Metalux

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

DESCRIPTION

The Encounter™ redefines ambient lighting by being the first fixture to blend modern contemporary styling with the innovative WaveStream™ technology to deliver exceptional performance and superior energy savings. Encounter's highly efficient LED system with advance optical design delivers an unparalleled combination of optimal light uniformity for enhanced visual comfort and superior efficiency for greater energy savings.

Encounter is compatible with all of today's popular ceiling systems and available in a variety of configurations for application versatility. Its perfect balance of form and function make it an ideal choice for commercial office spaces, schools, hospitals, retail and other indoor ambient applications.

SPECIFICATION FEATURES

Construction

Shallow 3-1/4" deep housing is extruded aluminum frame and injected molded composite end plates. End plates are securely attached with screws for strength and rigidity and the elimination of gaps. End plates have accessory grid-lock feature for safety and convenience. Four auxiliary fixture end suspension points are provided. Large access plate for supply connection.

Controls

Metalux LED luminaires come standard with 0-10V dimming drivers (1% standard).

Options compatible with Eaton's Connected Lighting Systems:

- WaveLinx sensor
- LumaWatt Pro sensor
- SVPD sensor
- DLVP sensor and driver
- Fifth Light DALI driver

Other options include step-dimming and 3rd party drivers. Refer to the Connected Lighting options page and ordering information for more details.

Electrical

Long-life LED system coupled with electrical driver to deliver 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 are available for 120-277V applications.

Emergency Battery Pack Option

Optional 120V-277V integral emergency battery pack is available in 7-watts or 14-watts to meet critical life-safety lighting requirements. The 90-minute batteries provide constant power to the LED system, ensuring code-compliance. A test switch/indicator button can be tested safely from the ground using a laser pointer, while the patented EZ Key prevents accidental discharge of the battery during construction. Emergency/generator transfer options available – see ordering information for details.

Driver Access

Drivers can be accessed via plenum.

Finish

Durable frame has high reflectance baked matte white enamel finish for luminous uniformity.

Optics

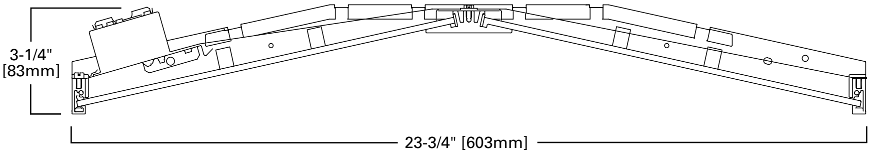
Precision formed optical assembly with positively retained high optical grade acrylic lenses provide a directed optical distribution using WaveStream technology.

Compliance

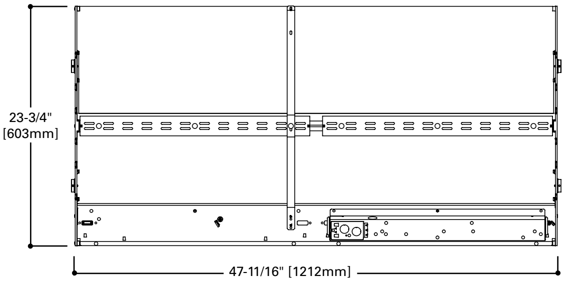
Components are UL recognized. Indoor luminaires are cULus and CSA listed for 25° C ambient environments, RoHS compliant, and comply with IESNA LM-79. LEDs comply with LM-80 standards. DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.

Warranty

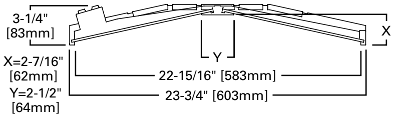
Five-year warranty.



MOUNTING DATA

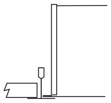


LAMP CONFIGURATIONS

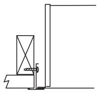


CEILING COMPATIBILITY

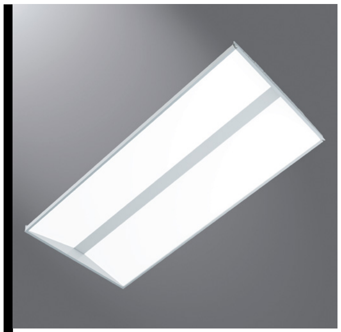
G
Grid/Lay-in
Standard



F
Drywall Frame
Kit



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



24EN
LED

2' X 4' TROFFER
LED MODULE

Specification Grade Troffer

Connected Systems
CLICK HERE

CERTIFICATION DATA

cULus - 1598 and 2043**
Damp Location Listed
CSA
IC Rated
LM79/LM80 Compliant
ROHS Compliant
DesignLights Consortium® Qualified
NOM Compliant

*See Drywall Frame Kit Accessory in Ordering Information section.

