEN DAVIS, INC.

John Hansen, AIA, LEED AP
jhansen@cgdarch.com

Enclosures as Noted

Please confirm receipt of this addendum by emailing the project architect at: jhansen@cgdarch.com

To: CAROLINA ENGINEERING SOLUTIONS
   8 WEST MCBEE AVENUE
   SUITE 203
   GREENVILLE, S. C. 29601
Attn: JAMES JOYE

Submittal

Source Quote: 20-0163
Entry Date: 2/19/2020
Project: ACTIVITIES CENTER RENOVATION

Original Submittal for Prior Approval
1 Copy of Submittals is Attached

Qty	Type	Mfg	Description
	EM	MULE LIGHTING, INC.	SQ-80-LED
	IA	Cooper Ltg	4SNLED-LD5-56SL-UNV-L840-CD1-U WG/SNF-4FT-B
	TA	Cooper Ltg	24CZ2-75HE-S-UNV-L840-CD1-U
	TD	Cooper Ltg	22CZ2-39-S-UNV-L840-CD1-U
	UC	Cooper Ltg	UCL-4-LD4-40-A12125-EDD1-120-RSW
	VA	Cooper Ltg	2SWLED-28HL-LW-UNV-L840-CD1-U
	SD	Cooper Ltg	WBSD-010SLD-XX
	OC	Cooper Ltg	OAC-DT-2000
	PP	Cooper Ltg	SP20-MV

Remarks:

SQ-80-LED Series

ALL LED THERMOPLASTIC EMERGENCY LIGHT

PRODUCT DESCRIPTION

The SQ-80-LED Series thermoplastic LED Emergency Lights offer contemporary aesthetics, quick installation and premium options such as LED lamps, High Output and Self-Diagnostic versions in an economical package.

PRODUCT SPECIFICATIONS

CONSTRUCTION

Injection molded, engineering-grade, UV-stable thermoplastic • UL94V-0 flame rating • Impact, scratch, fade and corrosion-resistant • Snap-fit housing and mounting plate • Universal mounting plate with quick-connect feature reduces installation labor • White or black textured finish.

ELECTRICAL

Dual 120/277 voltage standard. Optional multi-tap 208/220/240 voltage available • Rated for use in damp locations • Solid state charging and switching • Brownout protection • Battery low voltage disconnect • Overload and short circuit protection • AC power indicator and test switch.

LAMPS

Long life, energy saving LED lamps • 1W (8 LEDs x 0.125 watt) per head

HEADS

Includes two 1W white LED lighting heads • Contemporary square head design • High performance chrome-plated metallized reflector and plastic lens for optimal light distribution • Adjustable LED lamp heads provide optimal center-to-center spacing. High-lumen option available for increased center-to-center spacing
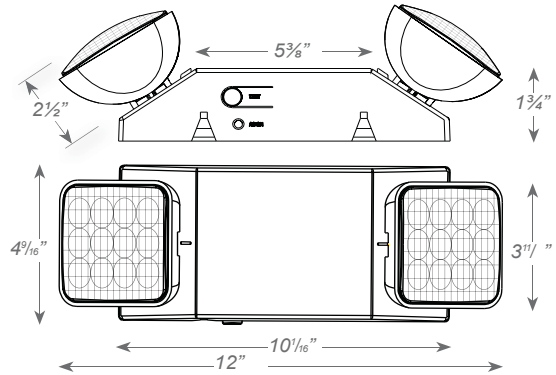
BATTERY

Maintenance-free 3.6V sealed NiCad battery • Standard battery will operate fixture for a minimum of 90 minutes in the event of a power outage • High Output (REM Option) version will operate the fixture plus 2 remote heads for a minimum of 90 minutes.

CODE COMPLIANCE

UL924 • UL Listed for damp locations (0°C – 50°C) • NFPA 101 Life Safety Code compliant • NEC and OSHA compliant • Meets the State of Minnesota energy efficiency requirements.

WARRANTY

5-year warranty. Product specifications subject to change without notice.

INSTALLATION

MOUNTING

Suitable for wall or ceiling mounting • Surface mount via easy connect back plate, which fits most standard junction boxes and snaps into place making internal electrical connections • Top and side knockout for conduit applications.

ENGINEERING DATA

Input Voltage	Max. Amps	Max. Watts
120	0.04	2.0
277	0.02	2.0

ORDERING INFORMATION

model	housing color	options	accessories
SQ-80-LED	W = White	SD = Self Diagnostics	VRS3 = Polycarbonate Vandal Shield
	B = Black	REM[1] = Remote Capable	WG5 = Wire Guard
		HL[2] = High Lumen Heads (1.5W)	
		SV[3] = 208/220/240 Volt, 50/60Hz	

Notes

[1] Additional capacity to run up to (2) RLED remote heads (see below)

[2] 12-LED (1.5W) per head provides increased center-to-center spacing

[3] Not available on units with SD option
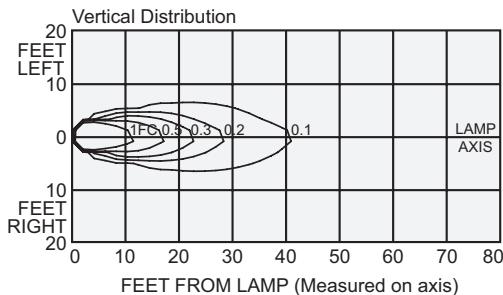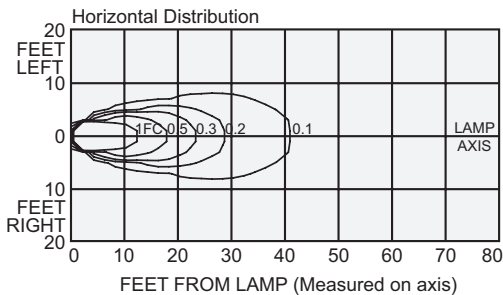
Ordering Example SQ-80-LED-W-SD

SQ-80-LED Series

ALL LED THERMOPLASTIC EMERGENCY LIGHT

PROJECT:
FIXTURE TYPE:
LOCATION:
CONTACT/PHONE:

EZ SPEC

PHOTOMETRICS

Luminaire SQ-80-LED (Single Head LED EM)

Horizontal Distribution

20 FEET LEFT 10

0

10 FEET RIGHT 20

1FC 0.5 0.3 0.2   0.1   LAMP AXIS

0 10 20 30 40 50 60 70 80

FEET FROM LAMP (Measured on axis)

Vertical Distribution

20 FEET LEFT 10

0

10 FEET RIGHT 20

1FC 0.5 0.3 0.2   0.1   LAMP AXIS

0 10 20 30 40 50 60 70 80

FEET FROM LAMP (Measured on axis)
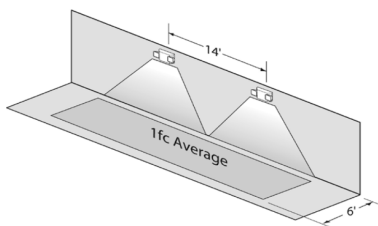
Using multiple units mounted at a typical 7.5' delivers 18' center-to-center spacing on a 3' wide egress path.

18'

1fc Average

3'
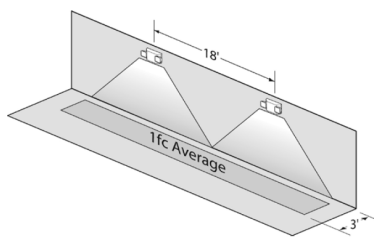
Using multiple units mounted at a typical 7.5' delivers 14' center-to-center spacing on a 6' wide egress path.

14'

1fc Average

6'

BATTERY DATA

- NiCad battery warranted for five full years with an additional 5 years prorated warranty

Type	Battery Voltage	Shelf Life[1]	Expected Life[1]	Temperature Range[2]
NiCad (std.)	3.6V, 900mA	3 years	8-10 years	32°F-100°F
NiCad (REM)	3.6V, 1800mA	3 years	8-10 years	32°F-100°F

[1] At 77°F
[2] To obtain rated life and capacity.

LED REMOTE HEADS (ORDER SEPERATELY)

- Each lamp contains 12 long-life, efficient ultra-bright white LED's
- Available in Single or Double head configurations
- Indoor or Outdoor ratings available

MODEL	DESCRIPTION
ASRLED-1	Single LED Remote Indoor
ASRLED-2	Double LED Remote Indoor
ASRLED-1-SD	Single LED Remote Indoor (Units w/ SD Option)
ASRLED-2-SD	Double LED Remote Indoor (Units w/ SD Option)
ASRLED-1-WP	Single LED Remote Outdoor
ASRLED-2-WP	Double LED Remote Outdoor
ASRLED-1-WP-SD	Single LED Remote Outdoor (Units w/ SD Option)
ASRLED-2-WP-SD	Double LED Remote Outdoor (Units w/ SD Option)

OUTDOOR REMOTE HEADS

INDOOR REMOTE HEADS

Premier Lighting & Control

Project		Catalog #		Type	
Prepared by		**Notes**		**Date**	

Metalux

SNLED Base

LED Striplight

Typical Applications

Commercial • Industrial • Retail • Residential • Storage / Utility • Coves • Display Cases • Shops • Task and General Area Lighting

Interactive Menu

- Order Information page 2
- Photometric Data page 3
- Product Warranty

Product Certification

c UL us LISTED · DLC PREMIUM · DLC LISTED · RoHS COMPLIANT · Efficiency Standards T24 Can be used to comply with California Title 24 Non-Residential · NEMA · ISO SYSTEMS CERTIFIED

Product Features

damp location · powered by fifthlight technology · MWS MODULAR WIRING SYSTEM CLICK HERE · LINEAR DISCONNECT Safe and convenient means of disconnecting power

Top Product Features

- Standard (SL) and High lumen/High Efficacy (HL) packages
- High efficiencies - up to 153 LPW
- Three different lens types for optical control
- Two different reflectors for precise distribution control
- Available CCT: 3000K, 3500K, 4000K and 5000K
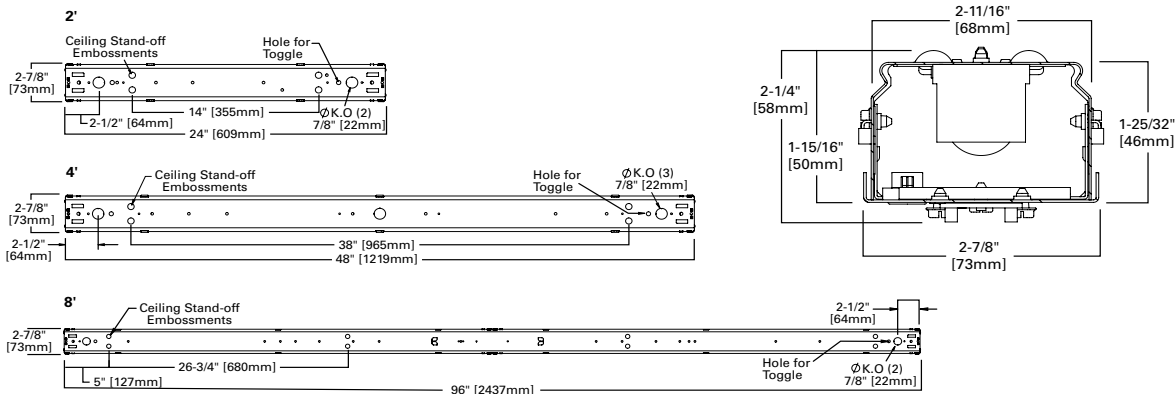- Minimum CRI of 80; 90 CRI available

Dimensional Details

2'

Ceiling Stand-off Embossments · Hole for Toggle
2-7/8" [73mm]
2-1/2" [64mm]
14" [355mm]
24" [609mm]
⌀K.O (2) 7/8" [22mm]

4'

Ceiling Stand-off Embossments · Hole for Toggle · ⌀K.O (3) 7/8" [22mm]
2-7/8" [73mm]
2-1/2" [64mm]
38" [965mm]
48" [1219mm]

8'

Ceiling Stand-off Embossments
2-7/8" [73mm]
5" [127mm]
26-3/4" [680mm]
Hole for Toggle
2-1/2" [64mm]
⌀K.O (2) 7/8" [22mm]
96" [2437mm]

2-11/16" [68mm]
2-1/4" [58mm]
1-15/16" [50mm]
1-25/32" [46mm]
2-7/8" [73mm]

COOPER
Lighting Solutions

Order Information

SAMPLE ORDER NUMBER: **4SNLED-LD5-48SL-UNV-L840-U**

Length	Series	Lamp Type	Lumen Package (1)		Voltage	Options
2=2' Length **4**=4' Length **8T**=8' Length	**SNLED**= Commercial LED Striplight (12)	**LD5**=LED 5.0	**Stocked Lumen Packages** **24SL** (13) **28SL** (13) **32SL** **48SL** **80SL** **88SL**	**MTO Lumen Packages** **20SL** (13) **36SL** **37HL** **40SL** **44SL** **52SL** **56SL** **56HL** **60SL** **60HL** **64SL** **64HL** **68SL** **72SL** **85HL** **96SL** **104SL** **112SL** (15) **130HL** (15) **170HL** (14)	**UNV**=Universal Voltage 120-277 **347V**=347V **480V**=480V (3)	**Emergency** **EL7W**=7-watt, 120V-277V emergency battery pack installed (3), (6) **EL14W**=14-watt 120V-277V emergency battery pack installed (3), (6) **GTR2**=Bodine Generator Transfer Relay (9) **ETRD**=Iota Emergency Transfer Relay with dimming control (9) **Wiring** **PI/CPI**=Plug in and cross over plug in options (11) **PC6/515P**=(NEMA 5-15P) 6' Cord with NEMA Straight Plug (10), (11) **PC6/L715**=(NEMA L7-15P) 6' Cord with NEMA Twist Plug (10), (11) **Motion Sensors** (16) **LB-ERMS360**=360˚ Low Bay Motion Sensor - End of Row **LB-MRMS360**=360˚ Low Bay Motion Sensor - Middle of Row **HB-ERMS360**=360˚ High Bay Motion Sensor - End of Row (4) **HB-MRMS360**=360˚ High Bay Motion Sensor - Middle of Row (4) **CCT / CRI** **L830**=3000K, 80 CRI **L835**=3500K, 80 CRI **L840**=4000K, 80 CRI **L850**=5000K, 80 CRI **L930**=3000K, 90 CRI **L935**=3500K, 90 CRI **L940**=4000K, 90 CRI **L950**=5000K, 90 CRI
Notes (12) DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.			**Notes** (13) Available in 2 ft. and 4 ft. (14) Requires two drivers. (15) DALI and Step-dim versions require two drivers.		**Notes** (3) 4 ft. and 8 ft. only.	**Notes** (3) 4 ft. and 8 ft. only. (4) Motion Sensor offers dimmability. (6) With integral test switch/indicator/laser test. For approximate delivered lumens multiply the lumens per watt of the desired fixture by the wattage of the emergency battery pack (100 lm/W x 7=700 lumens). IES-format photometry for luminaire under emergency operation available. (9) Used to bypass local control during outage. Must be used in conjunction with UL 1008 device (provided by others). GTR2 option includes 2 relays on fixtures with dimming drivers. ETRD option only requires one relay when used on a dimming fixture. Must specify voltage as 120V or 277V when ordering these devices. (10) Most common C&P shown. Must specify location for cord. All "end" locations will be on the end with sensor installed. (11) Consult tech support on numerous options for this feature. (16) Sensors provided in separate externally mounted enclosure. See SRL spec sheet for fully integrated/connected sensors.

