



HBAWASP™ Fluorescent High Bay Occupancy Sensor Installation Instructions

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PRODUCT CONFIGURATIONS

FHB141NPUNV – Fluorescent High Bay PIR Sensor with 1.4 Area Lens, 1-SPST Output
FHB142NPUNV – Fluorescent High Bay PIR Sensor with 1.4 Area Lens, 2-SPST Outputs
FHBADAPTOR – Fluorescent High Bay Mounting Extension Adaptor

SPECIFICATIONS

- Timer Timeouts
 - Primary (8 second test mode, 4, 8, 16, 30 minutes)
 - Secondary (Disabled, 30, 60, 90 minutes) – Available on dual output version only
- Coverage
 - 360 Degree (masking kit included)
 - Lens: 1.4 – 42 foot radius; mounted at 30 feet
- Load Ratings (for each output)
 - 120V: 0 – 800W ballast or tungsten
 - 277V: 0 – 1200W ballast
 - 347V: 0 – 1500W ballast
 - ¼ HP motor load
- Power Requirements: 120/277/347VAC, 60Hz
- Operating Environment: Indoor Use Only; 32° – 104° F (0° – 40° C); Relative Humidity (non-condensing): 0% - 95%.

PRECAUTIONS

- Read and understand all instructions before beginning installation.
- **NOTICE:** For installation by a licensed electrician in accordance with National and/or local Electrical Codes and the following instructions.
- **NOTICE:** For use in Pollution Degree 2 Environment - Indoor Use Only.
- **CAUTION: RISK OF ELECTRICAL SHOCK.** Turn power off at service panel before beginning installation. Never wire energized electrical components.
- **CAUTION: USE COPPER CONDUCTOR ONLY.**
- Confirm that device ratings are suitable for application prior to installation.
- Use only approved materials and components (i.e. wire nuts, electrical box, etc.) as appropriate for installation.
- **NOTICE:** Do not install if any damage to product is noticed.

SENSOR INSTALLATION

The installation instructions contained in this document are provided as a guide for proper and reliable installation. The mounting location should be selected and prepared based on the lighting system application and facility layout requirements. All electrical wiring and mounting hardware (i.e. extension adaptor (p/n FHBADAPTOR, electrical mounting box, conduit, etc.) should be prepared with consideration of the requirements outlined in the wiring and mounting diagrams below.

1. Turn power off at the service panel before installing sensor.
2. Insert the sensor's wires and threaded nipple into a ½" knockout on the fixture body.
3. Thread the sensor's wires through the lock-nut.
4. Verify that the sensor is positioned correctly (i.e. lens facing downward).
5. Screw lock-nut onto the sensor's threaded nipple and tighten to secure sensor to fixture.
6. Electrically connect the sensor to the lighting system per the applicable wiring diagram below.
 - a. **Single Relay Sensor:** See Wiring Diagram A. Black lead to Line (Hot); Red lead to Load; White lead to Line (Neutral).
 - b. **Dual Relay Sensor:** See Wiring Diagram A. Black lead to Line (Hot); Red lead to Load (A); White lead to Line (Neutral), Violet lead to Line (Hot), Blue lead to Load (B).
 - c. **Dual Relay Sensor connected to a switching ballast:** See Wiring Diagram B. Black lead to Line (Hot); Red lead to Gray wire from ballast; White lead to Line (Neutral), Violet lead to Line (Hot), Blue lead to Load (B). NOTE: Disable Smart Cycling for this configuration.
7. Adjust sensor operation by setting Bank A and Bank B DIP switches as described below.
8. Turn power on and allow sensor 2 minutes minimum to stabilize.
9. Verify sensor is functioning by waving hand under lens and observing that the sensor's red light (located under the lens) flashes.

