Catalog Number:	Date:	Project:

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

AcuityControls

Sensor Switch™

LSXR Family

Fixture Mount Sensor

Warranty

Five-year limited warranty. Complete warranty terms located at: 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.

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ORDERING INFORMATION

LSXR Single Relay — **Example: LSXR 610 ADC HVOLT J100**

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

Additional Ordering Options

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

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

LSXR Dual Relay — **Example: LSXR 610 2P AO J100**

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

Additional Ordering Options

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

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

Accessory Lenses

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

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°	Occ. - 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°	Occ. - On/Off control
LSXR 610 P	1	yes	no	120-277 VAC (MVOLT)	High Mount 360° & Low Mount 360°	Occ. - On/Off control Photocell - On/Off control
LSXR 610 ADC	1	yes	yes	120-277 VAC (MVOLT)	High Mount 360° & Low Mount 360°	Occ. - On/Off (if relay is wired) or ~0V (if relay is not wired) Photocell - 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°	Occ. - On/Off (if relay is wired) or 3V (if relay is not wired) Photocell - Dimming to 3V
LSXR 610 2P	2	no	no	120/277 VAC	High Mount 360° & Low Mount 360°	Occ. - On/Off control both relays
LSXR 610 2P AO	2	no	no	120/277 VAC	High Mount 360° & Low Mount 360°	Occ. - Both relays closed No Occ. - 1 relay opens (alternates to promote even lamp wear)

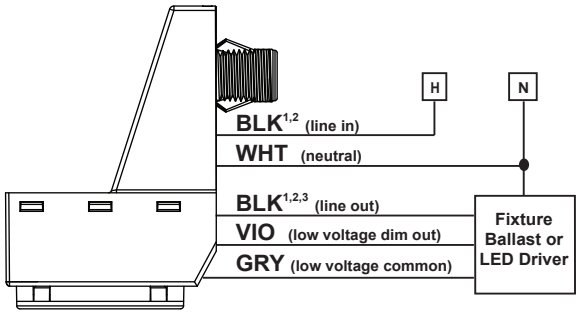
SPECIFICATIONS

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 onlyIP66 Rated and ROHS compliant

WIRING DIAGRAMS- SINGLE RELAY

WIRING TO SINGLE PHASE POWER (120/277/347 VAC)

BLACK[1,2] - 120/277 VAC Input (RED wire for 347 VAC)
BLACK[1,2,3] - Switched Line Voltage Output to Luminaire (RED wire for 347 VAC)
WHITE - Neutral
VIOLET - Low Voltage Dimming Output (0-10 VDC) } wires present with dimming options only
GRAY - Low Voltage Common

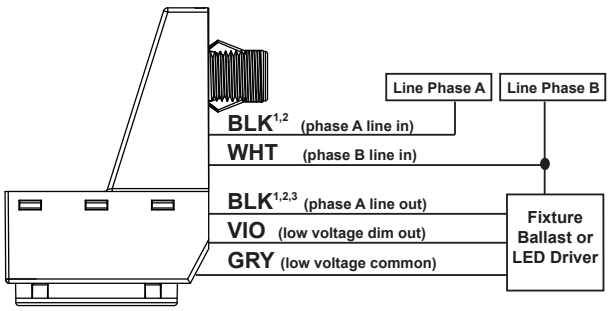


Notes
1. Black wires can be reversed
2. Wire is Red for HVOLT version (required for 347 VAC)
3. Disconnect and cap Black output wire going to driver/ballast if switching fixture is not required.

WIRING TO 2-PHASE POWER (208/240/480 VAC)*

***Safety Note**: only one line phase is being switched, use in direct fixture mount applications only

BLACK[1,2] - 208/240 VAC Phase A Input (RED wire for 480 VAC)
BLACK[1,2,3] - Switched Line Voltage Output to Luminaire (RED wire for 480 VAC)
WHITE - Phase B of 208/240/480 VAC Input
VIOLET - Low Voltage Dimming Output (0-10 VDC) } wires present with dimming options only
GRAY - Low Voltage Common



Notes
1. Black wires can be reversed
2. Wire is Red for HVOLT version (required for 480 VAC)
3. Disconnect and cap Black output wire going to driver/ballast if switching fixture is not required.

