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High Bay • Line Voltage • Passive Infrared
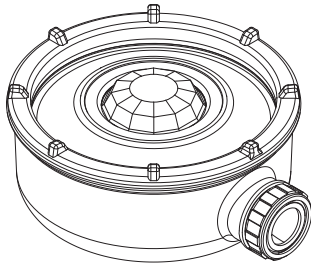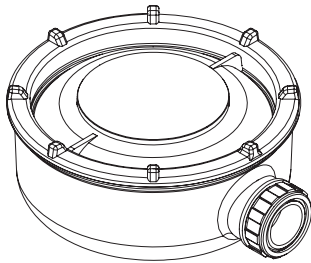IP65 Occupancy Sensors for Wet Locations

No: 24140 – 08/17 rev. 2

Catalog Numbers • Les Numéros de Catalogue • Los Números de Catálogo: HB330W, HB340W, HB350W

Country of Origin: Made in China • Pays d'origine: Fabriqué en Chine • País de origen: Hecho en China

**HB3x0W L2W/
HB3x0W L3W**

HB3x0W L7W

SPECIFICATIONS

HB350W Voltages Voltages120/277VAC,60Hz
   Load Requirements
   @120VAC, 60Hz .... 0-800W ballast or tungsten
   @277VAC, 60Hz .... 0-1200W ballast
   @120VAC .... 1/6 hp
HB340W Voltages 347/480VAC, 60Hz
   Load requirements .... 0-1200W ballast
HB330W Voltages 208/240VAC, 60Hz
   Load requirements .... 0-1200W ballast
Wiring cable...................................3 or 4-conductor 18AWG stranded, UL Style 2517
Unit Dimensions .... 4.08" diameter, 1.88" thick
Threaded nipple ....0.81" diameter, 0.40" long fits standard 1/2" electrical conduit fitting
Weight ....0.28 lb (130 grams)
Material...ABS, UL94-5VA flame retardant material,
.... UV resistant, indoor use only, minimum plastic wall thickness 2.5mm
Environment .... IP65 Compliant
Operating temperature .... -40°F (-40°C) to 131° F (55°C)
Storage temperature .... -40°F (-40°C) to 176°F (80°C)
Operating humidity ....5 to 95% RH, non-condensing
Maximum Dew Point ....29°C (85°F)
US Patents: .... 5,640,113 and 5,804,991

DESCRIPTION AND OPERATION

The HB3x0W occupancy sensors are designed for automatic lighting control in high bay wet location applications. The HB3x0W sensors contain a passive infrared sensor (PIR). The sensors are modular and are made up of two parts, a Sensor Module (HB3x0W) and a Lens (HBLxW).
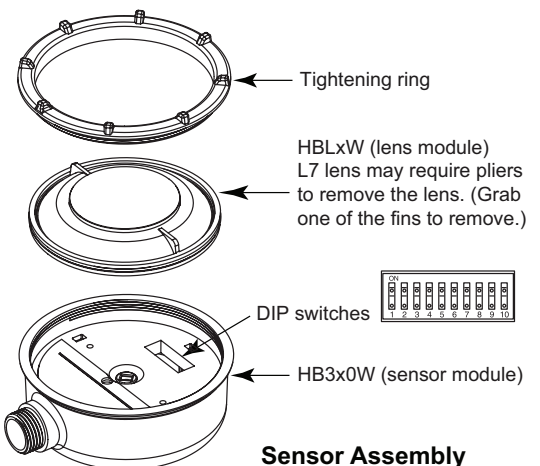
The sensor module is available in three models for different line voltage applications: HB350W for 120/277VAC, HB340W for 347/480VAC, and HB330W for 208/240VAC.

The sensors use a set of DIP switches to set the time delay and PIR sensitivity as explained on page 3. The HB350W provides a single load controlling relay. The HB330W and HB340W have two relays for phase switching.

