

## DESCRIPTION

The new Metalux WSL - Linear with Wavestream technology series redefines linear ambient lighting by offering a balance of the modern contemporary styling with the innovative WaveStream™ technology to deliver exceptional performance and superior energy savings. WSL's highly efficient LED system with advance optical design delivers an unparalleled combination of optimal light uniformity for enhanced visual comfort. These exceptional performing Accu-Aim™ optics allow for maximum energy savings while achieving desired light levels.

Catalog #		Type
Project		
Comments		Date
Prepared by		

## SPECIFICATION FEATURES

### Applications

Similar to most common linear system - direct / indirect, low bays, striplights and wraparounds, WSL is compatible with all types of mounting options whether stand alone or continuous row. This flexibility provides application options in a wide variety of applications such as open offices, private offices, conference rooms, reception areas, retail, hallways, industrial assembly, retail open areas and educational facilities.

### Construction

Low profile design - 3" in deep housing which combines both aluminum extruded frame and steel channel housing. End plates are securely attached with positive capture details which offer both strength and rigidity while elimination of gaps. Multiple suspension points are located in the channel which allow for aircraft cable, hanging chain and stem points. Surface mounting can be achieved through either direct mount via channel or offset by easy-mount tong hanging accessories.

### Controls

The WSL - Wavestream Linear is Powered by Fifth Light, with a standard 0-10V continuous dimming driver that works with any 0-10V control/ dimmer. Combine with energy saving products like occupancy sensors, daylighting

controls and lighting relay panels to maximize energy savings. In addition, the WSL can include a factory-installed integrated sensor system for occupancy and daylight dimming control and manual control from an optional handheld remote. Or, specify the Digital Addressable Lighting Interface (DALI) drivers, dimmable down to 1% with the HD option, for use with Fifth Light controls. See ordering information for details on all three options.

### Electrical

Long-life LED system coupled with electrical driver to deliver optimal performance. LED's available in 3500K, 4000K or 5000K with a minimum CRI of 80. Consult factory for 3000K CCT. Projected life is 100,000 hours at 71% 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. See ordering information for details.

### Driver Access

Driver can be accessed from below via channel cover (removing waveguide assembly).

### Finish

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

### Mounting / Linear Run

WSL has the ability to be either surface or suspended and offers both single or continuous row linear run installation flexibility.

### Optic

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 DLC Standard, refer to [www.designlights.org](http://www.designlights.org) for details.

### Warranty

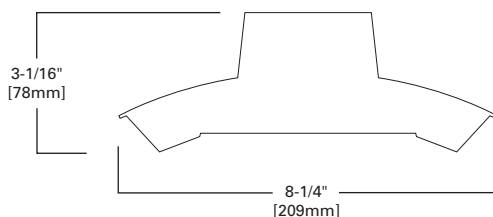
Five year warranty.



## 4WSL / 8WSL LED

4 FT. AND 8 FT. LINEAR WAVESTREAM LED

Commercial Grade Linear



### CERTIFICATION DATA

cULus - 1598  
 Damp Location Listed  
 CSA  
 LM79/LM80 Compliant  
 ROHS Compliant  
 DesignLights Consortium® Qualified  
 NOM Compliant

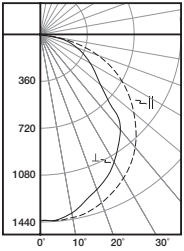
### LINEAR DISCONNECT

Safe and convenient means of disconnecting power





PHOTOMETRICS



**4WSL-LD2-40-UNV-L840-CD1-U**  
 Electronic Driver  
 Linear LED 4000K  
 Spacing criterion:  
 (||) 1.3 x mounting  
 height, (⊥) 1.2 x  
 mounting height  
 Lumens: 4010  
 Input Watts: 35.1W  
 Efficacy: 114 lm/W  
 Test Report:  
 4WSL-LD2-40-UNV-  
 L840-CD1-U.IES