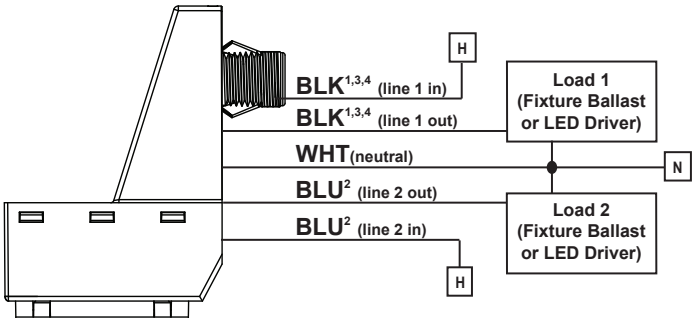
WIRING DIAGRAMS- DUAL RELAY (E.G., LSXR XX 2P)

WIRING FOR 120/277/347

BLACK[1,3,4] - Pole 1: 120/277 VAC Input (RED wire for 347 VAC)
BLACK[1,3,4] - Pole 1: Switched Line Voltage Output to Luminaire (RED wire for 347 VAC)
WHITE - Neutral
BLUE[2] - Pole 2: 120/277/347 VAC Input (must be same phase as pole 1)
BLUE[2] - Pole 2: Switched Line Voltage Output to Luminaire

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



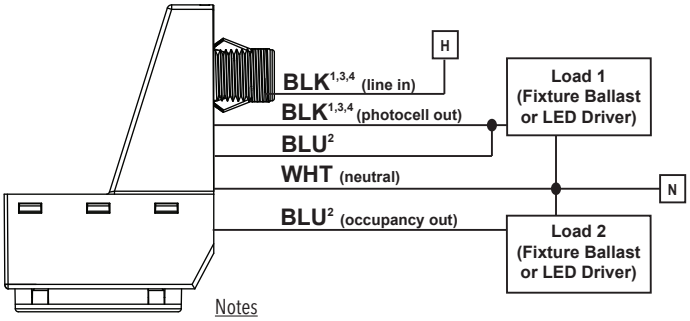
Notes
1. Black wires can be reversed
2. Blue wires can be reversed
3. Wire is Red for 347 VAC Version
4. Red wires can be reversed

WIRING FOR 120/277/347 WITH -SZ OPTION (e.g., LSXR 6 2P SZ)

BLACK[1,3,4] - Pole 1: 120/277 VAC Input (RED wire for 347 VAC)
BLACK[1,3,4] - Pole 1: Switched Line Voltage Output to Luminaire (RED wire for 347 VAC)
WHITE - Neutral
BLUE[2] - Pole 2: 120/277/347 VAC Input (must be same phase as pole 1)
BLUE[2] - Pole 2: Switched Line Voltage Output to Luminaire

Operational States for -SZ option

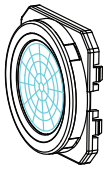
	Daylight / Occ.	Daylight / No Occ.	No Daylight & Occ.	No Daylight & No Occ.
Load 1	Off	Off	On	On
Load 2	Off	Off	On	Off



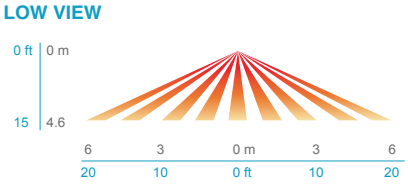
Notes
1. Black wires can be reversed
2. Blue wires can be reversed
3. Wire is Red for 347 VAC Version
4. Red wires can be reversed

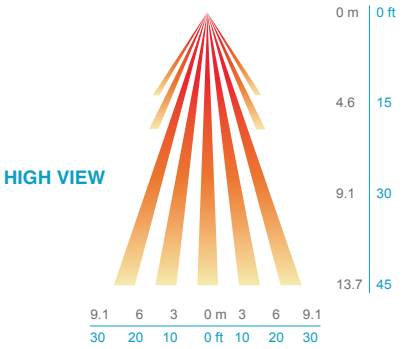
COVERAGE PATTERNS

HIGH MOUNT 360° LENS (#6)

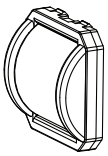


- Best choice for 15 to 45 ft (4.57 to 13.72 m) mounting heights
- 15 to 20 ft (4.57 to 6.10 m) radial coverage overlaps area lit by a typical high bay fixture
- Excellent detection of large motion (e.g. walking) up to a 35 ft (10.76 m) mounting height
- Excellent detection of extra large motion (e.g.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

