

Fiber Optic Switch Packs

SLSPSP101 and SLSPSP102 for use with Luminaires

INTRODUCTION

SLSPSP101 Single Input Switch Pack



SLSPSP102 Dual Input Switch Pack



The SLSPSP101 and SLSPSP102 Fiber Optic Switch Packs work with occupancy sensors to control the light output of a single HID (high intensity discharge) luminaire based on the occupancy of an aisle or room. In an unoccupied area, the Switch Pack reduces the lamp wattage by approximately 50% and then returns lamp wattage to 100% when activity is detected.

The Switch Pack is compatible with magnetic HID luminaires equipped with a dual-section capacitor, and with SLSPIP200 series fiber optic occupancy sensors. Signals through plastic optical fibers are exchanged between the Switch Packs and the sensors.

Features

- Compatible with HID luminaires rated between 120 and 480VAC/60Hz, without adding taps or jumpers.
- Compatible with most dimming-ready HID luminaires equipped with a constant wattage autotransformer (CWA) ballast and dual-section capacitor.
- Lamp always starts on high to provide full rated HID lamp life, even after AC power bumps or loss of fiber optic signals.
- Includes a manual test switch for self diagnostics that assist with installation and debugging of networks.

CONTENTS OF THE BOX

Item	Quantity
Switch Pack Unit SLSPSP101 or SLSPSP102	1
1/2 inch Lock Ring	1
Instruction Bulletin	1

DIFFERENCE BETWEEN SINGLE AND DUAL INPUT

The SLSPSP101 and SLSPSP102 Fiber Optic Switch Packs are available in both single input switch packs (SLSPSP101), and dual input switch packs (SLSPSP102).

Single input switch packs include a blue and a black twist and lock connector to send and receive fiber optic signals. The single input switch packs provide signal loop-through, and are commonly used in daisy chain configurations. The dual input switch packs have two black twist and lock connectors that only receive fiber optic signals. They are commonly used in configurations that interleave switch packs and sensors.

Common Configurations

Figure 1: SLSPIP212 Sensor in a five-fixture zone with Four SLSPSP101 Single Input Switch Packs

KEY:

- A. SLSPSP101: Single Input Switch Pack
- B. SLSPIP202: Occupancy Sensor (not included)

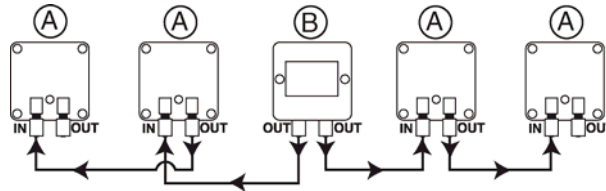
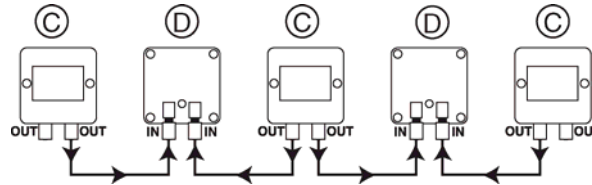


Figure 2: Two-Output Sensors SLSPIP202 Interleaved with Two-Input Switch Packs SLSPSP102

KEY:

- C. SLSPIP202: Occupancy Sensor (not included)
- D. SLSPSP102: Dual Input Switch Pack



SAFETY PRECAUTIONS

This section contains important safety precautions that must be followed before attempting to install or maintain electrical equipment. Carefully read and follow the safety precautions below.

⚠ DANGER

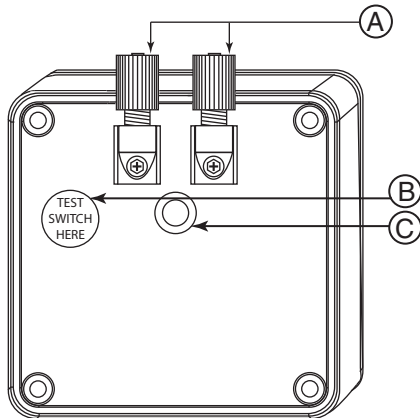
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- This equipment must be installed and serviced by qualified electrical personnel.
- Turn off all electrical power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

INSTALLATION

Figure 3: Switch Pack Components



- KEY:
- A. Twist and Lock Connectors
 - B. "Test Switch Here" Decal
 - C. LED

The Switch Pack can be mounted in a variety of configurations, and using various installation methods because of its compatibility with many different types of luminaires. Consider the ballast housing used and specific installation circumstances, such as location on the luminaire, when selecting a mounting method.