**Fixture construction is suitable for use in Air-handling and plenum rated spaces in accordance with Section 300.22 (C) of the National Electrical Code, Section 4.3.11.2.6.5 of NFPA 90A and Section 602.2.1.4 of ICC.

LINEAR DISCONNECT
Safe and convenient means of disconnecting power

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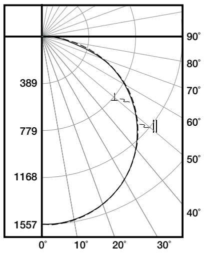
PHOTOMETRICS



24EN-LD2-45-UNV-L835-CD1-U

Electronic Driver

Linear LED 3500K

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

Lumens: 4656

Input Watts: 38W

Efficacy: 122.5 lm/W

Test Report: 24EN-LD2-45-UNV-L835-CD1-U.IES

Candlepower

Angle	Along II	45°	Across ⊥
0	1552	1552	1552
5	1552	1544	1548
10	1533	1525	1529
15	1502	1495	1499
20	1461	1454	1459
25	1408	1401	1408
30	1343	1336	1343
35	1269	1261	1268
40	1188	1175	1182
45	1093	1078	1086
50	991	974	983
55	881	860	869
60	759	735	751
65	628	602	625
70	490	470	469
75	349	334	282
80	206	175	180
85	82	77	71
90	0	0	0

Coefficients of Utilization

Effective floor cavity reflectance 20%

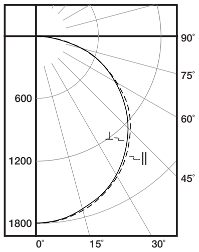
rc	80%				70%				50%			30%			10%			0%
rw	**70**	**50**	**30**	**10**	**70**	**50**	**30**	**10**	**50**	**30**	**10**	**50**	**30**	**10**	**50**	**30**	**10**	**0**
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	99	95	106	101	97	94	97	94	91	93	90	88	90	87	85	83
2	98	90	83	77	96	88	82	76	84	79	74	81	77	73	78	74	71	69
3	90	79	70	64	87	77	69	63	74	67	62	71	66	61	69	64	60	58
4	82	70	61	54	79	68	60	53	66	58	53	63	57	52	61	56	51	49
5	75	62	53	46	73	61	52	46	59	51	45	57	50	45	55	49	44	42
6	69	56	47	40	67	55	46	40	53	45	40	51	44	39	50	44	39	37
7	64	50	42	35	62	50	41	35	48	40	35	47	40	35	45	39	34	32
8	60	46	37	31	58	45	37	31	44	36	31	43	36	31	41	35	31	29
9	56	42	34	28	54	42	34	28	40	33	28	39	33	28	38	32	28	26
10	52	39	31	26	51	38	31	25	37	30	25	36	30	25	35	29	25	23

Zonal Lumen Summary

Zone	Lumens	% Fixture
0-30	1216	26.1
0-40	2007	43.1
0-60	3616	77.7
0-90	4656	100.0
0-180	4656	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	2368	2335	2351
55	2353	2296	2320
65	2277	2182	2263
75	2066	1974	1669
85	1436	1350	1248



24EN-LD2-54-UNV-L835-CD1-U

Electronic Driver

Linear LED 3500K

Spacing criterion: (II) 1.3 x mounting height, (⊥) 1.3 x mounting height

Lumens: 5410

Input Watts: 43.0W

Efficacy: 125.8 lm/W

Test Report: 24EN-LD2-54-UNV-L835-CD1-U.IES

Candlepower

Angle	Along II	45°	Across ⊥
0	1791	1791	1791
5	1792	1782	1784
10	1770	1759	1761
15	1734	1721	1723
20	1684	1670	1673
25	1621	1609	1610
30	1550	1533	1531
35	1465	1444	1439
40	1372	1348	1344
45	1270	1241	1238
50	1153	1124	1125
55	1029	997	998
60	893	860	867
65	743	706	721
70	588	558	550
75	423	401	345
80	258	223	226
85	110	106	101
90	0	0	0

