

**OVERVIEW**

The LSXR Family of fixture mount occupancy sensors provides reliable and versatile solutions for commercial and industrial lighting control applications. All LSXR Family sensors utilize passive infrared (PIR) detection and feature interchangeable lenses, providing flexibility for multiple mounting height and coverage pattern requirements. Available options include dual relays, HVOLT powering, and an integrated switching / dimming photocell.

All LSXR Family sensors utilize 100% digital Passive Infrared (PIR) detection and power from / switch line voltage. Available options include dual relays, HVOLT powering, and an integrated switching / dimming photocell.

**FEATURES**

- Four interchangeable lenses - high mount 360°, low mount 360°, high mount aisleway, and small motion 360°
- Integrated mounting bracket drops lens down 3" from chase nipple - no bracket accessory required
- 100% digital PIR detection - provides excellent RF immunity
- No PIR field calibration or sensitivity adjustments required
- Single or dual relay versions - designed with robust protection from the harsh switching requirements of T5 fluorescent and LED loads
- Powers from single or two-phase line connections
- Reversible hot & load wires - eliminates backwards wiring
- Photocell and 0-10 VDC dimming options
- Digital push-button programming - no tools or analog adjustments required
- Non-volatile settings memory
- Convenient test mode - quickens initial walk and/or photocell testing
- Green LED indicator
- LampMaximizer® minimum on timer (15 min) enables usage of shorter occupancy time delays while protecting fluorescent lamp life
- Default 10 minute occupancy time delay

**Warranty**

Five-year limited warranty. Complete warranty terms located at: [www.acuitybrands.com/CustomerResources/Terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx)

**Note:** Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice



*Sensor Switch™*

*LSXR Family  
Fixture Mount Sensor*



**ORDERING INFORMATION**

LSXR Single Relay		Example: LSXR 610 ADC HVOLT J100	
Series	Lens Options	Dimming/Photocell	Voltage
LSXR Passive Infrared Indoor Occupancy Sensor	<u>Single Lens</u>		[blank] 120-277 VAC (MVOLT) HVOLT 347-480 VAC 480 480 VAC <sup>1</sup>
	0 No Lens	610 High & Low Mount 360°	
	6 High Mount 360°	650 High Mount 360° & Aisleway	
	10 Low Mount 360°	3PK High & Low Mount 360°, & Aisleway	
	50 High Mount Aisleway	4PK All Lenses	
	9 Small Motion 360°		
	<u>Multi-Lens</u>	[blank] None	
		HL High/Low Occupancy Operation	
		P Switching Photocell (On/Off)	
		ADC Dimming & Switching Photocell	
		ANL Dimming & Switching Photocell with High/Low Occ. Operation (See Description on pg 1)	

Additional Ordering Options							
Max Dim Level <sup>2</sup>	Min Dim Level <sup>2</sup>	Lead Length <sup>2</sup>	Temp / Humidity	Default Time Delay <sup>2</sup>	Pack Qty		
[blank] 10VDC	[blank] Min 4V 4VDC	[blank] 8"	[blank] None	[blank] 10 min (w/ 15 min minimum on time)	20M	20 Min	[blank] Single
9H 9VDC	1V 1VDC 5V 5VDC	42L 42"	LT Low Temp	5M 5 min (LED only)	30M	30 Min	J100 100 Pack
8H 8VDC	2V 2VDC 6V 6VDC			15M 15 min			
7H 7VDC	3V 3VDC						

1. Not available with HL, ADC or ANL options  
2. Available in 100 packs only. Please allow additional time for firmware development

ORDERING INFORMATION CONT.

LSXR Dual Relay				Example: LSXR 610 2P AO J100				
				2P				
Series	Lens Options			Poles	Operating Mode	Voltage		
LSXR Passive Infrared Indoor Occupancy Sensor	<u>Single Lens</u>		<u>Multi-Lens</u>		2P Dual Relay	[blank] None	[blank] 120-277 VAC (MVOLT)	
	0	No Lens	610	High & Low Mount 360°		AO	Alternating Off Relays (promotes even lamp wear)	347 347 VAC
	6	High Mount 360°	650	High Mount 360° & Aisleway		AOP	Alternating Off Relays w/ Photocell	
	10	Low Mount 360°	3PK	High & Low Mount 360°, & Aisleway		P	Photocell On/Off - Both Poles (single set-point)	
	50	High Mount Aisleway	4PK	All Lenses		SZ	Photocell On/Off (Pole 1 only)	
9	Small Motion 360°			DZ	Photocell On/Off - Both Poles (Dual set-point)			