**Candlepower**

Angle	Along	45°	Across ⊥
0	1431	1431	1431
5	1438	1437	1429
10	1428	1416	1397
15	1406	1376	1327
20	1374	1319	1271
25	1331	1256	1216
30	1273	1192	1135
35	1206	1113	1047
40	1128	1025	960
45	1039	931	769
50	941	833	605
55	835	728	517
60	727	618	447
65	606	505	380
70	476	393	313
75	339	279	236
80	204	168	138
85	94	65	57
90	0	0	0

**Coefficients of Utilization**

rc rw RCR	Effective floor cavity reflectance 20%																							
	80%				70%				50%				30%				10%				0%			
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	111	106	106	106	106	102	102	102	102	100			
1	109	104	99	96	106	102	98	94	97	94	91	93	91	88	90	88	86	86	83					
2	99	90	83	78	96	88	82	77	85	80	75	82	77	73	79	75	72	69						
3	90	79	71	65	87	78	70	64	75	68	63	72	66	62	69	65	61	58						
4	82	70	61	55	80	69	61	54	66	59	53	64	58	53	62	56	52	50						
5	76	63	54	47	74	62	53	47	60	52	46	58	51	46	56	50	45	43						
6	70	57	48	41	68	56	47	41	54	46	41	52	45	40	50	44	40	38						
7	65	51	42	36	63	50	42	36	49	41	36	47	41	36	46	40	35	33						
8	60	47	38	32	59	46	38	32	45	37	32	44	37	32	42	36	32	30						
9	56	43	35	29	55	42	34	29	41	34	29	40	34	29	39	33	29	27						
10	53	40	32	26	52	39	32	26	38	31	26	37	31	26	36	30	26	24						

**Zonal Lumen Summary**

Zone	Lumens	% Fixture
0-30	1104	27.5
0-40	1804	45.0
0-60	3144	78.4
0-90	4010	100.0
0-180	4010	100.0

**Luminance Data**

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	3954	3543	2927
55	3917	3415	2426
65	3859	3216	2420
75	3525	2901	2454
85	2902	2007	1760

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (100,000 hours)	Theoretical L70 (Hours)
25°C	> 71.6%	> 105,000