SENSOR WITH ADAPTOR INSTALLATION

1. Turn power off at the service panel before installing sensor.
2. Remove the first adaptor cover by slightly pressing down on the top seam, in the middle, while pulling apart (See Figure 1).
3. Using a threaded nipple connector, insert one end of the connector into the adaptor knockout and the other end of the connector into a ½" knockout on the fixture body.
4. Secure adaptor to the fixture by screwing a lock-nut onto both ends of the connector.
5. Remove the second adaptor cover by slightly pressing down on the bottom seam, in the middle, while pulling apart.
6. From the outside of the adaptor, insert the sensor's wires and threaded nipple into the second adaptor knockout (See Figure 2).
7. Thread the sensor's wires through the lock-nut provided with the sensor.
8. Screw lock-nut onto the sensor's threaded nipple.
9. Feed the sensor wires up through the adaptor and into the threaded nipple connector attached to the fixture.
10. Verify sensor is correctly positioned (lens facing down), and then tighten all (3) lock-nuts.
11. Re-attach both adaptor covers.
12. Electrically connect the sensor to the lighting system per the applicable wiring diagram below.
 - a. **Single Relay Sensor:** See Wiring Diagram A. Black lead to Line (Hot); Red lead to Load; White lead to Line (Neutral).
 - b. **Dual Relay Sensor:** See Wiring Diagram A. Black lead to Line (Hot); Red lead to Load (A); White lead to Line (Neutral), Violet lead to Line (Hot), Blue lead to Load (B).
 - c. **Dual Relay Sensor connected to a switching ballast:** See Wiring Diagram B. Black lead to Line (Hot); Red lead to Gray wire from ballast; White lead to Line (Neutral), Violet lead to Line (Hot), Blue lead to Load (B). NOTE: Disable Smart Cycling for this configuration.
13. Adjust sensor operation by setting Bank A and Bank B DIP switches as described below.
14. Turn power on and allow sensor 2 minutes minimum to stabilize.

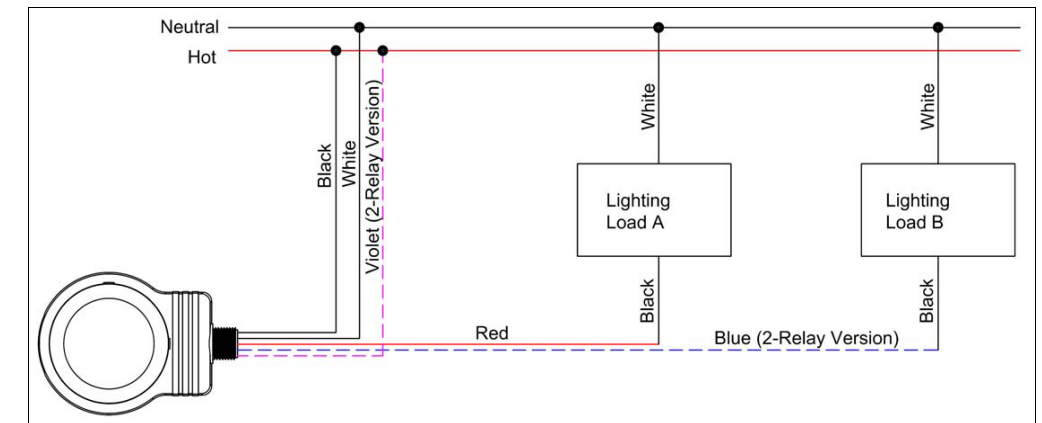
15. Verify sensor is functioning by waving hand under lens and observing that the sensor's red light (located under the lens) flashes.

RANGE TEST

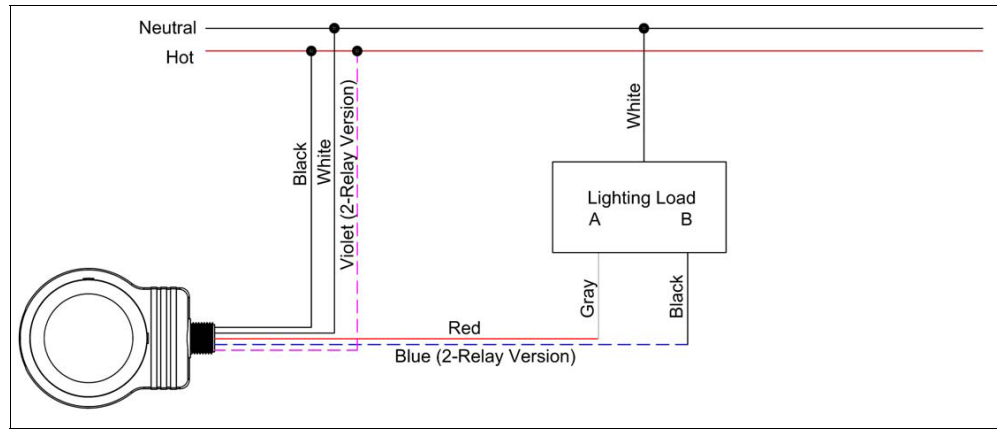
Range testing provides a means to confirm that the sensor's coverage pattern (see Figures 3 & 4) is aligned properly in the lighted space as well as verifying basic functionality of the sensor.