Additional Ordering Options			
Lead Length*	Temp / Humidity	Default Time Delay*	Pack Qty
[blank] 8"	[blank] None	[blank] 10 min (w/ 15 min minimum on time)	[blank] Single
42L 42"	LT Low Temp	5M 5 min (LED only)	J100 100 Pack
		15M 15 min	
		20M 20 Min	
		30M 30 Min	

Accessory Lenses			
Lens Type		Job Pack Qty	
6	High Mount 360°	[blank]	Single
10	Low Mount 360°	J10	10-Pack
50	High Mount Aisleway	J100	100-Pack
9	Small Motion 360°		

\*Available in 100 packs only. Please allow additional time for firmware development.

COMMON CONFIGURATIONS

Model #	#of Relays	Photocell	0-10 VDC Dimming	Power	Included Lenses	Notes on Operation
LSXR 610 HL	1	no	yes	120-277 VAC (MVOLT)	High Mount 360° & Low Mount 360°	<u>Occ.</u> - High/Low/Off (if relay is wired) or High/Low (if relay is not wired)
LSXR 610	1	no	no	120-277 VAC (MVOLT)	High Mount 360° & Low Mount 360°	<u>Occ.</u> - On/Off control
LSXR 610 P	1	yes	no	120-277 VAC (MVOLT)	High Mount 360° & Low Mount 360°	<u>Occ.</u> - On/Off control <u>Photocell</u> - On/Off control
LSXR 610 ADC	1	yes	yes	120-277 VAC (MVOLT)	High Mount 360° & Low Mount 360°	<u>Occ.</u> - On/Off (if relay is wired) or ~0V (if relay is not wired) <u>Photocell</u> - Dim to Off (if relay is wired) or ~0V (if relay is not wired)
LSXR 610 ADC 3V J100* (*100 pack option required)	1	yes	yes	120-277 VAC (MVOLT)	High Mount 360° & Low Mount 360°	<u>Occ.</u> - On/Off (if relay is wired) or 3V (if relay is not wired) <u>Photocell</u> - Dimming to 3V
LSXR 610 2P	2	no	no	120/277 VAC	High Mount 360° & Low Mount 360°	<u>Occ.</u> - On/Off control both relays
LSXR 610 2P AO	2	no	no	120/277 VAC	High Mount 360° & Low Mount 360°	<u>Occ.</u> - Both relays closed <u>No Occ.</u> - 1 relay opens (alternates to promote even lamp wear)

SPECIFICATIONS

- Size (w/ Mounting Flange): 3.75" H x 2.50" W x 4.00" D (9.5 cm x 6.4 cm x 10.2 cm)
- Weight: 6 oz
- Mounting: 1/2" knockout (7/8" hole) on fixture
- Maximum Load: 800 W @ 120 VAC, 1200 W @ 277 VAC, 1000 W @ 208 VAC, 1200 W @ 240 VAC, 1500 W @ 347 VAC, 2160 W @ 480 VAC
- Motor Load: 1/4 HP
- Dimming Load: Sinks < 20 mA; (~ 40 LED drivers/ballasts @ 0.5 per) 0-10VDC dimmable ballasts or LED drivers only
- Temperature Rating: -20°C to 60°C for models with suffix LT  
-10°C to 60°C for all other models

ROHS compliant

# WIRING DIAGRAMS- SINGLE RELAY

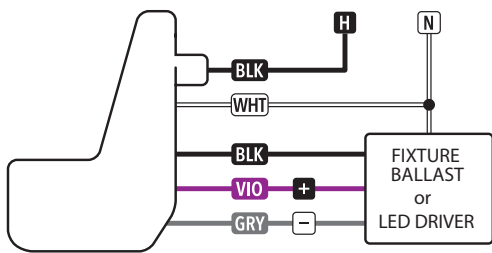
## LEGEND FOR ALL WIRING DIAGRAMS

- Black/Black (MVOLT)<sup>1</sup> - 120/277 VAC
- Black/Black Blue/Blue (MVOLT)<sup>1</sup> - 120/277 VAC
- Red/Red (HVOLT)<sup>1</sup> - 347-480 VAC
- Red/Red Blue/Blue (MVOLT)<sup>1</sup> - 347-480 VAC
- Black/Black Blue/Blue (480)<sup>1</sup> - 480 VAC
- White - Neutral
- Violet - Dimming (+) 0-10VDC
- Gray - Dimming (-) common

