

Load Ratings: 20A, 2400W @ 120V, 60Hz - Incandescent / 20A, 2400VA @ 120V, 60Hz - Fluorescent
 20A, 5540VA @ 277V, 60Hz - Fluorescent / 1/2 HP @ 120V - Motor Load / 2 HP @ 240/277V, 60Hz - Motor Load / 0.5A 120V, 1A 30VDC - HVAC Relay
For use with LRM2250, LRM2255, LRM2260, LRM2265, LRM2270, LRM2275, LRM2280 Low Voltage Sensors

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- **TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER** at circuit breaker or fuse and test that power is off before wiring!
- 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 an electrician.
- Use this device with **copper or copper clad wire only**.
- **Disconnect power** when servicing fixture or changing lamps.

FEATURES

- Title 24 Compliant
- Hold On/ Hold Off capabilities
- Regulated 24VDC, 150mA output current
- Mounts inside Fluorescent Ballast cavity
- Mounts inside or outside Junction Box
- Rated for Plenum spaces

RATINGS

Part Number	HVAC Relay	Power Input ¹	Power Output ²
LCA2292	Yes	120-277VAC, 50/60Hz	24VDC, 150mA 3.6W

¹ Input voltage tolerance 10%, Frequency tolerance 5%.

² Output voltage tolerance 15%, Output voltage listed at nominal.

DESCRIPTION

The power pack contains a power supply, a load switching relay and an HVAC relay. The power supply provides Class 2 low-voltage power for LRM2250, LRM2255, LRM2260, LRM 2265, LRM2270, LRM2275, and LRM2280 Series Occupancy Sensors. The relay in the power pack is controlled by the occupancy sensors connected via the 22 Gauge Blue "occupancy" wire. Multiple occupancy sensors can be connected to a single power pack in order to fully cover an area. The power packs include zero cross switching circuitry to minimize inrush current associated with incandescent and electronic ballasts. This reduces wear and tear on the relay contacts making the power pack last longer.

Application Notes:

1. When a lighting load exceeds a single power pack's rating, the load can be split between multiple power packs. The low voltage occupancy input (Blue wire) and DC return (Black wires) of the power packs must be connected together for all power packs to operate together as one. Connect the Blue (occupancy) wires of all power packs and sensors together. Connect the Black (return) wires of all power packs and sensors together. Connect the Red (+24VDC) wires of the sensors to the Red wires of only one power pack. Never connect the Red (+24VDC) wires of two different power packs together.
2. When more sensors are required than one power pack can supply, multiple power packs can be used to supply power to the occupancy sensor, but not switch any load. The primary power pack is the power pack switching the load. The secondary power packs only provide low voltage power to the occupancy sensor(s). Connect as many sensors to the primary power pack as possible (see current capacity section below), by connecting the Red wires of the sensors to the Red wire (+24VDC) of the primary power pack. Connect the Red wires (+24VDC) of the remaining sensors to the Red wires of the secondary power pack. Connect the Black (return) wires of all power packs and all sensors together. Connect the Blue (occupancy) wire of all sensors together to the Blue wire (occupancy) of the primary power pack. Never connect the Red (+24VDC) wires of two different power packs together.

FCC COMPLIANCE STATEMENT (LCA2292)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

LOW-VOLTAGE CURRENT CAPACITY

LCA2292 **Total Number of Sensors ≤ 150mA**

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. Mount power pack per desired application:

A. To mount outside 4"x4" junction box using 2" EMT nipple, refer to **Figure 1**. Wire per instructions **Step 3A** and **3B**.

B. To mount inside 4"x4" junction box, refer to **Figure 2**. Wire per instructions **Step 3A** and **3B**.

- Ensure that conduit/cable entry clamp is located in corner of junction box.
- Dress wires to provide enough clearance when device is installed.

CAUTION: Low-voltage wires must also be dressed so they are separate from the high voltage (Class I) conductors. Refer to local building codes for the appropriate installation requirements for the low voltage wiring. Jacketing over the low-voltage wires may be required to provide appropriate insulation from the high-voltage wiring.

C. To mount inside ballast cavity of light fixture, refer to **Figure 3A**. Wire per instructions **Step 3A** and **3B**.