1. Remove PIR lens assembly from sensor (see Adjustments section below).
2. Place sensor in Test Mode (8 seconds) by adjusting Bank A DIP switches as described below.
3. Re-install PIR lens assembly.
4. Vacate the sensor detection pattern area. Remove obstructions (i.e. ladder or lift) from the sensor detection pattern area as necessary. Light(s) will turn off approximately 8 seconds after vacating detection pattern area.
5. Wait for at least 4 seconds, then re-enter sensor detection pattern area and observe that lights turn on.
6. Step out of sensor detection pattern area and observe that lights turn off approximately 8 seconds after vacating detection area.
7. Repeat steps 5 and 6 from different entry points on the detection pattern area as necessary to verify proper detection pattern area coverage.
8. If necessary, modify sensor detection pattern area by adjusting sensor sensitivity (see DIP Switch settings below), adding or modifying PIR lens masking, and/or adjusting sensor orientation/mounting.
9. After completing testing, repeat steps 1 through 3 to take sensor out of Test Mode by readjusting Bank A DIP switch settings as described below. NOTE: Sensor will automatically exit Test Mode after 1 hour.

WIRING DIAGRAMS



Wiring Diagram A – 120-347VAC Line voltage wiring diagram for single and dual relay sensors (Single Phase Only)



Wiring Diagram B – 120-347VAC Line voltage wiring diagram for connecting a dual relay sensor to a switching ballast

ADJUSTMENTS

Remove PIR lens assembly from sensor by inserting a small blade screwdriver into the catch at the bottom of the lens retainer ring (closest to the chase nipple) and gently lift up. Pinch the sides of the lens retainer ring together to release the two retainer catches. Remove PIR lens and set the adjustment switches as desired (see DIP Switch Settings below). To re-install PIR lens assembly, place PIR lens back on sensor – making sure that ALL lens tabs are inserted and that the lens is flush against the sensor housing. Pinch the sides of lens retainer ring together and insert retainer catches into recesses in sensor housing. Press down on bottom catch to secure retainer ring to housing.

DIP SWITCH SETTINGS

BANK A – SENSOR SETTINGS

BANK A - SETTINGS		
PIR	ON	OFF
	1	2
1 MODE	NORMAL	TEST
2 SENSITIVITY	HIGH	LOW
3 SMART CYCLING	ENABLED	DISABLED
4 PHOTOSENSOR	ONE-WAY	CONTINUOUS

Switch 1 – Mode: Controls the operational mode of the sensor. When placed in Test Mode (ON Position), the sensor will timeout after 8 seconds of no occupancy. Sensor will automatically exit test mode after 1 hour.

Switch 2 – Sensitivity: Controls PIR motion detection level. Use high sensitivity unless light(s) appear to turn on due to air currents, heat sources, etc. when area is unoccupied.

Switch 3 – Smart Cycling: Controls Smart Cycling operation of dual relay sensors. This feature extends lamp life by balancing the cumulative operating times of the different output loads.

Switch 4 – Photosensor: Available on photosensor models only. Controls selection between One-Way Mode and Continuous Mode. In One-Way Mode, the sensor turns lights on in response to occupancy when light levels are below the photosensor set point. Sensor then maintains them in the on condition regardless of the light level.

In Continuous Mode, the sensor functions the same way as One-Way Mode, except that during periods of occupancy it will turn the lights off if ambient light levels increase sufficiently to illuminate the space.

