

# HIGH/LOW BAY PASSIVE INFRARED OCCUPANCY SENSOR

HBP-100 SERIES



FSIR-100

HBP-111

HBP-112

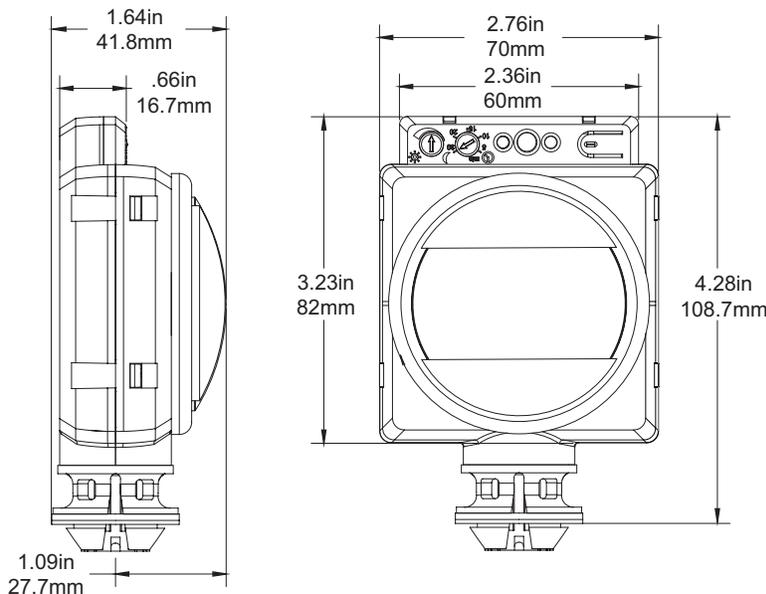
## PRODUCT OVERVIEW

The HBP-100 series occupancy sensors are designed for automatic lighting control in high or low bay applications. All models contain a passive infrared (PIR) sensor and a lens engineered to provide reliable coverage from a wide range of mounting heights.

Sensitivity and time delay adjustments are set using trim pots conveniently located on the sensor module. The HBP-111 can also be adjusted remotely using a handheld configuration tool (FSIR-100).

Both models include a hold-off daylighting light level feature to prevent lighting from turning on when occupancy is detected when there is sufficient ambient light available.

The HBP-111 includes extra features that can be enabled or disabled via the FSIR-100. Features include burn-in mode, walk-through mode, visual alert and service mode.



HBP-11x Sensor Dimensions

## MODELS

### Sensors

HBP-111-L7, with IR remote capability  
HBP-112-L7, no IR capability

### Optional Mounting Module

HBP-EM1 extender module

### Wireless Remote Configuration Tool

FSIR-100

## SPECIFICATIONS & FEATURES

Line voltage for direct connection to load

120, 277, 347V, 60Hz or 230V, single phase, 50Hz operation

Power consumption: 0.2W

Adjustable time delay and sensitivity

Adjustable hold-off daylighting level

Indoor use only

UL/cUL listed snap-in mounting hardware

Easy mounting using knockout at end of fluorescent high bay luminaire

Flexible mounting options

Operating Temperature: 32°F to 158°F (0°C to 70°C)

Operating Humidity: 5% to 95%, non-condensing

Weight: 6.4 oz (181 g)

