

Installation Instructions

Please Read Before Installing

Hybrid Repeater with plug-in adapter

HR-REP-120

Overview

HomeWorks Hybrid Repeaters add RF capability to HomeWorks P5 processors configured with a Hybrid Repeater Link and provide an additional coverage area for radio frequency (RF) signals sent between HomeWorks RF Dimmers/Switches, RF Shades, RF Keypads, and RF Processors. Each repeater covers a sphere of approximately 2500 square feet (232 m²) of living space. Up to five (5) repeating devices may be placed in a HomeWorks RF system (a HomeWorks RF Processor counts as one of the repeating devices).

Important Notes

Codes: Install in accordance with all local and national electrical codes.

Power: The Hybrid Repeater can be powered from EITHER of two sources:

- 1. Adapter power.** Use only the adapter provided with the Hybrid Repeater (Lutron model # T120-9DC-3-WH).



Caution - Using an adapter not rated at the following specifications could damage the repeater and possibly overheat the adapter.

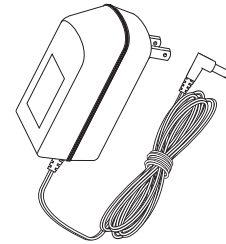
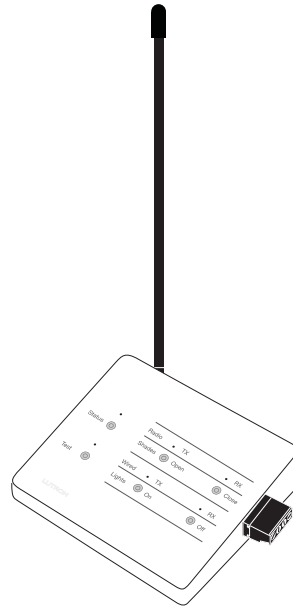
- Input: 120 V~ 60 Hz
- Output: 9 V= 300 mA
NEC® Class 2; IEC PELV

- 2. Link power.** Use only power supplied via a HomeWorks Processor Hybrid Repeater Link (8 Series™ or 4 Series™ Processors only) or a HomeWorks auxiliary power supply. (See section about the HWI-PS in the HomeWorks Technical Reference Guide or Application Note HW-104.) Each Hybrid Repeater counts as 15 LEDs.

Note: An RF Processor does not supply power on the Hybrid Repeater Link.

Environment: Ambient operating temperature: 32-104 °F (0-40 °C), 0-90% humidity, non-condensing. Indoor use only.

Hybrid Repeater Wiring: Hybrid Repeater Link wiring must be in a daisy chain configuration. The total length of any single wire run on the Hybrid Repeater Link may be up to 1000 feet (305 m). The Hybrid Repeater Link (all wire runs) may contain up to five (5) Hybrid Repeaters total. Refer to Hybrid Repeater Link (Wired) Communications (page 3).



Plug-in Adapter
T120-9DC-3-WH
Input: 120 V~ 60 Hz 6.5 W
Output: 9 V= 300 mA
NEC Class 2
IEC PELV

Hybrid Repeater
HR-REP
9 V= 300 mA (adapter power)
or
15 V= 300 mA (link power)

Cleaning: To clean, wipe with a clean damp cloth. **DO NOT** use any chemical cleaning solutions.

Device Placement: HomeWorks Hybrid Repeaters must be located within 30 feet (9 m) of the RF Dimmers, Switches, Shades, and Keypads they are covering. Hybrid Repeaters must also be within 60 feet (18 m) of an RF Processor or another repeater when using the RF Link for repeater-to-repeater or repeater-to-processor communication. When using the Wired Link for repeater-to-repeater or repeater-to-processor communication, a total wire length of 1000 feet (305 m) may be used.