INSTALLATION OVERVIEW

1. Review the ADJUSTMENTS section and complete any necessary DIP switch setting changes.
2. Mount the sensor so the lens is below the edge of the fixture and away from the lamps. Heat from the lamps could affect the sensor operation.
   Make sure that you have the appropriate accessories for the sensor mounting configuration. (See Mounting Options.)
3. Assemble any necessary mounting accessories and attach them to the sensor module. Make sure that the flying leads from the sensor module cable are accessible inside the fixture.
4. Connect the line voltage and load wires to the sensor leads as shown in the applicable Wiring Diagram for the sensor module.
   • Do not allow bare wire to show.
   • Make sure all connections are secure.
   • Check all gaskets for watertight fit.
5. Check sensor operation. Refer to the TESTING section.
6. Attach the Lens to the HB3x0W as shown in the sensor assembly drawing.

⚠ CAUTION ⚠
**TURN THE POWER OFF AT THE
CIRCUIT BREAKER BEFORE INSTALLING THE SENSOR.**

Tightening ring

HBLxW (lens module)
L7 lens may require pliers to remove the lens. (Grab one of the fins to remove.)

DIP switches

HB3x0W (sensor module)

Sensor Assembly

ADJUSTMENTS

The sensor is pre-set at the factory to meet the requirements of most applications. Review this section if your application requires changing factory pre-sets.

Sensor factory pre-sets are as follows (default settings are **bold**):

Factory Switch Settings (N/A = not applicable, no effect)

1	2	3	4	5	6	7	8	9	10
ON	OFF	OFF	OFF	OFF	ON	ON	OFF	N/A	N/A

PIR Sensitivity (switches 1&2).....................**Normal**
Time Delay (switches 3-7) ....**15 minutes**
Override (switch 8)....**Occupancy control enabled**

PIR Sensitivity (Switches 1-2)

The factory setting (Normal) is suitable for most applications, but it may be necessary to adjust the PIR sensitivity if there is any environmental interference causing false triggers or if sensitivity needs to be increased for your particular application. Use DIP switches 1 & 2 to adjust sensitivity.

Switch	1	2	PIR SENSITIVITY
	OFF	OFF	High
	ON	**OFF**	**NORMAL**
	OFF	ON	Medium
	ON	ON	Low

Time Delay (Switches 3-7)

Use DIP switches 3 to 7 to adjust the time delay.

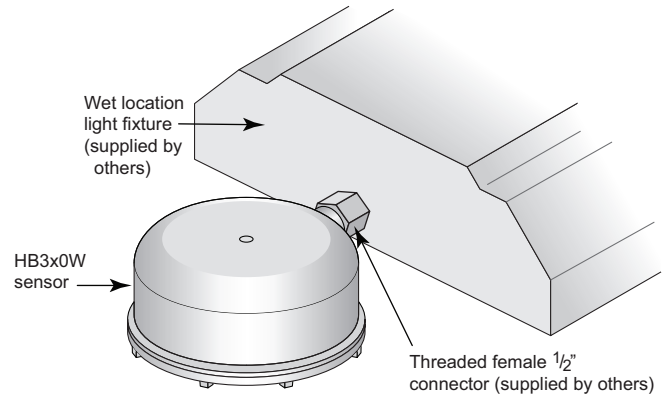| Switch	3	4	5	6	7	TIME DELAY
	ON	ON	ON	ON	ON	15 seconds
	OFF	ON	ON	ON	ON	5 minutes
	OFF	OFF	ON	ON	ON	10 minutes
	OFF	**OFF**	**OFF**	**ON**	**ON**	**15 minutes**
	OFF	OFF	OFF	OFF	ON	20 minutes
	OFF	OFF	OFF	OFF	OFF	30 minutes

Override (Switch 8)

The override disables the occupancy control feature of the HB3x0W sensor module. When occupancy control is disabled, the load remains **ON** as long as the sensor is powered.