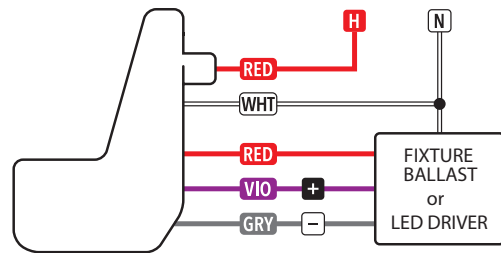
Note

1) Interchangeable input/output of same colored wires via mis-wire protection

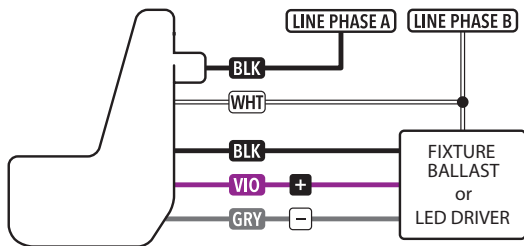
LINE VOLTAGE INTERCHANGEABLE LENS FIXTURE MOUNT:  
SWITCHING AND DIMMING (MVOLT)



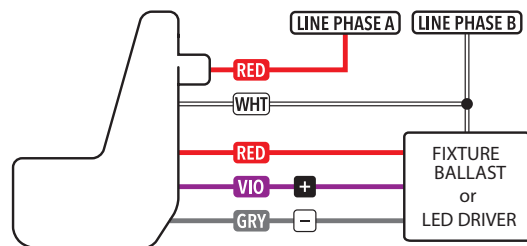
LINE VOLTAGE INTERCHANGEABLE LENS FIXTURE MOUNT  
(HVOLT)



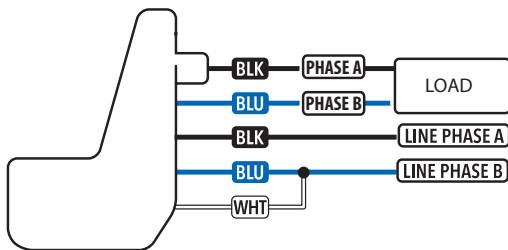
LINE VOLTAGE INTERCHANGEABLE LENS FIXTURE MOUNT:  
2-PHASE (MVOLT)



NE VOLTAGE INTERCHANGEABLE LENS FIXTURE MOUNT:  
-PHASE (HVOLT)



LINE VOLTAGE INTERCHANGEABLE LENS FIXTURE MOUNT:  
DUAL POLE SWITCHING 2-PHASE (480 VAC)

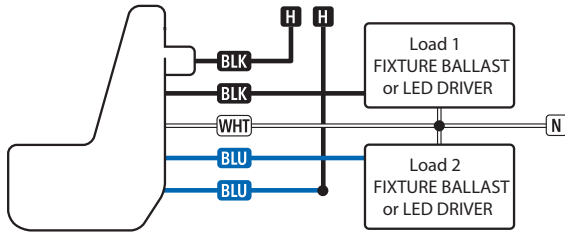


# WIRING DIAGRAMS- DUAL RELAY (E.G., LSXR XX 2P)

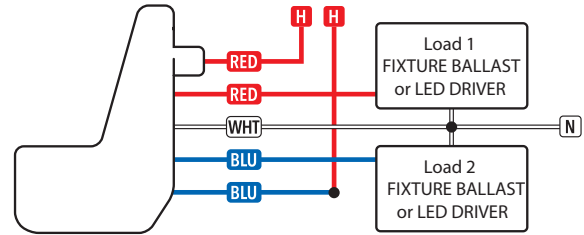
Operational States for -DZ option

	Occupancy			No Occ.
	Low Daylight	Med. Daylight	High Daylight	
Load 1	On	Off	Off	Off
Load 2	On	On	Off	Off

LINE VOLTAGE INTERCHANGEABLE LENS FIXTURE MOUNT:  
2-POLE (MVOLT)