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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	108	103	99	95	106	101	97	93	97	93	90	93	90	88	89	87	85	83
2	98	90	83	77	96	88	81	76	84	79	74	81	76	72	78	74	71	68
3	89	78	70	63	87	77	69	63	74	67	62	71	65	60	68	64	59	57
4	82	69	60	53	79	68	59	53	65	58	52	63	57	51	61	55	51	49
5	75	62	52	46	73	61	52	45	58	51	45	56	50	44	55	49	44	42
6	69	55	46	40	67	54	46	40	53	45	39	51	44	39	49	43	38	36
7	64	50	41	35	62	49	41	35	48	40	35	46	39	34	45	39	34	32
8	59	46	37	31	58	45	37	31	44	36	31	42	36	31	41	35	30	28
9	56	42	34	28	54	41	33	28	40	33	28	39	32	28	38	32	27	26
10	52	39	31	25	51	38	30	25	37	30	25	36	30	25	35	29	25	23

Zonal Lumen Summary

Zone	Lumens	% Fixture
0-30	1398	25.8
0-40	2305	42.6
0-60	4164	77.0
0-90	5410	100.0
0-180	5410	100.0

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (100,0000 hours)	Theoretical L70 (Hours)
25°C	> 92%	> 448,000

Non-IC data

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

24EN-LD2-45-UNV-L835-CD1-U
at 90CRI at 3500K

Lumen Adjustment Factor = 0.864

Total Light Output =
4,651 lm x 0.864 = 4,022 lm

$$\text{Efficacy} = \frac{4{,}022\ \text{lm}}{38\ \text{W}} = 105.8\ \text{lm/W}$$

ENERGY AND PERFORMANCE DATA BY CATALOG NUMBER

Stock or MTO*	Catalog Logic (Curved)	Delivered Lumens	Watts	Efficacy (LPW)
MTO	24EN-LD2-30-UNV-L830-CD1-U	3023	24.6	123
MTO	24EN-LD2-30-UNV-L835-CD1-U	3117	24.6	127
MTO	24EN-LD2-30-UNV-L840-CD1-U	3180	24.6	129
MTO	24EN-LD2-30-UNV-L850-CD1-U	3460	24.6	141
MTO	24EN-LD2-34-UNV-L830-CD1-U	3502	28.7	122
MTO	24EN-LD2-34-UNV-L835-CD1-U	3610	28.7	126
MTO	24EN-LD2-34-UNV-L840-CD1-U	3682	28.7	128
MTO	24EN-LD2-34-UNV-L850-CD1-U	4008	28.7	140
MTO	24EN-LD2-40-UNV-L830-CD1-U	4079	33.9	120
MTO	24EN-LD2-40-UNV-L835-CD1-U	4204	33.9	124
MTO	24EN-LD2-40-UNV-L840-CD1-U	4289	33.9	127
MTO	24EN-LD2-40-UNV-L850-CD1-U	4667	33.9	138
MTO	24EN-LD2-45-UNV-L830-CD1-U	4516	38.0	119
STOCK	24EN-LD2-45-UNV-L835-CD1-U	4656	38.0	123
STOCK	24EN-LD2-45-UNV-L840-CD1-U	4748	38.0	125
MTO	24EN-LD2-45-UNV-L850-CD1-U	5168	38.0	136
MTO	24EN-LD2-49-UNV-L830-CD1-U	4946	42.2	117
MTO	24EN-LD2-49-UNV-L835-CD1-U	5099	42.2	121
MTO	24EN-LD2-49-UNV-L840-CD1-U	5200	42.2	123
MTO	24EN-LD2-49-UNV-L850-CD1-U	5659	42.2	134
MTO	24EN-LD2-54-UNV-L830-CD1-U	5248	43.0	122
STOCK	24EN-LD2-54-UNV-L835-CD1-U	5410	43.0	126
STOCK	24EN-LD2-54-UNV-L840-CD1-U	5518	43.0	128
MTO	24EN-LD2-54-UNV-L850-CD1-U	6005	43.0	140
MTO	24EN-LD2-58-UNV-L830-CD1-U	5663	47.0	120
MTO	24EN-LD2-58-UNV-L835-CD1-U	5838	47.0	124
MTO	24EN-LD2-58-UNV-L840-CD1-U	5955	47.0	127
MTO	24EN-LD2-58-UNV-L850-CD1-U	6480	47.0	138
MTO	24EN-LD2-67-UNV-L830-CD1-U	6529	56.1	116
STOCK	24EN-LD2-67-UNV-L835-CD1-U	6731	56.1	120
STOCK	24EN-LD2-67-UNV-L840-CD1-U	6866	56.1	122
MTO	24EN-LD2-67-UNV-L850-CD1-U	7471	56.1	133
MTO	24EN-LD2-70-UNV-L830-CD1-U	6812	60.2	113
MTO	24EN-LD2-70-UNV-L835-CD1-U	7023	60.2	117
MTO	24EN-LD2-70-UNV-L840-CD1-U	7163	60.2	119
MTO	24EN-LD2-70-UNV-L850-CD1-U	7796	60.2	130
MTO	24EN-LD2-74-UNV-L830-CD1-U	7259	63.6	114
MTO	24EN-LD2-74-UNV-L835-CD1-U	7484	63.6	118
MTO	24EN-LD2-74-UNV-L840-CD1-U	7634	63.6	120
MTO	24EN-LD2-74-UNV-L850-CD1-U	8307	63.6	131