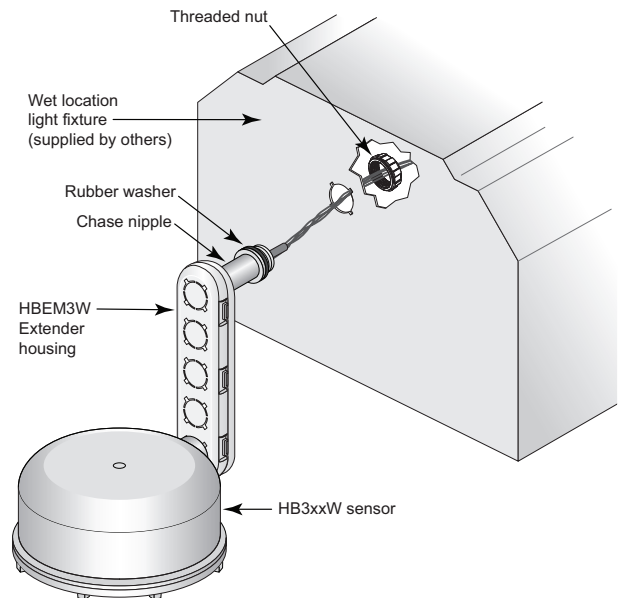| Switch	8	Load Effect
	OFF	**Controlled by Occupancy**
	ON	PIR override. Load always ON

MOUNTING OPTIONS

As shown in the illustration, the HB3x0W can be attached directly to a watertight fixture or junction box that is equipped with a threaded nipple. The center of the threaded nipple should be no more than approximately one inch (1") from the bottom of the fixture to avoid blocking the sensor's view.

Wet location light fixture (supplied by others)

HB3x0W sensor

Threaded female 1/2" connector (supplied by others)

HB3x0W attached to a watertight light fixture

The **HBEM3W** extender module allows attaching the sensor to the side of the fixture so that the lens can be positioned below the bottom edge of the fixture. The wiring cable is threaded through it and into the fixture for connection. The two sides of the HBEM3W snap together to protect the cable.

The extender housing is not watertight, but the inner flange rings on the chase nipple and the HB3x0W housing fit into grooved rubber rings on the the cable. This keeps moisture from entering the fixture and sensor at those locations.
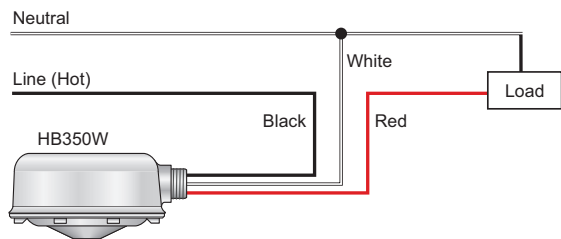

Threaded nut

Wet location light fixture (supplied by others)

Rubber washer

Chase nipple

HBEM3W Extender housing

HB3xxW sensor

HB3x0W attached to a watertight light fixture using HBEM3W

WIRING

120/277VAC Wiring (HB350W)

Neutral
White
Line (Hot)
Load
Black
Red
HB350W

480VAC Wiring (HB-340W-Lx)

Phase A — Black — Red (Load A)
Phase B — White
Load
HB340W-Lx
Red w/White Stripes (Load B)
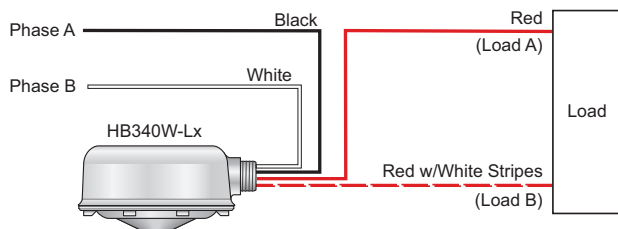
208/240VAC Wiring (HB330W)

Phase A — Black — Red (Load A)
Phase B — White
Load
HB330W
Red w/White Stripes (Load B)

347VAC Wiring (HB-340W-Lx)

