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legrand HB300W Low Voltage Occupancy Sensor Instruction Manual

Contents

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Product Information

- **Product Name:** HB300W Low Voltage Occupancy Sensor
- **Model Numbers:** HB300W L3W, HB300W L7W
- **Specifications:**
    - **Voltage:** 24VDC
    - **Power Consumption:** 11mA
    - **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:** PC flame retardant material, UV resistant, indoor use only, minimum plastic wall thickness 2.5mm
    - **Environment:** IP65 Compliant
    - **Operating Temperature:** -40-158°F (-40-70°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:** The HB300W low voltage occupancy sensor is designed for automatic lighting control in high bay wet location applications. The HB300W sensor contains a passive infrared sensor (PIR) and is modular being made up of two parts, a Sensor Module and a Lens. Time delay and PIR sensitivity values are set using DIP switches.

Product Usage Instructions

1. Review the ADJUSTMENTS section in the user manual and complete any necessary DIP switch setting changes.
2. Turn off the power at the circuit breaker before installing the sensor.

3. Mount the sensor so that the lens is below the edge of the fixture and away from the lamps to prevent heat from affecting the sensor operation.
4. Assemble any necessary mounting accessories and attach them to the sensor module. Ensure that the flying leads from the sensor module cable are accessible inside the fixture.
5. Connect the line voltage and load wires to the power pack leads as shown in the applicable Wiring Diagram for the sensor module.
6. Connect the low voltage wires from the power pack to the sensor.
7. Check sensor operation by referring to the TESTING section in the user manual.
8. Attach the Lens to the HB300W as shown in the sensor assembly drawing.
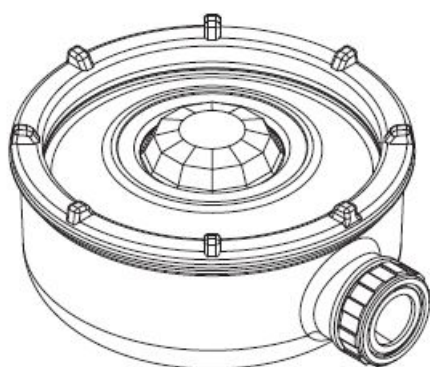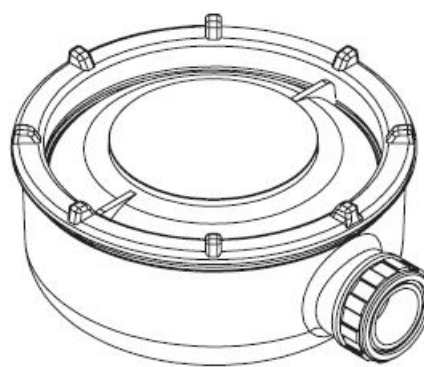
HB300W L3W   HB300W L7W

Caution: Make sure that you have the appropriate accessories for the sensor mounting configuration. (See MOUNTING OPTIONS in the user manual.) The HBLxW (lens module) L7 lens may require pliers to remove the lens. Grab one of the fins to remove.

Note: The sensor is pre-set at the factory to meet the requirements of most applications. Review the ADJUSTMENTS section in the user manual if your application requires changing factory pre-sets.

Adjustments

The sensor factory pre-sets are as follows (default settings are bold):

Factory Switch Settings	PIR Sensitivity (switches 1&2)	Time Delay (switches 3-7)	Override (switch 8)
ON OFF OFF OFF OFF ON ON OFF N/A N/A	Normal	15 minutes	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. The options are High, Medium, Low, and Normal.
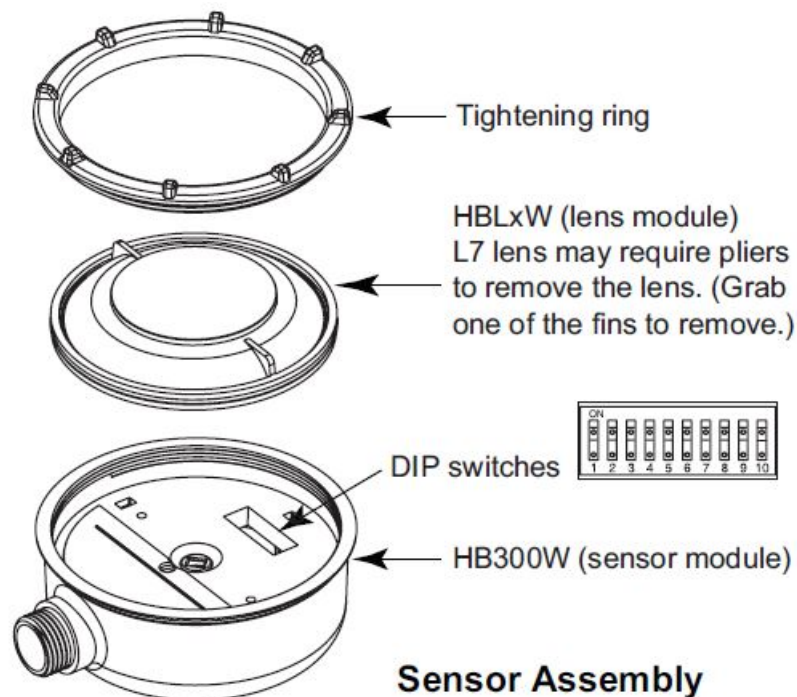
DESCRIPTION AND OPERATION
The HB300W low voltage occupancy sensor is designed for automatic lighting control in high bay wet location applications. The HB300W sensor contains a passive infrared sensor (PIR) and is modular being made up of two parts, a Sensor Module and a Lens. Time delay and PIR sensitivity values are set using DIP switches.

