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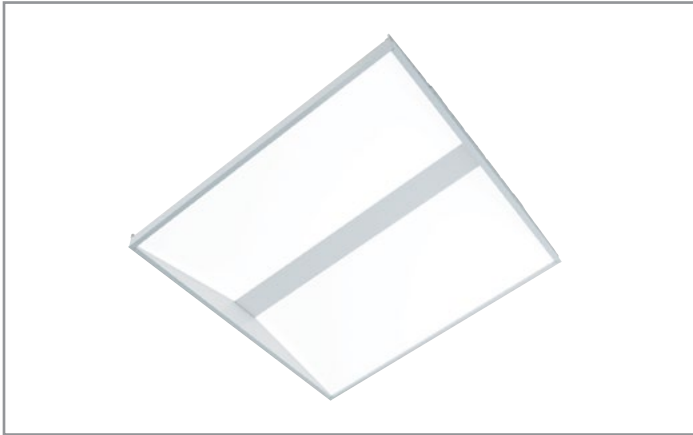
Metalux

Encounter 22EN LED

2' x 2' Troffer LED Module
Specification Grade Troffer

Typical Applications

• Commercial Office Spaces • Schools • Hospitals • Retail
• Other Indoor Ambient Applications

Interactive Menu

- Order Information page 2
- Photometric Data page 3
- Control Solutions page 5
- Connected Systems page 5
- Product Warranty

Product Certification

cULus | DLC | DLC PREMIUM | RoHS COMPLIANT | ISO SYSTEMS CERTIFIED

Product Features

Connected Systems | damp location | MWS MODULAR WIRING SYSTEM CLICK HERE | LINEAR DISCONNECT Safe and convenient means of disconnecting power

Top Product Features

- Available in 1' x 2', 1' x 4', 2' x 2' and 2' x 4' recessed versions
- Leverages our patented WaveStream Technology with AccuAim™ optics
- Four CCT options: 3000K, 3500K, 4000K, and 5000K at 80CRI or 90 CRI
- Efficacy up to 143 lumens per watt
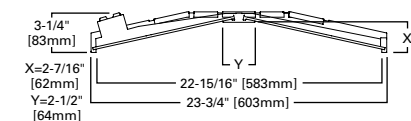- Over 60% energy savings when compared to a fluorescent troffer

Dimensional and Mounting Details

3-1/4" [83mm]

23-3/4" [603mm]

23-3/4" [603mm]

23-11/16" [602mm]
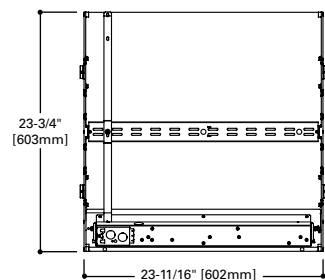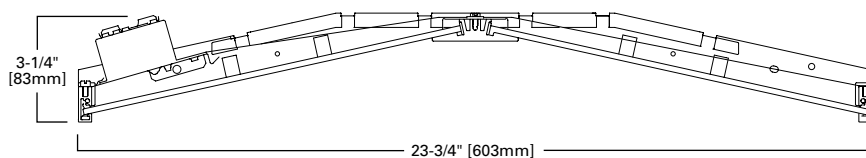
Ceiling Compatibility

G Grid/Lay-in Standard

F Drywall Frame Kit

Ceiling Type	Trim Type
Exposed Grid	G
Concealed T	G or T
Slot Grid	G or T
Flange	*

Lamp Configurations

3-1/4" [83mm]

X=2-7/16" [62mm]

Y=2-1/2" [64mm]

22-15/16" [583mm]

23-3/4" [603mm]