Five year warranty

## MATERIALS

ABS, flame retardant

Impact resistant

Recyclable

Meets materials restrictions of RoHS

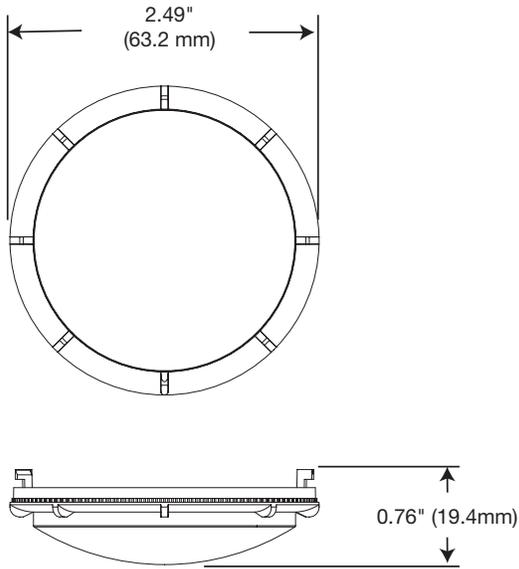
## FACTORY DEFAULTS

Time Delay: 15 minutes

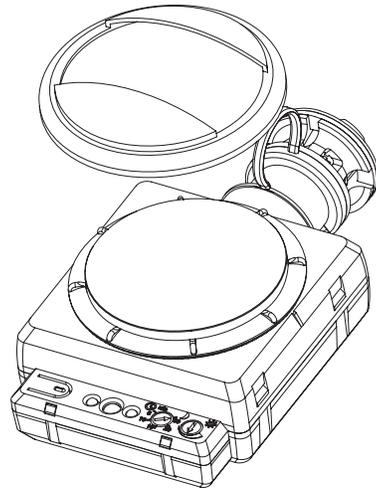
Sensitivity: Max

Light Level: 300 footcandles

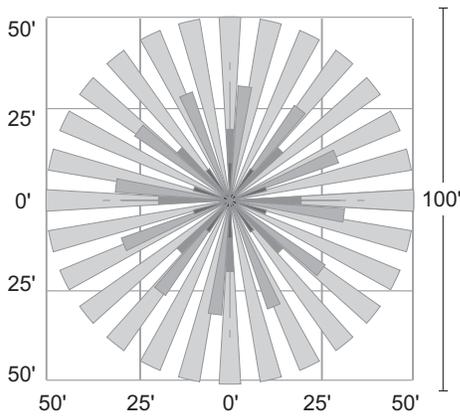
**LENS, MASKING AND COVERAGE**



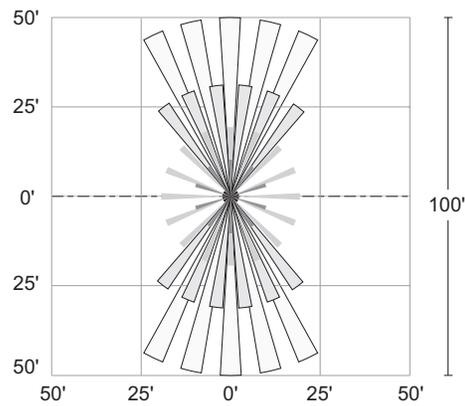
**HBP-L7 Lens Dimensions**



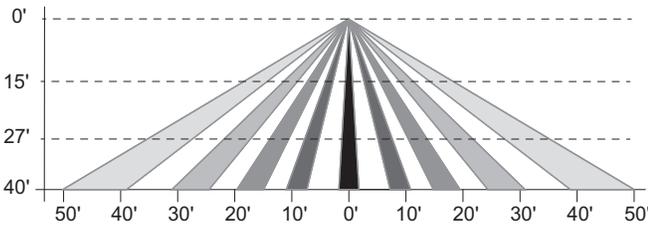
**HBP-111 shown with snap-on rotatable mask for aisleway coverage (included with sensor)**



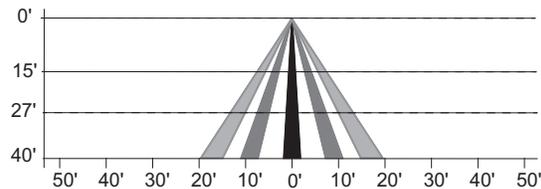
**HBP-L7 top coverage pattern**



**HBP-L7 top coverage pattern with mask**



**HBP-L7 side coverage pattern**



**HBP-L7 side coverage pattern with mask**

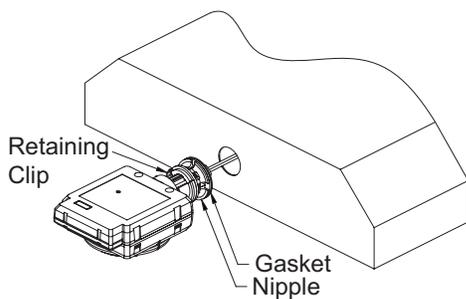
**PASSIVE INFRARED SENSING IN WAREHOUSES**

Warehouses can have ambient temperature variations that may affect sensor detection and coverage areas. High temperatures at the covered area (above 80°F) reduce the detection zone of the sensor. Consider adding more sensors if the ambient temperatures are expected to be high. Additionally, high floor level temperature may require larger movement for detection. In some cases, sensors mounted above 40' may only detect large heat signatures such as forklift trucks.