CAUTION: Low-voltage wires must also be dressed so they are separate from the high voltage (Class I) conductors. Refer to local building codes for the appropriate installation requirements for the low voltage wiring. Jacketing over the low-voltage wires may be required to provide appropriate insulation from the high-voltage wiring.

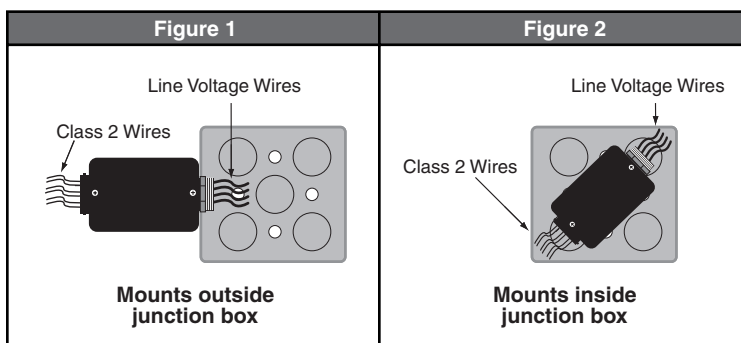
D. To mount outside ballast cavity of light fixture, refer to **Figure 3B**. Wire per instructions **Step 3A** and **3B**.

3A. Line Voltage Wiring: Remove 5/8" (1.6 cm) of insulation from each circuit conductor. Make sure that ends of conductors are straight. Connect lead wires from Power Pack to LINE circuit per appropriate WIRING DIAGRAM as follows: Twist strands of each lead tightly and, with circuit conductors push firmly into appropriate wire connector. Screw connectors on clockwise making sure that no bare conductor shows below the wire connectors. Secure each connector with electrical tape.

3B. Class 2 and HVAC Wiring: Connect Low-Voltage wires from Power Pack to Sensor per appropriate WIRING DIAGRAM as follows: Twist strands of each lead tightly and, with circuit conductors, push firmly into appropriate wire connector. Screw connectors on clockwise making sure that no bare conductor shows below the wire connectors. Secure each connector with electrical tape.

4. Refer to sensor Installation Instructions for further details.

5. Restore power at circuit breaker or fuse. **INSTALLATION IS COMPLETE.**



OPERATION

The AutoOn/Override Power Pack can be turned ON and OFF automatically using an occupancy sensor input, a timer, panel or BAS input, and manually from an optional low voltage momentary switch.

AUTO ON (See Wiring Diagram):

The occupancy sensor input, Hold ON input and the optional momentary switch input can all be used to turn the load ON.

When the load is turned OFF using the momentary switch, the power pack does not turn it ON automatically until after the sensor time delay expires (e.g., presentation mode). Pressing the momentary switch before the sensor time delay expires turns the load ON. When the occupancy sensor's time delay expires, the power pack reverts to AutoON mode and it turns the load ON with the next input from the occupancy sensor.

MANUAL ON (See Wiring Diagram):

Occupants must press the low voltage momentary switch to turn the load ON. When the occupancy sensor is the only input keeping the load ON, the load turns OFF when the sensor time delay expires. If the sensor input re-triggers within 30 seconds after the load turns OFF, the load turns ON again. After the 30 seconds expire with no sensor input press the momentary switch to turn the load ON.

LOW VOLTAGE INPUTS

24VDC input wires are provided to control the load relay. The inputs may be used in combination or individually, depending on the application(s). See wiring diagrams for connections.

MAINTAINED INPUTS

Occupancy Sensor (Blue) - This input is for occupancy sensor AutoON/AutoOFF. Applying 24v closes the relay (Occupied). Remove the voltage and the relay opens (Vacant).

Occupancy Sensor (Blue/White) - This input is for occupancy sensor ManualON/AutoOFF. When the attached occupancy sensor detects motion, no action occurs. A local momentary switch is required to manually turn the load ON. Then the sensor will turn the load OFF when the time delay expires.

Hold ON (Yellow) - This input is intended for timer or panel input.

Applying 24VDC closes the relay and disables other inputs. It can be overridden by the Hold OFF input.

