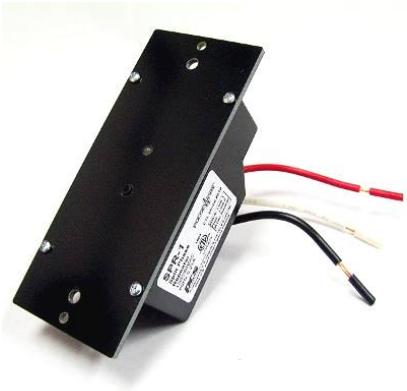


FUNCTION

The SPR Split-Phase Repeater is an active UPB™ device that is designed to enhance the communication reliability between devices using the Universal Powerline Bus (UPB™) method of communication (such as PulseWorx™ devices). It is designed to be used in a typical residential 120/240VAC split-phase electrical environment. The SPR comes in both plug-in and wire-in models. The main purpose of the SPR is to increase powerline communication reliability by taking UPB™ messages transmitted on one phase (leg) of the electrical system and strongly repeating them on to the other phase (leg) with the patented Dual Cap transmitter. The signal is repeated at 150% of received signal strength.

Wire-in and Plug-in Models

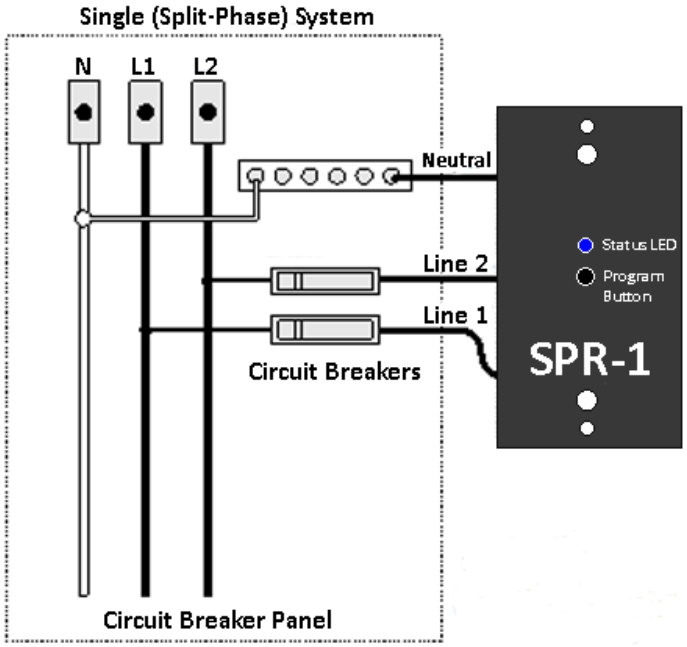
The SPR is available in both plug-in and wire-in models. The SPR-1 is designed to install in a suitable junction box and wire to two phases (circuits) and neutral of the circuit breaker panel. The SPR-4 is designed to plug into any 4-socket NEMA 14-30 240V electrical outlet.

INSTALLATION

Installation of the SPR-1

Note: Installation must be carried out by a qualified electrician only. The main breaker must be turned off during installation and the repeater must be installed in a suitable junction box or equivalent enclosure. Installation must be carried out in accordance with all applicable codes and requirements, including, but not limited to, the National Electrical Code (NEC).

1. Turn off the power at the main breaker panel.
2. Install the repeater into a suitable workbox or equivalent enclosure using the wiring nipple to insert in any ½" knock-out (if necessary).
3. Connect the black wire to phase A, and the red wire to phase B, using wire nuts. Connect the white wire to neutral (see illustration below). Check that there are no bare wires protruding and cover the wire nuts with insulating tape if necessary.
4. Check all wiring and connections, and turn on the main breaker.
5. The LED will light up if all connections are proper.



The SPR works best when plugged or wired in as close to the main circuit breaker panel as possible. Installation of the

SPR-4 is simple:

1. Unplug any appliance that is plugged into the 240V electrical outlet.
2. plug the SPR-4 into the 4-socket 240V electrical outlet.
3. Plug the appliance into the pass-thru socket on the front of the SPR.