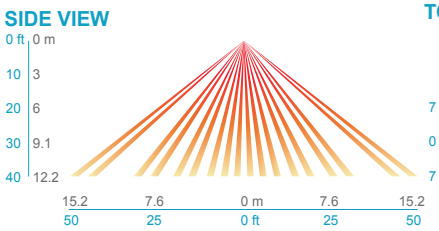


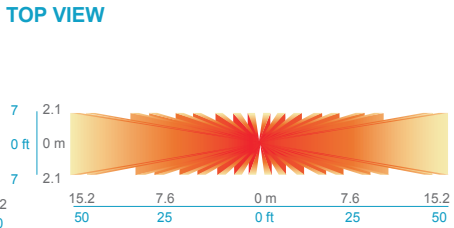


HIGH MOUNT AISLEWAY LENS (#50)

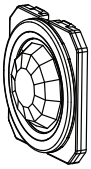


- Provides a bi-directional coverage pattern ideal for warehouse racking
- 1.2x mounting height equals approximate detection range in either direction
- Typical 40 ft (12.19 m) mounting detects 50 ft (15.24 m) in either direction
- Superior aisleway coverage compared to a masked 360° lens

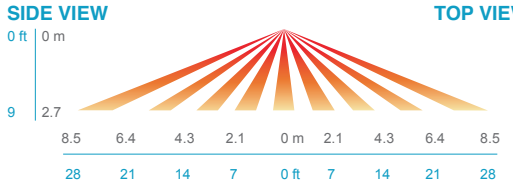


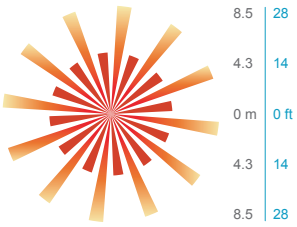


LOW MOUNT 360° LENS (#10)

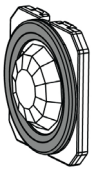


- Best choice for large motion detection (e.g. walking)
- 360° conical shaped pattern
- Provides ~24 ft (7.32 m) radial coverage (~2000 ft²) when mounted at 9 ft (2.74 m)
- 7 to 15 ft (2.13 to 4.57 m) mounting heights provide 16 to 36 ft (4.88 to 10.97 m) radial coverage
- Detection range improves when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

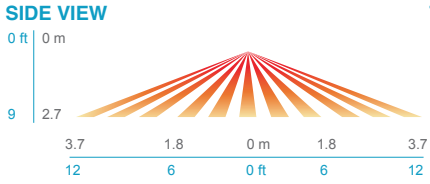


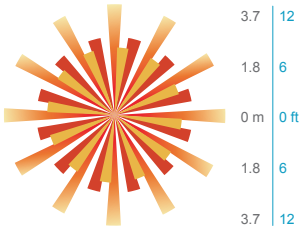


SMALL MOTION 360° LENS (#9)



- 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

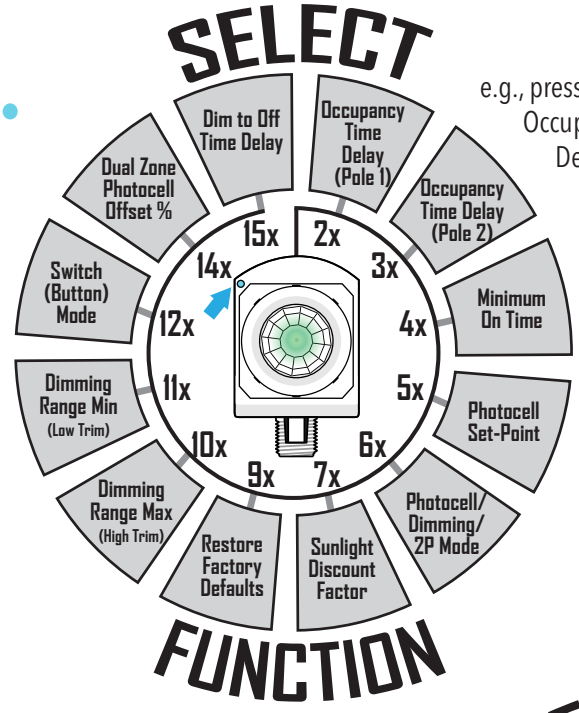




PROGRAMMING INSTRUCTIONS

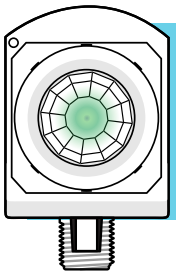
Operational settings can be changed via the push-button sequence outlined below (note the example used is for changing pole 1 occupancy time delay).