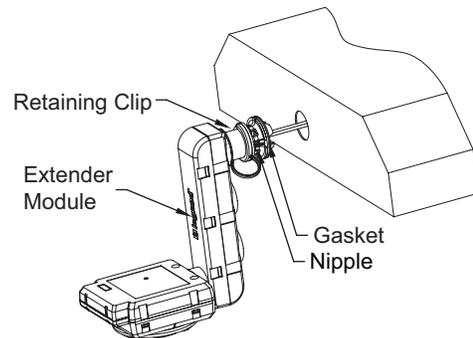
## INSTALLATION AND MOUNTING INSTRUCTION

1. Determine the mounting location appropriate to the features of the sensor and the coverage area.
2. Avoid placing the sensor where the edge of the fixture, shelving or other obstructions may block the sensor's line of sight. Mount the sensor below the edge of the fixture and away from the lamps so that the heat from the lamps does not affect the sensor.
3. If using the hold-off daylighting light level feature, avoid mounting in location where adjacent fixtures contribute to the photocell measurement.
4. Make sure that you have the appropriate accessories for the sensor mounting configuration. The EM1 Extender Module positions the sensor below the fixture.
5. If using snap-in mounting hardware, select washers to accommodate fixture wall thicknesses according to the chart below.
6. Assemble any necessary mounting accessories and attach them to the sensor, making sure that the flying leads from the power module are accessible.
7. Connect the line voltage and load wires to the sensor leads as shown in the Wiring Diagram (see page 6) .
  - Do not allow bare wire to show.
  - Make sure all connections are secure.
8. Restore power from the circuit breaker.

Washer Thickness	Recommended Material Thickness	Decimal	Aluminum	Steel
0mm	3.1-3.2mm	0.1196-0.1285in	8ga	11ga
1mm	2.5-3mm	0.1019-0.1144in	9-10ga	12ga
1.6mm	1.6-2.5mm	0.0641-0.0907in	11-114ga	13-15ga
2.6mm	0.6-1.6mm	0.0253-0.0598in	15-22ga	16-23ga

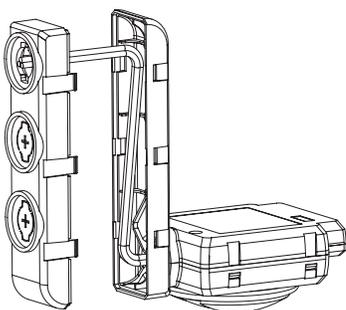


**Direct Mounting to Fixture**



**EM1 Mounting Below Fixture**

**NOTE:** To prevent false triggering, the sensor must be mounted at least 1/2" away from the lamp and the sensor lens must be below the fixture.



**EM1 Extender Module Assembly**

## IMPORTANT START-UP INFORMATION

A 60-second start-up period occurs during initial installation and after a power failure of 5 minutes or more. After applying power to the sensor, wait at least 60 seconds for the sensor to begin detecting occupancy and the load to turn ON. Regardless of light level the load may turn ON during the start-up period, depending on the state of the relay when power was off.

- If the sensor detects occupancy during the start-up, when the load turns ON it stays ON as long as the sensor continues to detect motion, plus the Time Delay.
- If no occupancy is detected during the 60-second start-up, the load may come on anyway during the start-up. If no occupancy is detected by the time the start-up is complete, the relay opens and the load turns OFF.

## ADJUSTABLE CONTROL PARAMETERS

### Setting Time Delay

#### Trimpot

1. Adjust the trimpot to the desired time delay (hard stop settings: 5, 10, 15, 20, 30 minutes; default 15 minutes).

#### FSIR-100 Remote (HBP-111 only)

1. Aim the remote at the IR receiver on the sensor
2. Select "Adjust Time Delay"
3. Choose from the range of 1 – 30 min with 1 minute increments
4. Select "Send"; remote displays "Settings Received"

### Setting Motion Detection Sensitivity

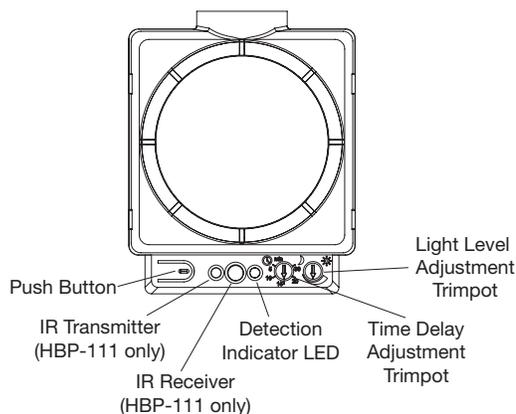
(Factory default setting is ideal for most applications.)

