PerfectSense®
Intelligent Building Occupancy Sensors

PS-PP7000 Heavy Duty Occupancy/Vacancy Power Pack

Overview

The PerfectSense PS-PP7000 contains both a 24 VDC power supply and a 20 Amp line voltage relay providing low voltage power and line voltage control for PerfectSense Occupancy Sensors. The Power Pack can automatically be turned ON and OFF using an occupancy sensor input, BMS input, or timer input and can manually be turned ON and OFF using a low voltage momentary switch. Multi-circuit control can be handled using multiple power packs.

Features

- Regulated 24 VDC, 150 mA Current Output
- Auto ON/Manual ON input control for Occupancy Sensors
- Hold ON/Hold OFF capabilities
- Local input control
- Title 24 compliant
- Internal/External Junction Box Mounting
- Fluorescent Ballast Cavity Mounting
- Rated for Plenum Spaces (UL2042)

Specifications

RATINGS:
Power Input: 120-277VAC ~ 50/60Hz
Power Output: 24VDC 150mA (Class 2)
Max. Operating Temp: 60°C

MAX LOAD RATING:
20A LED Loads 120/240/277VAC, 2400W/4800W/5500W
20A Ballast 120/240/277VAC, 2400W/4800W/5500W
4A Electronic Ballast, 277VAC, 1000W
20A Tungsten, 277VAC, 5500W

MOTOR LOAD:
1Hp Motor Load, 120VAC / 2Hp Motor Load, 240/277VAC

Wire Designations

Signal Name	Color	Gauge
Line Voltage Wires		
Line 120-277V	Black	18 AWG
Neutral	White	18 AWG
Load	Blue	14 AWG
Load	Blue	14 AWG
Class II Wires		
Power (24 VDC)	Red	22 AWG
DC Return	Black	22 AWG
Occupancy Auto ON	Blue	22 AWG
Occupancy Manual ON	White	22 AWG
Hold ON	Yellow	22 AWG
Hold OFF	Orange	22 AWG
Local Switch Input	Brown	22 AWG

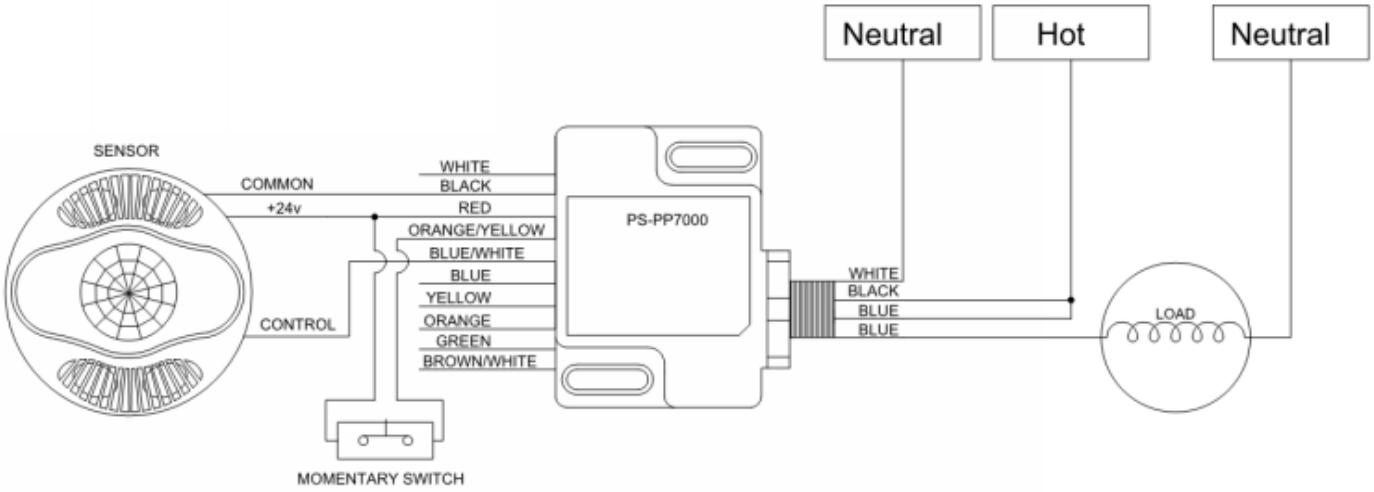
All wires rated at 105°C, Line Voltage Wires: 600V, Class II Wires: 300V