ENERGY AND PERFORMANCE DATA BY CATALOG NUMBER

MTO	Length	Catalog Number**	Product Description	Delivered Lumens	Input Watts	Efficacy (lm/W)
MTO	4 ft.	4WSL-LD2-30-SXX-UNV-L8XX-CD1-U	4 ft. Wavestream Linear, 3000 lm	3023	24.9	121
MTO	4 ft.	4WSL-LD2-35-SXX-UNV-L8XX-CD1-U	4 ft. Wavestream Linear, 3500 lm	3544	30.6	116
MTO	4 ft.	4WSL-LD2-40-SXX-UNV-L8XX-CD1-U	4 ft. Wavestream Linear, 4000 lm	4010	35.1	114
MTO	4 ft.	4WSL-LD2-45-SXX-UNV-L8XX-CD1-U	4 ft. Wavestream Linear, 4500 lm	4502	39.9	113
MTO	4 ft.	4WSL-LD2-50-SXX-UNV-L8XX-CD1-U	4 ft. Wavestream Linear, 5000 lm	4988	44.8	111
MTO	4 ft.	4WSL-LD2-55-SXX-UNV-L8XX-CD1-U	4 ft. Wavestream Linear, 5500 lm	5541	49.9	111
MTO	4 ft.	4WSL-LD2-60-SXX-UNV-L8XX-CD1-U	4 ft. Wavestream Linear, 6000 lm	5988	56.2	107
MTO	4 ft.	4WSL-LD2-65-SXX-UNV-L8XX-CD1-U	4 ft. Wavestream Linear, 6500 lm	6591	61.9	106
MTO	4 ft.	4WSL-LD2-70-SXX-UNV-L8XX-CD1-U	4 ft. Wavestream Linear, 7000 lm	7005	68.7	102
MTO	4 ft.	4WSL-LD2-75-SXX-UNV-L8XX-CD1-U	4 ft. Wavestream Linear, 7500 lm	7623	73.9	103
MTO	4 ft.	4WSL-LD2-80-SXX-UNV-L8XX-CD1-U	4 ft. Wavestream Linear, 8000 lm	7806	76	103
MTO	8 ft.	8WSL-LD2-60-SXX-UNV-L8XX-CD1-U	8 ft. Wavestream Linear, 6000 lm	6128	53.5	115
MTO	8 ft.	8WSL-LD2-65-SXX-UNV-L8XX-CD1-U	8 ft. Wavestream Linear, 6500 lm	6536	57.6	113
MTO	8 ft.	8WSL-LD2-70-SXX-UNV-L8XX-CD1-U	8 ft. Wavestream Linear, 7000 lm	6934	63.6	109
MTO	8 ft.	8WSL-LD2-75-SXX-UNV-L8XX-CD1-U	8 ft. Wavestream Linear, 7500 lm	7468	67.2	111
MTO	8 ft.	8WSL-LD2-80-SXX-UNV-L8XX-CD1-U	8 ft. Wavestream Linear, 8000 lm	8072	73.1	110
MTO	8 ft.	8WSL-LD2-90-SXX-UNV-L8XX-CD2-U	8 ft. Wavestream Linear, 9000 lm	9004	80.6	112
MTO	8 ft.	8WSL-LD2-100-SXX-UNV-L8XX-CD2-U	8 ft. Wavestream Linear, 10000 lm	9976	90.6	110
MTO	8 ft.	8WSL-LD2-110-SXX-UNV-L8XX-CD2-U	8 ft. Wavestream Linear, 11000 lm	11082	98.9	112
MTO	8 ft.	8WSL-LD2-120-SXX-UNV-L8XX-CD2-U	8 ft. Wavestream Linear, 12000 lm	11976	113.5	106
MTO	8 ft.	8WSL-LD2-130-SXX-UNV-L8XX-CD2-U	8 ft. Wavestream Linear, 13000 lm	13182	124.7	106
MTO	8 ft.	8WSL-LD2-140-SXX-UNV-L8XX-CD2-U	8 ft. Wavestream Linear, 14000 lm	14010	136.6	103
MTO	8 ft.	8WSL-LD2-150-SXX-UNV-L8XX-CD2-U	8 ft. Wavestream Linear, 15000 lm	15246	148.7	103
MTO	8 ft.	8WSL-LD2-160-SXX-UNV-L8XX-CD2-U	8 ft. Wavestream Linear, 16000 lm	15612	152.9	102

\* Available in 3500K, 4000K and 5000K

\*\* Shown with solid top reflector. Available with uplight UPL8 (8%) and UPL15 (15%).

SXX denotes mounting option. See ordering information.

Stock	Length	Catalog Number**	Product Description	Delivered Lumens	Input Watts	Efficacy (lm/W)
Stock	4 ft.	4WSL-LD2-40-SRS-UNV-L835-CD1-U	4 ft. Wavestream Linear, 4000 lm, 3500K	4010	35.1	114
Stock	4 ft.	4WSL-LD2-40-SRS-UNV-L840-CD1-U	4 ft. Wavestream Linear, 4000 lm, 4000K	4010	35.1	114
Stock	8 ft.	8WSL-LD2-80-SRS-UNV-L835-CD1-U	8 ft. Wavestream Linear, 8000 lm, 3500K	8072	73.1	110
Stock	8 ft.	8WSL-LD2-80-SRS-UNV-L840-CD1-U	8 ft. Wavestream Linear, 8000 lm, 4000K	8072	73.1	110

\*\* Shown with solid top reflector. Available with uplight UPL8 (8%) and UPL15 (15%).