Driver Type	Number of Drivers	Packaging	Accessories
Drive Type	**Number of Drivers**	**Packaging**	**Accessories (order separately)**
CD=0-10V Dimming Driver (10% - 100% Dimming) **HCD**=0-10V Dimming Driver (1% - 100% Dimming) **SD**=Step-dim (Bi Level) (3) **5LTD**=Fifth Light (DALI) Driver (3), (5)	**1**=1 Driver **2**=2 Drivers	**U**=Unit Pack	(Order Separately) **AYC-Chain/Set**=36" Chain Hanger (Use 1 set per fixture) **SCF**=Fixed Stem Set (Specify Length) **SCS**=Swivel Stem Set (Specify Length) **SCA**=Adjustable 48" Stem Set **EYE CHAIN SET/3FT**=Eye Bolt Chain (Use 1 set per fixture) **WG/SNF-2FT**=2' Wire Guard **WG/SNF-4FT**=4' Wire Guard **A1B/Spacer-U**=Spacer 1-1/2" to 2-1/2" from ceiling (Use 2 per fixture) **TOGGLE**=Single Toggle No. 2 (Specify Length) **Y-TOGGLE**=Y Toggle No. 2 (Specify Length) **SNLED-LENS-LW-2FT-U**=Replacement Lens 2 ft, Full Frost **SNLED-LENS-LN-2FT-U**=Replacement Lens 2 ft, Semi Frost **SNLED-LENS-LC-2FT-U**=Replacement Lens 2 ft, Clear **SNLED-LENS-LW-4FT-U**=Replacement Lens 4 ft, Full Frost **SNLED-LENS-LN-4FT-U**=Replacement Lens 4 ft, Semi Frost **SNLED-LENS-LC-4FT-U**=Replacement Lens 4 ft, Clear **GRP-SNF-U**=Gripper Hanger
Notes (3) 4 ft. and 8 ft. only. (5) For a complete listing of Fifth Light products, visit www.eaton.com/lightingsystems			

COOPER
Lighting Solutions

Product Specifications

Construction
- Die-formed of cold rolled steel with numerous knockouts for easy installation
- Groove for Tong Hanger
- Convertible end plate for continuous row alignment
- Channel/wireway cover secured with sheet metal screws
- Surface, pendant or stem mounting

Controls
- 0-10V dimming drivers to 10% or to 1% options
- Combine with energy-saving products like occupancy sensors, daylighting controls and lighting relay panels to maximize energy savings
- For motion control, reference options for both end and middle of the row applications
- Step-dimming option
- Fifth Light DALI 2.0 driver option

Electrical
- Long-life LED system with electrical driver for optimal performance
- LED's available in 3000K, 3500K, 4000K or 5000K with CRI of 80 standard or optional 90 CRI
- TM21 rating up to L87 >60,000 hours
- Electronic drivers available for 120-277V, 347V and 480 applications
- Operating temperature of -20°C to 40°C; Ideal for cold storage environments

Emergency Battery Pack Option
- Optional 120V-277V integral emergency battery pack available in 7W or 14W
- 90-minute backup period for code compliance
- Test switch with laser pointer allows safe testing from floor
- Patented EZ Key prevents accidental discharge during construction
- Generator transfer options available

Compliance
- cULus Listed for damp locations
- RoHS compliant
- Complies with IESNA LM-79 and LM-80 standards
- NEMA 410 compliant (drivers)
- State of California Title 24 high efficacy luminaire
- DesignLights Consortium® Qualified and classified for DLC Standard and DLC Premium (refer to www.designlights.org)
- Suitable for closet use when installed to NEC 410.16 spacings standards

Warranty
- Five year warranty

Photometric Data

View IES files

Energy and Performance Data

SNELD Type	Lumen Type	Length	Catalog Number	Nominal 3500K Lumens	Wattage	lm/W
Base	Standard	2 ft.	2SNLED-LD5-20SL-UNV-L8XX-CD1-U	2005	14	140.5
Base	Standard	2 ft.	2SNLED-LD5-24SL-UNV-L8XX-CD1-U	2476	18	136.8
Base	Standard	2 ft.	2SNLED-LD5-28SL-UNV-L8XX-CD1-U	2810	21	132.1
Base	High	2 ft.	2SNLED-LD5-37HL-UNV-L8XX-CD1-U	3799	27	143.0
Base	Standard	4 ft.	4SNLED-LD5-20SL-UNV-L8XX-CD1-U	1934	13	148.4
Base	Standard	4 ft.	4SNLED-LD5-24SL-UNV-L8XX-CD1-U	2398	16	149.8
Base	Standard	4 ft.	4SNLED-LD5-28SL-UNV-L8XX-CD1-U	2761	18	149.7
Base	Standard	4 ft.	4SNLED-LD5-32SL-UNV-L8XX-CD1-U	3148	21	148.7
Base	Standard	4 ft.	4SNLED-LD5-36SL-UNV-L8XX-CD1-U	3649	25	146.6
Base	Standard	4 ft.	4SNLED-LD5-40SL-UNV-L8XX-CD1-U	4014	28	144.9
Base	Standard	4 ft.	4SNLED-LD5-44SL-UNV-L8XX-CD1-U	4367	31	142.9
Base	Standard	4 ft.	4SNLED-LD5-48SL-UNV-L8XX-CD1-U	4827	35	139.9
Base	Standard	4 ft.	4SNLED-LD5-52SL-UNV-L8XX-CD1-U	5167	38	137.4
Base	Standard	4 ft.	4SNLED-LD5-56SL-UNV-L8XX-CD1-U	5604	41	136.4
Base	Standard	4 ft.	4SNLED-LD5-60SL-UNV-L8XX-CD1-U	6015	46	130.4
Base	Standard	4 ft.	4SNLED-LD5-64SL-UNV-L8XX-CD1-U	6504	52	125.9
Base	Standard	4 ft.	4SNLED-LD5-68SL-UNV-L8XX-CD1-U	6781	55	123
Base	High	4 ft.	4SNLED-LD5-56HL-UNV-L8XX-CD1-U	5634	37	152
Base	High	4 ft.	4SNLED-LD5-60HL-UNV-L8XX-CD1-U	5894	39	150.9
Base	High	4 ft.	4SNLED-LD5-64HL-UNV-L8XX-CD1-U	6421	43	148.9
Base	High	4 ft.	4SNLED-LD5-85HL-UNV-L8XX-CD1-U	8471	62	136.3
Base	Standard	8 ft.	8TSNLED-LD5-64SL-UNV-L8XX-CD1-U	6296	42	147.8
Base	Standard	8 ft.	8TSNLED-LD5-72SL-UNV-L8XX-CD1-U	7298	50	146.6
Base	Standard	8 ft.	8TSNLED-LD5-80SL-UNV-L8XX-CD1-U	8028	55	144.9
Base	Standard	8 ft.	8TSNLED-LD5-88SL-UNV-L8XX-CD1-U	8734	61	142.9
Base	Standard	8 ft.	8TSNLED-LD5-96SL-UNV-L8XX-CD1-U	9654	69	139.9
Base	Standard	8 ft.	8TSNLED-LD5-104SL-UNV-L8XX-CD1-U	10334	75	137.4
Base	Standard	8 ft.	8TSNLED-LD5-112SL-UNV-L8XX-CD1-U	11208	82	136.4
Base	High	8 ft.	8TSNLED-LD5-130HL-UNV-L8XX-CD1-U	12842	86	148.9
Base	High	8 ft.	8TSNLED-LD5-170HL-UNV-L8XX-CD2-U	16942	124	136.3

*Stocked in either 3500K or 4000K. Check Flash for stock availability.

CCT Table

Approximate Color Temperature Multiplier	
2700K	.93
3000K	.98
3500K	1.0
4000K	1.02
5000K	1.02

CRI

Lumen multiplier (80CRI to 90CRI)			
3000K	3500K	4000K	5000K
0.805	0.840	0.846	0.901

Shipping Data

Length	Wt.
2 ft.	3.8 lbs.
4 ft.	7.2 lbs.
8 ft.	13.1 lbs.

COOPER Lighting Solutions

Premier Lighting & Control

Project		Catalog #		Type	
Prepared by		Notes		Date	

Metalux

Cruze ST 24CZ2

2' x 4' LED Specification Grade Troffer

Typical Applications

Office • Education • Healthcare • Hospitality • Retail

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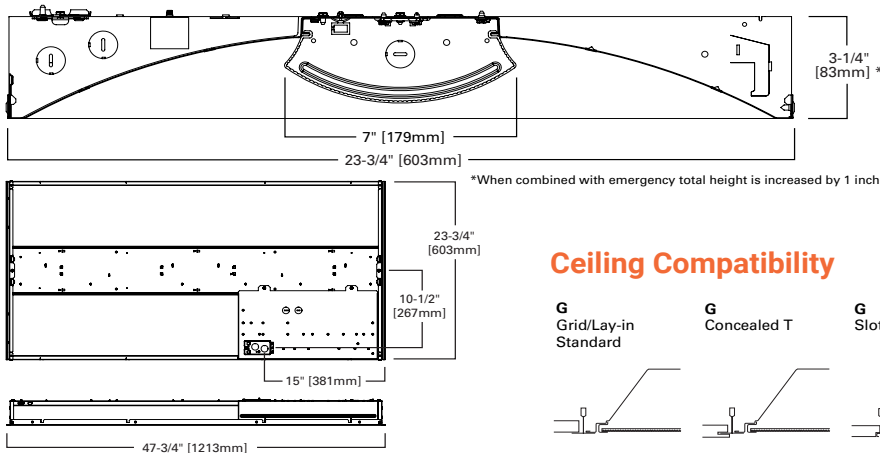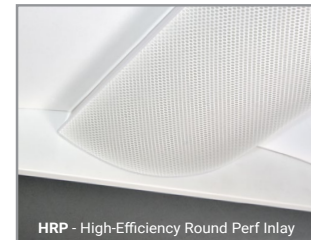- Product Warranty

Product Certification

c(UL)us LISTED • DLC LISTED • DLC PREMIUM LISTED • Efficiency Standards T24 Can be used to comply with California Title 24 Non-Residential • RoHS COMPLIANT • ISO SYSTEMS CERTIFIED

Product Features

Connected Systems • powered by fifthlight technology • damp location • VividTune color tuning solutions

LINEAR DISCONNECT Safe and convenient means of disconnecting power • MWS MODULAR WIRING SYSTEM CLICK HERE

Top Product Features

- Latch-less design provides clean architectural look
- VividTune CCT tuning options from 3000K-5000K or 2700K-6500K
- Designers delight - ribbed, smooth and round perforated lens options
- High performance efficacy up to 138 lm/W
- Integrated sensor systems - occupancy, daylight and IoT connectivity
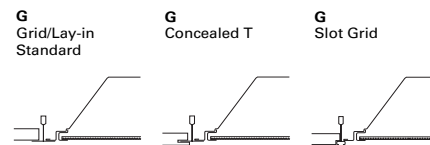
Dimensional and Mounting Details

3-1/4" [83mm] *

7" [179mm]

23-3/4" [603mm]

*When combined with emergency total height is increased by 1 inch.

23-3/4" [603mm]

10-1/2" [267mm]

15" [381mm]

47-3/4" [1213mm]

Ceiling Compatibility

G Grid/Lay-in Standard

G Concealed T

G Slot Grid

Ceiling Type	Trim Type
Exposed Grid	Standard
Concealed T	Standard
Slot Grid	Standard
Flange	*

*See Drywall Frame Kit Accessory in Ordering Information Section

Shielding

HRP - High-Efficiency Round Perf Inlay

See ordering information for more shielding options.

Order Information

SAMPLE ORDER NUMBER: **24CZ2-45HE-UNV-L835-CD1-U**

Rating	Series	Lumen Output		Shielding	Voltage [2]	Options	Emergency Options
[Blank]=Standard **ATW-SW4**= Chicago Rated	**24CZ2**=2x4 **Cruze ST**	**High Efficacy** **30HE**=3000 Lumens **35HE**=3500 Lumens **40HE**=4000 Lumens **45HE**=4500 Lumens **50HE**=5000 Lumens **55HE**=5500 Lumens **60HE**=6000 Lumens **65HE**=6500 Lumens **70HE**=7000 Lumens **75HE**=7500 Lumens [9], [11]	**Standard Efficacy** **30**=3000 Lumens **35**=3500 Lumens **40**=4000 Lumens **45**=4500 Lumens **50**=5000 Lumens **55**=5500 Lumens [8] **60**=6000 Lumens [8] **65**=6500 Lumens [8], [9], [11]	**[Blank]**=Ribbed Frosted Acrylic Lens (standard) **S**=Smooth Frosted Acrylic Lens **RDP**=Smooth Lens with Round Pattern Insert **HRP**=High-Efficiency Round Perf Inlay	**UNV**=Universal Voltage 120-277 **347V**=347 Volt [5] **48V**=48 Volt Low-voltage (Class 2) [C]	**GL**=Single Element Fuse **GM**=Double Element Fuse	**[Blank]**=No emergency **EL7W**=7-watt, 120V-277V emergency battery pack installed [3] **EL14W**=14-watt 120V-277V emergency battery pack installed [3] **ELV7W**=7-watt, DLVP-compatible low voltage emergency battery pack installed [C] **ELV14W**=14-watt DLVP-compatible low voltage emergency battery pack installed [C] **GTR2**=Generator Transfer Relay [6] **ETRD**=Emergency Transfer Relay with dimming control [6]
		Notes (8) White tuning not available with this model. (9) Two drivers are required for the following packages: 65 347V CD, 75HE 347V CD. When combined with emergency total height is increased by 1 inch. (11) Not compatible with WN driver.		**Notes** (2) Products also available in non-US voltages and frequencies for international markets. (5) 347 versions 6000 lumens and below are available with emergency options, 5LTHD and step-dim options or sensors are not available. (C) Consult DLVP system pages for additional details and compatibility.			**Notes** (3) With integral test switch/indicator/laser test. For approximate delivered lumens multiply the lumens per watt of the desired fixture by the wattage of the emergency battery pack (100 lm/W x 7=700 lumens). IES-format photometry for luminaire under emergency operation available. Battery option increases total height by 1 inch. (6) Used to bypass local control during outage. Must be used in conjunction with UL 1008 device (provided by others). GTR2 option includes 2 relays on fixtures with dimming drivers. ETRD option only requires one relay when used on a dimming fixture. Must specify voltage as 120V or 277V when ordering these devices. 347 not available. (C) Consult DLVP system pages for additional details and compatibility.

CRI/CCT	Flex	Driver Type	Number of Drivers
L830=80CRI, 3000K **L835**=80CRI, 3500K **L840**=80CRI, 4000K **L850**=80CRI, 5000K **L930**=90CRI, 3000K **L935**=90CRI, 3500K **L940**=90CRI, 4000K **L950**=90CRI, 5000K **L83050**=80CRI 3000K-5000K White Tuning [7] **L93050**=90CRI 3000K-5000K White Tuning [7] **L82765**=80CRI 2700K-6500K White Tuning [7] **L92765**=90CRI 2700K-6500K White Tuning [7]	**[Blank]**=No Flex **A3/8-4/18GDIM**=3/8" Flex with 0-10V Dimming Leads **A3/8-2/18G**=3/8" Flex with line and common **A3/8-5/18GDIM**=Flex with 0-10V Dimming leads and Blue for alternate wiring. See below for details.	**CD**=0-10V Dimming Driver (1%-100% Dimming) **SR**=Sensor-ready Dimming Driver for LWIPD1 option (1%-100% Dimming) [B] **5LTD**=Fifth Light DALI Driver (5%-100% Dimming) [E] **5LTHD**=Fifth Light Dimming Driver (1%-100% Dimming) [E] **LV**=DLVP Dimming Driver (0%-100% Dimming) [C] **SD**=Step Dimming Driver (50%-100% Dimming) **LH**=Lutron HiLume (LDE1 series) 1%-100% EcoSystem Driver with Soft-on Fade to Black dimming [F] **L5**=Lutron 5 Series (LDE5-Series) 5%-100% EcoSystem Driver [F] **W2A** = White Tuning, 2 ch, Analog 0-10V Intensity and CCT Control [7] **WN**=WaveLinx Wireless Fixture, No Sensor. [A], [G], [H]	**1**=1 Driver **2**=2 Drivers [9]
Notes (7) White tuning provides correlated color temperatures (CCT) between 3000K (warm) to 5000K (cool) or 2700K (warm) to 6500K (cool). Must be used in conjunction with W2A driver only. Must be used with two (2) 10V dimming control channels, 1 color, 1 intensity. Not compatible with other control or sensor options.	**Flexible Metal Conduit Options** Flex options available for 0-10V dimming control, DALI dimming control, emergency and night light functions. 72-inch factory-installed and pre-wired to driver, fitted to luminaire housing access plate with 90° enclosed FMC connector. Not all options may be combined and installation ratings vary by type. **A3/8-4/18GDIM series notes:** Factory installed dimming option 3/8" flexible metal conduit with 2-#18 power and ground wires and 2-#18 UL-listed jacketed 0-10V +/- control wires. Meets UL 66, 83, 1479, 1569, 1581, 2556. NEC® 250.118, 300.22(C), 392, 396, 330, 501, 502, 503, 530, 504, 505, 518, 520, 530, 645, 72; Federal Specification A-A-59544 (formerly J-C-30B); all applicable OSHA and HUD Requirements. UL Classified 1-, 2-, and 3-hour through penetration with applicable fire stop product (not included). May be surface mounted, fished and/or embedded in plaster. Cable tray and approved raceway rated, install per NEC®; Environmental Air-Handling Space Installation per NEC® 300.22(C).	**Notes** (7) White tuning provides correlated color temperatures (CCT) between 3000K (warm) to 5000K (cool) or 2700K (warm) to 6500K (cool). Must be used in conjunction with W2A driver only. Must be used with two (2) 10V dimming control channels, 1 color, 1 intensity. Not compatible with other control or sensor options. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: (A) Consult WaveLinx system pages for additional details and compatibility. (B) Consult LumaWatt Pro system pages for additional details and compatibility. (C) Consult DLVP system pages for additional details and compatibility. (E) Consult Fifth Light system pages for additional details and compatibility. (F) Consult Marketplace Options - Lutron system pages for additional details and compatibility. Compatible only with driver series shown, and may require two or more drivers. Requires field commissioning to operate or dim. Contact Lutron at www.lutron.com. (G) Not compatible with GTR, ETRD, or integrated sensor options. (H) Available with UNV voltage only.	**Notes** (9) Two drivers are required for the following packages: 65 347V CD, 75HE 347V CD. When combined with emergency total height is increased by 1 inch.