COOPER
Lighting Solutions

Order Information

SAMPLE ORDER NUMBER: **22EN-LD2-34-UNV-L835-CD1-SVPD1-U**

Rating	Series	Air	Lamp Type	Lumen Outputs	Optics	Voltage
Rating	**Series** [6]	**Air**	**Lamp Type**	**Lumen Outputs**	**Optics**	**Voltage** [1]
[Blank]=Standard **ATW-SW4**= Chicago Rated [7]	**22EN**=2' x 2' Encounter Series	[Blank]=Standard **A**=Air (Vented) [8]	**LD2**=LED 2.0	**Stock** **25**=2500 Lumens [2], [4], [10] **34**=3400 Lumens [2], [4] **MTO** **19**=1900 Lumens [2], [4], [10] **30**=3000 Lumens [2], [4] **39**=3900 Lumens **43**=4300 Lumens	**Blank**=Standard	**UNV**=Universal Voltage 120-277 **347V**=347 Volt [5] **48V**=48 Volt Low-voltage (Class 2) [C]
Notes	**Notes**	**Notes**		**Notes**		**Notes**
(7) Chicago rated version does not allow for row mounting.	(6) DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.	(8) Air version is vented but does not meet air handling requirements.		(2) 1900, 2500, 3000 and 3400 lumen option are not available with a Fifth Light DALI (5LTD) driver. (4) Step-dim driver not available with 1900, 2500, 3000 and 3400 lumen option. (10) Not compatible with WN driver.		(1) Products also available in non-US voltages and frequencies for international markets. (5) 347V emergency option not available. (C) Consult DLVP system pages for additional details and compatibility.

Emergency Options	CCT	Flex	Driver Type
Emergency Options	**CCT**	**Flex**	**Driver Type**
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**=Bodine Generator Transfer Relay [9] **ETRD**=Iota Emergency Transfer Relay with dimming control [9]	**L830**=3000K **L835**=3500K **L840**=4000K **L850**=5000K **L930**=3000K **L935**=3500K **L940**=4000K **L950**=5000K	**A3/8-4/18GDIM**=3/8" Flex with 0-10V Dimming Leads Multiple other configurations available. See below for details.	**CD**=0-10V Dimming Driver (1%-100% Dimming) **SR**=Sensor-ready Dimming Driver for LWIPD1 option (5%-100% Dimming) [B] **5LTD**=Fifth Light DALI Driver (10%-100% Dimming) [2], [E] **5LTHD**=Fifth Light Dimming Driver (1%-100% Dimming) [E] **LV1**=DLVP Dimming Driver (0%-100% Dimming) [C] **SD**=Step Dimming Driver (50% or 100% Dimming) [4] **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] **WN**=WaveLinx Wireless Fixture, No Sensor. [A], [G], [H]
Notes		**Flexible Metal Conduit Options**	**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. (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. (C) Consult DLVP system pages for additional details and compatibility.		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).	(2) 1900, 2500, 3000 and 3400 lumen option are not available with a Fifth Light DALI (5LTD) driver. (4) Step-dim driver not available with 1900, 2500, 3000 and 3400 lumen option. 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 emergency or integrated sensor options. (H) Available with UNV voltage only.

Number of Drivers	Integrated Sensing Systems	Packaging	Accessories
Number of Drivers	**Integrated Sensing Systems**	**Packaging**	**Accessories (order separately)**
1=1 Driver	**SWPD1**=WaveLinx Wireless Integrated Sensor [A] **LWIPD1**=LumaWatt Pro Wireless Integrated Sensor [B] **LWTPD1**=LumaWatt Pro Wireless Tile-mount Sensor [B] **SLVPD1**=DLVP Low-voltage Integrated Sensor [C] **SVPD1**=0-10V Stand-alone Integrated Sensor [D]	**U**=Unit Pack **PALC**=Job Pack, in carton	**T3A END E.Q. BRACKET PARTS BAG** (Standard with fixture) **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		**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. (C) Consult DLVP system pages for additional details and compatibility. (D) Consult SVPD series system pages for additional details and compatibility.		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
- Shallow 3-1/16" deep housing extruded aluminum frame
- Injected molded composite end plates
- End plates screws for strength, rigidity and gap eliminations
- End plates accessory grid-lock feature adds safety
- Four auxiliary fixture end suspension points
- Large access plate for supply connection

Controls
- 0-10V dimming drivers 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
- Fifth Light DALI driver, step-dimming and 3rd party drivers available

Electrical
- Long-life LED system with electrical driver for optimal performance
- LED's available in 3000K, 3500K, 4000K or 5000K with a minimum CRI of 80
- Projected life is 100,000 hours at 92% lumen output
- Electronic drivers available for 120-277V applications

Emergency Battery Pack Options
- 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