**ORDERING INFORMATION**

**SAMPLE NUMBER:** 4WSL-LD2-80-SRC-UNV-L840-CD1-U

**Series**<sup>(15)</sup>  
4WSL=4 ft.  
8WSL=8 ft.

**Revision**  
LD2=LED 2.0

**Lumen Package**

<b>4 ft.</b>	<b>8 ft.</b>
30=3000	60=6000
35=3500	65=6500
40=4000	70=7000
45=4500	75=7500
50=5000	80=8000
55=5500	90=9000
60=6000	100=10000
65=6500	110=11000
70=7000	120=12000
75=7500	130=13000
80=8000	140=14000
	150=15000
	160=16000

**Application**  
SRS=Surface - Standalone  
SRC=Surface - Continuous Row<sup>(14)</sup>  
SPS=Suspended - Standalone  
SPC=Suspended - Continuous Row<sup>(14)</sup>

**Uplight**  
[Blank]=Downlight Only  
UPL8=8% Uplight  
UPL15=15% Uplight

**Voltage**  
347=347 Volt<sup>(5)</sup>  
480=480 Volt  
UNV=Universal Voltage 120-277

**Options**  
**Emergency**  
EL7W=7-watt, 120V-277V emergency battery pack installed<sup>(2)</sup>  
EL14W=14-watt, 120V-277V emergency battery pack installed<sup>(2)</sup>  
GTD2=Bodine Generator Transfer Device<sup>(8)</sup>  
ETS2=IOTA Emergency Transfer Switch<sup>(8)</sup>

**Color Temperature**  
L835=3500K  
L840=4000K  
L850=5000K

**Driver Type**  
CD=0-10V Dimming Driver (10% - 100% Dimming)  
HCD=0-10V Dimming Driver (1% - 100% Dimming)<sup>(7)</sup>  
SD=Step-dim Driver<sup>(4)</sup>  
5LTD=Fifth Light DALI Driver (10% - 100% Dimming)<sup>(1)</sup>  
5LTHD=Fifth Light DALI Driver (1% - 100% Dimming)<sup>(1), (4)</sup>  
SR=Sensor Ready (1% - 100% Dimming)<sup>(10)</sup>  
LU=Lutron HiLume 1% EcoSystem/3-wire Driver<sup>(12)</sup>  
LH=Lutron HiLume 1% EcoSystem Driver with Fade to Black<sup>(12)</sup>  
L5=Lutron 5 Series EcoSystem Driver<sup>(12)</sup>

**Options**  
XFMR=Step Down Transformer  
Flex<sup>(6)</sup>  
Multiple Configurations Available  
**Wiring**  
PI=Plug-in Option<sup>(16)</sup>  
CPI=Crossover Plug-in Option<sup>(16)</sup>

**Number of Drivers**  
1=1 Driver  
2=2 Drivers<sup>(7)</sup>

**Product Family**  
S=Integrated Sensor  
L=LumaWatt<sup>(9)</sup>

**Occupancy Technology**  
P=Passive Infrared

**Sensing Technology**  
D=Dimming Daylight Harvesting (Closed Loop)

**Coverage Pattern**  
1= ~144 Square Feet<sup>(17)</sup>  
2= ~900 Square Feet<sup>(18)</sup>

**Packaging**  
U=Unit Pack

**Control Type**  
V=Analog (0-10V) Output for Local Control<sup>(5)</sup>  
WI=Wireless Integral<sup>(10)</sup>

**ACCESSORIES**

- (Order Separately)
- CLC-WSL-EXT-B=Channel Connector
- EndFeed-WSL-U=End Feed Conduit Connector
- GRP-SNF-U=Gripper Hanger
- ISHH-01=Programming Remote for Integrated Sensor<sup>(11)</sup>
- ISHH-02=Personal Control Remote for Integrated Sensor<sup>(11)</sup>
- AYC-Chain/Set=36" Chain Hanger
- SCF=Fixed Stem Set (Specify Length)
- SCS=Swivel Stem Set (Specify Length)
- CCA=Adjustable Cable Kit (Specify Length)
- CCF=Fixed Length Cable Kit (Specify Length)
- EYE CHAIN SET/3FT=Eye Bolt Chain (Use 1 set per fixture)
- 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)<sup>(13)</sup>
- ATG-4-U=Tong Hanger Kit (one for 4 ft, two for 8 ft)