NOTE: The Switch Pack does not work with HID luminaires equipped with electronic ballasts.

NOTE: The dual capacitor inside the luminaire determines the lamp wattage in the dimmed step. This wattage is unaffected by the Switch Pack.

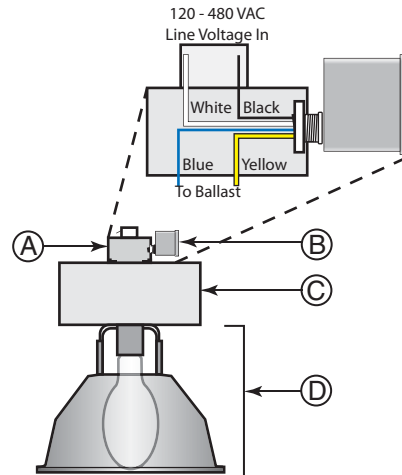
NOTE: The Switch Pack does not work with a regulated lag ballast incorporating power factor correction.

Installing the Switch Pack to the Wiring Box

1. Turn OFF the circuit breaker supplying power to the luminaire. Use a properly rated sensing device to verify power is OFF.
2. Punch out the knockout on the side of the wiring box, or drill a hole to accommodate the Switch Pack's threaded nipple. Refer to the "Switch Pack with Luminaire" illustration.
3. Insert the Switch Pack's threaded nipple through the wiring box and secure the Switch Pack with the supplied 1/2 inch lock ring.
4. Wire the Switch Pack to the luminaire as illustrated in the "Wiring" section.

Figure 4: Switch Pack with Luminaire

- KEY:
- A. Wiring Box
 - B. Switch Pack
 - C. Ballast Housing
 - D. Reflector Assembly



Wiring Diagrams

Figure 5: Wiring for Metal Halide Luminaire with Pulse Start Ignition

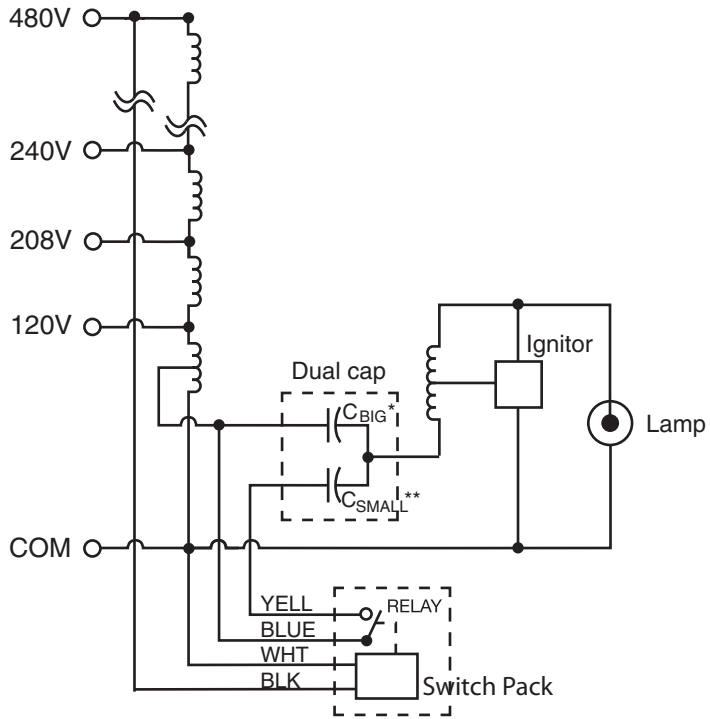
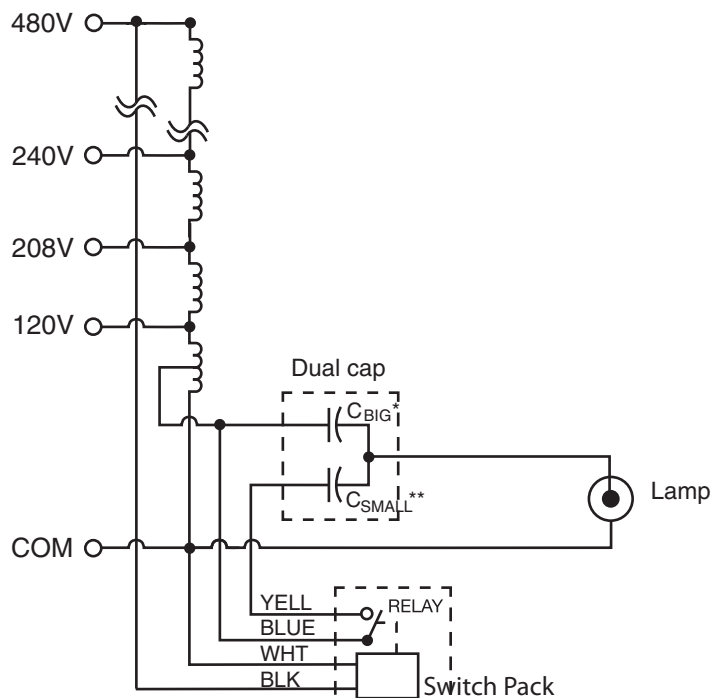