1.



e.g., press 2x for Occupancy Time Delay (Pole 1)

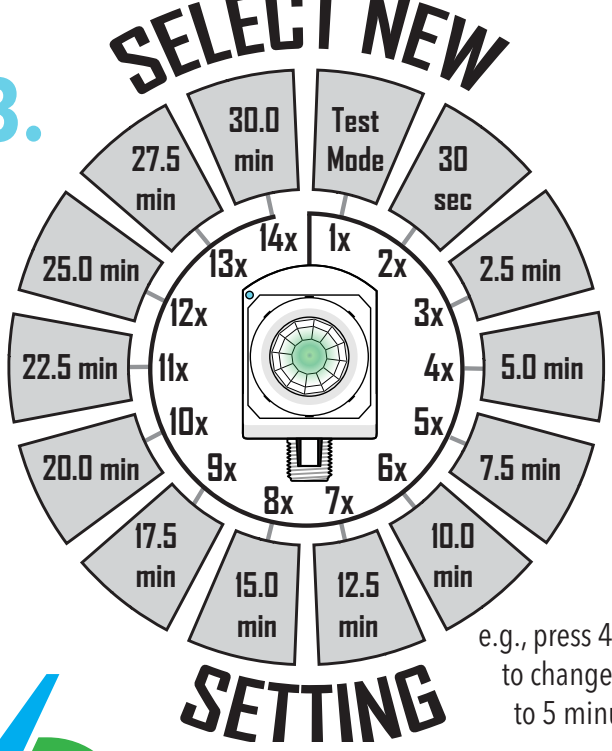
2.



While LED flashes back current setting 3x... go to step 3

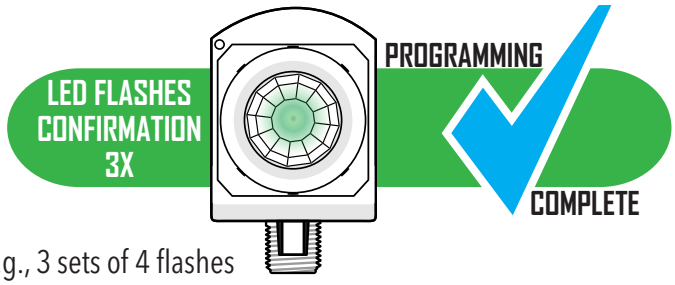
e.g., 6 flashes is default 10 minute time delay

3.



e.g., press 4x to change to 5 minute

4.



e.g., 3 sets of 4 flashes confirms 5 minute setting

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

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

**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

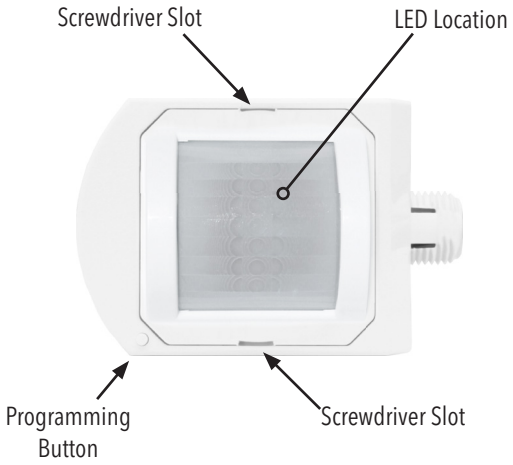
After the Occupancy Time Delay (Function 2) has expired, this setting specifies the amount of time lights are held at minimum dim (Function 11) before turning off. Setting is only applicable for sensors with -HL and -ADC dimming options.

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
4	5.0 min	**8**	15.0 min		(never off)

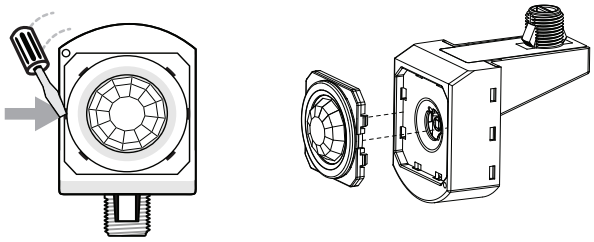
*******HL default*

INSTALLATION

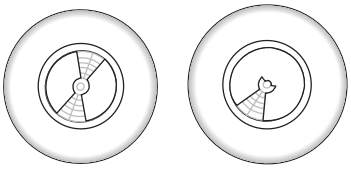
- To mount, push the unit's threaded chase nipple through a 1/2" knockout (7/8" hole) in a fixture.
- A snap lock mechanism on the chase nipple will secure the sensor.
- To interchange lenses, pry out installed lens using a small flat screw driver inserted into one of the slots shown below
- Apply light 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



HIGH MOUNT AISLEWAY MASKING KIT