Integrated Sensing Systems	Packaging	Accessories (order separately)
[Blank]=No Sensor **SWPD1**=WaveLinx Wireless Integrated Sensor [A] **SDWPD1**=WaveLinx Wireless Integrated Sensor Dual Band [A], [4] **LWIPD1**=LumaWatt Pro Wireless Integrated Sensor [B] **LDWIPD1**=LumaWatt Pro Wireless Integrated Sensor Dual Band [B], [4] **LWTPD1**=LumaWatt Pro Wireless Tile-mount Sensor [B] **SLVPD1**=DLVP Low-voltage Integrated Sensor [C] **SDLVPD1**=DLVP Low-voltage Integrated Sensor Dual Band [C], [4] **SVPD1**=0-10V Stand-alone Integrated Sensor [D] **SDVPD1**=0-10V Stand-alone Integrated Sensor Dual Band [D], [4]	**U**=Unit Pack **PAL**=Job Pack, out of carton **PALC**=Job Pack, in carton	**CZ2-EQCLIP-U-PK**=Cruze Plus "CZ2" Earthquake Clip Kit (4 clips per bag kit) [1] **DF-24-W**=2' x 4' Drywall Frame Kit **SK-24-WS**=2' x 4' Shallow Surface Mount Kit **SK-24-WT**=2' x 4' Tall Surface Mount Kit **ISHH-01**=Programming Remote for Integrated Sensor [D] **ISHH-02**=Personal Control Remote for Integrated Sensor [D]
Notes (4) Required for use with sensors and emergency options. Provides blank band on opposite side from sensor band to provide symmetric appearance. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: (A) Consult WaveLinx system pages for additional details and compatibility. (B) Consult LumaWatt Pro system pages for additional details and compatibility. (C) Consult DLVP system pages for additional details and compatibility. (D) Consult SVPD series system pages for additional details and compatibility.		**Notes** (1) An EQ Grid Clip is recommended for all 9/16" ceiling systems. Four required per fixture. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: (D) Consult SVPD series system pages for additional details and compatibility.

Product Specifications

Construction
- Die formed of code gauge prime cold rolled steel with full length die-formed stiffeners
- Unibody endplates attached with interlocking tabs and screws
- Hemmed side flanges
- Four auxiliary fixture end suspension points
- Integral Grid-lock feature for endplates for added safety
- Optional earthquake clips available

Integrated Controls
- 0-10V dimming to 1% standard
- WaveLinx wireless fixture for sensor-less wireless control
- WaveLinx sensor compatible for IoT capability
- LumaWatt Pro sensor compatible for IoT capability
- SVPD sensor compatible for out of the box functionality
- DLVP sensor and driver compatible for low voltage applications
- DALI 2.0, Lutron, and step-dimming available

LED and Light Engine
- LED's available in 3000K, 3500K, 4000K, or 5000K at 80 CRI minimum and 90 CRI minimum
- TM21 life at 60,000 hours up to L94 and calculated L70 exceeds 290,000 hrs.
- Drivers available in 120-277V and 347V
- Color Tuning options available with Eaton's Vividtune

Emergency Battery Options
- Optional 120-277V emergency battery available in 7W or 14W
- 90-minute backup period for code compliance
- Test switch with laser pointer and testing from floor feature for ease of use
- EZ Key feature prevents accidental discharge during construction
- Generator transfer options available

Finish
- Multistage, iron phosphate pretreatment
- 90% reflective, matte white enamel finish
- Full fixture housing painted after fabrication

Shielding
- Ribbed acrylic frosted lens standard
- Optional smooth acrylic frosted lens (S)
- Optional metal perforated acrylic lens (RDP)
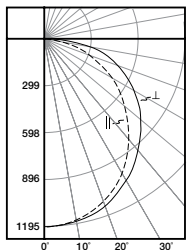- Optional High-Efficiency Round Perf Inlay (HRP)

Compliance
- IC rated for insulation contact
- cULus listed for damp locations
- RoHS compliant
- Tested to IESNA LM-79 and LM-80
- Stated life tested to TM21 standards
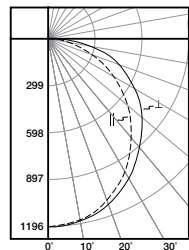- Can be used for State of California Title 24 high efficacy luminaire

Warranty
- Five year warranty standard.

Photometric Data

View IES files

24CZ2-35-UNV-L830-CD1-U
Dimming Driver
Linear LED 3000K
Spacing criterion: (II) 1.22 x mounting height, (⊥) 1.28 x mounting height
Lumens: 3618
Input Watts: 30.1W
Efficacy: 120.2 LPW
Test Report: 24CZ2-35-UNV-L830-CD1-U.IES

24CZ2-35HE-UNV-L830-CD1-U
Dimming Driver
Linear LED 3000K
Spacing criterion: (II) 1.21 x mounting height, (⊥) 1.27 x mounting height
Lumens: 3562
Input Watts: 26.9W
Efficacy: 132.4 LPW
Test Report: 24CZ2-35HE-UNV-L830-CD1-U.IES

Energy and Performance Data

Standard Efficacy Versions – Single Row of LEDs

Catalog Number	Lumens	Watts	lm/W
24CZ2-30-UNV-L835-CD1-U	3032	24.2	125
24CZ2-35-UNV-L835-CD1-U	3638	30.1	121
24CZ2-40-UNV-L835-CD1-U	4196	36.2	116
24CZ2-45-UNV-L835-CD1-U	4618	42.9	108
24CZ2-50-UNV-L835-CD1-U	5015	48.6	103
24CZ2-55-UNV-L835-CD1-U	5571	50.5	110
24CZ2-60-UNV-L835-CD1-U	6042	55.6	109
24CZ2-65-UNV-L835-CD1-U	6572	62.8	105

High Efficacy Versions – Two Rows of LEDs

Catalog Number	Lumens	Watts	lm/W
24CZ2-30HE-UNV-L835-CD1-U	3014	22.4	135
24CZ2-35HE-UNV-L835-CD1-U	3583	26.9	133
24CZ2-40HE-UNV-L835-CD1-U	4029	30.6	132
24CZ2-45HE-UNV-L835-CD1-U	4582	35.3	130
24CZ2-50HE-UNV-L835-CD1-U	5021	38.6	130
24CZ2-55HE-UNV-L835-CD1-U	5564	43.5	128
24CZ2-60HE-UNV-L835-CD1-U	6011	44.1	136
24CZ2-65HE-UNV-L835-CD1-U	6590	48.9	135
24CZ2-70HE-UNV-L835-CD1-U	7018	51.0	138
24CZ2-75HE-UNV-L835-CD1-U	7572	55.4	137

Shielding

Lumen Adjustment Factors		
S	RDP	HRP
1.05	0.67	0.81

Lumen Calculator

CCT Multiplier	80 CRI	90 CRI
3000K	0.994	0.830
3500K	1.00	0.845
4000K	1.00	0.854
5000K	1.065	0.852

Example of Lumen Adjustment Calculation

24CZ2-40-UNV-L835-CD1-U at 90CRI at 3500K

Lumen Adjustment Factor = 0.845

Total Light Output =

4,196 lm x 0.845 = 3,546 lm

$$Efficacy = \frac{3,546\ lm}{36.2W} = 98\ lm/W$$

Lumen Maintenance

Version	TM-21 Lumen Maintenance (60,000 hours)	Theoretical L70 (hours)
Standard	> 87%	> 162,000
High Efficiency	> 94%	> 290,000

Load Data (Stock Product)

Thd	6%
Power Factor	0.99
Weight (lbs.)	16
Low Temp. Start	-20°C

Shipping Data

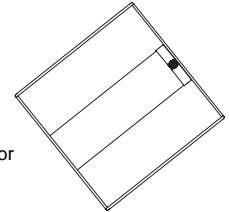| Catalog No.	Wt.	Pallet 49"L x 52"W x 46"H
2' x 4'	20.4 lbs.	28

Control Systems

- WaveLinx
- DLVP
- LumaWatt Pro
- iLumin Plus
- VividTune

The Cruze ST with Integrated Sensor technology provides automatic energy savings without sacrificing performance. Traditionally, these types of energy savings required coordination between the luminaire and a lighting control system. The Cruze ST delivers superior lighting with integrated occupancy and daylighting controls.

Capture the benefits of traditional lighting controls, without complicated coverage planning or special wiring. Ideal for new construction or retrofit, the Cruze ST delivers automatic ON to an energy saving light level, while ensuring lighting is turned OFF when the space is unoccupied.

The integral daylight sensor reduces the need for special daylight zone planning. Each luminaire will automatically adjust the light level based on reflected light beneath the sensor in a closed loop method.

The integral sensor can be offered in both standalone (SVPD1) and networked (SWPD1, LWIPD1, and SLVPD1) for application versatility.

We make connections work

EATON POWER
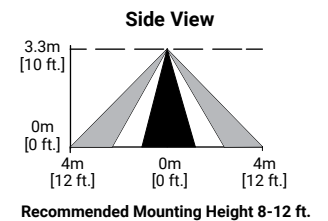Unparalleled knowledge of electrical power management
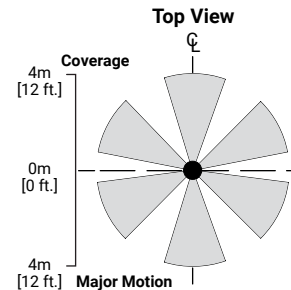
+

LIGHTING
Advanced LED fixtures

+

CONNECTIVITY
Communications & sensing technology
Physical devices & controllers

+

APPS
Software applications
Data accumulation & analysis

Top View

Side View

Recommended Mounting Height 8-12 ft.

Installation of integrated sensors within 3-ft (1m) of HVAC air vents is not recommended.

Systems comparison chart

Eaton provides many lighting system solutions designed to satisfy code requirements and meet the unique needs of any project.
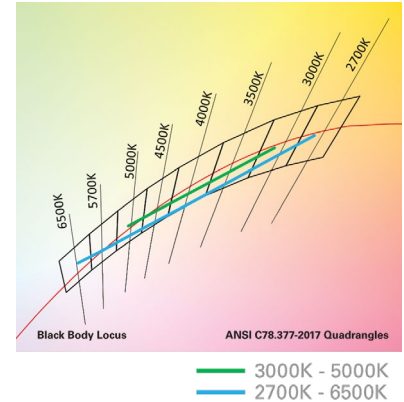
Connected Systems
CLICK HERE

	Distributed Low-Voltage Power System	WaveLinx	LumaWatt Pro
Space type	Interior	Interior/Outdoor	Any
Stand-alone or Network	Stand-alone	Both	Network
Need-based feature progression			
Basic compliance only	●	●	●
Occupancy sensing	●	●	●
Daylight harvesting	●	●	●
Zone control	●	●	●
Scheduling	●	●	●
0-10V dimming	●	●	●
Individual fixture control	●	●	●
Retrofit+Building Integration	●	●	●
Total wireless connectivity		●	●
A/V integration		●	●
BMS integration		●	●
UI options (touchscreen, apps, etc.)		●	●
Enterprise level building integration		●	●
Facility management & tools		●	●
Floor plan & reporting tools			●
Value-added services			●
Asset tracking			●
API integration		●	●
Analytics/higher problem solving			●

VividTune™
color tuning solutions

24 Cruze ST LED with VividTune Tunable White

VividTune tunable white luminaires from Eaton deliver high-quality light in a broad range of continuously variable color temperatures and intensities. Create a dynamic environment by adjusting the ambient light warmer or cooler to influence mood, support the task at hand, or create a dramatic ambience. The ability to control correlated color temperature and intensity separately using simple controls is the next evolution of LED lighting for the commercial, educational, healthcare and hospitality space. The unparalleled flexibility and number of available lighting environments enable users to find the right light with tunable white.

Black Body Locus   ANSI C78.377-2017 Quadrangles

— 3000K - 5000K
— 2700K - 6500K

Performance Data*

Tunable White - Lumen Adjustment Factors				
CCT	3000K-5000K		2700K-6500K	
	80 CRI	90 CRI	80 CRI	90 CRI
2700K	-	-	0.878	0.750
3000K	0.904	0.744	0.903	0.779
3500K	0.956	0.813	0.934	0.819
4000K	1.004	0.878	0.954	0.844
4500K	1.014	0.893	0.972	0.866
5000K	1.014	0.893	0.985	0.884
6500K	-	-	0.999	0.908

2' x 4' Cruze ST LED - Example of Approximate Lumen Calculation			
	Standard Catalog #	VividTune 80 CRI Catalog #	VividTune 90 CRI Catalog #
CCT Setting	24CZ2-40HE-UNV-L835-CD1-U	24CZ2-40HE-UNV-L83050-W2A1-U	24CZ2-40HE-UNV-L93050-W2A1-U
3000K	-	3641	2998
3500K	4029	3853	3275
4000K	-	4046	3537
4500K	-	4084	3599
5000K	-	4084	3599

Controlling VividTune Tunable White

VividTune luminaires make tunable white more accessible by using simple and familiar controls. From wall dimmers to wireless controls, VividTune tunable white luminaires are compatible with industry standard 0-10V dimming controls. A single 0-10V dimming input is used to control intensity (brightness) while a second 0-10V dimming input is used to adjust CCT. For suggested control configurations, go to www.eaton.com/lighting for tunable white application guides.

warm 2700K   CCT 0-10V   cool 6500K

warm 3000K   CCT 0-10V   cool 5000K

10%   Intensity 0-10V   100%
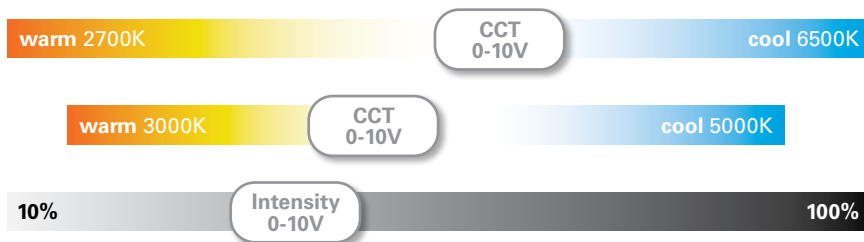
Example of Lumen Adjustment Calculation

24CZ2-40HE-UNV-L83050-W2A1-U at 80 CRI tuned to 3500K

Adjusted Lumen = published lm x adjusted lm factor

Adjusted Lumen = 4029 x 0.956

Adjusted Lumen = 3853 lm

* Lumen adjustment factors are for reference and may be different for each product selected. Refer to IES files for actual performance data on each.