Figure 6: Wiring for Probe Start Metal Halide or High Pressure Sodium Luminaire



* C BIG = The capacitor with the higher microfarad rating.

** C SMALL = The capacitor with the lower microfarad rating.

DUAL-SECTION CAPACITOR

The luminaires must either come equipped with a dual-section capacitor intended for bi-level dimming or be retrofitted with a dual-section capacitor prior to the Switch Pack installation. The dual-section capacitor must meet voltage and capacitance recommendations of the luminaire or ballast manufacturer.

Capacitors inside the dual section capacitor do not have equal ratings. Refer to the illustrations in the "Wiring Guidelines" and "Parallel or Series Switching Configurations" sections of this bulletin.

Parallel or Series Switching Configurations

The Switch Pack are designed for parallel switching. It may be used for series switching, but the current rating of the internal switching device will limit the use of series switching mode to 250 watt luminaires and smaller. See the "Standards and Specifications" section.

Figure 7: Parallel Switching (Preferred Method)

KEY:

- A. C BIG: The capacitor with the higher microfarad rating.
- B. C SMALL: The capacitor with the lower microfarad rating.

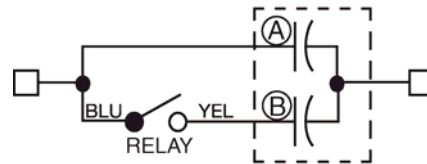
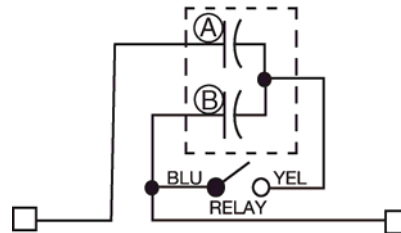


Figure 8: Series Switching (Subject to 4A RMS Maximum)

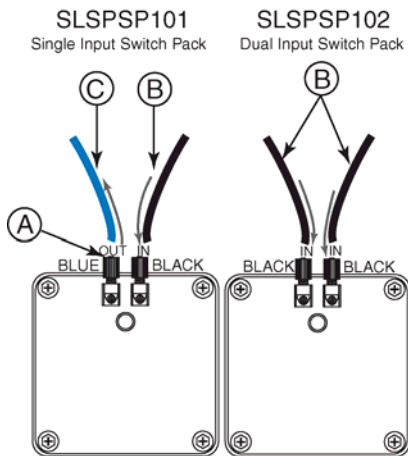
KEY:

- A. C BIG: The capacitor with the higher microfarad rating.
- B. C SMALL: The capacitor with the lower microfarad rating.



INSTALLING THE OPTICAL FIBER

Figure 9: Attaching the Optical Fiber



KEY:

- A. Twist and lock connector
- B. Black Optical Fiber (receiving signal)
- C. Blue Optical Fiber (sending signal)

The Switch Packs have fiber optic networking capability using Mitsubishi® SH4001 Optical Fiber Cable. To connect the optical fiber to the twist and lock connectors on the Switch Pack:

1. Turn the twist and lock connectors counterclockwise to open.
2. Remove the white plug from black connector(s).

NOTE: Keep either the white plug or optical fiber inserted into the black connectors. Otherwise the unit may give erratic behavior in response to stray light entering an open black connector, or through an unconnected fiber segment.