Compatibility Considerations

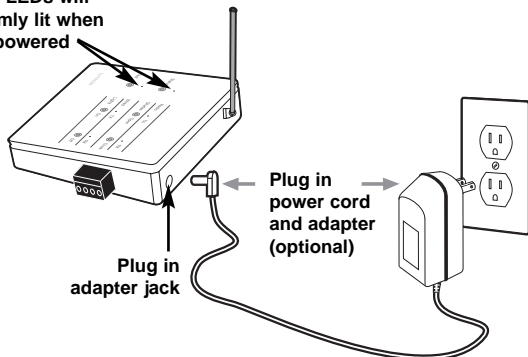
	Power Options		Hybrid Repeater Link Communications	
	Adapter Power	Link Power	Repeater-to-Repeater Wiring	Repeater-to-Processor Wiring
Non-P5 RF Processor	YES	NO	YES	NO
P5 RF Processor	YES	NO	YES	YES
P5 4 Series* HRL Processor	YES	YES	YES	YES
P5 8 Series HRL Processor	YES	YES	YES	YES

* Hybrid Repeater Link is available on models H4P5-HRL-120 and H4P5-H48-HRL-120 only.

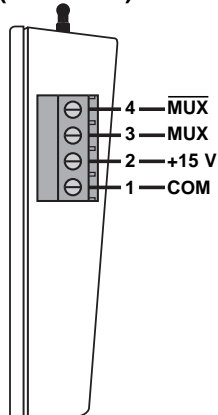
Installation

- 1. Find a suitable location for the Hybrid Repeater.** Place the repeater in a convenient and accessible location. **Note:** Hybrid Repeaters must be within 60 feet (18 m) of an RF Processor or another repeater when using the RF Link for repeater-to-repeater or repeater-to-processor communication.
- 2. Connect Hybrid Repeater Link (if applicable).** Connect the Hybrid Repeater Link communication wires from the HomeWorks® Processor (or previous Hybrid Repeater in the daisy chain) to the terminal block on the Hybrid Repeater (see Wiring Diagram). Each terminal will accept up to three 22-18 AWG (0.5-1.0 mm²) wires. **Note:** If using the plug-in adapter to power the repeater, **DO NOT** connect the +15 V terminal (terminal 2).
- 3. Apply power to the Hybrid Repeater.** If the Hybrid Repeater is to be powered by the Hybrid Repeater Link, apply power by turning on the HomeWorks Processor. If the Hybrid Repeater is to be powered by the plug-in adapter, insert the adapter cord plug into the jack on the Hybrid Repeater, then plug the adapter into a standard wall receptacle.

STATUS and TEST LEDs will be dimly lit when first powered



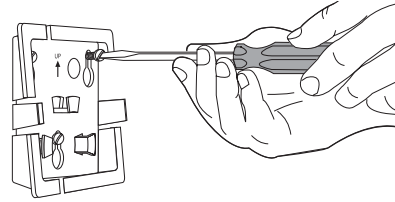
HR-REP (Side View)



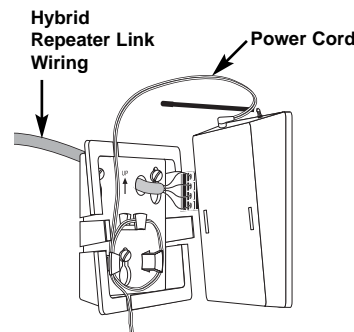
Wall Mounting

Hybrid Repeaters may be wall mounted using the supplied wall bracket.

