

LEVITON UPB™ THREE-PHASE REPEATER  
Cat. No. 39A00-3  
Installation Instructions and User's Guide



DI-021-HL393-05AAR2243  
(39100-3)

INSTALLATION

ENGLISH

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.

WARNINGS AND CAUTIONS

- This product must be installed in a suitable junction box or equivalent enclosure.
- Use this device with **copper or copper-clad wire only**.
- For indoor use only.
- **SAVE THESE INSTRUCTIONS.**

DESCRIPTION

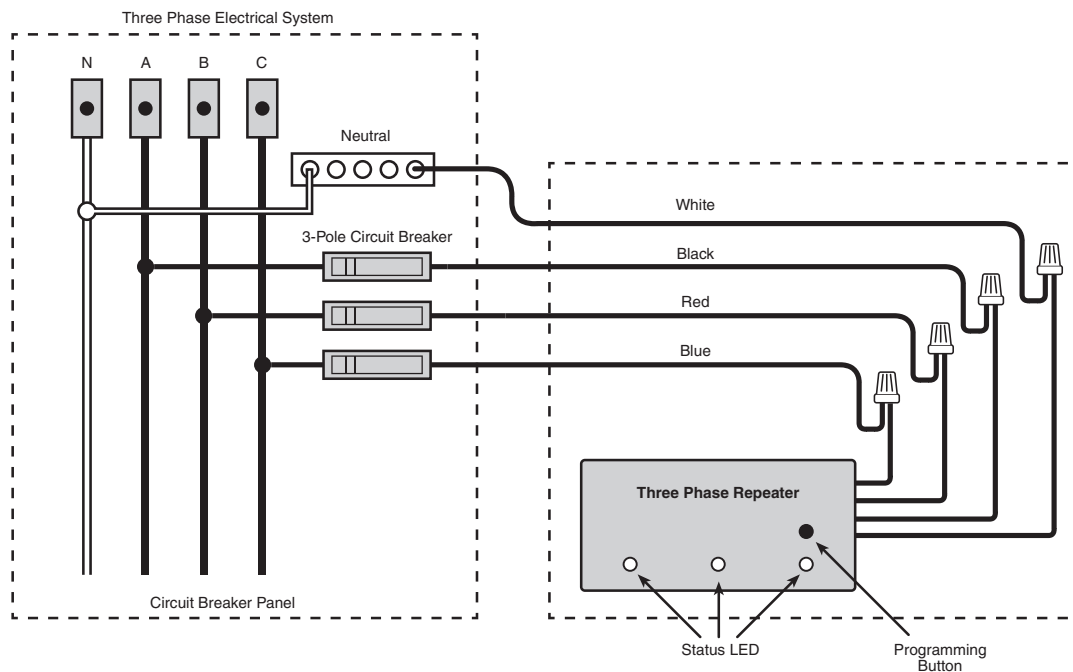
The Leviton UPB™ Three-Phase Repeater (TPR) is a small electronic device that enables communication between devices using the Universal Powerline Bus (UPB™) method of communication (such as HLC devices) on a three-phase 120/208VAC delta-wye, 60Hz powerline. The main purpose of the TPR is to transfer UPB™ multi-packet messages transmitted on one phase (leg) of the electrical system and strongly repeating them on to the other phases (legs) to ensure proper communication.

UPB™ communication was designed to work on a single phase powerline. In a three-phase environment, the signals will not directly jump across all three phases of a 120/208V electrical system. The TPR is designed to take any UPB™ multi-packet generated signal on a single phase and repeat them onto all three phases of the powerline.

INSTALLATION INSTRUCTIONS

1. **TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER** at circuit breaker or fuse and test that power is off before wiring!
2. Install the TPR into a suitable junction box or equivalent enclosure.
3. Run wires from a three-pole circuit breaker to the workbox for Phase A, Phase B, Phase C, and Neutral (**see illustration**).
4. Use wire nuts to connect the black wire of the TPR to Phase A, and the red wire to Phase B, and the blue wire to Phase C. Connect the white wire of the TPR to Neutral. Check that there are no bare wires protruding and cover the wire nuts with insulating tape if necessary.
5. Check all wiring and connections, and turn on the main breaker.
6. All three status LED indicators will light up if all of the connections are proper.