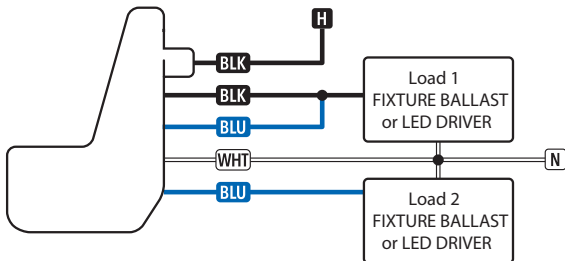
LINE VOLTAGE INTERCHANGEABLE LENS FIXTURE MOUNT:  
2-POLE (HVOLT)



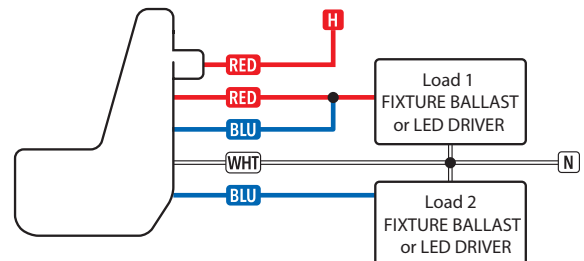
Operational States for -SZ option

	Daylight / Occ.	Daylight / No Occ.	No Daylight & Occ.	No Daylight & No Occ.
Load 1	Off	Off	On	On
Load 2	Off	Off	On	Off

LINE VOLTAGE INTERCHANGEABLE LENS FIXTURE MOUNT:  
2P W/ SINGLE ZONE ON/OFF PHOTOCONTROL (MVOLT)

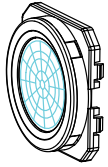


LINE VOLTAGE INTERCHANGEABLE LENS FIXTURE MOUNT:  
2P W/ SINGLE ZONE ON/OFF PHOTOCONTROL (HVOLT)



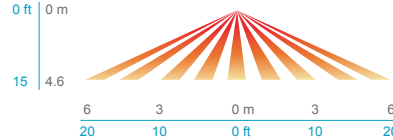
## COVERAGE PATTERNS

### HIGH MOUNT 360° LENS (#6)

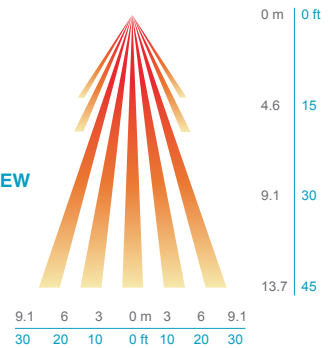


- Best choice for 15 to 45 ft (4.57 to 13.72 m) mounting heights
- 15 to 20 ft (4.57 to 6.10 m) radial coverage overlaps area lit by a typical high bay fixture
- Excellent detection of large motion (e.g. walking) up to a 35 ft (10.76 m) mounting height
- Excellent detection of extra large motion (e.g. forklifts) up to a 45 ft (13.72 m) mounting height
- Tested to NEMA WD 7-2011

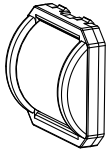
LOW VIEW



HIGH VIEW

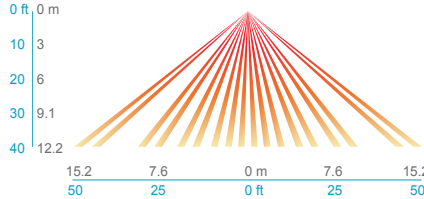


### HIGH MOUNT AISLEWAY LENS (#50)

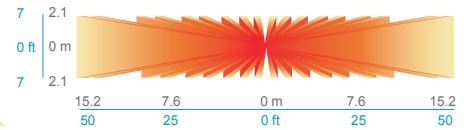


- Provides a bi-directional coverage pattern ideal for warehouse racking
- 1.2x mounting height equals approximate detection range in either direction
- Typical 40 ft (12.19 m) mounting detects 50 ft (15.24 m) in either direction
- Superior aisleway coverage compared to a masked 360° lens