**NOTES:**<sup>(1)</sup> Must be used in conjunction with a DALI control system. For complete DALI solutions by Fifth Light, visit [www.eaton.com/lightingsystems](http://www.eaton.com/lightingsystems) <sup>(2)</sup>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. <sup>(3)</sup>347V emergency option not available in 4 ft. <sup>(4)</sup>Two Drivers required for 5,500 to 10,000 lm and three drivers required for 11,000 to 16,000 lm. <sup>(5)</sup>Integral sensor works only with "CD" and "HCD" drivers and is factory prewired to the driver for stand-alone control. <sup>(6)</sup>Flex does not include dimming leads. Control leads provided by others. For Surface mount versions only, Flex must be ordered as a separate accessory. <sup>(7)</sup>In the HCD option two Drivers required for 6,500 to 10,000 lm. <sup>(8)</sup>Used to transfer fixture to secondary power source for life-safety operation. When used with a dimming fixture, two devices are required to ensure control is disabled while operating under emergency power. <sup>(9)</sup>Must be used in conjunction with a LumaWatt Pro control system. For complete LumaWatt Pro wireless solutions, visit [www.eaton.com/lumawattpro](http://www.eaton.com/lumawattpro). <sup>(10)</sup>SR driver compatible with LWI option only, 1 driver only. <sup>(11)</sup>SHH-01 and -02 remotes compatible with SVPD2 option only. <sup>(12)</sup>Compatible with Lutron control systems only. See [www.lutron.com](http://www.lutron.com) for details. <sup>(13)</sup>Y-Toggle would apply for stand alone and end of continuous row only. <sup>(14)</sup>Continuous row version comes with one end cap and one row trim finishing component. <sup>(15)</sup>DesignLights Consortium® Qualified and classified for DLC Standard (all lumen packages), refer to [www.designlights.org](http://www.designlights.org) for details. <sup>(16)</sup>For more information on PI and CPI options, please refer to WSL FAQ Guide at [www.eaton.com/lighting](http://www.eaton.com/lighting). <sup>(17)</sup>~144 square feet coverage pattern only available for LumaWatt configurations; not available for SVPD (Integrated Sensor). <sup>(18)</sup>~900 square feet coverage pattern only available for SVPD (Integrated Sensor) configurations; not available for LumaWatt configurations.

**Restriction:** 4 ft. EL14W not available with motion sensor option, 4 ft. EL7W and EL14W available up to 6000 lm only. Continuous Row applications not available with EL and sensor options in the same fixture.

For continuous row installations including a motion sensor or battery pack option, a gap of 1-15/16" is required between fixtures where these options will be installed.

**Range for Driver options :**

- SD: 4,000 to 6,000 lm and 7,500 to 8,000 lm in 4ft, 6,000 and 8,000 lm to 16,000 lm in 8ft
- SR: 3,000 to 8,000 lm in 4ft and 6,000 to 9,000 lm in 8ft
- 347V CD: 3,000 to 6,000 lm in 4ft, 6,000 and 6,000 lm, 9,000 to 12,000 lm in 8ft (XFMR not required in cat logic)
- 347V or 480V XFMR: 6,500 to 8,000 lm in 4ft, 6,500 to 8,000 lm and 13,000 16,000 lm in 8ft (XFMR required in catalog logic)

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

**SHIPPING DATA**

Catalog No.	Wt.*
4WSL	12 lbs.
8WSL	24 lbs.

\*Standard fixture

## INTEGRATED SENSOR

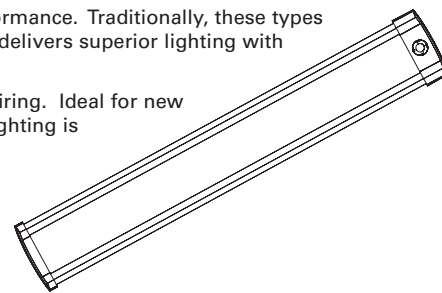
The WSL with Integrated Sensor technology provides automatic energy savings without sacrificing performance. Traditionally, these types of energy savings required coordination between the luminaire and a lighting control system. The WSL delivers superior lighting with integrated occupancy and daylighting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

Capture the benefits of traditional lighting controls, without complicated coverage planning or special wiring. Ideal for new construction or retrofit, the WSL 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 WSL with Integrated Sensor is easy to install with no special wiring and ensures energy savings out-of-the-box with default control settings.