Project		Catalog #		Type	
Prepared by		Notes		Date	

Metalux

Cruze ST 22CZ2

2' x 2' LED Specification Grade Troffer

Typical Applications

Office • Education • Healthcare • Hospitality • Retail

Interactive Menu

- Order Information page 2
- Photometric Data page 3
- Connected Systems page 4
- VividTune™ Color Tuning Solutions page 5
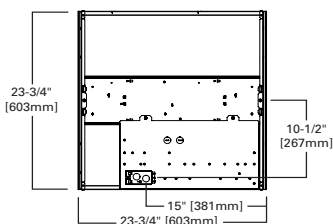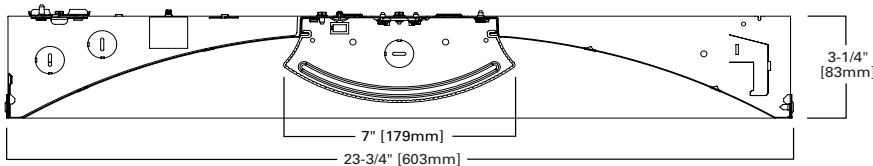- Product Warranty

Product Certification

c(UL)us LISTED · DLC PREMIUM · T24 Efficiency Standards Can be used to comply with California Title 24 Non-Residential · RoHS COMPLIANT · ISO CERTIFIED

Product Features

Connected Systems · powered by fifthlight technology · damp location · VividTune color tuning solutions

LINEAR DISCONNECT Safe and convenient means of disconnecting power · MWS MODULAR WIRING SYSTEM CLICK HERE

Top Product Features

- Latch-less design provides clean architectural look
- VividTune CCT tuning options from 3000K-5000K or 2700K-6500K
- Designers delight - ribbed, smooth and round perforated lens options
- High performance efficacy up to 138 lm/W
- Integrated sensor systems - occupancy, daylight and IoT connectivity

Dimensional and Mounting Details

7" [179mm]

23-3/4" [603mm]

3-1/4" [83mm]

23-3/4" [603mm]

10-1/2" [267mm]

15" [381mm]

23-3/4" [603mm]

Ceiling Compatibility

G Grid/Lay-in Standard

G Concealed T

G Slot Grid

Ceiling Type	Trim Type
Exposed Grid	Standard
Concealed T	Standard
Slot Grid	Standard
Flange	*

*See Drywall Frame Kit Accessory in Ordering Information Section

Shielding

HRP - High-Efficiency Round Perf Inlay

See ordering information for more shielding options.

Order Information

SAMPLE ORDER NUMBER: **22CZ2-34HE-UNV-L835-CD1-U**
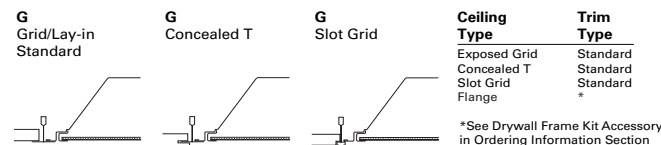
Rating	Series	Lumen Output	Shielding	Voltage [(2)]	Options	Emergency Options
[Blank]=Standard **ATW-SW4**=Chicago Rated	**22CZ2**=2x2 Cruze ST	**High Efficacy** **20HE**=2000 Lumens [(10)] **24HE**=2400 Lumens [(10)] **29HE**=2900 Lumens **34HE**=3400 Lumens **39HE**=3900 Lumens **44HE**=4400 Lumens **Standard Efficacy** **20**=2000 Lumens [(8), (10)] **24**=2400 Lumens [(8), (10)] **32**=3200 Lumens [(8)] **39**=3900 Lumens [(8)] **44**=4400 Lumens [(8)]	**[Blank]**=Ribbed Frosted Acrylic Lens (standard) **S**=Smooth Frosted Acrylic Lens **RDP**=Smooth Lens with Round Pattern Insert **HRP**=High-Efficiency Round Perf Inlay	**UNV**=Universal Voltage 120-277 **347V**=347 Volt [(5)] **48V**=48 Volt Low-voltage (Class 2) [(C)]	**GL**=Single Element Fuse **GM**=Double Element Fuse	**[Blank]**=No emergency **EL7W**=7-watt, 120V-277V emergency battery pack installed [(3)] **EL14W**=14-watt 120V-277V emergency battery pack installed [(3)] **ELV7W**=7-watt, DLVP-compatible low voltage emergency battery pack installed [(C)] **ELV14W**=14-watt DLVP-compatible low voltage emergency battery pack installed [(C)] **GTR2**=Generator Transfer Relay [(7)] **ETRD**=Emergency Transfer Relay with dimming control [(6)]
		Notes (8) White tuning not available with this model. (10) Not compatible with WN driver.		**Notes** (2) Products also available in non-US voltages and frequencies for international markets. (5) 347 versions 6000 lumens and below are available with emergency options, 5LTHD and step-dim options or sensors are not available. (C) Consult DLVP system pages for additional details and compatibility.		**Notes** (3) With integral test switch/indicator/laser test. For approximate delivered lumens multiply the lumens per watt of the desired fixture by the wattage of the emergency battery pack (100 lm/W x 7=700 lumens). IES-format photometry for luminaire under emergency operation available. Battery option increases total height by 1 inch. (6) Used to bypass local control during outage. Must be used in conjunction with UL 1008 device (provided by others). GTR2 option includes 2 relays on fixtures with dimming drivers. ETRD option only requires one relay when used on a dimming fixture. Must specify voltage as 120V or 277V when ordering these devices. 347 not available. (7) White tuning provides correlated color temperatures (CCT) between 3000K (warm) to 5000K (cool) or 2700K (warm) to 6500K (cool). Must be used in conjunction with W2A driver only. Must be used with two (2) 10V dimming control channels, 1 color, 1 intensity. Not compatible with other control or sensor options. Must be used in conjunction with W2A driver only. Must be used with two (2) 10V dimming control channels, 1 color, 1 intensity. Not compatible with other control or sensor options. (C) Consult DLVP system pages for additional details and compatibility.

CRI/CCT	Flex	Driver Type	Number of Drivers
L830=80CRI, 3000K **L835**=80CRI, 3500K **L840**=80CRI, 4000K **L850**=80CRI, 5000K **L930**=90CRI, 3000K **L935**=90CRI, 3500K **L940**=90CRI, 4000K **L950**=90CRI, 5000K **L83050**=80CRI 3000K-5000K White Tuning [(7)] **L93050**=90CRI 3000K-5000K White Tuning [(7)] **L82765**=80CRI 2700K-6500K White Tuning [(7)] **L92765**=90CRI 2700K-6500K White Tuning [(7)]	**[Blank]**=No Flex **A3/8-4/18GDIM**=3/8" Flex with 0-10V Dimming Leads **A3/8-2/18G**=3/8" Flex with line and common **A3/8-5/18GDIM**=Flex with 0-10V Dimming leads and Blue for alternate wiring. See below for details.	**CD**=0-10V Dimming Driver (1%-100% Dimming) **SR**=Sensor-ready Dimming Driver for LWIPD1 option (1%-100% Dimming) [(B)] **5LTD**=Fifth Light DALI Driver (5%-100% Dimming) [(E)] **5LTHD**=Fifth Light Dimming Driver (1%-100% Dimming) [(E)] **LV**=DLVP Dimming Driver (0%-100% Dimming) [(C)] **SD**=Step Dimming Driver (50%-100% Dimming) **LH**=Lutron HiLume (LDE1 series) 1%-100% EcoSystem Driver with Soft-on Fade to Black dimming [(F)] **L5**=Lutron 5 Series (LDE5-Series) 5%-100% EcoSystem Driver [(F)] **W2A** = White Tuning, 2 ch, Analog 0-10V Intensity and CCT Control [(7)] **WN**=WaveLinx Wireless Fixture, No Sensor. [(A), (G), (H)]	**1**=1 Driver
Notes (7) White tuning provides correlated color temperatures (CCT) between 3000K (warm) to 5000K (cool) or 2700K (warm) to 6500K (cool). Must be used in conjunction with W2A driver only. Must be used with two (2) 10V dimming control channels, 1 color, 1 intensity. Not compatible with other control or sensor options.	**Flexible Metal Conduit Options** Flex options available for 0-10V dimming control, DALI dimming control, emergency and night light functions. 72-inch factory-installed and pre-wired to driver, fitted to luminaire housing access plate with 90° enclosed FMC connector. Not all options may be combined and installation ratings vary by type. **A3/8-4/18GDIM series notes:** Factory installed dimming option 3/8" flexible metal conduit with 2-#18 power and ground wires and 2-#18 UL-listed jacketed 0-10V +/- control wires. Meets UL 66, 83, 1479, 1569, 1581, 2556. NEC® 250.118, 300.22(C), 392, 396, 330, 501, 502, 503, 530, 504, 505, 518, 520, 530, 645, 72; Federal Specification A-A-59544 (formerly J-C-30B); all applicable OSHA and HUD Requirements. UL Classified 1-, 2-, and 3-hour through penetration with applicable fire stop product (not included). May be surface mounted, fished and/or embedded in plaster. Cable tray and approved raceway rated, install per NEC®; Environmental Air-Handling Space Installation per NEC® 300.22(C).	**Notes** (7) White tuning provides correlated color temperatures (CCT) between 3000K (warm) to 5000K (cool) or 2700K (warm) to 6500K (cool). Must be used in conjunction with W2A driver only. Must be used with two (2) 10V dimming control channels, 1 color, 1 intensity. Not compatible with other control or sensor options. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: (A) Consult WaveLinx system pages for additional details and compatibility. (B) Consult LumaWatt Pro system pages for additional details and compatibility. (C) Consult DLVP system pages for additional details and compatibility. (E) Consult Fifth Light system pages for additional details and compatibility. (F) Consult Marketplace Options - Lutron system pages for additional details and compatibility. Compatible only with driver series shown, and may require two or more drivers. Requires field commissioning to operate or dim. Contact Lutron at www.lutron.com. (G) Not compatible with GTR, ETRD, or integrated sensor options. (H) Available with UNV voltage only.	

Integrated Sensing Systems	Packaging	Accessories (order separately)
[Blank]=No Sensor **SWPD1**=WaveLinx Wireless Integrated Sensor [(A)] **SDWPD1**=WaveLinx Wireless Integrated Sensor Dual Band [(A), (4)] **LWIPD1**=LumaWatt Pro Wireless Integrated Sensor [(B)] **LDWIPD1**=LumaWatt Pro Wireless Integrated Sensor Dual Band [(B), (4)] **LWTPD1**=LumaWatt Pro Wireless Tile-mount Sensor [(B)] **SLVPD1**=DLVP Low-voltage Integrated Sensor [(C)] **SDLVPD1**=DLVP Low-voltage Integrated Sensor Dual Band [(C), (4)] **SVPD1**=0-10V Stand-alone Integrated Sensor [(D)] **SDVPD1**=0-10V Stand-alone Integrated Sensor Dual Band [(D), (4)]	**U**=Unit Pack **PAL**=Job Pack, out of carton **PALC**=Job Pack, in carton	**CZ2-EQCLIP-U-PK**=Cruze Plus "CZ2" Earthquake Clip Kit (4 clips per bag kit) [(1)] **DF-22-W**=2' x 2' Drywall Frame Kit **SK-22-WS**=2' x 2' Shallow Surface Mount Kit **SK-22-WT**=2' x 2' Tall Surface Mount Kit **ISHH-01**=Programming Remote for Integrated Sensor [(D)] **ISHH-02**=Personal Control Remote for Integrated Sensor [(D)]
Notes (4) Required for use with sensors and emergency options. Provides blank band on opposite side from sensor band to provide symmetric appearance. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: (A) Consult WaveLinx system pages for additional details and compatibility. (B) Consult LumaWatt Pro system pages for additional details and compatibility. (C) Consult DLVP system pages for additional details and compatibility. (D) Consult SVPD series system pages for additional details and compatibility.		**Notes** (1) An EQ Grid Clip is recommended for all 9/16" ceiling systems. Four required per fixture. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: (D) Consult SVPD series system pages for additional details and compatibility.

Product Specifications

Construction
- Die formed of code gauge prime cold rolled steel with full length die-formed stiffeners
- Unibody endplates attached with interlocking tabs and screws
- Hemmed side flanges
- Four auxiliary fixture end suspension points
- Integral Grid-lock feature for endplates for added safety
- Optional earthquake clips available

Integrated Controls
- 0-10V dimming to 1% standard
- WaveLinx wireless fixture for sensor-less wireless control
- WaveLinx sensor compatible for IoT capability
- LumaWatt Pro sensor compatible for IoT capability
- SVPD sensor compatible for out of the box functionality
- DLVP sensor and driver compatible for low voltage applications
- DALI 2.0, Lutron, and step-dimming available

LED and Light Engine
- LED's available in 3000K, 3500K, 4000K, or 5000K at 80 CRI minimum and 90 CRI minimum
- TM21 life at 60,000 hours up to L94 and calculated L70 exceeds 290,000 hrs.
- Drivers available in 120-277V and 347V
- Color Tuning options available with Eaton's Vividtune

Emergency Battery Options
- Optional 120-277V emergency battery available in 7W or 14W
- 90-minute backup period for code compliance
- Test switch with laser pointer and testing from floor feature for ease of use
- EZ Key feature prevents accidental discharge during construction
- Generator transfer options available

Finish
- Multistage, iron phosphate pretreatment
- 90% reflective, matte white enamel finish
- Full fixture housing painted after fabrication

Shielding
- Ribbed acrylic frosted lens standard
- Optional smooth acrylic frosted lens (S)
- Optional metal perforated acrylic lens (RDP)
- Optional High-Efficiency Round Perf Inlay (HRP)

Compliance
- IC rated for insulation contact
- cULus listed for damp locations
- RoHS compliant
- Tested to IESNA LM-79 and LM-80
- Stated life tested to TM21 standards
- Can be used for State of California Title 24 high efficacy luminaire

Warranty
- Five year warranty standard.

Photometric Data

View IES files

22CZ2-24-UNV-L830-CD1-U
Dimming Driver
Linear LED 3000K
Spacing criterion: (II) 1.2 x mounting height, ($\perp$) 1.28 x mounting height
Lumens: 2437
Input Watts: 21.9W
Efficacy: 111.3 LPW
Test Report: 22CZ2-24-UNVL830-CD1-U.IES
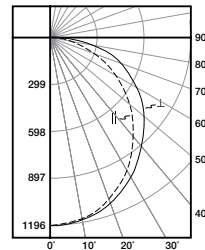
22CZ2-24HE-UNV-L830-CD1-U
Dimming Driver
Linear LED 3000K
Spacing criterion: (II) 1.19 x mounting height, ($\perp$) 1.27 x mounting height
Lumens: 2402
Input Watts: 19.2W
Efficacy: 125.1 LPW
Test Report: 14CZ2-29-UNV-L830-CD1-U.IES

Energy and Performance Data

Standard Efficacy Versions – Single Row of LEDs

Catalog Number	Lumens	Watts	lm/W
22CZ2-20-UNV-L835-CD1-U	2101	17.9	117
22CZ2-24-UNV-L835-CD1-U	2450	21.9	112
22CZ2-32-UNV-L835-CD1-U	3280	26.7	123
22CZ2-39-UNV-L835-CD1-U	3943	34.5	114
22CZ2-44-UNV-L835-CD1-U	4424	42.7	104

High Efficacy Versions – Two Rows of LEDs

Catalog Number	Lumens	Watts	lm/W
22CZ2-20HE-UNV-L835-CD1-U	2044	16.0	128
22CZ2-24HE-UNV-L835-CD1-U	2416	19.2	126
22CZ2-29HE-UNV-L835-CD1-U	2942	22.2	133
22CZ2-34HE-UNV-L835-CD1-U	3386	25.8	131
22CZ2-39HE-UNV-L835-CD1-U	3930	30.3	130
22CZ2-44HE-UNV-L835-CD1-U	4464	25.0	128

Shielding

Lumen Adjustment Factors		
S	RDP	HRP
1.05	0.67	0.80

Lumen Calculator

CCT Multiplier	80 CRI	90 CRI
3000K	0.994	0.830
3500K	1.00	0.845
4000K	1.00	0.854
5000K	1.065	0.852

Example of Lumen Adjustment Calculation

22CZ2-32-UNV-L935-CD1-U at 90CRI at 3500K

Lumen Adjustment Factor = 0.845

Total Light Output =

3,280 lm x 0.845 = 2,772 lm

$Efficacy = \dfrac{2{,}772\ lm}{26.7W} = 103.8\ lm/W$

Lumen Maintenance

Version	TM-21 Lumen Maintenance (60,000 hours)	Theoretical L70 (hours)
Standard	> 85%	> 131,000
High Efficiency	> 94%	> 290,000

Load Data (Stock Product)

Thd	6%
Power Factor	0.99
Weight (lbs.)	10.6
Low Temp. Start	-20°C

Shipping Data

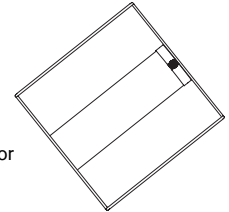| Catalog No.	Wt.	Pallet 49"L x 52"W x 55"H
2' x 2'	12.5 lbs.	48

Control Systems

- WaveLinx
- DLVP
- LumaWatt Pro
- iLumin Plus
- VividTune

The Cruze ST with Integrated Sensor technology provides automatic energy savings without sacrificing performance. Traditionally, these types of energy savings required coordination between the luminaire and a lighting control system. The Cruze ST delivers superior lighting with integrated occupancy and daylighting controls.

Capture the benefits of traditional lighting controls, without complicated coverage planning or special wiring. Ideal for new construction or retrofit, the Cruze ST delivers automatic ON to an energy saving light level, while ensuring lighting is turned OFF when the space is unoccupied.