Driver Access
- Drivers can be accessed via plenum

Finish
- High reflectance baked matte white enamel finish

Optics
- Precision formed optical assembly
- Positively retained high optical grade acrylic lenses
- WaveStream technology provides a distribution

Compliance
- Components are UL recognized
- cULus listed for 25° C ambient indoor environments
- RoHS compliant
- Complies with IESNA LM-79 and LM-80 standards
- DesignLights Consortium® Qualified and classified for DLC Standard and DLC Premium (refer to www.designlights.org)
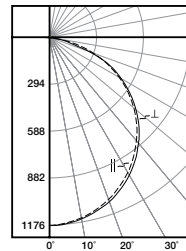
Warranty
- Five-year warranty

Photometric Data

View IES files
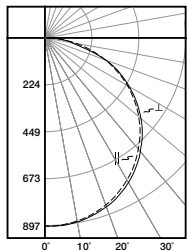
22EN-LD2-25-UNV-L835-CD1-U

Electronic Driver

Linear LED 3500K

Spacing criterion: (II) 1.27 x mounting height, (⊥) 1.29 x mounting height

Lumens: 2648

Input Watts: 20W

Efficacy: 132.4 lm/W

Test Report: 22EN-LD2-25-UNV-L835-CD1-U.IES

22EN-LD2-34-UNV-L835-CD1-U

Electronic Driver

Linear LED 3500K

Spacing criterion: (II) 1.27 x mounting height, (⊥) 1.29 x mounting height

Lumens: 3471

Input Watts: 28.5W

Efficacy: 121.8 lm/W

Test Report: 22EN-LD2-34-UNV-L835-CD1-U.IES

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Energy and Performance Data by Catalog Number

Stock or MTO	Catalog Logic (Curved)	Delivered Lumens	Watts	Efficacy (LPW)
MTO	22EN-LD2-19-UNV-L830-CD1-U	2028	16.5	123
MTO	22EN-LD2-19-UNV-L835-CD1-U	2091	16.5	127
MTO	22EN-LD2-19-UNV-L840-CD1-U	2133	16.5	129
MTO	22EN-LD2-19-UNV-L850-CD1-U	2321	16.5	141
MTO	22EN-LD2-25-UNV-L830-CD1-U	2569	20	128
STOCK	22EN-LD2-25-UNV-L835-CD1-U	2648	20	132
STOCK	22EN-LD2-25-UNV-L840-CD1-U	2701	20	135
MTO	22EN-LD2-25-UNV-L850-CD1-U	2940	20	147
MTO	22EN-LD2-30-UNV-L830-CD1-U	2985	24.9	120
MTO	22EN-LD2-30-UNV-L835-CD1-U	3078	24.9	124
MTO	22EN-LD2-30-UNV-L840-CD1-U	3139	24.9	126
MTO	22EN-LD2-30-UNV-L850-CD1-U	3417	24.9	137
MTO	22EN-LD2-34-UNV-L830-CD1-U	3367	28.5	118
STOCK	22EN-LD2-34-UNV-L835-CD1-U	3471	28.5	122
STOCK	22EN-LD2-34-UNV-L840-CD1-U	3540	28.5	124
MTO	22EN-LD2-34-UNV-L850-CD1-U	3853	28.5	135
MTO	22EN-LD2-39-UNV-L830-CD1-U	3859	33.3	116
MTO	22EN-LD2-39-UNV-L835-CD1-U	3979	33.3	119
MTO	22EN-LD2-39-UNV-L840-CD1-U	4058	33.3	122
MTO	22EN-LD2-39-UNV-L850-CD1-U	4417	33.3	133
MTO	22EN-LD2-43-UNV-L830-CD1-U	4345	38.3	113
MTO	22EN-LD2-43-UNV-L835-CD1-U	4478	38.3	117
MTO	22EN-LD2-43-UNV-L840-CD1-U	4568	38.3	119
MTO	22EN-LD2-43-UNV-L850-CD1-U	4971	38.3	130

Lumen Maintenance

Ambient Temperature	TM-21 Lumen Maintenance (60,000 hours)	Theoretical L70 (hours)
25°C	> 92%	> 448,000

90 CRI

Lumen Adjustment Factors 80->90 CRI	
3000K	0.861
3500K	0.864
4000K	0.883
5000K	0.86