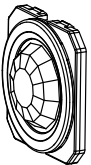
SIDE VIEW



TOP VIEW

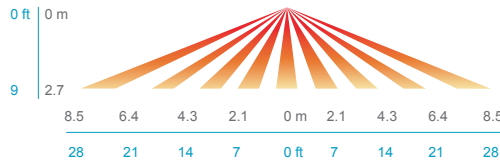


### LOW MOUNT 360° LENS (#10)

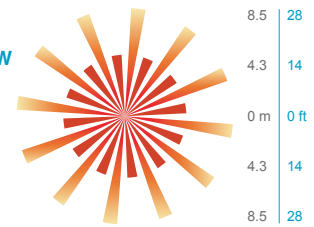


- Best choice for large motion detection (e.g. walking)
- 360° conical shaped pattern
- Provides ~24 ft (7.32 m) radial coverage (~2000 ft²) when mounted at 9 ft (2.74 m)
- 7 to 15 ft (2.13 to 4.57 m) mounting heights provide 16 to 36 ft (4.88 to 10.97 m) radial coverage
- Detection range improves when walking across beams compared to into beams

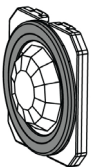
SIDE VIEW



TOP VIEW

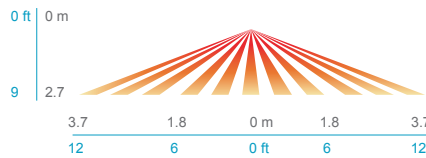


### SMALL MOTION 360° LENS (#9)

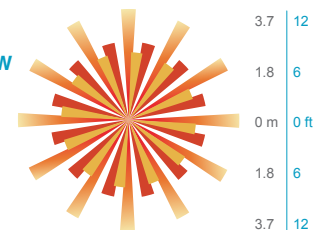


- Best choice for small motion (e.g. hand movements) detection
- 360° conical shaped pattern
- Provides 12 ft (3.66 m) radial coverage (~500 ft²) when mounted to standard 9 ft (2.74 m) ceiling
- 8 to 15 ft (2.44 to 4.57 m) mounting heights provide 10 to 20 ft (3.05 to 6.10 m) radial coverage
- Lens assembly is marked with a gray ring around lens to differentiate versus the #10 lens

SIDE VIEW

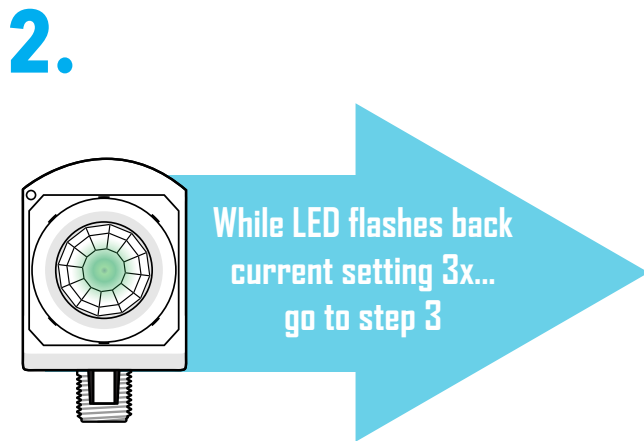
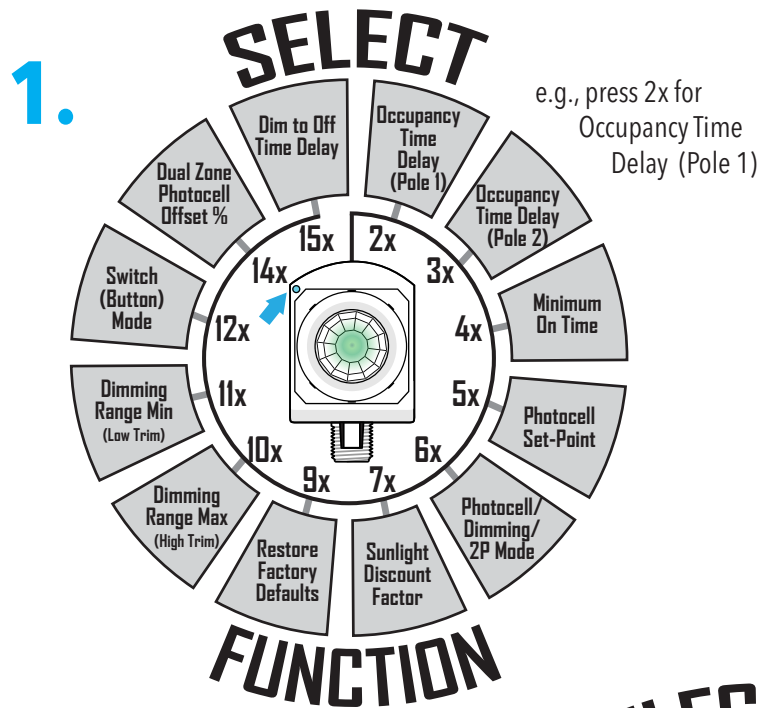