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 power pack 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. Connect the low voltage wires from the power pack to the sensor.
6. Check sensor operation. Refer to the TESTING section.
7. Attach the Lens to the HB300W 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

HB300W (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 HB300W 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 |

WIRING
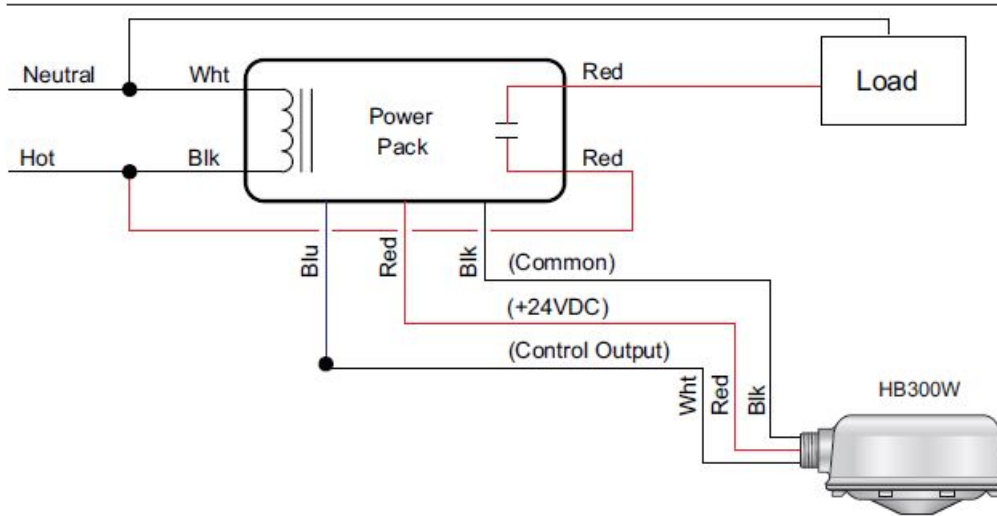
MOUNTING OPTIONS

Punch or drill a 0.825" (21 mm) hole in the luminaire housing from the exterior of the fixture assembly of the standard module. The wiring cable is threaded through it and into the fixture for connection. Hand tighten with a threaded nut. As shown in the illustration below, the HB300W 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.
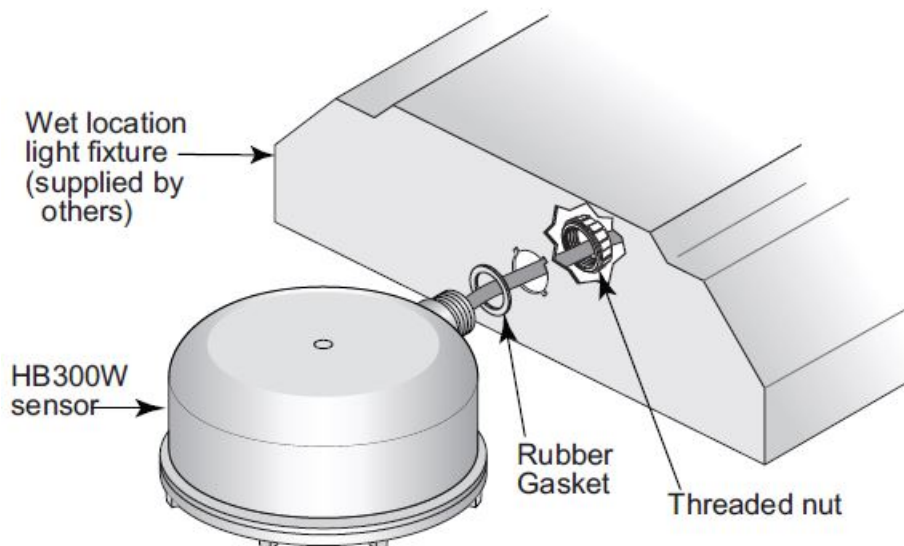
The HBEM3W extender module allows attaching the sensor to the side of the fixture so that the lens can be positioned below the bottom edge of the fixture. The two sides of the HBEM3W snap together to protect the cable. The extender housing is not watertight, but the inner flange rings on the chase nipple and the HB300W housing fit into grooved rubber rings on the the cable. This keeps moisture from entering the fixture and sensor at those locations.
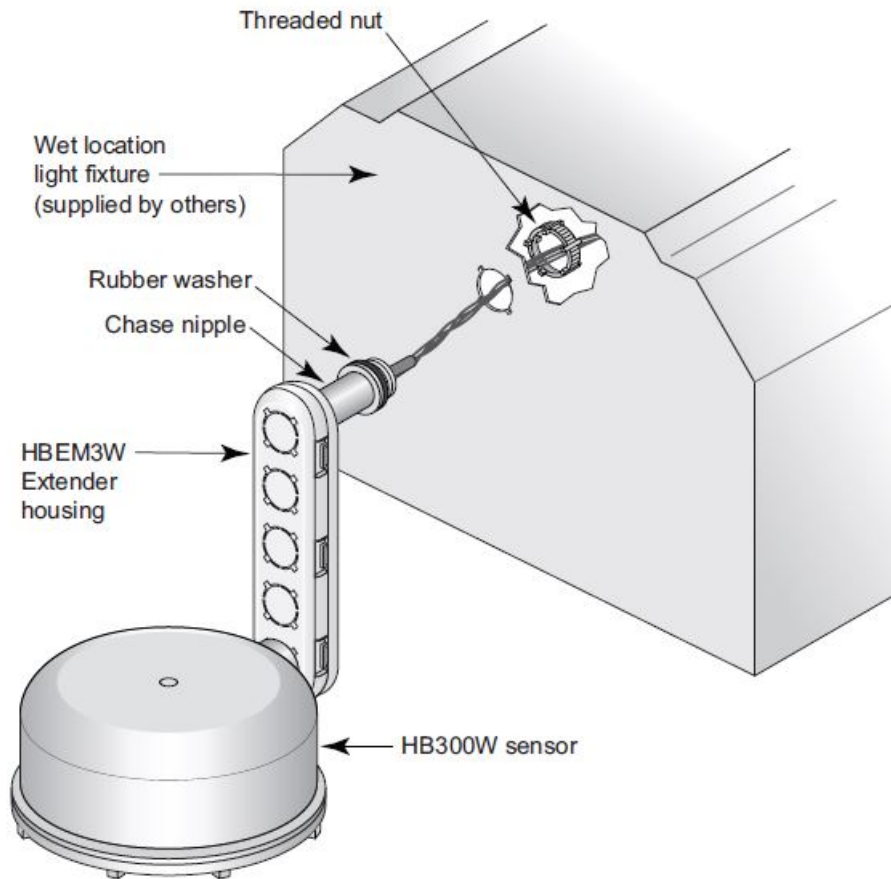
HB300W attached to a watertight light fixture using HBEM3W

LENS COVERAGE

Coverage patterns, density and range, are determined by the type of Lens attached to the HB300W. Currently, there are three lenses available for the HB300W series sensors: HBL2W, HBL3W, and HBL7W.

- The HBL1W lens is best suited for high ceiling aisleway applications and a 60' linear detection range at a mounting hieight of 40'.
- The HBL2W,HBL3W, and HBL7W lenses are best for open area coverage. They have multi-cell, multi-tier Fresnel lenses with a 60° view.
    - The HBL2W covers a 48' diameter area at a height of 8'.
    - The HBL3W covers a 40' diameter area at a height of 20'.
    - The HBL7W lens is designed for higher mounting between 20' and 40'. It covers a 100' diameter area at a height of 40'.

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

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.

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.

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
   - Turn OFF power to the sensor. The relay will close.
   - 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.
   1. Mount the sensor so that it's lens is below the edge of the fixture and does not directly view the lamps.
   2. 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:	
HB300W	24 VDC IP65 Sensor module in watertight enclosure
BZ-50	120/230/277VAC; 50/60 Hz Universal power pack
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.

WARRANTY INFORMATION

Wattstopper warranties its products to be free of defects in materials and workmanship for a period of five (5) years. There are no obligations or liabilities on the part of Wattstopper for consequential damages arising out of, or in connection with, the use or performance of this product or other indirect damages with respect to loss of property, revenue or profit, or cost of removal, installation or reinstallation.

Documents / Resources

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HB300W Low Voltage Occupancy Sensor, HB300W, Low Voltage Occupancy Sensor, Occupancy Sensor, Sensor