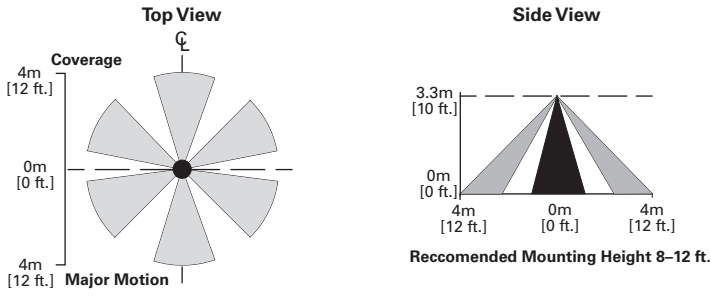
### How it works:

- 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.

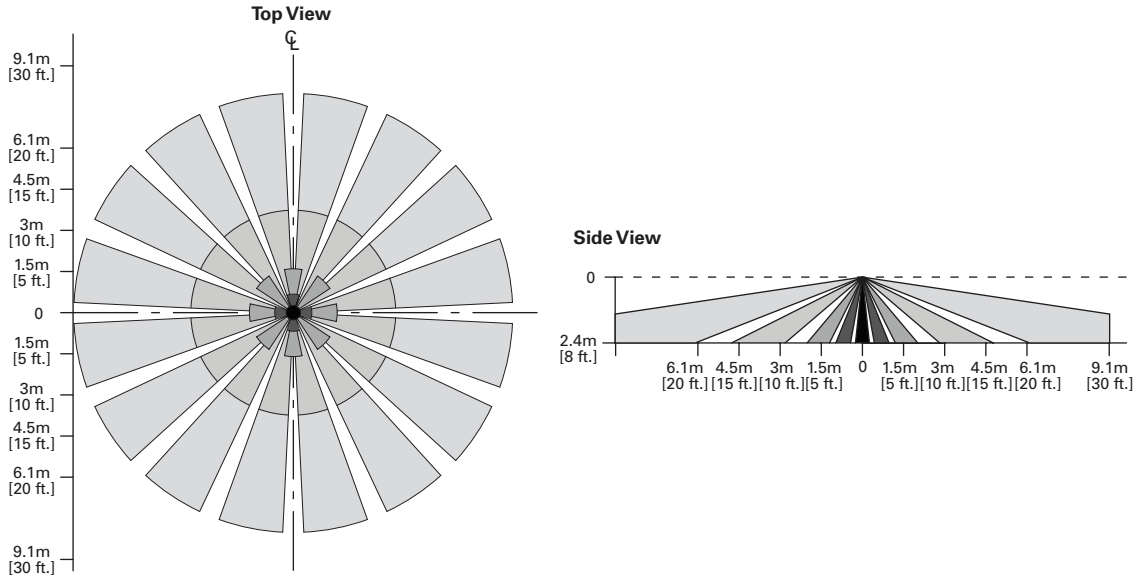
Coverage Patterns next page

SENSOR DETAILS

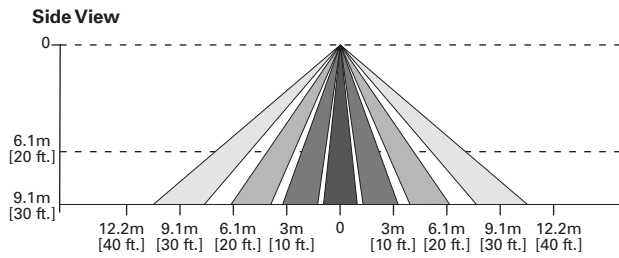
SVPD1 Coverage Pattern



SVPD2 Coverage Pattern



SVPD3 Coverage Pattern



Optional Remote Controls