LEVITON UPB™ THREE-PHASE REPEATER WIRING DIAGRAM



CONFIGURATION

Although the TPR will operate without any configuration, Leviton recommends that you use the UPB™ UPStart configuration software to add the TPR to the UPB network with a Unit ID. Once added to the network, UPStart can then be used to adjust the receive sensitivity of the TPR and perform communication tests between other devices to insure proper system signal strength.

Adding the TPR to the UPStart Network

The TPR is added in to a network just like most other UPB™ devices. **Select Device** → **Add Device**, place the TPR into Setup Mode, and then click the **Next** button. To place the TPR into Setup Mode, press the Program Button 5 times. To exit Setup Mode, press the Program Button twice. While in Setup Mode, the LED indicators will blink blue. Once the TPR is added to the network, it may be assigned a Room and Device Name that is used 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 with the TPR and how well the TPR communicates with all devices. The Repeater Communication Test will show a record of the signal strength, noise level, and phase at all devices.

WEB VERSION

## Adjusting the Receive Sensitivity

If powerline noise is severe it may sometimes cause UPB™ communication to become unreliable. The TPR has 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.

Additionally, the TPR 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 LED indicators 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. When the Program Button is released, the LED indicators 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 Three-Phase Repeater is designed to automatically repeat all multi-packet messaging transmissions which it receives in order to enable UPB™ communication on an entire three-phase network. A multi-packet message transmits the same basic information more than once back-to-back. All HLC devices (and most other UPB™ devices) are pre-configured to use 2-time multi-packet messaging. If any of your devices are configured to use uni-packet (Gen 1) transmissions, then the TPR will not repeat them.

### UPStart and the TPR

UPStart normally uses uni-packet transmissions to communicate to UPB™ devices however, once the TPR 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 (A, B, or C) the PIM is plugged into.

UPStart has a Network Discovery function that can quickly discover which Unit IDs are in use. In a three-phase electrical environment, UPStart must use the TPR to gain access to **this information for all three phases.**

### Status LED Indications

The TPR has a blue/red status LED indicator for each phase of the powerline. When the TPR 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 Three-Phase Repeaters

Leviton does not recommend installing more than one Three-Phase Repeater on a single electrical system.

## FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## FOR CANADA ONLY

For warranty information and/or product returns, residents of Canada should contact Leviton in writing at **Leviton Manufacturing of Canada Ltd to the attention of the Quality Assurance Department, 165 Hymus Blvd, Pointe-Claire (Quebec), Canada H9R 1E9** or by telephone at **1 800 405-5320**.

### LEVITON LIMITED WARRANTY

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that products manufactured by Leviton under the Leviton brand name ("Product") will be free from defects in material and workmanship for the time periods indicated below, whichever is shorter: • **OmniPro II and Lumina Pro:** three (3) years from installation or 42 months from manufacture date. • **OmniLT, Omni Ite, and Lumina:** two (2) years from installation or 30 months from manufacture date. • **Thermostats, Accessories:** two (2) years from installation or 30 months from manufacture date. • **Batteries:** Rechargeable batteries in products are warranted for ninety (90) days from date of purchase. **Note:** Primary (non-rechargeable) batteries shipped in products are not warranted. **Products with Windows® Operating Systems:** During the warranty period, Leviton will restore corrupted operating systems to factory default at no charge, provided that the product has been used as originally intended. Installation of non-Leviton software or modification of the operating system voids this warranty. Leviton's obligation under this Limited Warranty is limited to the repair or replacement, at Leviton's option, of Product that fails due to defect in material or workmanship. Leviton reserves the right to replace product under this Limited Warranty with new or remanufactured product. **Leviton will not be responsible for labor costs of removal or reinstallation of Product.** The repaired or replaced product is then warranted under the terms of this Limited Warranty for the remainder of the Limited Warranty time period or ninety (90) days, whichever is longer. This Limited Warranty does not cover PC-based software products. **Leviton is not responsible for conditions or applications beyond Leviton's control. Leviton is not responsible for issues related to improper installation, including failure to follow written Installation and operation instructions, normal wear and tear, catastrophe, fault or negligence of the user or other problems external to the Product.** To view complete warranty and instructions for returning product, please visit us at [www.leviton.com](http://www.leviton.com).

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