The integral daylight sensor reduces the need for special daylight zone planning. Each luminaire will automatically adjust the light level based on reflected light beneath the sensor in a closed loop method.

The integral sensor can be offered in both standalone (SVPD1) and networked (SWPD1, LWIPD1, and SLVPD1) for application versatility.

We make connections work

EATON POWER — Unparalleled knowledge of electrical power management

LIGHTING — Advanced LED fixtures

CONNECTIVITY — Communications & sensing technology; Physical devices & controllers

APPS — Software applications; Data accumulation & analysis

Top View — Coverage — 4m [12 ft.], 0m [0 ft.], 4m [12 ft.] — Major Motion

Side View — 3.3m [10 ft.], 0m [0 ft.]; 4m [12 ft.], 0m [0 ft.], 4m [12 ft.]

Recommended Mounting Height 8-12 ft.

Installation of integrated sensors within 3-ft (1m) of HVAC air vents is not recommended.

Systems comparison chart

Eaton provides many lighting system solutions designed to satisfy code requirements and meet the unique needs of any project.

Connected Systems — CLICK HERE

	Distributed Low-Voltage Power System	WaveLinx	LumaWatt Pro
Space type	Interior	Interior/Outdoor	Any
Stand-alone or Network	Stand-alone	Both	Network
Need-based feature progression			
Basic compliance only	●	●	●
Occupancy sensing	●	●	●
Daylight harvesting	●	●	●
Zone control	●	●	●
Scheduling	●	●	●
0-10V dimming	●	●	●
Individual fixture control	●	●	●
Retrofit+Building Integration	●	●	●
Total wireless connectivity		●	●
A/V integration		●	●
BMS integration		●	●
UI options (touchscreen, apps, etc.)		●	●
Enterprise level building integration		●	●
Facility management & tools		●	●
Floor plan & reporting tools			●
Value-added services			●
Asset tracking			●
API integration		●	●
Analytics/higher problem solving			●

COOPER Lighting Solutions

VividTune™
color tuning solutions

22 Cruze ST LED with VividTune Tunable White

VividTune tunable white luminaires from Eaton deliver high-quality light in a broad range of continuously variable color temperatures and intensities. Create a dynamic environment by adjusting the ambient light warmer or cooler to influence mood, support the task at hand, or create a dramatic ambience. The ability to control correlated color temperature and intensity separately using simple controls is the next evolution of LED lighting for the commercial, educational, healthcare and hospitality space. The unparalleled flexibility and number of available lighting environments enable users to find the right light with tunable white.

Black Body Locus   ANSI C78.377-2017 Quadrangles

— 3000K - 5000K
— 2700K - 6500K

Performance Data*

Tunable White - Lumen Adjustment Factors				
	3000K-5000K		2700K-6500K	
CCT	80 CRI	90 CRI	80 CRI	90 CRI
2700K	-	-	0.868	0.741
3000K	0.894	0.736	0.893	0.771
3500K	0.946	0.804	0.924	0.809
4000K	0.993	0.868	0.944	0.835
4500K	1.002	0.883	0.961	0.857
5000K	1.002	0.883	0.974	0.874
6500K	-	-	0.988	0.897

2' x 2' Cruze ST LED - Example of Approximate Lumen Calculation			
	Standard Catalog #	VividTune 80 CRI Catalog #	VividTune 90 CRI Catalog #
CCT Setting	22CZ2-34HE-UNV-L835-CD1-U	22CZ2-34HE-UNV-L83050-W2A1-U	22CZ2-34HE-UNV-L93050-W2A1-U
3000K	-	3026	2491
3500K	3386	3202	2722
4000K	-	3362	2940
4500K	-	3394	2991
5000K	-	3394	2991

Controlling VividTune Tunable White

VividTune luminaires make tunable white more accessible by using simple and familiar controls. From wall dimmers to wireless controls, VividTune tunable white luminaires are compatible with industry standard 0-10V dimming controls. A single 0-10V dimming input is used to control intensity (brightness) while a second 0-10V dimming input is used to adjust CCT. For suggested control configurations, go to www.eaton.com/lighting for tunable white application guides.

warm 2700K   CCT 0-10V   cool 6500K

warm 3000K   CCT 0-10V   cool 5000K

10%   Intensity 0-10V   100%
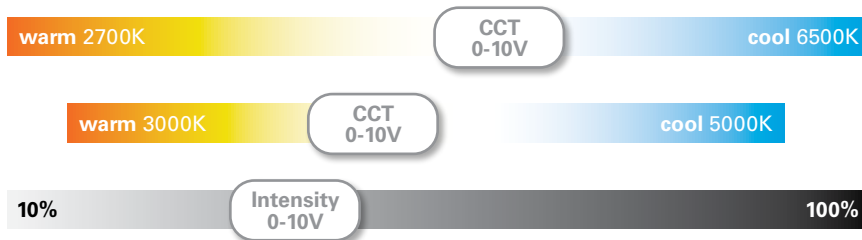
Example of Lumen Adjustment Calculation

22CZ2-34HE-UNV-L83050-W2A1-U
at 80 CRI tuned to 3500K

Adjusted Lumen =
published lm x adjusted lm factor

Adjusted Lumen = 3386 x 0.946

Adjusted Lumen = 3202 lm

* Lumen adjustment factors are for reference and may be different for each product selected. Refer to IES files for actual performance data on each.

COOPER
Lighting Solutions

Fail-Safe

DESCRIPTION

The UCL and UCLV provide effective LED task lighting in most any demanding environment. Heavy gauge cold rolled steel, finished with powder coat white paint, encloses and protects the linear LED module. Stainless steel brushed or painted is available for extreme environments. The LED module is available in color temperatures from 3000K to 5000K. UCL and UCLV are available in acrylic or polycarbonate lenses. Available in 1' to 4' lengths, in 1' increments.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Housing/Cover
UCL - 20 gauge cold-rolled steel housing. K.O. on back and each end. Keyhole slots for mounting.

UCLV - 20 gauge cold-rolled steel housing with keyhole slots for mounting. K.O. on back and ends for power. Seam-welded cover fits over housing (lens between housing cover). Four counter-sunk holes allow counter-sunk screws to attach cover to housing.

Finish
Gloss white polyester powder coat standard. Optional matte white anti-microbial powder coat white paint available. Stainless steel brushed or stainless steel painted powder coat white optional.

Fasteners
UCLV incorporates (4) stainless steel counter-sunk tamper proof TORX® T-20 screws which secure housing to back pan. Philips-head screws available.

Lens
Opal Acrylic and Opal Polycarbonate, 0.125" thick. Acrylic Pattern 12 and Polycarbonate Pattern 12, 0.125", 0.156" or 0.187" thick.

Electrical / LEDs
LED's are available in 3000K, 3500K, 4000K or 5000K with minimum 80 CRI. 90 CRI available. Nominal 750 lumens per linear foot. Replaceable LED / driver assembly. Life is 50,000 hours at 70% lumen maintenance. Electronic driver, 0-10V dimming standard.

Labels
UL/cUL listed for damp locations. UCLV optional IP63 rated.

Warranty
Five year warranty on LED's and electrical.

UCL

UCLV

UCL
UCLV

LD4 LED
Undercabinet

Commercial
Medical
Vandal Resistant

DIMENSIONS

UCL

5-15/16" [151mm]
1-3/8" [34mm]
3-1/4" [82mm]
3" 76mm
∅ 3/16" [5mm] Hole (2)
∅ 7/8" [22mm] K.O. (4)
3" 76mm

3/16" [5mm] Keyhole (2)
1-1/8" [29mm]
3-11/16" [93mm]
3-1/16" 77mm
13-1/4", 24-1/4", 36-1/4", 48-1/4"
3-1/16" 77mm
5/8" [17mm]
1-1/8" [29mm]

UCLV

6-7/32" [158mm]
1-7/16" [37mm]
2-5/16" [59mm] Window Opening
3" 76mm
∅ 3/16" [5mm] Hole (2)
∅ 7/8" [22mm] K.O. (4)
3" 76mm

3/16" [5mm] Keyhole (2)
1-1/8" [29mm]
3-11/16" [93mm]
3-1/16" 77mm
14-1/2", 24-5/8", 36-5/8", 45-13/16"
3-1/16" 77mm
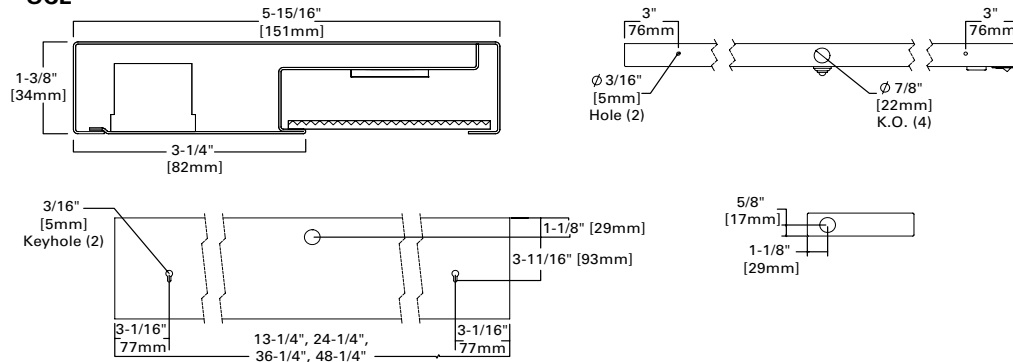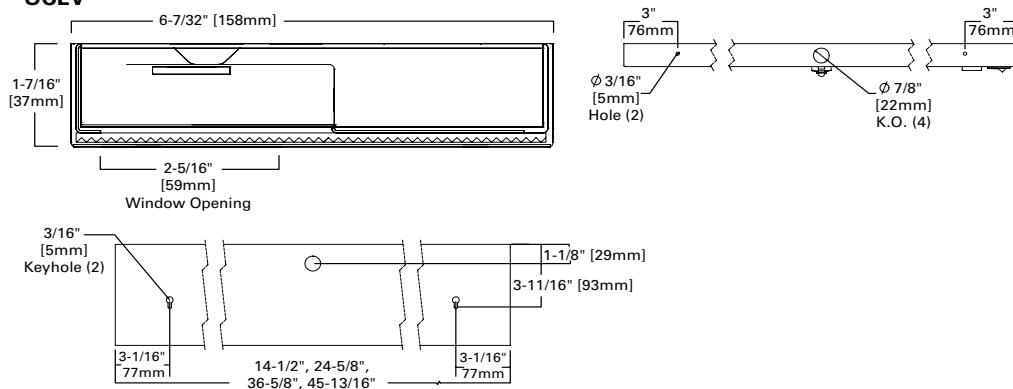
Nominal Length	Nominal Input Watts
1' (300mm)	9.55
2' (600mm)	17.47
3' (900mm)	25.16
4' (1200mm)	49.15

Nominal Length	Nominal Delivered Lumens*
1' (300mm)	773.8
2' (600mm)	1622
3' (900mm)	2602
4' (1200mm)	4183

*A12125 Lens

PHOTOMETRICS

See website for IES/photometric files

ORDERING INFORMATION

SAMPLE NUMBERS: UCL-2-LD4-35-A12125-EDC1-UNV-ALH / UCLV-4-LD4-40-82-EDD1-UNV-NTP

Series	Fixture Length	LED Type	Color Temperature	Lens	Driver	Voltage	Options
		LD4				**UNV**	

Series
UCL=Undercabinet, LED
UCLV=Undercabinet LED, Captive Lens

Fixture Length
1=1' Length
2=2' Length
3=3' Length
4=4' Length

LED Type
LD4=LED Version 4.0

Color Temperature
30=3000K
35=3500K
40=4000K
50=5000K

Lens
A12125=Acrylic Pattern 12, 0.125" thick
89AH=Polycarbonate Pattern 12, 0.125" Thick
81=Polycarbonate, Pattern 12, 0.156" thick
82=Polycarbonate, Pattern 12, 0.187" thick
89BW=Acrylic, Opal Smooth, 0.125" thick
89AM=Polycarbonate, Opal Smooth, 0.125" thick

Driver
EDC1=Electronic Driver,[5] Single Circuit, Non-Dimming
EDD1=Electronic Driver, Single Circuit, 0-10V Dimming,10%
ED1D1=Electronic Driver, Single Circuit, 0-10V Dimming, 1%

Voltage
UNV=120-277

Options
GLR=Fuse and Holder
ALH=Aluminum Housing and Reflector, Powder Coat Painted White
SHN=Stainless Steel, Housing and Reflector, Brushed Natural Finish on Exterior
SHP=Stainless Steel, Housing and Reflector, Powder Coat Painted White
OS=Occupancy Sensor, Passive Infrared Technology (not available on 1' length)[6]
RSW=Rocker Switch, White. Specify 120V or 277V. 277V RSW is compatible with 230V, 50/60 Hz.[1,2,4]
AM=Anti-Microbial Paint, Matte White
6CP=6' Cord with Grounded Plug[2]
GCO=Grounded Convenience Outlet[1,3,4]
NTP=Non Tamper Proof Screws (Philips Head Countersunk) - UCLV only
GSK=Gasketing applied to lens,[7] and to cover (UCLV only)
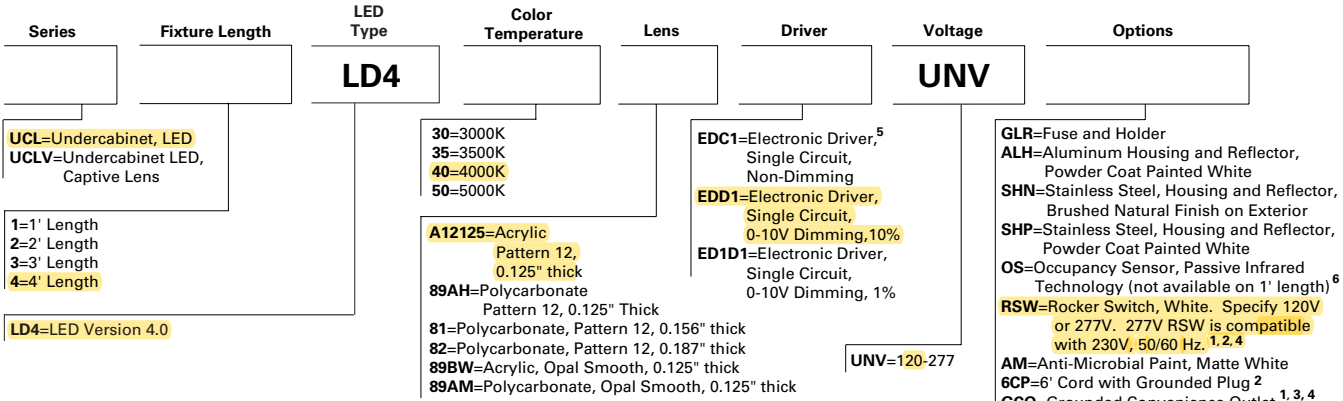IP63=IP63 rated (UCLV only)[7]
90=90CRI

Notes:
1. Consult factory for compatibility with other options.
2. Must specify 120V or 277V. (277V RSW is compatible with 230V, 50/60hz.)
3. 120V only.
4. UCLV with RSW or GCO will not be available with the GSK or IP63.
   Please note that the RSW or GCO option on the UCLV will compromise the full vandal resistant feature.
5. Standard "EDC1" driver, low voltage leads not connected to driver.
   "EDD1" and "ED1D1" driver, low voltage leads connected to driver.
6. Occupancy Sensor is positioned on the front cover on the UCL & UCLV, and maybe subject to abuse.
7. GSK not available with IP63.

15 Days Quick-Ship

Product	Length		Color Temp	Lens	Driver/ Circuits	Voltage	Option
QS-UCL	2	LD4	35	A12125	EDC1	UNV	RSW
	4		40		EDD1		

Maximum order quantity is 50 pieces
15 days from receipt of Purchase Order at Eaton facility to shipment from Eaton facility
Must specify 120 or 277 voltage when using RSW option

Example Catalog #: QS-UCL-4-LD4-35-A12125-EDC1-UNV

Description :	**2SWLED-28HL-LW-UNV-L840-CD1-U**	TYPE:
Project Name:	**ACTIVITIES CENTER RENOVATION**	
Notes:		**VA**

Premier Lighting

Metalux

		Type
Catalog #		
Project		
Comments		Date
Prepared by		

DESCRIPTION

SWLED is a versatile LED surface or wall mount luminaire which can be used in a broad range of commercial and industrial applications. This series provides customers with a high quality luminaire utilizing the latest LED, solid state lighting and electronic driver technology for optimal performance and maximized energy efficiency. Offered with three different lens distributions and three different lens options which provides uniform light distribution that is an ideal choice for general purpose lighting where connected control is desired or required such as stairwells or other spaces seeking maximum energy savings.