OPERATION

The SPR-1 will automatically repeat all multi-packet messaging transmissions that it hears in order to enhance the UPB™ communication reliability of your network. All PulseWorx™ devices (and most other UPB™ devices) are pre-configured at the factory to use multi-packet messaging. Refer to the SPR documentation on the PCS website (www.pcslighting.com/pulseworx) for more information.

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CONFIGURATION

Although the SPR-1 will operate without any configuration, we ***highly*** recommend that you use the UPStart Setup Software to add your SPR to the UPB network with a Unit ID. Once added to the network UPStart can then be used to adjust the SPR's receive sensitivity and perform communication tests between other devices to insure proper system signal strength.

Adding the SPR-1 to the UPStart Network

The SPR-1 is added in to a network just like most other UPB™ devices. Select Device→Add Device, place the SPR into Setup Mode, and click the Next button. The SPR's Program Button is tapped 5 times to enter the SPR into Setup Mode and double-tapped to exit from Setup Mode. While in Setup Mode the Status LED will blink blue. Once the SPR is added to the network, it may be assigned a Room and Device Name that are meaningful for identification purposes.

Performing Communication Tests

It is important that the communication of your UPB™ network be tested to insure proper system signal strength. UPStart has a Repeater Communication Test that will test how well each device communicates to the SPR and how well the SPR communicates to all devices. The Repeater Communication Test will show a record of the signal strength, noise level, and phase at all devices.

Adjusting the Receive Sensitivity

If powerline noise is severe it may sometimes cause UPB™ communication to become unreliable. All PulseWorx devices, including the SPR, have an adjustable receive sensitivity which may be set to LOW or HIGH via UPStart. The low setting will help block the noise from affecting the reception.

The SPR additionally has a manual programmable (push-button) method to adjust its receive sensitivity. Press and hold the Program Button for 5 seconds and then release it. The Status LEDs will blink red to indicate the current receive sensitivity setting – once for LOW or twice for HIGH. To adjust the receive sensitivity to LOW single-tap the Program Button. To adjust the receive sensitivity to HIGH double-tap the Program Button. Press and hold the Program Button for 5 seconds to set the new receive sensitivity. Release the Program Button and the Status LEDs will turn back to blue.

Once the Receive Sensitivity has been changed the Repeater Communication Test should be repeated to insure proper system signal strength and communication.

OTHER THINGS YOU SHOULD KNOW

Multi-Packets

The Split-Phase Repeater is designed to automatically repeat all multi-packet messaging transmissions, which it receives in order to enable UPB™ communication on a network. A multi-packet transmits the same basic information more than once back-to-back. All PulseWorx™ devices (and most other UPB™ devices) are pre-configured at the factory to use 2-time multi-packet messaging. If any of your devices are configured to use uni-packet (Gen 1) transmissions then the SPR will not repeat them.

UPStart and the SPR

UPStart normally uses uni-packet transmissions to communicate to UPB™ devices however, once the SPR is added to the network, it will automatically switch to using multi-packet transmissions. UPStart indicates that it has switched to two-time multi-packets by displaying TX=2 in the status bar. Next to this indication UPStart will also display which phase (Same or Opposite) the PIM is plugged into.

UPStart has a Network Discovery function that can quickly discover which Unit IDs are in use. In a very large electrical environment UPStart must use the SPR to gain access to this information on all phases.

Status LED Indications

The SPR has a blue/red status LED. When the SPR is transmitting on the powerline it will turn the LED red. When it is receiving on the powerline it will turn the LED purple. When nothing is happening on the powerline the LED will stay blue.

Multiple SPR-1s

If you install more than one SPR-1 on a single electrical system you should change the multi-packet messaging transmissions to three.

LIMITED WARRANTY

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in materials and workmanship for a period of five years from the date of purchase. Refer to the warranty information of the PulseWorx website (www.PulseWorx.com) for exact details.

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