Phone: 218.828.3700 www.nexlight.com Fax: 218.824.1568

Installation Instructions

1. Provide separate overcurrent protection in accordance with the National Electrical Code® and applicable local codes.
2. Use copper wire only.
3. Confirm that the device rating is proper for your application.
4. Mount the power pack to a suitable junction box using the 1/2-in., threaded nipple and lock. The power pack is plenum-rated, and can be mounted to the inside or the outside of a junction box or fixture in a ceiling plenum.
5. Connect the power pack as shown on previous page. Use approved wire nuts for electrical connections.

Manual ON/Occupancy Off Wiring Diagram



PerfectSense®
Intelligent Building Occupancy Sensors

INSTALLATION INSTRUCTIONS

Power Pack PS-PP7000
Occupancy Sensor Auto ON/ Auto OFF
Vacancy Sensor Manual ON/ Auto OFF

Features:

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- Auto ON/Manual ON input control for Occupancy Sensors
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- Local input control
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4A Electronic Ballast, 277VAC, 1000W
20A Tungsten, 277VAC, 5500W
MOTOR LOAD:
1Hp Motor Load, 120VAC / 2Hp Motor Load, 240/277VAC

Description:

The PerfectSense PS-PP7000 contains both a 24 VDC power supply and a 20 Amp line voltage relay providing low voltage power and line voltage control for PerfectSense Occupancy Sensors. The Power Pack can automatically be turned ON and OFF using an occupancy sensor input, BMS input, or timer input and can manually be turned ON and OFF using a low voltage momentary switch. Multi-circuit control can be handled using multiple power packs. Zero cross switching circuitry reduces wear on the relay contacts by minimizing the inrush current associated with incandescent and electronic ballasts and increasing the life of the power pack.

WARNINGS AND CAUTIONS:
- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- If you are unsure about any part of these instructions, consult a qualified electrician.
- Use this device with copper clad wire only.
- Disconnect power when servicing fixture or changing lamps.

Installation:

1. Warning: TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER AT CIRCUIT BREAKER OR FUSE AND TEST THAT POWER IS OFF BEFORE WIRING!

2. Power Pack Mounting Options:

Internal Junction Box Mounting:

Refer to Figure 1 for mounting the power pack inside a 4" x 4" junction box. Wire according to Step 3.

Caution: If mounting power pack internally: Low voltage wires must also be dressed so that they are separate from the line voltage (Class I) wires. Please refer to local area building codes for proper installation requirements.

External Junction Box Mounting:

Refer to Figure 2 for mounting the power pack outside of a 4" x 4" junction box using the 2" EMT nipple.

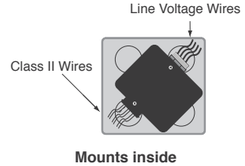
3. Wiring The Power Pack:

Line Voltage Wiring: Remove 1/2" (1.3 cm) of insulation from each conductor, making sure the ends of the conductor are straight. Twist the strands of each lead wire from the Power Pack to the LINE Voltage Circuit tightly. Push the twisted leads into the appropriate sized wire connector and screw the connector clockwise. Make sure that conductor is completely enclosed in wire connector and secure each connector with electrical tape.

Class II Wiring: Connect the low voltage wires from the Power Pack to the Occupancy sensor using the appropriate wiring diagram. Attach wire to occupancy sensors terminal blocks by inserting the low voltage wire into the terminal block and turning the screw clock wise to tighten. NOTE: If connecting to a sensor with pre-stripped wire leads, attach power pack wires to sensor wires using wire nuts rated for #18 to #22 AWG wire combinations.