Hold OFF (Orange) - This input is used for timer, panel, BAS or load shed input. Applying 24VDC opens the relay. Remove the voltage and the relay can accept any other input. It overrides the Control ON and Hold ON inputs.

Local Switch (Yellow/Orange) - This input is for a low voltage momentary switch. Applying 24VDC momentary input changes the relay to the opposite state. It overrides the Control ON, Hold ON and Hold OFF inputs.

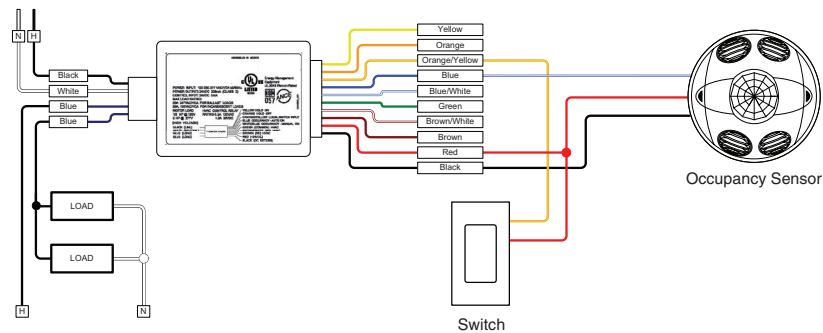
Wire Designations		
Signal Name	Color	Gauge
Line Voltage Wires		
Line 120-277V	Black	18 AWG
Neutral	White	18 AWG
Load	Blue	14 AWG
Load	Blue	14 AWG
Class 2 Wires		
Power (24 VDC)	Red	22 AWG
DC Return	Black	22 AWG
Occupancy Auto ON	Blue	22 AWG
Occupancy Manual ON	Blue/White	22 AWG
Hold ON	Yellow	22 AWG
Hold OFF	Orange	22 AWG
Local Switch Input	Yellow/Orange	22 AWG
HVAC Wires		
HVAC Common	Green	22 AWG
HVAC NO (Normally Open)	Brown/White	22 AWG
HVAC NC (Normally Closed)	Brown	22 AWG

- All wires rated at 105° C, 600V insulation.
- Class 2 wires are Teflon coated, for plenum applications.
- HVAC wiring is Class 1 and Class 2 rated.

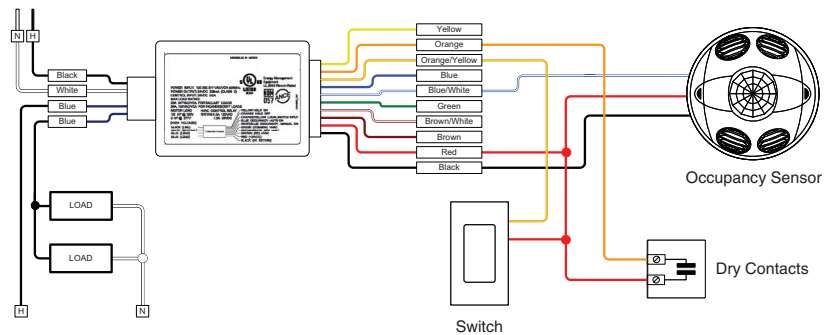
TROUBLESHOOTING

- **Lights Flickering**
 - Lamp has a bad connection.
 - Wires not secured firmly with wire connectors.
- **Lights did not turn ON**
 - Circuit breaker or fuse has tripped.
 - Lamp is burned out.
 - Lamp Neutral connection is not wired.
 - Hold OFF or Manual ON input is active.
 - Low Voltage miss wired. Verify wiring pre appropriate diagram.
 - Line Voltage miss wired. Verify wiring pre appropriate diagram.
- **Lights stay ON**
 - Constant motion. **To Test:** adjust sensor; remove motion source (HVAC, Mask, or move sensor).
- **Lights turn ON too long**
 - Adjust sensor settings.
- **Lights came ON during presentation**
 - AutoON mode is connected and the time delay expired.
 - Increase the sensor time delay or generate more motion during the presentation.
- **Lights do not turn OFF with time delay**
 - Hold ON input is active.