SWLED
LED

Surface and Wall LED

Connected Systems
CLICK HERE

powered by
fifth**light**
technology

DLC QPL LISTED   DLC QPL LISTED PREMIUM

LumaWatt Pro
Connected Lighting Wireless System | Powered by enlighted

ADEX   CONSULTING • SPECIFYING engineer 2016 **PRODUCT** OF THE **YEAR** FINALISTS

Efficiency Standards
T24 Can be used to comply with California Title 24 Non-Residential

MWS
MODULAR WIRING SYSTEM
CLICK HERE

LINEAR DISCONNECT
Safe and convenient means of disconnecting power

SPECIFICATION FEATURES

Construction
- Die formed cold rolled steel housing
- Decorative white opaque injection molded end plates
- Reflector/channel wireway cover secured by fasteners for easy access
- Numerous channel KO's for easy installation

Controls
- 0-10V dimming to 1% standard
- WaveLinx sensor compatible for IoT capability
- LumaWatt Pro sensor compatible for IoT capability
- SVPD sensor compatible for out of the box functionality
- DLVP sensor driver compatible for low voltage applications
- DALI 2.0, Lutron, and step-dimming available

Electrical
- Long-life LED system with electrical driver for optimal performance

- Available in 3500K, 4000K, or 5000K with minimum 80 CRI
- TM21 rating up to L91> 60,000 hours

Emergency Battery Pack Option
- Optional 120V-277V integral battery pack in 7w or 14w options
- 90 minute backup period
- Test swtich/indicator button with laser pointer testing feature for ground testing
- EZ Key system prevents accidental discharge during construction
- Emergency/Generator transfer options available

Finish
- High reflective post painted finish (PAF)
- Treated in multistage iron phosphate pretreatment

Shielding
- Three lens options available: LC (clear), LN (semi-frost with narrow distribution), and LW (full frost with wide distribution)

- Lens is held in place by removable injection molded white end caps

Installation
- Surface mount (www woo ceiling)
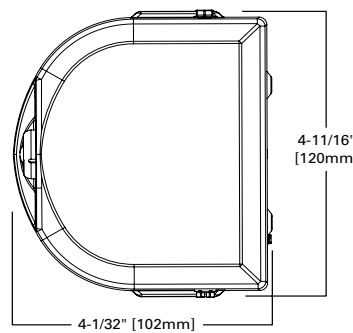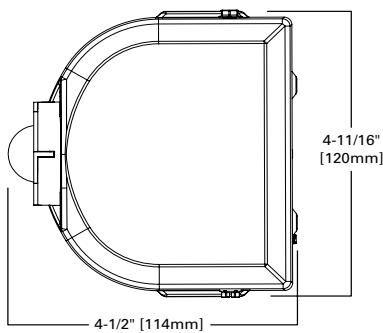- Suspended mount

Compliance
- cULus listed for up to 40C ambient environments
- Damp location listed for ceiling and wall mounting
- Comply with IESNA LM-79 and LM-80 testing standards
- Suitable for use in clothes closets
- Recommended for use in stairwells when installed to NEC 410.16 spacing requirements
- Can be used for State of California Title 24 high efficacy luminare
- DesignLights Consortium Qualified and classified for both DLC Standard and DLC Premium

4-11/16" [120mm]

4-1/2" [114mm]

WITH SVPD SENSORS

4-11/16" [120mm]

4-1/32" [102mm]

WITH LUMAWATT PRO OR WAVELINX SENSORS

MOUNTING DATA

2'
21-3/16" [538mm] Lensed
4-11/16" [120mm]
28" [711mm]

4'
45-3/16" [1148mm] Lensed
4-11/16" [120mm]
52" [1320mm]

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SYSTEMS CERTIFIED ISO

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October 8, 2019 8:22 AM
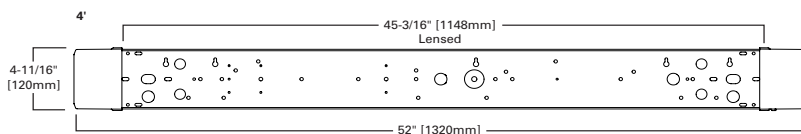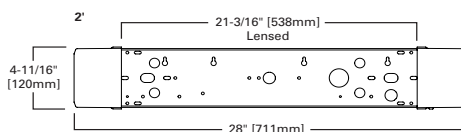
ORDERING INFORMATION

SAMPLE NUMBER: 4SWLED-40SL-LW-UNV-L840-CD1-SVPD2-U

Length
2=2 ft. Length
4=4 ft. Length

Series [9]
SWLED=LED Surface and Wall

LED Lumens [1]
8SL=900 [2]
16SL=1600
20SL=2000
24HL=2400
28HL=2800
28SL=2800 [3]
32SL=3200
36SL=3600
40SL=4000
44HL=4400
48HL=4800
52HL=5200
56HL=5600
60HL=6000
64HL=6400
67HL=6700
72HL=7200
78HL=7800
80HL=8000

Optic
LC=Clear Lens
LN=Semi-Frost Lens - Narrow
LW=Full Frost Lens - Wide

Voltage
UNV=Universal Voltage 120-277
347V=347 Volt [8]
UNC=347V/480V [19]

Emergency [3], [7]
EL7W=7-watt, 120V-277V emergency battery pack installed [4]
EL14W=14-watt 120V-277V emergency battery pack installed [4]
GTR2=Bodine Generator Transfer Relay [11]
ETRD=Iota Emergency Transfer Relay with dimming control [11]

CCT
L835=3500K
L840=4000K
L850=5000K

Driver Type
CD=0-10V Dimming Driver
HCD=0-10V Dimming Driver (1% - 100% Dimming)
SD=Step-dim Driver
5LTD=Fifth Light (DALI) Driver
SR=Sensor Ready (1% - 100% Dimming) [12]

Number of Drivers
1=1 Driver
2=2 Drivers [8]

Integrated Sensing Systems
SWPD1=WaveLinx Wireless Integrated Sensor [17], [18], [A]
LWIPD1=LumaWatt Pro Wireless Integrated Sensor [12], [B]
LWTPD1=LumaWatt Pro Wireless Tile-mount Sensor [15], [16], [B]
SVPD1=0-10V Stand-alone, Integrated occupancy and daylight dimming sensor, 500 sq. ft. coverage [D]
SVPD2=Integrated occupancy and daylight dimming sensor, 900 sq. ft. coverage [6], [10], [14]
SVPD3=Integrated occupancy and daylight dimming sensor, 1200 sq. ft. coverage [5], [14]

Connected Systems CLICK HERE

Packaging
U=Unit Pack

ACCESSORIES

(Order Separately)
SCF=Fixed Stem Set (Specify Length)
SCS=Swivel Stem Set (Specify Length)
SCA=Adjustable 48" Stem Set
A1B/Spacer-U=Spacer 1-1/2" to 2-1/2" from ceiling (Use 2 Per Fixture)
ISHH-01=Programming Remote for Integrated Sensor
ISHH-02=Personal Control Remote for Integrated Sensor

NOTES: [1] Nominal lumen output see table for performance values. [2] 2 ft. model. [3] Integral options only available in 4ft model. [4] With integral test switch/indicator/laser test. For approximate delivered lumens multiply the lumens per watt of the desired fixture by the wattage of the emergency battery pack (100 lm/W x 7=700 lumens). IES-format photometry for luminaire under emergency operation available. [5] For mounting heights up to 30 ft. [6] For mounting heights up to 12 ft. [7] Integral EL battery pack is rated for 35°C. [8] 347V option – 60HL and above uses two drivers. [9] DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details. [10] For wall mount applications. [11] Used to bypass local control during outage. Must be used in conjunction with UL 1008 device (provided by others). GTR2 option includes 2 relays on fixtures with dimming drivers. ETRD option only requires one relay when used on a dimming fixture. Must specify voltage as 120V or 277V when ordering these devices. [12] SR driver compatible with LWI option only. [13] Must be used in conjunction with a LumaWatt Pro control system. For complete LumaWatt Pro wireless solutions, visit www.eaton.com/lumawattpro [14] Integral sensor works with CD and HCD driver and is factory prewired to the driver for stand-alone control. [15] LWT compatible with CD and HCD drivers only. [16] LWT sensor is external to luminaire, cable factory wired. [17] SW compatible with CD and HCD drivers only. [18] SW option must be used in conjunction with an Eaton control system. For complete Eaton wireless system solutions, visit www.eaton.com/lightingsystems. [19] 347V listing in DLC is for standard 347V ONLY driver. No DLC listing for UNC.

Specifications & dimensions subject to change without notice. Consult your Eaton Representative for availability and ordering information.

Integrated Sensing and Control System Options
NOTES: Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: [A] Consult WaveLinx system pages for additional details and compatibility. [B] Consult LumaWatt Pro system pages for additional details and compatibility. [D] Consult SVPD series system pages for additional details and compatibility. [E] Consult Fifth Light system pages for additional details and compatibility.

ENERGY AND PERFORMANCE DATA BY CATALOG NUMBER

Lens Type	Lumen Type	Length	Catalog Logic	Nominal Lumens	Wattage	lm/W with LW Lens	Approx. lm/W with LC/LN lens
Full Frost (LW)	Standard	2 ft.	2SWLED-8SL-LW-UNV-L840-CD1-U	914	9.0	102	120
Full Frost (LW)	Standard	2 ft.	2SWLED-16SL-LW-UNV-L840-CD1-U	1597	15.9	100	118
Full Frost (LW)	Standard	2 ft.	2SWLED-20SL-LW-UNV-L840-CD1-U	1987	20.6	96	115
Full Frost (LW)	High	2 ft.	2SWLED-24HL-LW-UNV-L840-CD1-U	2475	24.0	103	133
Full Frost (LW)	High	2 ft.	2SWLED-28HL-LW-UNV-L840-CD1-U	2813	27.9	101	130
Full Frost (LW)	Standard	4 ft.	4SWLED-16SL-LW-UNV-L840-CD1-U	1626	14.3	114	148
Full Frost (LW)	Standard	4 ft.	4SWLED-20SL-LW-UNV-L840-CD1-U	1983	17.6	113	146
Full Frost (LW)	Standard	4 ft.	4SWLED-28SL-LW-UNV-L840-CD1-U	2841	24.8	115	148
Full Frost (LW)	Standard	4 ft.	4SWLED-32SL-LW-UNV-L840-CD1-U	3217	28.6	112	145
Full Frost (LW)	Standard	4 ft.	4SWLED-36SL-LW-UNV-L840-CD1-U	3573	32.8	109	141
Full Frost (LW)	Standard	4 ft.	4SWLED-40SL-LW-UNV-L840-CD1-U	4015	37.9	106	137
Full Frost (LW)	High	4 ft.	4SWLED-44HL-LW-UNV-L840-CD1-U	4436	39.7	112	145
Full Frost (LW)	High	4 ft.	4SWLED-48HL-LW-UNV-L840-CD1-U	4899	44.6	110	143
Full Frost (LW)	High	4 ft.	4SWLED-52HL-LW-UNV-L840-CD1-U	5175	47.7	108	140
Full Frost (LW)	High	4 ft.	4SWLED-56HL-LW-UNV-L840-CD1-U	5623	52.9	106	137
Full Frost (LW)	High	4 ft.	4SWLED-60HL-LW-UNV-L840-CD1-U	5977	53.7	111	144
Full Frost (LW)	High	4 ft.	4SWLED-64HL-LW-UNV-L840-CD1-U	6369	58.2	109	141
Full Frost (LW)	High	4 ft.	4SWLED-67HL-LW-UNV-L840-CD1-U	6708	61.9	108	140
Full Frost (LW)	High	4 ft.	4SWLED-72HL-LW-UNV-L840-CD1-U	7201	67.7	106	137
Full Frost (LW)	High	4 ft.	4SWLED-78HL-LW-UNV-L840-CD1-U	7832	75.4	104	135
Full Frost (LW)	High	4 ft.	4SWLED-80HL-LW-UNV-L840-CD1-U	8060	78.4	103	133

CCT TABLE

Approximate Color Temperature Multiplier	
5000K	1.03
4000K	1.00
3500K	0.98

PHOTOMETRICS
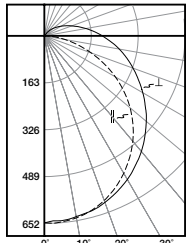
2SWLED-24HL-LW-UNV-L840-CD1-U

Electronic Driver
Linear LED 4000K
Spacing criterion: (II) 1.25 x mounting height, (⊥) 1.32 x mounting height
Lumens: 2475
Input Watts: 24W
Efficacy: 103.1 lm/W
Test Report: 2SWLED-24HL-LW-UNV-L840-CD1-U.IES

Candlepower

Angle	Along II	45°	Across ⊥
0	649	649	649
5	649	648	645
10	641	640	637
15	627	629	629
20	607	611	614
25	581	587	596
30	549	560	574
35	514	530	548
40	475	497	522
45	432	462	491
50	385	423	459
55	333	383	425
60	280	342	392
65	223	301	357
70	168	261	325
75	114	224	293
80	66	189	261
85	27	158	229
90	0	129	199

Coefficients of Utilization

	Effective floor cavity reflectance			20%													
rc	80%				70%				50%			30%			10%		0%
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	117	117	117	117	113	113	113	113	105	105	105	99	99	99	93	93	93	90
1	104	98	93	88	100	95	90	86	89	85	81	83	80	77	78	75	73	70
2	94	84	77	70	90	82	75	69	76	70	65	71	67	62	67	63	59	57
3	85	73	65	57	81	71	63	56	66	60	54	62	56	52	58	54	49	47
4	77	65	55	48	74	63	54	47	59	51	45	55	49	44	52	46	42	39
5	71	57	48	41	68	56	47	40	52	45	39	49	43	38	46	41	36	34
6	65	52	42	36	63	50	41	35	47	39	34	44	38	33	42	36	32	29
7	61	47	38	31	58	45	37	31	43	35	30	40	34	29	38	32	28	26
8	56	42	34	28	54	41	33	27	39	32	26	37	30	26	35	29	25	23
9	53	39	30	25	51	38	30	24	36	29	24	34	28	23	32	27	22	20
10	49	36	28	22	47	35	27	22	33	26	21	32	25	21	30	24	20	18

Zonal Lumen Summary

Zone	Lumens	% Fixture
0-30	510	20.6
0-40	842	34.0
0-60	1540	62.2
0-90	2220	89.7
0-180	2475	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	8170	7066	7174
55	7555	6530	6835
65	6561	6010	6614
75	4987	5606	6626
85	2452	5480	6916
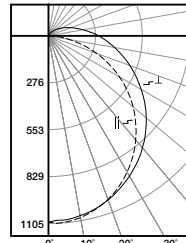
4SWLED-40SL-LW-UNV-L840-CD1-U

Electronic Driver
Linear LED 4000K
Spacing criterion: (II) 1.25 x mounting height, (⊥) 1.29 x mounting height
Lumens: 4015
Input Watts: 37.9W
Efficacy: 105.9 lm/W
Test Report: 4SWLED-40SL-LW-UNV-L840-CD1-U.IES

Candlepower

Angle	Along II	45°	Across ⊥
0	1096	1096	1096
5	1101	1094	1088
10	1086	1080	1074
15	1059	1056	1055
20	1023	1025	1027
25	978	986	991
30	924	941	952
35	864	888	908
40	796	831	858
45	723	769	805
50	647	703	749
55	565	634	690
60	479	563	628
65	389	491	567
70	298	422	507
75	206	355	448
80	124	295	393
85	57	238	341
90	1	193	294

Coefficients of Utilization

	Effective floor cavity reflectance			20%													
rc	80%				70%				50%			30%			10%		0%
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	117	117	117	117	113	113	113	113	106	106	106	100	100	100	94	94	94	91
1	104	99	94	89	101	96	91	87	90	86	82	84	81	78	79	76	74	71
2	94	85	77	71	91	82	75	69	77	71	66	72	68	63	68	64	61	58
3	85	74	65	58	82	72	63	57	67	60	55	63	57	53	60	55	51	48
4	78	65	56	49	75	63	55	48	59	52	46	56	50	45	53	47	43	40
5	71	58	49	42	69	56	47	41	53	45	40	50	43	38	47	42	37	35
6	66	52	43	36	63	51	42	35	48	40	34	45	39	33	43	37	32	30
7	61	47	38	32	59	46	37	31	43	36	30	41	34	29	39	33	29	26
8	57	43	34	28	55	42	33	28	40	32	27	38	31	26	36	30	26	23
9	53	39	31	25	51	38	30	25	36	29	24	35	28	24	33	27	22	21
10	50	36	28	23	48	35	28	22	34	27	22	32	26	21	31	25	21	19

Zonal Lumen Summary

Zone	Lumens	% Fixture
0-30	854	21.3
0-40	1408	35.1
0-60	2562	63.8
0-90	3649	90.9
0-180	4015	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	7080	6000	5883
55	6720	5549	5551
65	6126	5069	5250
75	5027	4637	5068
85	3313	4416	5156

SHIPPING DATA

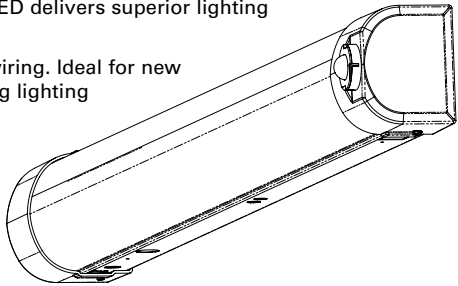| Catalog No.	Wt.
2SWLED	6 lbs.
4SWLED	12 lbs.