TOP VIEW

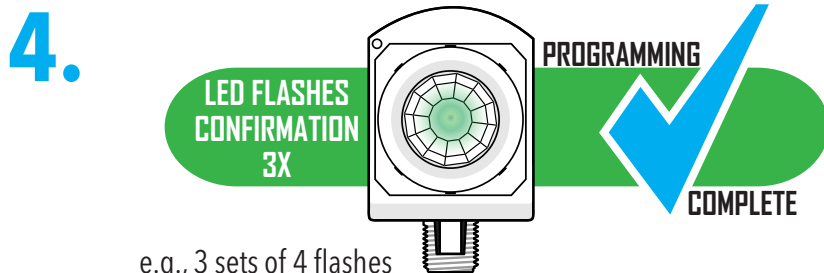
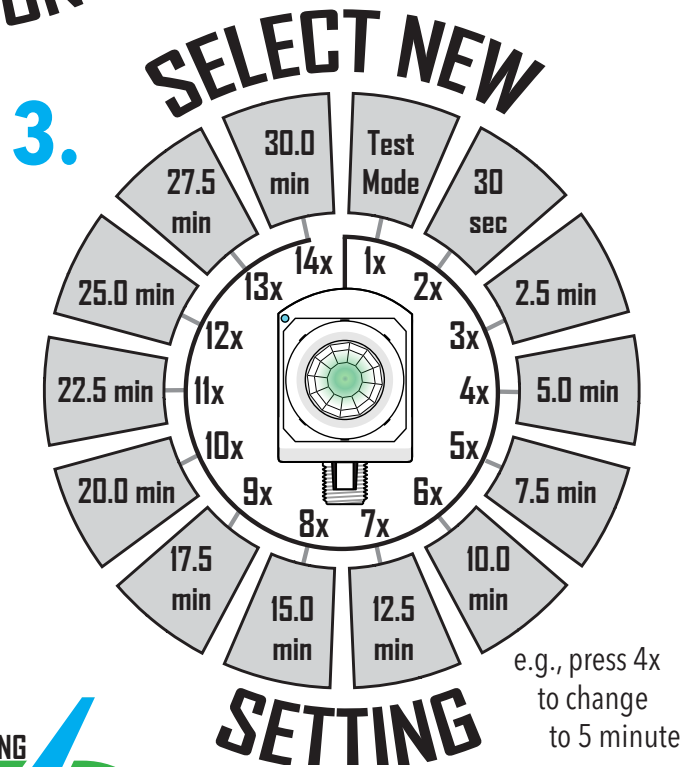


# PROGRAMMING INSTRUCTIONS

Operational settings can be changed via the push-button sequence outlined below (note the example used is for changing pole 1 occupancy time delay).



e.g., 6 flashes is default 10 minute time delay



# OPERATIONAL SETTINGS

NOTE: (\*) Indicates factory default (unless otherwise marked)

## 2 = Occupancy Time Delay (Pole 1)

The length of time the sensor will keep the lights controlled by relay 1 on and at full bright after it last detects occupancy, assuming Minimum On Time (function 4) has been met.

1	Test Mode**	6	10.0 min*	11	22.5 min
2	30 sec	7	12.5 min	12	25.0 min
3	2.5 min	8	15.0 min	13	27.5 min
4	5.0 min	9	17.5 min	14	30.0 min
5	7.5 min	10	20.0 min		

For additional time settings, contact technical support at 1.800.PASSIVE

\* Standard default unless specified in model number

\*\*Test mode disables Minimum On Time (Function 4), sets Occupancy Time Delay (Function 2 & 3) to 30 sec, and shortens photocell transition times and dimming rate. Mode will expire after 10 min or if Function 2 is set back to a time delay.

## 3 = Occupancy Time Delay (Pole 2)

The length of time the sensor will keep the lights controlled by relay 2 (if present) on after it last detects occupancy, assuming minimum on time (Function 4) has been met.