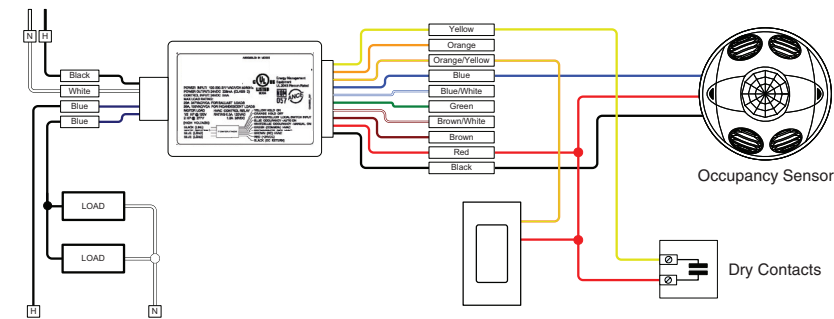
Auto ON/Auto OFF, Manual OFF



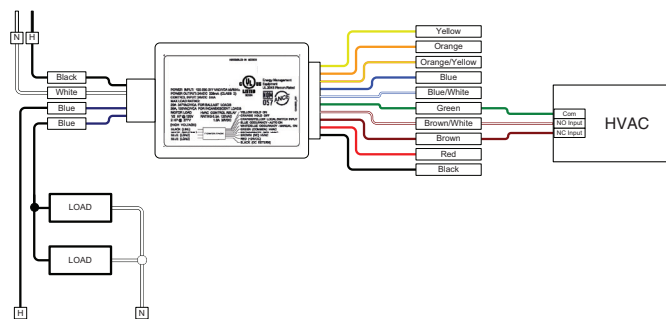
Manual ON, Light Hold OFF, Auto OFF



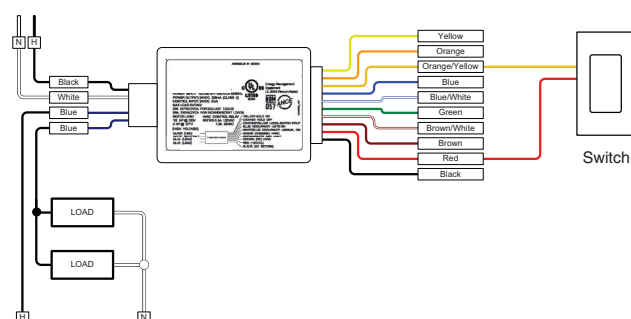
Auto ON, Auto OFF, Light Hold ON



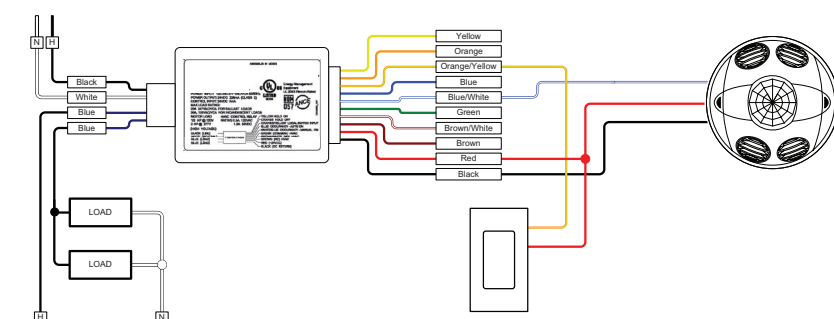
HVAC



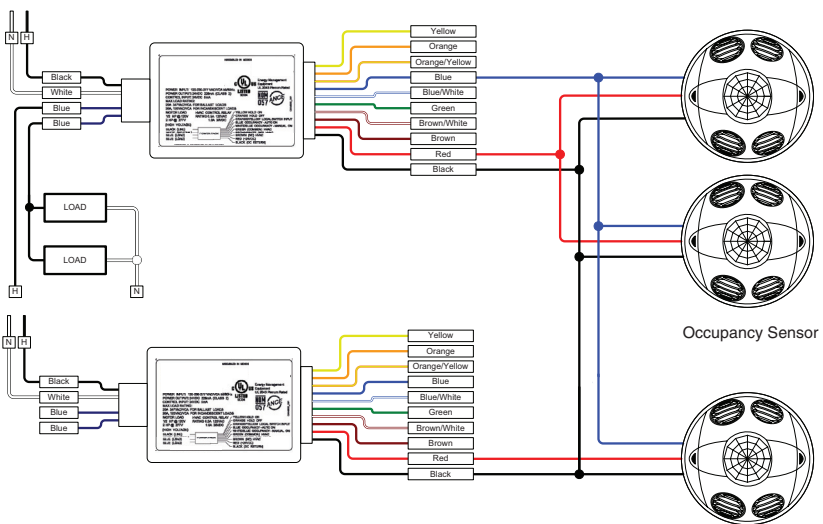
Local Switch



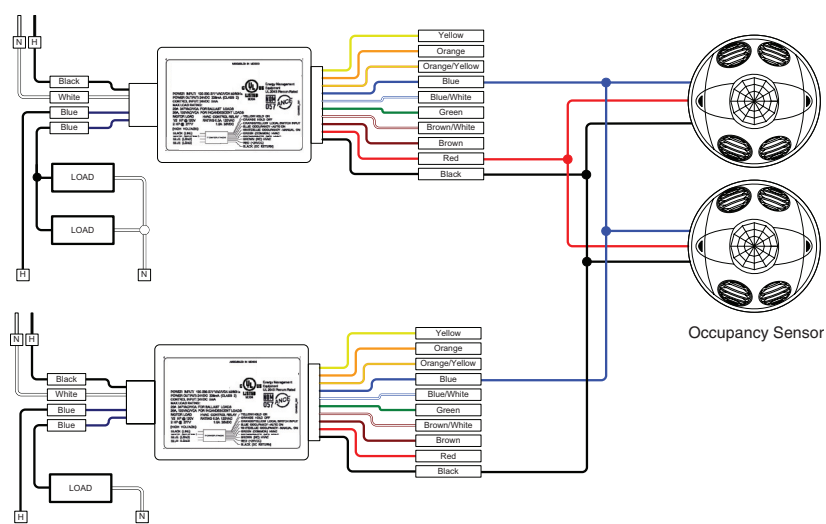
Manual ON, Auto OFF



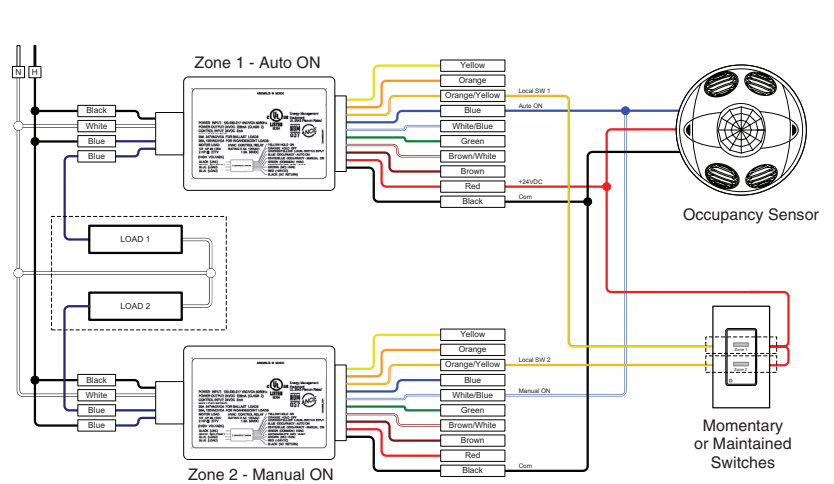
Multiple Occupancy Sensors Exceed Power Supply Ratings



Multiple Loads Exceed Single Power Pack Ratings



LCA2292 Bi-Level Switching



PRODUCT WARRANTY

Philips Lighting Standard two (2) year warranty

Contact Information: Philips Lighting, 10275 Higgins Road, Rosemont, IL 60018 USA

Customer Care/Technical Service: 1 800-372-3331

E-Mail: tech.service.rosemont@philips.com

Website: www.usa.lighting.philips.com