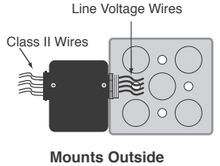
4. Restore Power At The Circuit Breaker. INSTALLATION IS NOW COMPLETE

FIGURE 1



Mounts inside Junction Box

FIGURE 2



Mounts Outside Junction Box

Operation:

The PS-PP7000 Power Pack may be automatically controlled using an occupancy sensor input, BMS input, or timer input, and manually via an optional low voltage momentary switch. Each function available with this power pack is explained below. These functions can be used in any combination to create a smart lighting controller. Examples of such combinations are shown in the wiring diagrams on the back of this installation manual.

Occupancy Auto ON/Auto OFF (Blue 22 AWG wire):

This input is for when an occupancy sensor is required to automatically control the lighting load (Auto ON/Auto OFF). Applying 24 volts closes the relay (Occupied State) and removing the voltage opens the relay (Vacant State).

Occupancy Manual ON/Auto OFF (White 22 AWG wire):

This input is for when an occupancy sensor is required to manually control when the lighting load is turned ON. When the occupancy sensor detects motion, the lighting load does not turn ON. Occupants must press a local low voltage momentary switch to turn the load ON. When the occupancy sensor is the only input being used to keep the lighting load ON, the sensors Delayed-OFF Time will turn the lighting load OFF. If the occupancy sensor input re-triggers within 30 seconds of the load turning OFF, the load will turn on again. If the occupancy sensor input re-triggers after 30 seconds of the load turning OFF, the occupant must press the momentary switch to turn the lighting load ON.

Hold ON (Yellow 22 AWG wire):

A timer, panel input, or BMS input usually controls this input. Applying 24 VDC will close the relay. If no other input is holding the relay closed, removing the voltage will open the relay. This input overrides the Auto ON and Manual ON inputs.

Hold OFF (Orange 22 AWG wire):

A timer, panel input, BMS or load shed input usually controls this input. Applying 24 VDC will open the relay. When the voltage is removed, the relay will except any other input to turn the lights back on. This input overrides the Auto ON, Manual ON, and Hold ON inputs.

Local Switch (Brown 22 AWG wire):

This input is intended to be used with a low voltage momentary switch. When the momentary 24 VDC is applied from the switch, the relay changes to the opposite state. This input overrides the Auto ON, Manual ON, Hold ON, and Hold OFF inputs.

Presentation Mode:

See wiring diagram on the back of the installation manual. In presentation mode, the occupancy sensor will turn the lighting load ON. When the lighting load is turned OFF using the low voltage momentary switch, the power pack will not turn the lighting load ON automatically until after the occupancy sensor's Delayed OFF Time expires. Pressing the low voltage momentary switch before the occupancy sensor's Delayed OFF Time expires turns the lighting load ON. When the occupancy sensor's Delayed OFF Time expires, the power pack will return to Auto ON mode and will turn the lighting load ON with the next input from the occupancy sensor.

Wire Designations

Signal Name	Color	Gauge
Line Voltage Wires		
Line 120-277V	Black	18 AWG
Neutral	White	18 AWG
Load	Blue	14 AWG
Load	Blue	14 AWG
Class II Wires		
Power (24 VDC)	Red	22 AWG
DC Return	Black	22 AWG
Occupancy Auto ON	Blue	22 AWG
Occupancy Manual ON	White	22 AWG
Hold ON	Yellow	22 AWG
Hold OFF	Orange	22 AWG
Local Switch Input	Brown	22 AWG

All wires rated at 105°C, Line Voltage Wires: 600V, Class II Wires: 300V

Troubleshooting:

The lights are flickering:
- o The lamp has a bad connection
- o The wires are not secured firmly with wire connectors.

The lights did not turn ON:
- o The circuit breaker or fuse has tripped.
- o The lamp is burnt out.
- o The Hold OFF or Manual ON input is in the active state.
- o The low voltage or line voltage wires are wired incorrectly. Please verify with the appropriate wiring diagram.
- o The lamp Neutral connection is not wired.

The lights stay ON:
- o The occupancy sensor is seeing constant motion. To test: remove motion and adjust sensor accordingly.