BANK B – SENSOR TIMERS

BANK B - TIMER(S)			
PIR	ON	OFF	1 2 3 4
	1	2	3 4
PRIMARY: DIPS 1 & 2	SECONDARY: DIPS 3 & 4 (DUAL OUTPUT VERSION ONLY)		
08 MINS: OFF OFF	DISABLED: OFF OFF		
04 MINS: OFF ON	30 MINS: OFF ON		
16 MINS: ON OFF	60 MINS: ON OFF		
30 MINS: ON ON	90 MINS: ON ON		

Primary Timer (DIPs 1 & 2): Controls time interval to turn off light(s) controlled by Primary Timer after the lighted space becomes unoccupied. Available settings are 8 (Default), 4, 16, and 30 minutes.

Secondary Timer (DIPs 3 & 4): Used on dual relay sensors only. Controls time interval to turn off light(s) controlled by Secondary Timer after the lighted space becomes unoccupied. Available settings are DISABLED (Default), 30, 60, and 90 minutes.

ADAPTOR MOUNTING DIAGRAMS

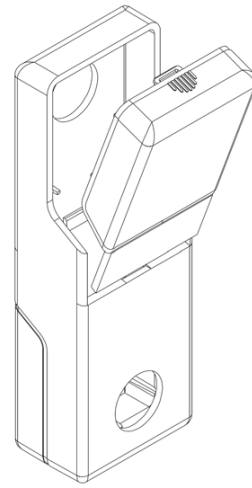


Figure 1

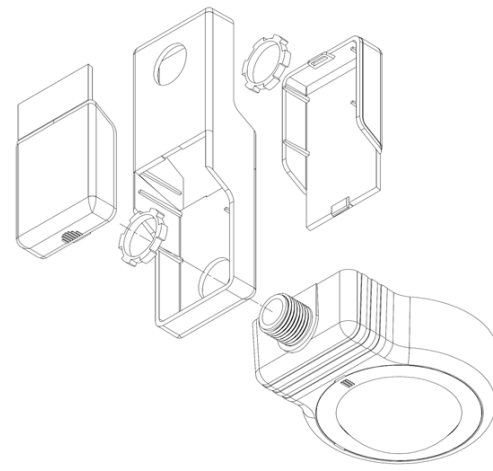


Figure 2

SENSOR RANGE DIAGRAM – 1.4 AREA LENS PATTERN

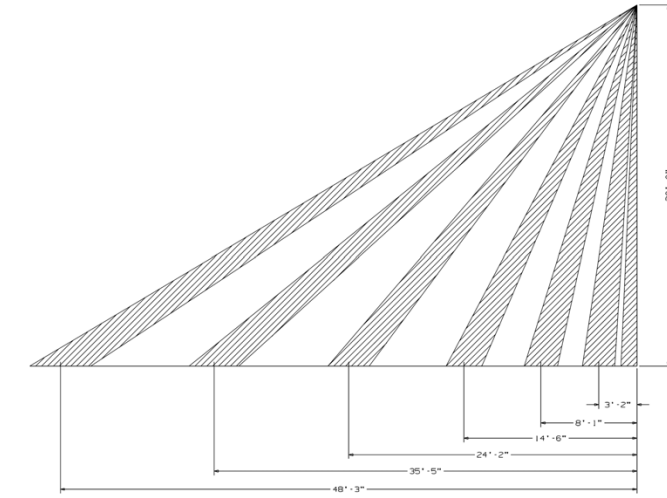


Figure 3 - Side View of 1.4 Area Lens

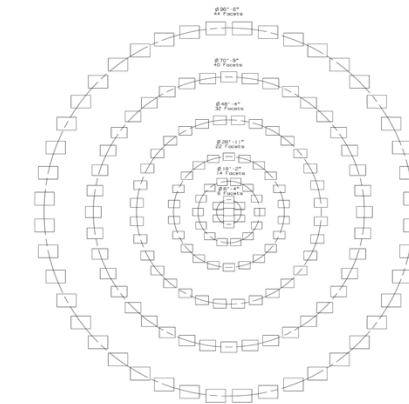


Figure 4 - Top View of 1.4 Area Lens



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