1	NA	6	10.0 min*	11	22.5 min
2	30 sec	7	12.5 min	12	25.0 min
3	2.5 min	8	15.0 min	13	27.5 min
4	5.0 min	9	17.5 min	14	30.0 min
5	7.5 min	10	20.0 min		

\* Standard default unless specified in model number

## 4 = Minimum On Time (Lamp Maximizer)

The length of time required for lamps to be on in order to prevent short cycling that reduces fluorescent lamp life. If occupancy time delay expires prior to minimum on time being satisfied, the lamps will remain on until time has been met.

1	0 min**	3	30 min	5	60 min
2	15 min*	4	45 min		

\* Standard default, reverts to 0 min if occ. time delay is changed from 10M

\*\*Default for 5M, 15M, 20M, 30M option versions

## 5 = Photocell Set-Point

The target light level (at the sensor) that is to be maintained. Selecting Auto (Setting 1) will initiate on/off cycling procedure where sensor finds close-loop set-point. Not applicable to non-photocell versions.

1	Auto	4	2.0 fc	7	16.0 fc
2	0.5 fc	5	4.0 fc*	8	32.0 fc
3	1.0 fc	6	8.0 fc	9	64.0 fc

## 6 = Photocell / Dimming / 2-Pole Modes

Single Relay Units with P (Photocell) Option:

- 1 Disabled: Photocell does not affect lights.
- 2 Full On/Off Ctrl\*: Provides increased energy savings by switching lights off during occupied periods with sufficient daylight contribution from windows or skylights. Lights will be switched back on if light level falls below set-point.
- 3 Inhibit Only Ctrl: Photocell will prevent lights from initially turning on if adequate daylight is available, but will not turn lights off.

Units with ADC or ANL (Dimming) Options:

- 1 Disabled: Photocell does not affect lights.
- 2 Automatic Dimming & Switching (-ADC): Enables the sensor during occupied periods to dim lights down and then turn them completely off by opening the relay.
- 3 Combination Dimming & Switching Photocell w/ High/Low Occ. Operation (-ANL): Provides maximum energy savings by dimming and/or switching off lighting during periods of sufficient daylight contribution from windows or skylights. During unoccupied periods without sufficient daylight lights are dropped to low dim setting, insuring minimum light levels are maintained at night.

Dual Relay (2P) Units - All Options:

- 1 Photocell (if present) is Disabled.
- 2 Standard Photocell Option (-P): Photocell controls both relays together with a single set-point.
- 3 Single Zone (-SZ) Photocell Option: Relay 1 controlled by photocell only, relay 2 controlled by occupancy only.
- 4 Dual Zone (-DZ) Photocell Option: Relay 1 controlled according to set-point, relay 2 controlled at fixed % higher as specified in Dual Zone Photocell Offset % (Function 14).
- 5 Inhibit Only Ctrl: Photocell will prevent lights from initially turning on if adequate daylight is available, but will not turn lights off. Photocell controls both relays according to set-point.
- 6 Alternating Off Relays (-AO): Both relays close during periods of occupancy, but only one opens

during periods of vacancy. The relay left closed is alternated in order to promote even lamp wear.

- 7 Alternating Off Relays w/ Photocell (-AOP): Both relays close during periods of occupancy, but only one opens during periods of vacancy or high daylight. The relay left closed is alternated in order to promote even lamp wear.

## 7 = Sunlight Discount Factor

Value used to improve the tracking accuracy of a sensor with a photocell during periods of high daylight. Decreasing the value will lower the controlled level of the lights.

1	x/1*	4	x/4	7	x/7	10	x/10
2	x/2	5	x/5	8	x/8		
3	x/3	6	x/6	9	x/9		

## 9 = Restore Factory Defaults

Returns all functions to original settings.

- 1 Maintain Current\*
- 2 Restore Defaults

## 10 = Dimming Range Max (High Trim)

The maximum output level of a sensor with dimming. Default is "10 VDC" unless indicated in model number.

1	Off	4	3VDC	7	6VDC	10	9VDC
2	1VDC	5	4VDC	8	7VDC	11	10VDC*
3	2VDC	6	5VDC	9	8VDC		

## 11 = Dimming Range Min (Low Trim)

For sensors with -ADC or -ANL option, this setting is the minimum output level to which the photocell will dim the lights. For lights to turn off from daylight, setting 1 must be selected.