Example of Lumen Adjustment Calculation

22EN-LD2-25-UNV-L835-CD1-U at 90CRI at 3500K

Lumen Adjustment Factor = 0.864

Total Light Output =
2.648 lm x 0.864 = 2,287 lm

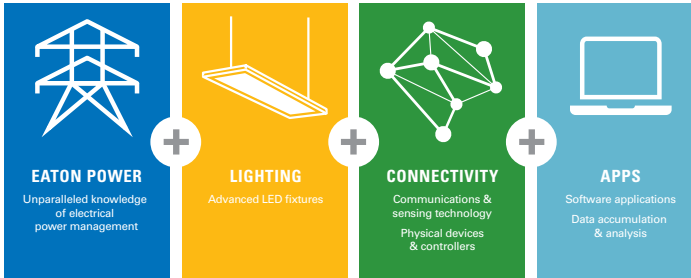$$\text{Efficacy} = \frac{2.287\ lm}{20\ W} = 114.3\ lm/W$$

Shipping Data

Catalog No.	Wt.
22EN-LD2-25	14 lbs.
22EN-LD2-34	14 lbs

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Control Systems

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

Connected Systems CLICK HERE

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

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			●

Integrated Sensor

The Encounter and Encounter HP 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 Encounter 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 Encounter 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.
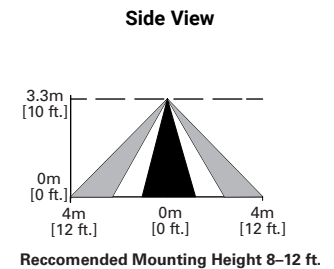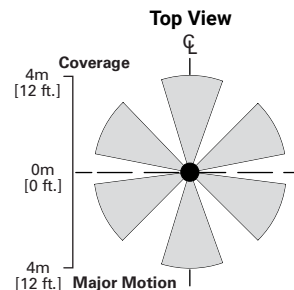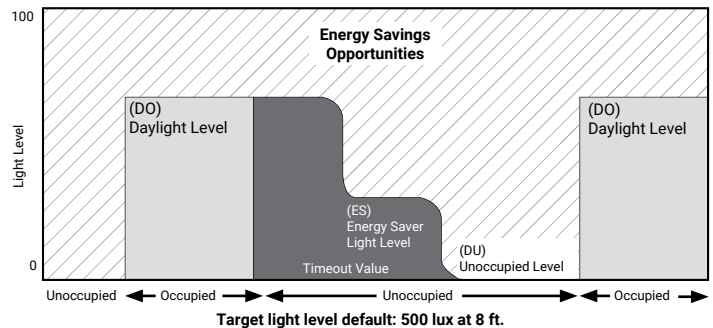
Occupied daylight light levels and unoccupied light levels can be adjusted using the integrated sensor programming remote (Catalog Number: ISHH-01). The integrated sensor personal remote (Catalog Number: ISHH-02) provides code compliant manual raise, lower, ON, OFF control.

The Encounter with Integrated Sensor is easy to install with no special wiring and ensures energy savings out-of-the-box with default control settings.
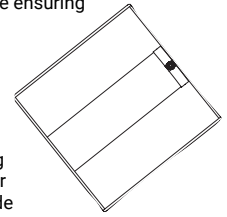
How it works:

- As the user enters the space controlled by the integral sensor, the lighting turns ON to the default daylight level.
- Lighting will remain at that the daylight level until the space is unoccupied. This will start the occupancy timeout period (default 20 minutes).
- If the space remains unoccupied for half of the timeout period, the lighting will automatically reduce to the Energy Saver light level. This adjustable light level is typically half of the occupied daylight level.
- At the end of the timeout period the lighting will go to the unoccupied light level. This adjustable light level uses the OFF default setting.

Energy Savings Opportunities

(DO) Daylight Level

(ES) Energy Saver Light Level

Timeout Value

(DU) Unoccupied Level

(DO) Daylight Level

Unoccupied — Occupied — Unoccupied — Occupied

Target light level default: 500 lux at 8 ft.

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.

Optional Remote Controls

ISHH-01 Programming Remote

ISHH-02 Personal Control Remote

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