- 1. Attach wall bracket to wall using the supplied screws and wall anchors.**

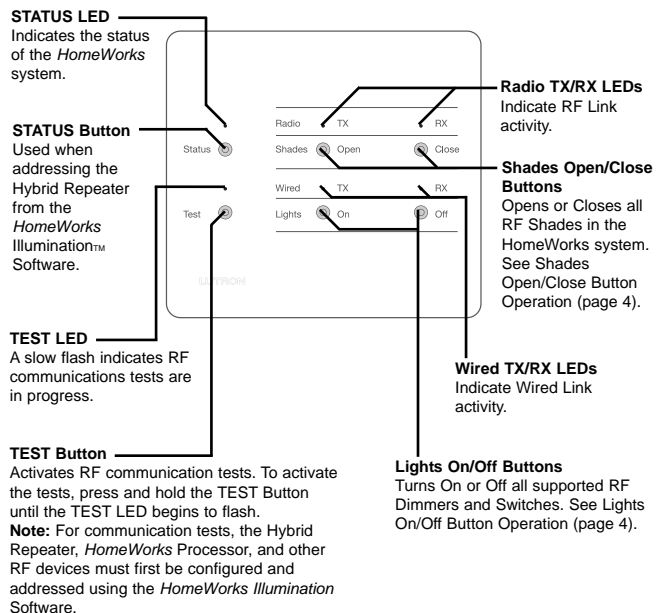


- 2. Place power cord into notches at top and bottom of wall bracket. Wrap excess power cord around the cord holder. Route Hybrid Repeater Link wiring through hole in wall bracket and out through side cutout. Align repeater and snap onto wall bracket.**



Operation

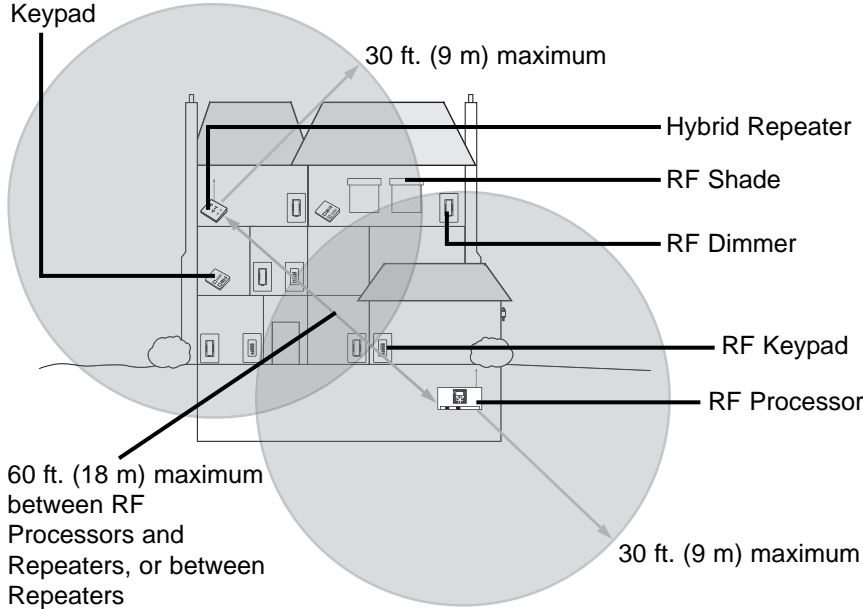
Note: When the Hybrid Repeater is powered, but has not yet been assigned an address from the HomeWorks Illumination Software, the STATUS and TEST LEDs will be dimly illuminated.