INTEGRATED SENSOR

The SWLED with Integrated Sensor technology provides automatic energy savings without sacrificing performance. Traditionally, these types of energy savings required coordination between the luminaire and a lighting control system. The SWLED delivers superior lighting with integrated occupancy and daylighting controls.

Capture the benefits of traditional lighting controls, without complicated coverage planning or special wiring. Ideal for new construction or retrofit, the SWLED delivers automatic ON to an energy saving light level, while ensuring lighting is turned OFF when the space is unoccupied.

The integral daylight sensor reduces the need for special daylight zone planning. Each luminaire will automatically adjust the light level based on reflected light beneath the sensor in a closed loop method.

The integral sensor can be offered in both standalone (SVPD1) and networked (SWPD1, LWIPD1, and SLVPD1) for application versatility.

We make connections work

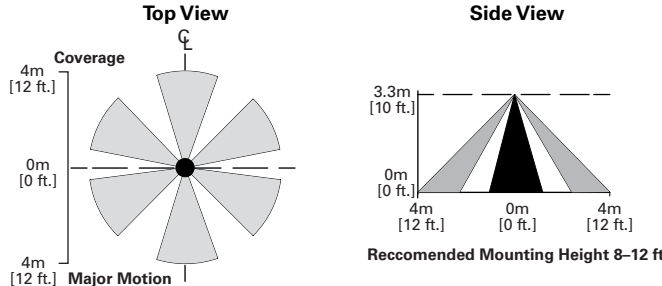**EATON POWER**
Unparalleled knowledge of electrical power management

LIGHTING
Advanced LED fixtures

CONNECTIVITY
Communications & sensing technology
Physical devices & controllers

APPS
Software applications
Data accumulation & analysis

Top View

Coverage
4m [12 ft.]
0m [0 ft.]
4m [12 ft.] Major Motion

Side View

3.3m [10 ft.]
0m [0 ft.]
4m [12 ft.] 0m [0 ft.] 4m [12 ft.]
Reccomended Mounting Height 8–12 ft.

Installation of integrated sensors within 3-ft (1m) of HVAC air vents is not recommended.

Systems comparison chart

Eaton provides many lighting system solutions designed to satisfy code requirements and meet the unique needs of any project.

	Distributed Low-Voltage Power System	WaveLinx	LumaWatt Pro
Space type	Interior	Interior/Outdoor	Any
Stand-alone or Network	Stand-alone	Both	Network
Need-based feature progression			
Basic compliance only	●	●	●
Occupancy sensing	●	●	●
Daylight harvesting	●	●	●
Zone control	●	●	●
Scheduling	●	●	●
0-10V dimming	●	●	●
Individual fixture control	●	●	●
Retrofit+Building Integration	●	●	●
Total wireless connectivity		●	●
A/V integration		●	●
BMS integration		●	●
UI options (touchscreen, apps, etc.)		●	●
Enterprise level building integration		●	●
Facility management & tools		●	●
Floor plan & reporting tools			●
Value-added services			●
Asset tracking			●
API integration		●	●
Analytics/higher problem solving			●

0-10V Slide Dimmer Wallstation

Catalog#	Prepared by
Project	Date
Comments	Type

Overview

The 0-10 Volt Slide Dimmer provides full-range classic linear-slide dimming for 0-10V compatible dimmable light sources. These units are ideal for light commercial applications and are compatible with decorator style devices and wallplates. The preset "ON/OFF" switch automatically returns controlled light(s) to a preset level without disturbing the brightness level. The device is designed for both Single-pole (one location) and 3-way (multi-location) applications.

Features

- Preset feature allows user to return to previous light level when turning lights ON
- Integrated full-slide control for easy, precise operation
- Can be wired as Single-pole or 3-way
- Neutral is not required for installation of device
- Adjustable high-level trim setting for optimal lamp compatibility

California Title 20 Compliant

c (UL) us
LISTED
DIMMERS
6B28

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Specifications

Switch Type	Single-pole and 3-way
Dimming Control	0-10 VDC: 200mA Sink
	Sink Dimming
Electrical Ratings	**120 VAC:** Max. Load: 10 amps, 1200W, 60 Hz
	277 VAC: Max Load: 6 amps, 1660W, 60 Hz
Light Intensity Control	Full-range, continuously variable dimming
	Adjustable High-level trim setting
Power Failure Memory	Light returns to same level prior to power interruption
Wiring Type	Back & side wiring terminals; 12-14 AWG (Copper wire)
	0-10V wire leads; 16 AWG
Flammability	Meets UL 94 requirements, V2 rated
Temperature	-4°F to 158°F (-20°C to 70°C)

Wiring Diagrams
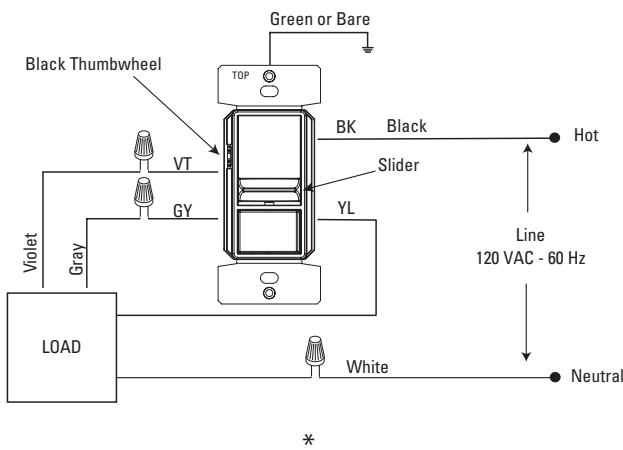
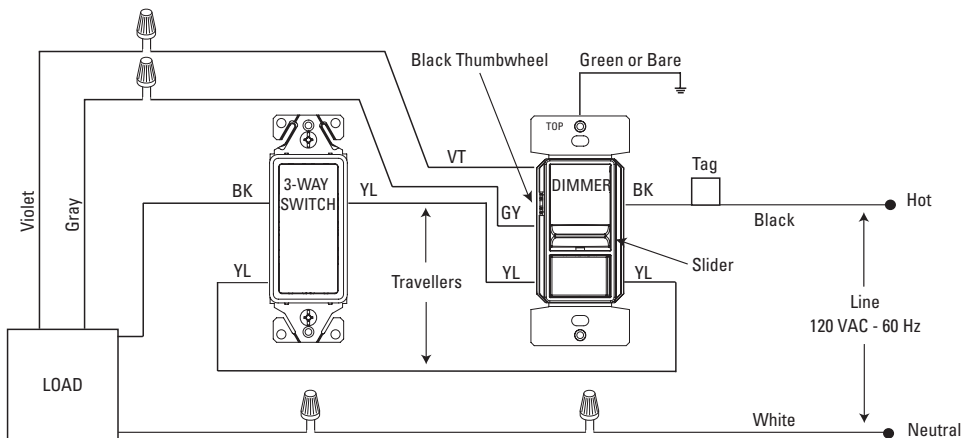**FIGURE 1: SINGLE-POLE WIRING DIAGRAM**

FIGURE 2: 3-WAY WIRING DIAGRAM

*Can be installed on load or line side in 3-way applications

Visit our website for additional wiring details at
www.eaton.com/lightingsystems

Ordering

*Wallplate not included

This is an accessory for the Greengate Lighting Control System. When ordering, specify the 0-10V slide dimming wallstation as a separate system accessory.

Catalog #	Description	Colors
WBSD-010SLD-LA	Dimmer Slider 0-10V, 120/277 VAC	Light Almond
WBSD-010SLD-BK	Dimmer Slider 0-10V, 120/277 VAC	Black
WBSD-010SLD-GY	Dimmer Slider 0-10V, 120/277 VAC	Gray
WBSD-010SLD-V	Dimmer Slider 0-10V, 120/277 VAC	Ivory
WBSD-010SLD-W	Dimmer Slider 0-10V, 120/277 VAC	White

* Refer to Screwless Wallplate Spec Sheet for ordering information at www.eaton.com/lightingsystems.

Note: Custom engraving is not available on 0-10V dimming wallstations.

E·T·N
Powering Business Worldwide

Description :

OAC-DT-2000

Project Name:

ACTIVITIES CENTER RENOVATION

Notes:

TYPE:

OC

Project		Catalog #		Type	
Prepared by		Notes		Date	

Greengate

OAC-DT-MicroSet Dual Tech

Low Voltage Ceiling Sensor

Typical Applications

Classrooms • Conference Rooms • Office Spaces • Common Areas • Computer Rooms • Break Rooms • Hallways • Other Indoor Office Spaces

Interactive Menu

Product Certification

Product Features

PIR Activated   Ultrasonic Activated   Self-Adjusting

Top Product Features

- MicroSet self-adjusting Time Delay and sensitivity
- Optional built-in light level sensor
- Optional BAS/HVAC isolated relay
- Products tested to NEMA WD 7 - 2011 Occupancy Motion Sensors Standard
- Selectable Walk-Through Mode
- Dual Relay control

Dimensional and Mounting Details

Scale or Mounting Height

4.5"
[114.3mm]

4.5"
[114.3mm]

Daylight Sensor
Adjustment

PIR
Detector

ON

12' [3.7m] @ 95°F (35°C)

8' [2.4m] @ 95°F (35°C)
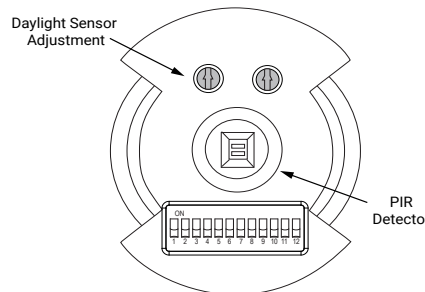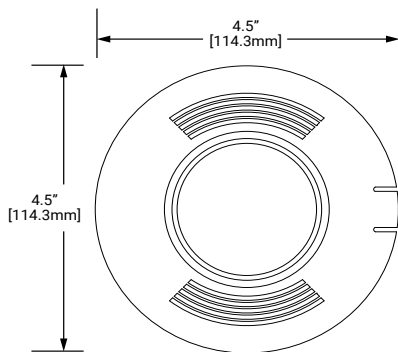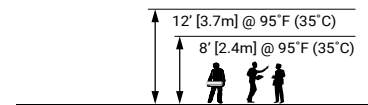
additional
product diagrams

Order Information

SAMPLE ORDER NUMBER: **OAC-DT-2000-R, OAC-DT-2000, OAC-DT-1000-R, OAC-DT-1000, OAC-DT0501-R, OAC-DT-0501**

One single gang wallplate included

Catalog Number	Maximum Room Size	Field of View	Freqency	Features
OAC-DT-2000-R	2,000 sq. ft.	Two Way (360°)	30 kHz	w/ BAS Relay & Daylight Sensor
OAC-DT-2000	2,000 sq. ft.	Two Way (360°)	32 kHz	
OAC-DT-1000-R	1,000 sq. ft.	Two Way (360°)	32 kHz	w/ BAS Relay & Daylight Sensor
OAC-DT-1000	1,000 sq. ft.	Two Way (360°)	32 kHz	
OAC-DT-0501-R	500 sq. ft.	One Way (180°)	40 kHz	w/ BAS Relay & Daylight Sensor
OAC-DT-0501	500 sq. ft.	One Way (180°)	40 kHz	

Product Specifications

Technology
- Passive Infrared (PIR) and Ultrasonic (US)

Mechanical
Size: 1.42" H x 4.5" W (36.068mm x 114.3mm)
Mounting: Mounts directly to ceiling tile, to a 4" square box and round mud ring or to 4" octagon box
Environment:
- **Operating temperature:** 32°F to 104°F (0°C to 40°C)
- **Relative humidity operating:** 20% to 90% non-condensing
- For indoor use only

Housing: Durable, injection molded housing. Polycarbonate resin complies with UL 94V-0

Electrical
Power Requirements:
- Input
  - 10-30 VDC from Greengate Switchpack or Greengate system
  - Maximum current needed is 25mA per sensor
- Output
  - Open collector output to switch up to ten Greengate Switchpacks
  - BAS with Isolated Form C Relay in (-R) model
  - Isolated Form C Relay Ratings: 1A 30 VDC/VAC

Hardware Specifications
LED Indicators:
- Red LED for PIR detection; Green LED for Ultrasonic detection

Controls and Performance
Time delays:
- Self-adjustable, 15 seconds/test (10 minutes Auto), or Selectable 5, 15, 30 minutes, or Zero Time Delay

Coverage:
- 500, 1000, and 2000 sq. ft.

Light sensing level (-R Models):
- 0 to 300 foot candles

Standards/Ratings
- cULus Listed - Energy Management Equipment (UL916)
- FCC Compliant
- RoHS Compliant

Warranty
Five year warranty standard

Overview

The Dual Technology sensor's combination of Ultrasonic and Passive Infrared technologies offers the most complete sensing equipment available today. MicroSet self-adjusting Dual Technology sensors drastically simplify and reduce a contractor's installation and adjustment time period.

The MicroSet self-adjusting technology continuously monitors multiple sub-frequencies in the event that if a continuous Doppler shift occurs, such as those created by airflow from an air duct, the sensor will identify the noise as continuous and then block it out of view at a select sub-frequency. It will continue to monitor other sub-frequencies for human motion. This avoids false-activation, while still maintaining the high level of sensitivity that is necessary for sensing minor motion in a changing environment. Separate concurrent time delays for both Passive Infrared and Ultrasonic technologies avoid false activations or deactivations. In Automatic On Mode, the lights turn ON when a person enters the room. In Manual On Mode (-R model only), the lights are turned ON by activating a momentary switch (model # GMDS-*) that is connected to the sensor. When enabled, the daylighting feature (-R models only) prevents lights from turning ON when the room is adequately illuminated by natural light.
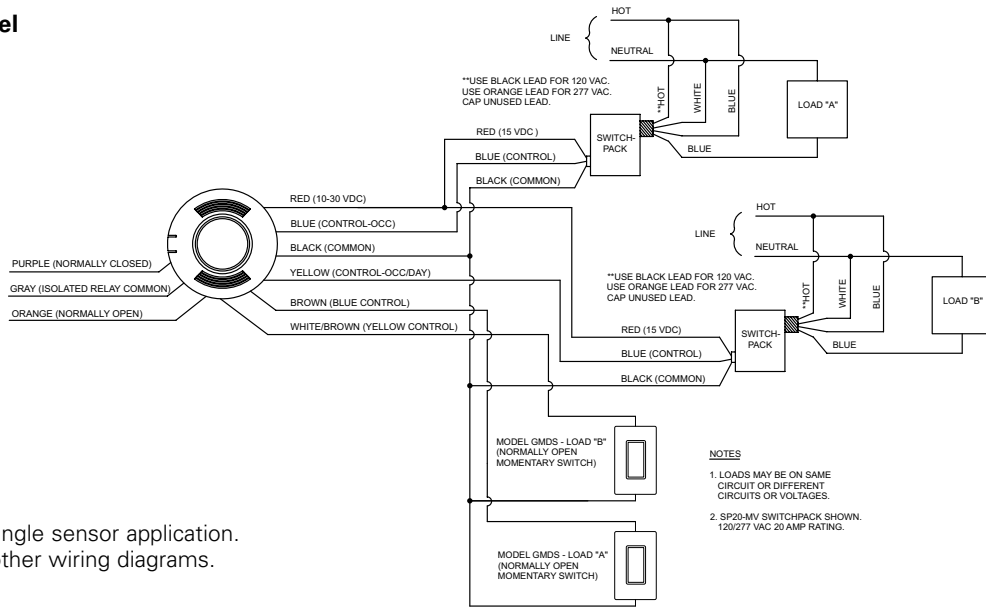
Wiring Diagrams

OAC-DT-2000-R Model

OAC AND VAC MANUAL MODE OPERATION:

1. SWITCHES ARE REQUIRED TO TURN CORRESPONDING LOADS ON.

2. LOADS TURN OFF WHEN SENSOR TIMES OUT OR WITH SWITCHES.

3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, SWITCHPACK CONNECTED TO YELLOW LEAD WILL NOT TURN LOAD ON.