Also, for all sensors with dimming, this setting is the dim level the lights will drop to when the Occupancy Time Delay (Function 2) expires. Note if the relay is wired, lights will still turn completely off after the Dim to Off Occupancy Time Delay (Function 15) expires.

1	Off*	4	3VDC	7	6VDC	10	9VDC
2	1VDC**	5	4VDC	8	7VDC	11	10VDC
3	2VDC	6	5VDC	9	8VDC		

\*Indicates default unless otherwise specified in model number

\*\*Indicates default for -HL option unless otherwise specified in model number

## 12 = Switch (Button) Mode

When enabled, mode allows user to switch the relay by pressing the push button for test purposes (e.g., in order to test wiring). Note there is a short delay after pushing the button before the relay switches.

- 1 Disabled\*
- 2 Enabled

## 14 = Dual Zone Photocell Offset %

Relative value of photocell set-point that is used to control relay 2. Applies only to dual relay (2P) units with the -DZ option.

1	110%	4	140%	7	170%	10	200%
2	120%	5	150%*	8	180%		
3	130%	6	160%	9	190%		

## 15 = Dim to Off Occupancy Time Delay

After the Occupancy Time Delay (Function 2) has expired, this setting specifies the amount of time lights are held at minimum dim (Function 11) before turning off. Setting is only applicable for sensors with -HL and -ADC dimming options.

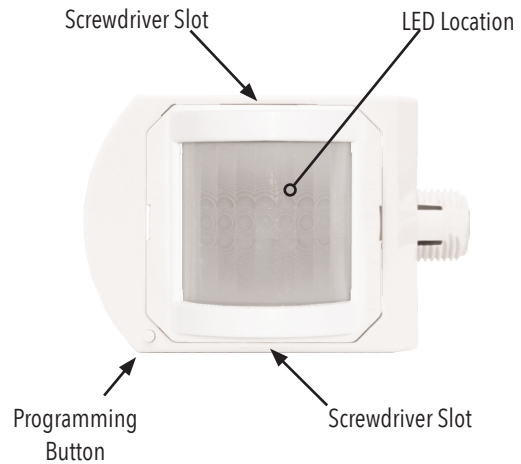
1	0 sec*	5	7.5 min	9	17.5 min
2	30 sec	6	10.0 min	10	20.0 min
3	2.5 min**	7	12.5 min	11	Stays at dim (never off)
4	5.0 min	8	15.0 min		

\*\*HL default

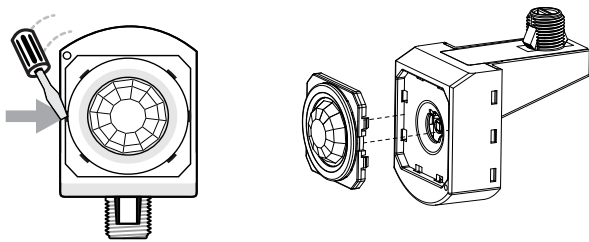


## INSTALLATION

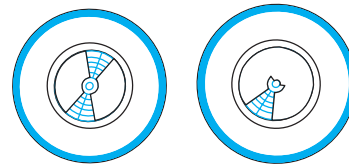
- To mount, push the unit's threaded chase nipple through a 1/2" knockout (7/8" hole) in a fixture.
- A snap lock mechanism on the chase nipple will secure the sensor.
- To interchange lenses, pry out installed lens using a small flat screw driver inserted into one of the slots shown below
- Apply light pressure on lens frame sides to snap in new lens.
- Install lens with the most optimum coverage pattern for a particular space and application
- Masking labels are included with the high bay 360° lens to mask off a portion of its coverage pattern for end-of-aisle, or to trim the side viewing to create a rectangular pattern for center-of-aisle.
- Masking labels are included with the high bay aisle way lens to mask off a portion of its coverage pattern for end-of-aisle applications.



### REMOVING LENS



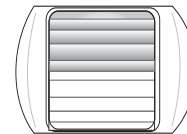
### HIGH MOUNT 360° MASKING KIT



Center-of-Aisle

End-of-Aisle

### HIGH MOUNT AISLEWAY MASKING KIT



End-of-Aisle