System Communications

RF Communications

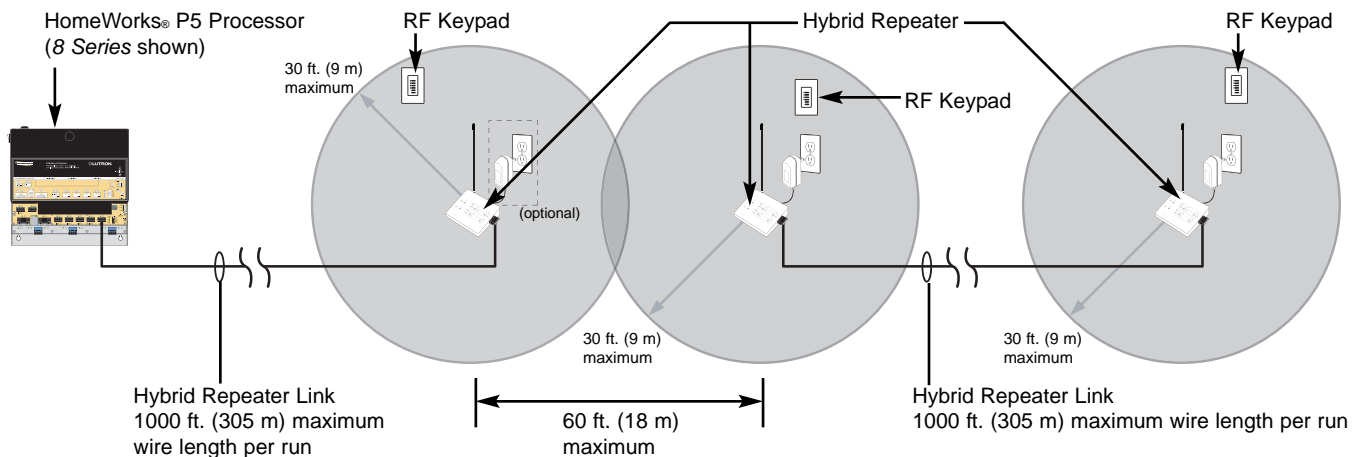
RF Tabletop Keypad



RF Communications Notes

- Hybrid Repeaters must be located within 30 feet (9 m) of the RF Dimmers, Switches, Shades and Keypads they are covering.
- Hybrid Repeaters must also be within 60 feet (18 m) of an RF Processor or another repeater.
- Multiple repeaters may be necessary to provide adequate coverage. Up to four (4) repeaters may be used with each RF Processor, and up to five (5) Hybrid Repeaters may be used with each 8 Series™ Processor or 4 Series™ Processor (equipped with Hybrid Repeater Link).

Hybrid Repeater Link (Wired) Communications



Hybrid Repeater Link (Wired) Communications Notes

- Hybrid Repeater Link wiring must be in a daisy chain configuration.
- The total length of any single wire run on the Hybrid Repeater Link may be up to 1000 feet (305 m).
- The Hybrid Repeater Link (all wire runs) may contain up to five (5) Hybrid Repeaters total.

Shades Open/Close Buttons Operation

When Hybrid Repeater is:	Function
Unaddressed	All unaddressed and unconfigured RF Shades within the RF range of only the Hybrid Repeater on which the Open/Close Button was activated will open or close. All RF Shades outside the range of the Hybrid Repeater will not respond.
Addressed	All addressed and configured RF Shades within the entire HomeWorks® system will open or close.

Lights On/Off Buttons Operation

When Hybrid Repeater is:	Function
Unaddressed	All unaddressed and unconfigured RF Dimmers and Switches within the RF range of only the Hybrid Repeater on which the On/Off Button was activated will turn on or off. All RF Dimmers and Switches outside the range of the Hybrid Repeater will not respond.
Addressed	All addressed and configured RF Dimmers and Switches within the entire HomeWorks system will turn on or off.

Troubleshooting Guide

Symptom	Cause and Action
No LEDs are illuminated on the Hybrid Repeater.	No power available to unit. <ul style="list-style-type: none"> • If powered by the 9 V\equiv plug-in adapter, verify there is power to the adapter. • If powered by the Hybrid Repeater Link, verify link wiring.
Button presses on the Hybrid Repeater cause the STATUS LED on the repeater to flash rapidly.	Repeater has not been addressed. <ul style="list-style-type: none"> • Address the repeater using the HomeWorks Illumination™ Software.

FCC Information

Note: 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 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.

Caution: Changes or modifications not expressly approved by Lutron Electronics Co. could void the user's authority to operate this equipment.

LIMITED WARRANTY

Subject to the exclusions described below, for a period of eight years after the date of shipment by Lutron, Lutron warrants each new HomeWorks system (the "System") to be free from manufacturing defects. Lutron will, at its option, repair the defective part or issue a credit, based on the prorating schedule below, against the cost of comparable replacement parts purchased from Lutron so long as Customer promptly notifies Lutron of the defect within the eight year warranty period and, if requested, returns the defective component to Lutron:

Number of Years from Date of Shipment	Percentage of Cost of Replacement Parts Credited by Lutron
Up to 2	100%
More than 2 but not more than 5	50%
More than 5 but not more than 8	25%
More than 8	0%

Replacement parts provided by Lutron may be new, used, repaired, reconditioned, and/or made by a different manufacturer.