*Made to order (MTO) requires a typical two week lead time.

ORDERING INFORMATION

SAMPLE NUMBER: 24EN-LD2-67-UNV-L835-CD1-SVPD1-U

Rating
Blank=Standard
ATW-SW4=Chicago Rated [6]

Series [5]
24EN=2' x 4' Encounter Series

Air
[Blank]=Standard
A=Air (Vented) [8]

Lamp Type
LD2=LED 2.0

Stock Lumen Outputs
45=4500 Lumens
54=5400 Lumens
67=6700 Lumens

MTO Lumen Outputs
30=3000 Lumens [3], [10]
34=3400 Lumens [3], [10]
40=4000 Lumens
49=4900 Lumens
58=5800 Lumens
70=7000 Lumens [3]
74=7400 Lumens [3]

Optics
Blank=Standard

Voltage [1]
UNV=Universal Voltage 120-277
347V=347 Volt [4]
48V=48 Volt Low-voltage (Class 2) [C]

Options

Emergency
EL7W=7-watt, 120V-277V emergency battery pack installed [2]
EL14W=14-watt 120V-277V emergency battery pack installed [2]
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]

CCT
L830=3000K
L835=3500K
L840=4000K
L850=5000K
L930=3000K
L935=3500K
L940=4000K
L950=5000K

Flex
A3/8-4/18GDIM=3/8" Flex with 0-10V Dimming Leads
Multiple other configurations available. See below for details.

Driver Type
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 (10%-100% Dimming) [10], [E]
5LTHD=Fifth Light Dimming Driver (1%-100% Dimming) [7], [E]
LV1=DLVP Dimming Driver (0%-100% Dimming) [C]
SD=Step Dimming Driver (50% or 100% Dimming) [3]
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]
LU=Lutron HiLume (L3D series) 1%-100% EcoSystem/3-wire Driver [F]

Number of Drivers
1=1 Driver
2=2 Drivers

Integrated Sensing Systems
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]

Connected Systems
CLICK HERE

Packaging
U=Unit Pack
PALC=Job Pack, in carton

ACCESSORIES

T3A END E.Q. BRACKET PARTS BAG (Standard with fixture)
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
DF10P-C_=Decorator Dimmer, 0-10V
SF10P-_=Decorator Slide Dimmer, 0-10V
ISHH-01=Programming Remote for Integrated Sensor [D]
ISHH-02=Personal Control Remote for Integrated Sensor [D]

NOTES: [1] Products also available in non-US voltages and frequencies for international markets. [2] 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. [3] Step-dim driver not available with 3000, 3400, 7000 and 7400 lumen options. [4] 347V emergency option not available. [5] DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details. [6] Chicago rated version does not allow for row mounting. [7] Two drivers required for 5LTHD option for 6700 lumens and up. [8] Air version is vented but does not meet air handling requirements. [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] 5LTD DALI option not available with 3000 and 3400 lumen packages.

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. [C] Consult DLVP 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. [F] Consult Marketplace ptions - 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.

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).