#### Trimpot

1. Hold push button for approx. 3 seconds to enter test mode
2. Adjust the Time Delay trimpot to the hard stop setting for the desired sensitivity (options: 5 or 10 min = Low; 15 or 20 min = Med; 30 min = Max; default Max)
3. Hold push button for approx. 3 seconds to exit test mode
4. Return Time Delay to desired setting

#### FSIR-100 Remote (HBP-111 only)

1. Aim the remote at the IR receiver on the sensor
2. Select "New Settings" and "Sensitivity"
3. Choose from the options of Low, Med or Max
4. Select "Send"; remote displays "Settings Received"



Sensor Controls

### Setting Light level Hold-Off

Adjust during daylight hours when ambient light is at the desired level.

#### Trimpot

1. Adjust the trimpot on the sensor housing to desired photocell setting (analog wheel with hash marks: 1-300fc; default 300fc).

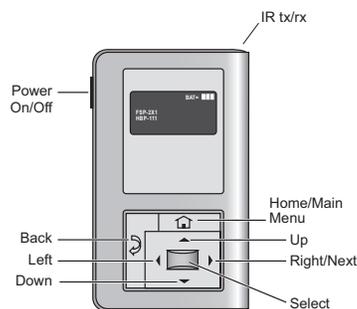
#### FSIR-100 Remote (HBP-111 only)

1. Aim the remote at the IR receiver on the sensor
2. Select "Adjust Photocell Setting"
3. Choose from the range of 1fc - 300fc with 1 footcandle increments
4. Select "Send"; remote displays "Settings Received"

The light level values referenced are approximate and reference 4000K CCT. Variations in color temperature may affect the actual levels the sensor sees. It is recommended that light level hold off be set up in the morning for best results.

**NOTE:** Any adjustments made will override any previous settings whether manually made on the sensor or through the FSIR-100 commission tool.

**NOTE:** Adjusting Time Delay does not affect Sensitivity and vice versa.



FSIR-100 Remote Configuration Tool

## ADJUSTABLE CONTROL PARAMETERS (CONTINUED)

### Push Button Functions

The following functions are available via the Push Button.

**Manual Mode:** To toggle the unit in or out of Manual Mode, quickly press the Push Button to toggle the load ON or OFF. When the load is turned ON manually, it will remain ON as long as motion is detected and the time delay has not expired. If the load is turned OFF manually, the sensor holds the load OFF for as long as motion is detected and then for an additional 5 minutes of no motion detection. The next time the sensor detects occupancy, and the ambient light is lower than the established light level, the sensor automatically turns ON the load.

**Test Mode:** To place the unit in a 10 minute Test Mode, press the Push Button for about 3 seconds, or enable the Test Mode with the FSIR-100 (HBP-111 only). The LED will flash once confirming you are in Test Mode. To exit Test Mode, press and hold the Push Button for 3 seconds. Walk-test the unit to ensure proper detection.

**Service Mode:** To toggle the unit in or out of Service Mode, press and hold the Push Button for about 6 seconds. The LED will flash twice confirming you are in or out of Service Mode. In Service Mode, the LED and load will always be ON.

**Power Up On Mode:** Press and hold the Push Button for about 9 seconds to enable Power Up ON Mode. The LED will flash three times confirming Power Up ON is enabled. In this mode, the sensor will turn the connected loads ON upon restoration of power.

**Power Up Off Mode:** Press and hold the Push Button for about 12 seconds to enable Power Up OFF Mode. The LED will flash four times confirming Power Up OFF is enabled. In this mode, the sensor will keep the connected loads OFF upon restoration of power. The sensor is set to this mode by default.

**Factory Default:** To manually return the unit to factory default settings, press and hold the Push Button for about 15 seconds. This will return all settings to factory default with the exception of time delay and light level, which will be set to the current trimpot settings.

When using the FSIR-100 remote to return to factory default (HBP-111 only), all settings will be returned to the original factory settings regardless of current trimpot positions.

The LED will remain solid ON confirming it has been reset to the factory default.

**Cancel:** To prevent any changes from being made, hold the push button for about 18 seconds. For example, if resetting to factory default (or any other setting) is not desired then keep holding until you reach 18 or more seconds. The LED will turn off after 18 seconds to indicate there were no changes made.