3. Insert the optical fiber until it reaches the bottom of the connector.

NOTE: Do not remove the protective sheath from the fiber.

4. Turn the twist and lock connector clockwise to close.

NOTE: Never connect two black connectors or two blue connectors. Only connect a black connector to a blue connector.

LUMINAIRE WARM-UP

After the Switch Pack is installed and the line power is turned ON, the luminaire is automatically at 100% wattage for 15 minutes.

Refer to the "LED Blinking Patterns for the Luminaire" table for blinking pattern of the Switch Pack during the warm-up period.

Upon completion of the warm-up, the Switch Pack automatically returns to the low power step or to the relay state determined by the inbound optical fiber.

Refer to the "Testing the Switch Pack" section to override the warm-up.

NOTE: The magnet used to test the Switch Pack overrides and cancels the 15 minute warm-up period. To ensure proper warm-up, and preserve lamp-life, do not use the magnet and test the Switch Pack until after the 15 minute warm up is complete.

IDENTIFYING THE STATE OF THE LUMINAIRE

The Switch Pack has an LED that blinks three distinct patterns to indicate the state of the Switch Pack.

The red LED is located behind the Switch Pack's face plate. The following table illustrates what each blinking pattern means.

Table 1: LED Blinking Patterns for the Luminaire

First Blink	Second Blink	Does the fiber transmit light?	Luminaire State
Short	Long	N/A*	The luminaire is in a warm-up period at 100% wattage. (15 minute warm-up).
Short	Short	No	The luminaire is at 50% wattage.
Long	Long	Yes	The luminaire is at 100% wattage.

** NOTE: Immediately after the line power is turned ON the Switch Pack overrides the fiber signal, and the luminaire enters a 15 minute warm-up period. Refer to the "Luminaire Warm-up" section.*

TESTING THE DEVICE

During testing, the installer uses a magnet to toggle the Switch Pack's relay and confirm proper operation. Follow the instructions below to toggle the luminaire between 100% wattage and 50% wattage.

1. Turn ON the circuit breaker that supplies power to the Switch Pack's power pack.
2. Wait until the 15 minute luminaire warm-up period is complete.
3. Place a pocket magnet near the "TEST SWITCH HERE" decal on the Switch Pack. Refer to the "Switch Pack Components" figure. The audible click indicates the Switch Pack has changed states.

NOTE: Use a magnet of sufficient strength. A pocket magnet is generally strong enough; however a flexible refrigerator magnet is not.

4. Remove and replace the magnet to change the state again. As the magnet is removed and replaced, the luminaire toggles between the high brightness and dimmed states.
5. Use a flash light, or other light source, to shine light into the fiber that is connected to the black connector.
6. The luminaire changes to 100% wattage when the fiber is illuminated.
7. Darken the fiber(s) attached to the Switch Pack's black connector(s) by placing your thumb over the open ends of the fiber(s).
8. The luminaire changes to 50% wattage.

STANDARDS AND SPECIFICATIONS

Standards	UL and cUL listed FCC Part 15 Class B
Specifications	
Switching Configurations	Parallel (preferred) or series capacitors
Relay Current Rating	4 amperes RMS maximum
Maximum Luminaire Wattage	1000 watts parallel mode/250 watts series mode
AC Line Voltage (white and black wires)	120/208/240/277/347/480VAC auto-adjusting
Switch Pack Power Consumption	3 watts maximum
Compatible Optical Fiber Type	Mitsubishi SH4001 Optical Fiber Cable
Maximum Fiber Spacing Between Nodes	200 feet
Ambient Temperature Range	32 to 122°F (0 to 50°C) non-condensing
Lamp Warm-up Interval	15 minutes (not adjustable)
Installation Assists	Magnetic Test Switch and Blinking LED
Mounting Options	1/2" NPT nipple
Wire Harness	4 Conductor 18AWG stranded copper wire
Wire Harness Length	9 in.
Dimensions (including mounting nipple)	3.25in. x 3.25in. x 3.25in.

SUPPORT AND SERVICE

Contact the Customer Information Center for technical support by phone at 1-888-778-2733 or e-mail at lightingcontrol.support@us.schneider-electric.com.

Contact your local Schneider Electric service representative or C-Bus™ system certified installer for repairs or service to your network.

You may also find helpful information on our web site at www.Schneider-Electric.us.

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