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

SHIPPING DATA

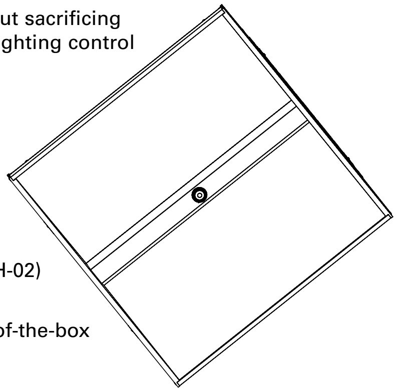
Catalog No.	Wt.
24EN-LD2-45	28 lbs.
24EN-LD2-54	28 lbs.
24EN-LD2-67	28 lbs.

EATON
Powering Business Worldwide

Eaton
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.eaton.com/lighting

Specifications and dimensions subject to change without notice.

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.

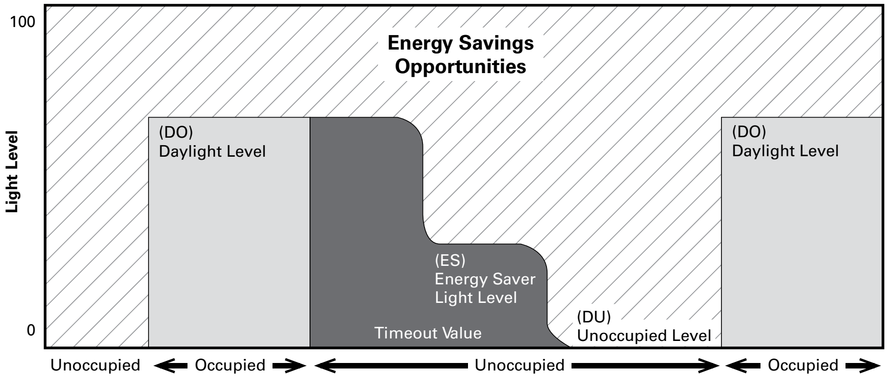
The integral daylight sensor reduces the need for special daylight zone planning. Each luminaire will automatically adjust the light level based on reflected light beneath the sensor in a closed loop method.

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.

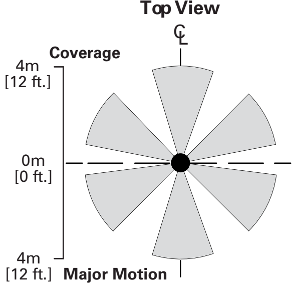
How it works:

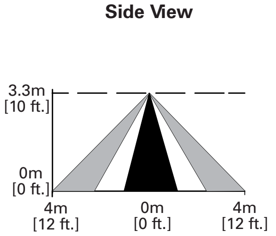
- As the user enters the space controlled by the integral sensor, the lighting turns ON to the default daylight level.
- Lighting will remain at that the daylight level until the space is unoccupied. This will start the occupancy timeout period (default 20 minutes).
- If the space remains unoccupied 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.



Target light level default: 500 lux at 8 ft.

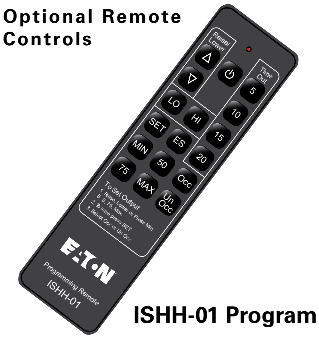
Coverage


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

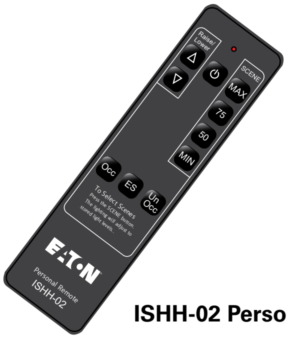

Side View
3.3m [10 ft.]
0m [0 ft.]
4m [12 ft.]
0m [0 ft.]
4m [12 ft.]

Reccomended Mounting Height 8–12 ft.

Optional Remote Controls


Raise/ Lower
Time Out
5
10
15
20
LO
HI
SET
ES
MIN
50
75
MAX
Occ
Un Occ
To Set Output
1. Raise, Lower or Press Min. 5 0, 75, Max.
2. To save press SET
3. Select Occ or Un Occ
EATON
Programming Remote
ISHH-01

ISHH-01 Programming Remote


Raise/ Lower
SCENE
MAX
75
50
MIN
Occ
ES
Un Occ
To Select Scenes
Press the SCENE button.
The lighting will adjust to stored light levels..
EATON
Personal Remote
ISHH-02

ISHH-02 Personal Control Remote