## ADDITIONAL FEATURES AVAILABLE ON HBP-111

Use the FSIR-100 handheld configuration tool to disable or enable following modes:

**Burn-In Mode:** When Burn-In Mode is invoked the output will turn ON for 100 hours continuously. However, the Push Button or remote can be used to turn the load OFF, and the sensor will exit Burn-In Mode. Default setting is Disabled.

**Walk-Through Mode:** In this mode, the load will turn off after a 3 minute period following an initial occupancy event if there is no motion detected after the first 30 seconds. If occupancy continues beyond the first 30 seconds, the established time delay applies. Default setting is Disabled.

**Visual Alert:** When enabled, Visual Alert turns the load OFF for 1 second to warn any occupants of impending shutoff 1 minute before the time delay countdown expires. Default setting is Disabled.

**Service mode:** When Service mode is disabled, the LED will always be on; both motion detection and light level functionality are disabled, and only the Push Button or remote can toggle the load ON and OFF. The default setting for Service mode is Enabled.

For more information on these modes, refer to the FSIR-100 User Guide available online.

## SEQUENCE OF OPERATION

HBP-100 series occupancy sensors mount to a light fixture and can be wired to control the entire load or half of the ballasts, for high/low lighting control. When motion is detected within the coverage area, the sensor's relay closes, and the connected load turns on automatically. When motion is no longer detected for the duration of the time delay setting, the relay opens, turning off the load. The sensitivity and time delay settings are factory preset at 100% and 15 minutes, respectively, which are

suitable for most high bay applications. The Light Level feature holds lights off upon initial occupancy if adequate ambient light exists. It will not turn the lights off if they are on. If the ambient light level is lower than the setpoint, the loads will trigger on once occupancy is detected. The default setting is for maximum, meaning that even the brightest ambient light will not hold the lights off. Refer to the Installation Instructions for additional information, and for important start up instructions.

## ORDERING INFORMATION

Catalog #	Master Pack Details					Inner Pack Details				
	Master Pack Quantity	Case dimensions (inches)			Weight (pounds)	Inner Pack Quantity	Case dimensions (inches)			Weight (pounds)
		Length	Width	Height			Length	Width	Height	
HBP-111-L7-OEM	50	19.9	16.7	21.9	44.1	100	19.5	16.3	10.4	21.4
HBP-111-L7-EM1-OEM	20	19.9	14.7	14.6	13.2	10	19.5	14.3	6.8	6.2
HBP-112-L7-OEM	40	19.9	13.7	21.9	43	100	19.5	16.3	10.4	20.9
HBP-112-L7-EM1-OEM	20	19.9	14.7	14.6	13.2	10	19.5	14.3	6.8	6.2
HBP-EM1	100	21.4	17.9	16.3	16.5	50	20.6	17.1	7.6	8.4
HBP-L7	100	21.2	17.5	15.7	12.1	50	20.6	8.35	15	5.5
FSIR-100	40	14	12.6	9.8	17.3	10	9.5	6.6	5.9	4.1

Catalog #	Color	Description	Voltage	Load Capacity
<input type="checkbox"/> HBP-111-L7-OEM	White	HBP-111-L7 (Bulk Packaged)	120/230 (1P,L-N) 277/347VAC	@ 120VAC, 60Hz: 0-1000VA, 1/4 hp @ 230VAC, 50/60Hz: 0-1000VA @ 277VAC, 60Hz: 0-1200VA, 1/4 hp @ 347VAC, 60Hz: 0-1500VA, 1/4 hp Compatible with tungsten, electronic and magnetic ballasts, fluorescent and LED
<input type="checkbox"/> HBP-111-L7-EM1-OEM	White	HBP-111-L7 and HBP-EM1 (Bulk Packaged)		
<input type="checkbox"/> HBP-112-L7-OEM	White	HBP-112-L7 (Bulk Packaged)		
<input type="checkbox"/> HBP-112-L7-EM1-OEM	White	HBP-112-L7 and HBP-EM1 (Bulk Packaged)		
<input type="checkbox"/> HBP-EM1	White	High Bay Extender Module		
<input type="checkbox"/> HBP-L7	White	Spare L7 lens for HBP-111/112		
<input type="checkbox"/> FSIR-100	Black	Remote handheld configuration tool		

Bulk packaged products are shipped without individual boxes or installation instructions.