The lights stay ON too long:
- o Adjust the occupancy sensor settings.

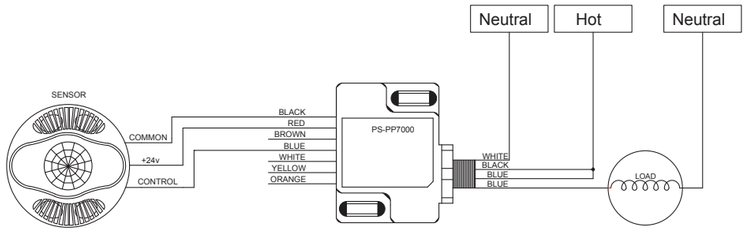
The lights do not turn off with time delay:
- o The Hold ON input is in the active state.

Lights come ON during Presentation Mode:
- o Increase the occupancy sensor's Delayed OFF Time
- o Increase the motion during the presentation

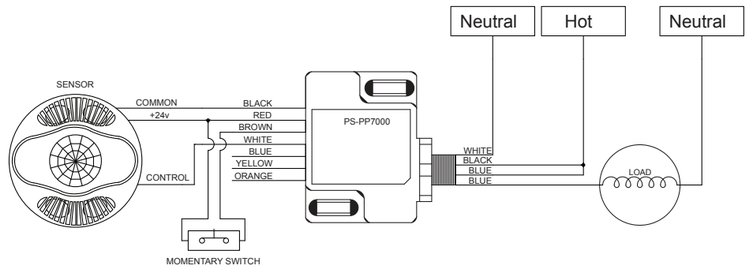
FC Tested To Comply With FCC Standards For Home or Office Use

c UL us LISTED E359739
Enclosed Energy Managment Equipment
UL 2042 Plenum Rated

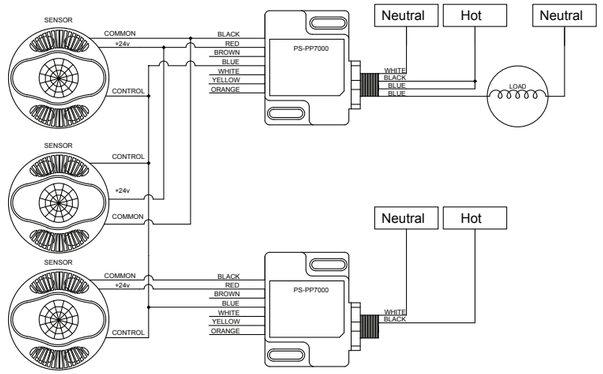
1 Auto ON / Auto OFF



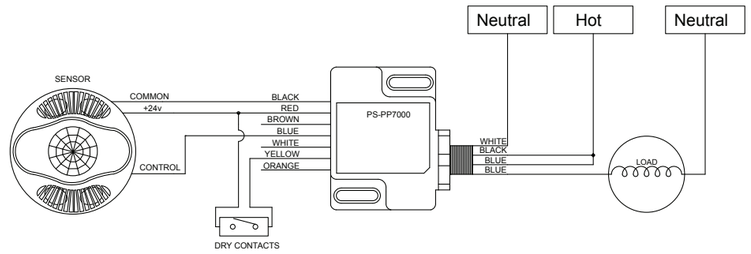
2 Manual ON / Auto or Manual OFF



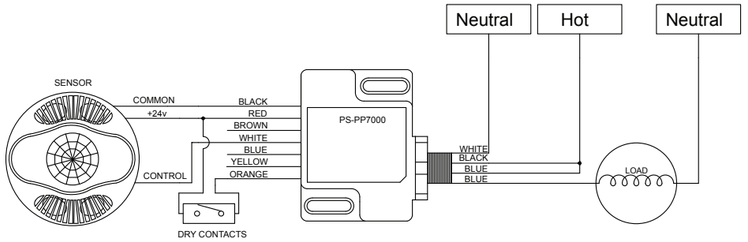
3 Multiple Sensors Exceed Power Supply Ratings