EXCLUSIONS TO LIMITED WARRANTY

This Warranty does not cover, and Lutron and its suppliers are not responsible for:

1. Damage, malfunction or inoperability diagnosed by Lutron or a Lutron approved third party as caused by normal wear and tear, abuse, misuse, incorrect installation, neglect, accident, or interference from radio frequency or infrared sources or obstacles, such as, but not limited to (a) use of incorrect line voltages, fuses or circuit breakers; (b) failure to install, maintain and operate the System pursuant to the operating instructions provided by Lutron and the applicable provisions of the National Electrical Code and of the Safety Standards of Underwriter's Laboratories; (c) use of incompatible devices or accessories; (d) failure to maintain equipment under specified ambient temperature; (e) unauthorized repairs or adjustments; (f) vandalism; and (g) an act of God, such as fire, lightning, flooding, tornado, earthquake, hurricane or other problems beyond Lutron's control.
2. On-site labor costs to diagnose issues with, and remove, repair, replace, adjust, reinstall and/or reprogram the System, at Lutron's option, all of which will be paid by Customer at the then current service price.
3. Where applicable, components and equipment external to the System, such as, lamps; non-Lutron ballasts, sockets, and fixtures; fixture wiring between ballasts and lamps; building wiring between dimmers or dimmer panels and between controls and controls; dimmers or dimmer panels; and other manufacturers' equipment not provided by Lutron, such as time clocks; audio-visual equipment; motion detectors; photosensors; driveway sensors; pressure pads; shades; and spas.
4. The cost of repairing or replacing other property that is damaged when the System does not work properly, even if the damage was caused by the System.

THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO ONE YEAR FROM THE DATE OF SHIPMENT.

NO LUTRON AGENT, EMPLOYEE OR REPRESENTATIVE HAS ANY AUTHORITY TO BIND LUTRON TO ANY AFFIRMATION, REPRESENTATION OR WARRANTY CONCERNING THE SYSTEM. UNLESS AN AFFIRMATION, REPRESENTATION OR WARRANTY MADE BY AN AGENT, EMPLOYEE OR REPRESENTATIVE IS SPECIFICALLY INCLUDED HEREIN, OR IN STANDARD PRINTED MATERIALS PROVIDED BY LUTRON, IT DOES NOT FORM A PART OF THE BASIS OF ANY BARGAIN BETWEEN LUTRON AND CUSTOMER AND WILL NOT IN ANY WAY BE ENFORCEABLE BY CUSTOMER.

IN NO EVENT WILL LUTRON OR ANY OTHER PARTY BE LIABLE FOR EXEMPLARY, CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO DAMAGES FOR PERSONAL INJURY, FAILURE TO MEET ANY DUTY, INCLUDING OF GOOD FAITH OR REASONABLE CARE, NEGLIGENCE, OR ANY OTHER LOSS WHATSOEVER), NOR FOR ANY REPAIR WORK UNDERTAKEN WITHOUT LUTRON'S PRIOR WRITTEN CONSENT ARISING OUT OF OR IN ANY WAY RELATED TO THE INSTALLATION, DEINSTALLATION, USE OF OR INABILITY TO USE THE SYSTEM OR OTHERWISE UNDER OR IN CONNECTION WITH ANY PROVISION OF THIS WARRANTY, EVEN IN THE EVENT OF THE FAULT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, BREACH OF CONTRACT OR BREACH OF WARRANTY OF LUTRON OR ANY SUPPLIER, AND EVEN IF LUTRON OR ANY OTHER PARTY WAS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

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THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

WARRANTY CLAIMS, TECHNICAL ASSISTANCE AND WARRANTY INFORMATION

Contact the Lutron Technical Support Center at the numbers provided below or your local Lutron sales representative with questions concerning the installation or operation of the System or this Warranty, or to make a warranty claim. Please provide the exact model number when calling.

USA and Canada (24 hrs/7days)
+1.900.523.9466
Other countries (8 a.m. - 8 p.m. ET)
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Fax +1.610.282.3090
<http://www.lutron.com>

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