OAC AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES, BOTH LOADS TURN ON.

2. SWITCHES CAN BE USED TO TURN LOADS ON OR OFF.

3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, SWITCHPACK CONNECTED TO YELLOW LEAD WILL NOT TURN LOAD ON.

RECOMMENDED WIRE:
18-3 AWG STRANDED WIRE SHIELDED OR NON/SHIELDED

*Wiring diagram for single sensor application. Visit our website for other wiring diagrams.

HOT / LINE / NEUTRAL

**USE BLACK LEAD FOR 120 VAC. USE ORANGE LEAD FOR 277 VAC. CAP UNUSED LEAD.

RED (15 VDC) / BLUE (CONTROL) / BLACK (COMMON)

SWITCH-PACK — LOAD "A"

RED (10-30 VDC)
BLUE (CONTROL-OCC)
BLACK (COMMON)
YELLOW (CONTROL-OCC/DAY)
BROWN (BLUE CONTROL)
WHITE/BROWN (YELLOW CONTROL)

PURPLE (NORMALLY CLOSED)
GRAY (ISOLATED RELAY COMMON)
ORANGE (NORMALLY OPEN)

SWITCH-PACK — LOAD "B"

MODEL GMDS - LOAD "B" (NORMALLY OPEN MOMENTARY SWITCH)
MODEL GMDS - LOAD "A" (NORMALLY OPEN MOMENTARY SWITCH)

NOTES
1. LOADS MAY BE ON SAME CIRCUIT OR DIFFERENT CIRCUITS OR VOLTAGES.
2. SP20-MV SWITCHPACK SHOWN. 120/277 VAC 20 AMP RATING.

Controls

DIP Switch Legend

	Time Delay		Not Used		PIR Sensitivity	Walk-Through Mode	LEDs	Override	Not Used	Daylighting	Bathroom Mode	Relay Swap
DIP Switch	1	2	3	4	5	6	7	8	9	10	11	12
Auto*	▼	▼			Full ▼	Disable ▼	Enable ▼	Disable ▼		Relay 2 ▼	Disable ▼	Disable ▼
5 Minutes	▼	▲			50% ▲	Enable ▲	Enable ▲	Enable ▲		Relay 1 & 2 ▲	Enable ▲	Enable ▲
15 Minutes	▲	▼										
30 Minutes	▲	▲								(DMV model only)	(DMV model only)	(DMV model only)

*Self-Adjusts to 10 min. user mode

Default =

Daylight Sensor Adjustment / Ultrasonic Sensitivity Adjustment / PIR Detector
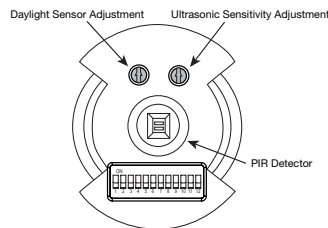
Field of View

OAC-DT-0501-R
500 sq. ft.
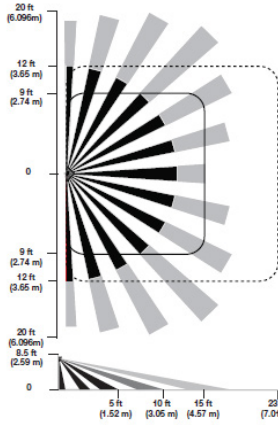
OAC-DT-1000-R
1,000 sq. ft.
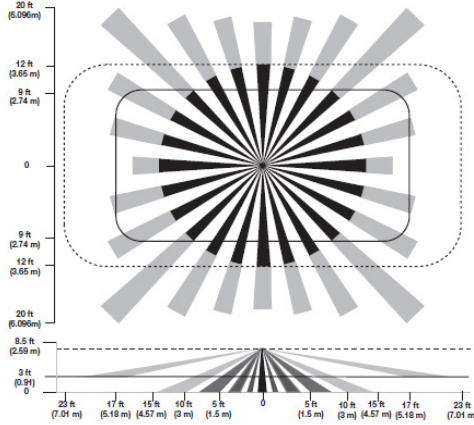
OAC-DT-2000-R
2,000 sq. ft.
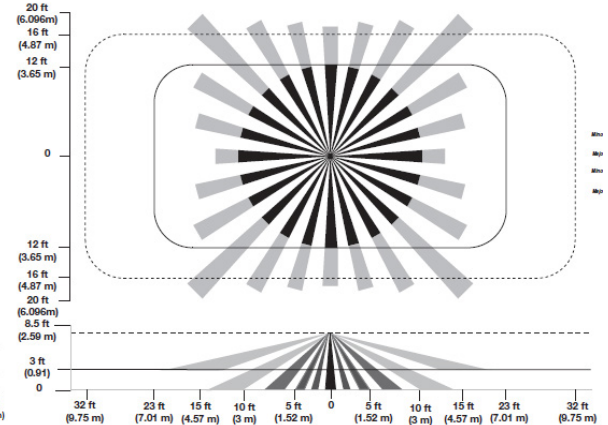
Minor Motion, IR	
Major Motion, IR	
Minor Motion, Ultrasonic	
Major Motion, Ultrasonic	

Maximum coverage area may vary somewhat according to room shape and the presence of obstacles.

The NEMA WD 7 Guide and robotic method were utilized to verify coverage patterns.

Ceiling Height = 8.5 ft

Control Systems
- Greengate

Description :	**SP20-MV**	TYPE:
Project Name:	**ACTIVITIES CENTER RENOVATION**	**PP**
Notes:		

Premier Lighting & Control

Technical Data   Effective March 1, 2018

SP15 & SP20 – Heavy Duty Switchpacks

Catalog#	Prepared by
Project	Date
Comments	Type

Overview

Switchpacks provide 15 VDC operating voltage to all low voltage, 15 VDC occupancy sensors and daylighting controllers. A single switchpack can provide power for up to five sensors. Up to ten switchpacks can be connected to one sensor for control of multiple circuits. Isolated contacts may also be used to control HVAC, contactors, motors, etc.

Features

- Replaces separate transformers and relays
- Zero-crossing circuit provides increased durability, especially with today's high inrush loads
- Capable of switching up to 20 Amps
- Suitable for Plenum use
- Rated for Ballast, Tungsten and Motor Loads
- LED ready

Can be easily mounted on or in a 4"sq. junction box, via ½" in nipple

Heavy Duty Switchpack
Class 2 Power Supply   Plenum Rated
Ratings: 15A Tungsten @120 VAC; 50/60 Hz
20A Ballast @120 VAC; 50/60 Hz
20A Ballast @277 VAC; 50/60 Hz
1 HP @120 VAC; 50/60 Hz
2 HP @250 VAC; 50/60 Hz

UL 36TO LISTED Appliance Control

Greengate

CSA LR 22774 Appliance Control Commande d'appareils

C 1 3 2 1 9 9

Available for 120, 220, 240, 277 & 347 VAC operation

F·T·N

Powering Business Worldwide

Specifications

Power Requirements	**Input:** (120/277 VAC-SP20-MV), (347 VAC-SP15-347), (220-240 VAC-SP20-240), 50/60 Hz operation. Contacts are isolated and may be used to control low voltage circuits
	Output: 15 VDC 125mA to operate up to five Greengate sensors
Control	Connecting the 22 AWG red and blue control leads to each other will close the relay contacts
Ballast Compatibility	Compativle with LED, magnetic and electronic ballasts
NOTE	The life of some compact fluorescent lamps (CFLs) is shortened by frequent automatic or manual switching. Check with the CFL and ballast manufacturer to determine effects of cycling
Operating Environment	Temperature: 32°F - 104°F (0°C - 40°C)
	Relative humidity: Less than 95%, non-condensing
	For indoor use only
Housing	Medium impact injection molded housing. ABS resin complies with UL 94V-0. Plenum rated for external junction box mounting, with Teflon coated leads
Motor Load	1 HP 120-240 VAC; 2 HP 250 VAC
Size	2 15/16″ x 2 7/16″ x 1 11/16″
Mounting	Mounts to the side of a 4" square box via 1/2" knockout
Standards	UL, CSA Listed

Description/Operation

The switchpack has two main components: a transformer and one high current relay. The transformer has a primary line voltage input and a secondary low voltage output. The low voltage output, 15 VDC, provides operating power to connected low voltage Greengate occupancy sensors. When an occupancy sensor detects motion, it electrically closes an internal circuit, pulling up the control signal between the sensor and the switchpack. This signals the switchpack to close its high current relay, turning the connected load on.

Applications

The switchpack is designed to work with low voltage sensors which require switchpacks. It cannot be used with sensors designed for use with any other low voltage relay systems. Consult sensor spec sheets for other sensor relay combinations.

Wiring Diagrams

A/B Switching

AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES, LOADS TURN ON.

2. LOADS TURN OFF, WHEN SENSOR TIMES OUT.

3. SWITCHES CAN BE USED TO TURN LOADS ON OR OFF.

RECOMMENDED WIRE:
18-3 AWG STRANDED WIRE SHIELDED OR NON/SHIELDED

LINE

HOT

NEUTRAL

**USE BLACK LEAD FOR 120 VAC. USE ORANGE LEAD FOR 277 VAC. CAP UNUSED LEAD.

**HOT WHITE BLUE

RED (15 VDC)

BLUE (CONTROL)

BLACK (COMMON)

SWITCH-PACK
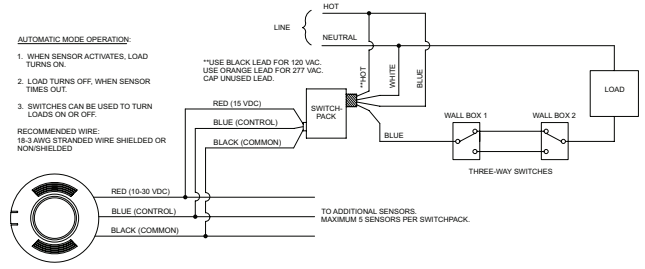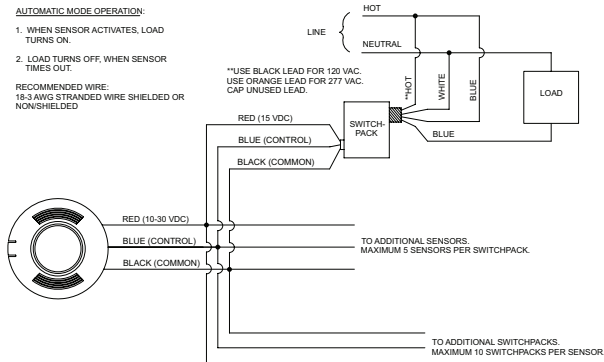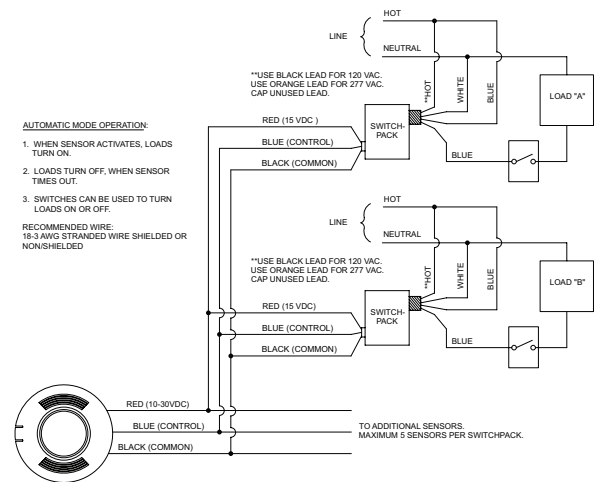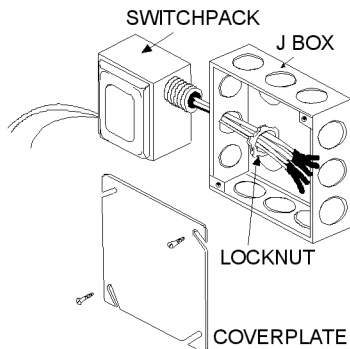
BLUE

LOAD "A" LOAD "B"

RED (10-30 VDC)

BLUE (CONTROL)

BLACK (COMMON)

TO ADDITIONAL SENSORS.
MAXIMUM 5 SENSORS PER SWITCHPACK.

Three Way Switching

AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES, LOAD TURNS ON.

2. LOAD TURNS OFF, WHEN SENSOR TIMES OUT.

3. SWITCHES CAN BE USED TO TURN LOADS ON OR OFF.

RECOMMENDED WIRE:
18-3 AWG STRANDED WIRE SHIELDED OR NON/SHIELDED

LINE

HOT

NEUTRAL

**USE BLACK LEAD FOR 120 VAC. USE ORANGE LEAD FOR 277 VAC. CAP UNUSED LEAD.

**HOT WHITE BLUE

RED (15 VDC)

BLUE (CONTROL)

BLACK (COMMON)

SWITCH-PACK

BLUE

LOAD

WALL BOX 1 WALL BOX 2

THREE-WAY SWITCHES

RED (10-30 VDC)

BLUE (CONTROL)

BLACK (COMMON)

TO ADDITIONAL SENSORS.
MAXIMUM 5 SENSORS PER SWITCHPACK.

Standard Configuration

AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES, LOAD TURNS ON.

2. LOAD TURNS OFF, WHEN SENSOR TIMES OUT.

RECOMMENDED WIRE:
18-3 AWG STRANDED WIRE SHIELDED OR NON/SHIELDED

LINE

HOT

NEUTRAL

**USE BLACK LEAD FOR 120 VAC. USE ORANGE LEAD FOR 277 VAC. CAP UNUSED LEAD.

**HOT WHITE BLUE

LOAD

RED (15 VDC)

BLUE (CONTROL)

BLACK (COMMON)

SWITCH-PACK

BLUE

RED (10-30 VDC)

BLUE (CONTROL)

BLACK (COMMON)

TO ADDITIONAL SENSORS.
MAXIMUM 5 SENSORS PER SWITCHPACK.

TO ADDITIONAL SWITCHPACKS.
MAXIMUM 10 SWITCHPACKS PER SENSOR.

2 Circuits, 1 Sensor

LINE

HOT

NEUTRAL

**USE BLACK LEAD FOR 120 VAC. USE ORANGE LEAD FOR 277 VAC. CAP UNUSED LEAD.

**HOT WHITE BLUE

LOAD "A"

AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES, LOADS TURN ON.

2. LOADS TURN OFF, WHEN SENSOR TIMES OUT.

3. SWITCHES CAN BE USED TO TURN LOADS ON OR OFF.

RECOMMENDED WIRE:
18-3 AWG STRANDED WIRE SHIELDED OR NON/SHIELDED

RED (15 VDC)

BLUE (CONTROL)

BLACK (COMMON)

SWITCH-PACK

BLUE

LINE

HOT

NEUTRAL

**USE BLACK LEAD FOR 120 VAC. USE ORANGE LEAD FOR 277 VAC. CAP UNUSED LEAD.

**HOT WHITE BLUE

LOAD "B"

RED (15 VDC)

BLUE (CONTROL)

BLACK (COMMON)

SWITCH-PACK

BLUE

RED (10-30VDC)

BLUE (CONTROL)

BLACK (COMMON)

TO ADDITIONAL SENSORS.
MAXIMUM 5 SENSORS PER SWITCHPACK.

Mounting

SWITCHPACK

J BOX

LOCKNUT

COVERPLATE

All connections are made via pigtails with twist-on wire connectors.

Note: Connect either the orange or black supply lead to the power source, depending upon the power requirements. Cap the unused lead.

Ordering

Catalog #	Ratings	(LED) Ballast	Tungsten	Motor (HP)	Output
SP20-MV	120/277 VAC, 50/60 Hz	20A	15A, 120V	1HP-120V, 2HP-250V	15 VDC, 125mA
SP15-347	347 VAC, 50/60 Hz	15A	NR	NR	15 VDC, 125mA
SP20-240	220-240 VAC, 50/60 Hz	20A	NR	NR	15 VDC, 125mA

Specifications and
dimensions subject to
change without notice.

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