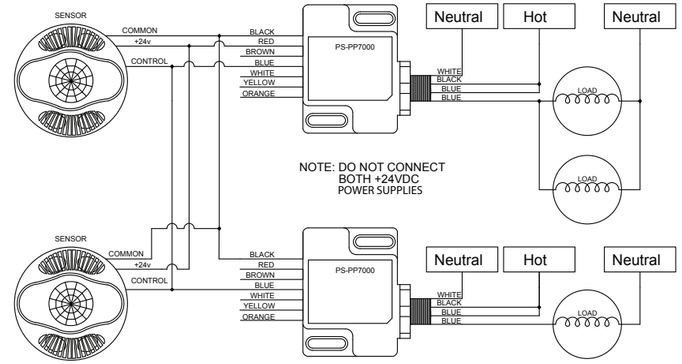
4 Auto ON / Auto OFF with Light Hold on Overide



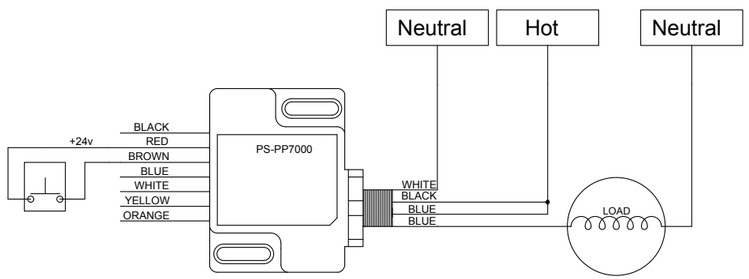
5 Manual ON / Auto or Manual OFF with Light Hold OFF overide



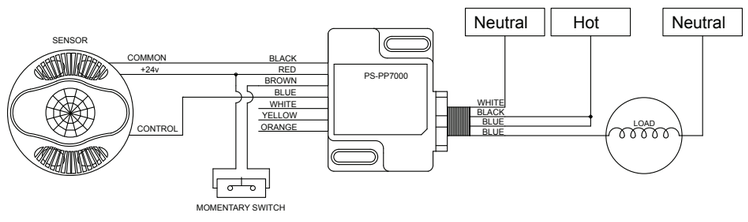
6 Multiple Loads Exceed Single Power Pack Ratings



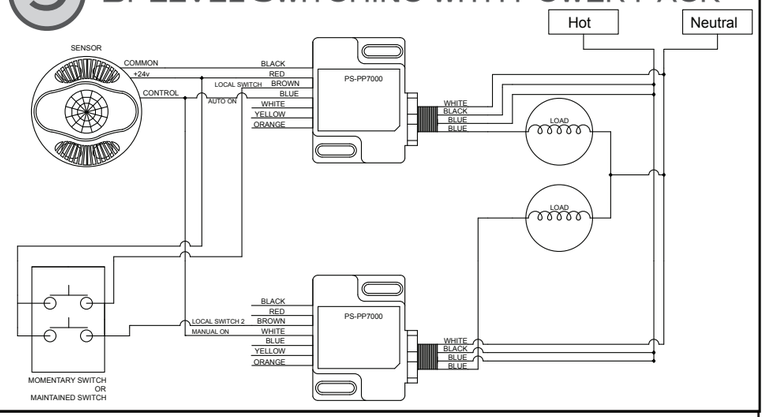
7 Local Switch Control



8 Presentation Mode



9 Bi-Level Switching with Power Pack



LIMITED 5 YEAR WARRANTY AND EXCLUSIONS

PerfectSense warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by PerfectSense is free of defects in materials and workmanship under normal and proper use for five years from the purchase date. PerfectSense's only obligation is to correct such defects by repair or replacement, at its option, if within such five year period the product is returned prepaid, with proof of purchase date, and a description of the problem to PerfectSense Technologies LLC., Att: Quality Assurance Department 7877 College Road Suite #105, Baxter MN 56425. This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose, but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to five years. PerfectSense is not liable for incidental, indirect, special, or consequential damages,including without limitation, damage to, or loss of use of, any equipment, lost sales or profits or delay or failure to perform this warranty obligation. The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.