Line (Hot) — Black — Red (Load A) — Load — Neutral
Neutral — White
HB340W-Lx
Red w/White Stripes (Load B) — Cap the wire
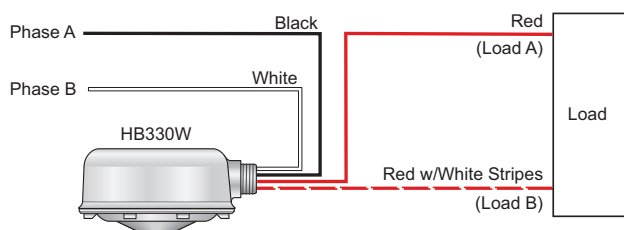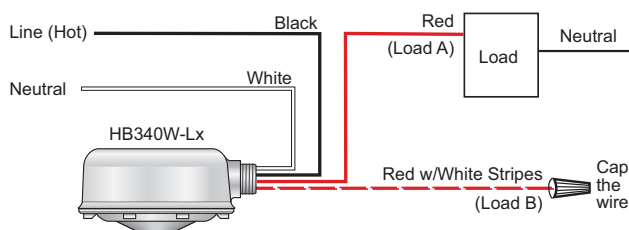
LENS COVERAGE

Coverage patterns, density and range, are determined by the type of Lens attached to the HB3x0W.

Currently, there are three lenses available for the HB3x0W series sensors: HBL2W, HBL3W, and HBL7W.

- For low bay applications, the HBL2 pattern spreads over a 48' diameter area at a height of 8'
- For mid bay applications, the HBL3 pattern spreads over a 40' diameter area at a height of 20'.
- For high bay applications, the HBL7 is designed for mounting at heights between 20' to 40', with a coverage area up to 100' in diameter when mounted at 40'.

For a complete description of each lens coverage pattern, see the HBLx Lens Coverage Guide.

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. It 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.

TESTING

1. When mounting and wiring are complete, cover up the sensor to prevent it from detecting motion.
2. Apply power to the sensor and light fixture. Lights may turn ON during the 60-second start-up period.
3. Wait for the start-up period to end. For the next 1 to 2 minutes the sensor runs through a self-diagnostic routine.
4. If the load came on during the start-up period, wait for it to turn OFF, indicating the self diagnostic routine is complete.
5. Uncover the sensor and confirm that when the sensor detects motion, it's red LED blinks and the light turns ON.
6. Disconnect power.
7. Attach the lens as shown in the assembly drawing. Tighten securely to ensure that seal is complete.

TROUBLESHOOTING

To confirm proper operation, review the Start-Up and Testing information.

Red LED on sensor module does not blink:

Check for proper sensor wire connections and make sure they are tightly secured.

Red LED blinks but lights do not turn ON:

1. Make sure that power to the sensor has been ON continuously for at least one minute, then
   a. Turn **OFF** power to the sensor. The relay will close.
   b. Turn **ON** power to the sensor. The load should come **ON**. If not, continue with step 2.
2. Check power connections to the load.
3. Check all sensor wire connections. Verify the load wire is tightly secured.

Lights will not turn OFF:

1. If there is no motion from people or equipment in the sensor's view but the red LED blinks, look for any nearby source of infrared energy (heat) in motion, such as turbulent air from a heating or cooling supply, or other sources such as heat from the fluorescent lamps in the fixture.
   • Mount the sensor so that it's lens is below the edge of the fixture and does not directly view the lamps.
   • Divert the air supply away from the sensor, or move the sensor.
2. Verify time delay set in switches 3-7. The time delay can be set from 15 seconds to 30 minutes. Ensure that the time delay is set to the desired delay and that there is no movement within the sensor's view for that time period.
3. Check Override DIP switch setting. If switch 8 is **ON**, the PIR is overridden. Occupancy control functions are overridden and the load stays **ON**.
4. Check sensor wire connections. Verify that all connections are complete.

ORDERING INFORMATION

Catalog #	Description
A complete high bay line voltage occupancy sensor for wet locations consists of:	
HB350W	120/277VAC IP65 Sensor module in watertight enclosure
HB340W	347/480VAC IP65 Sensor module in watertight enclosure
HB330W	208/240VAC IP65 Sensor module in watertight enclosure
HBL2W	Wet location 360° lens, maximum coverage 48' diameter at 8' height
HBL3W	Wet location 360° lens, maximum coverage 40' diameter at 20' height
HBL7W	Wet location 360° lens, maximum coverage 100' diameter at 40' height
Optional mounting accessories	
HBEM3W	Extender module with 1 chase nipple, extender housing, rubber washer, two threaded nuts

All units are White.

To order preassembled custom configurations of sensors, lenses and mounting accessories, contact technical support.

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