

## RadioRA<sup>2</sup> Repeater

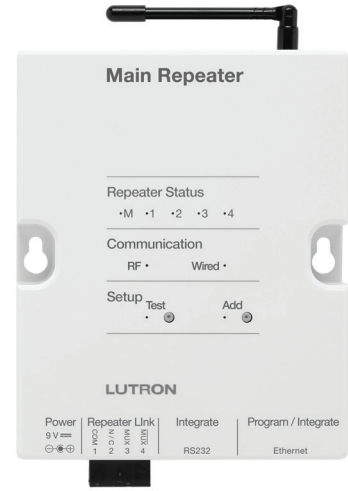
RadioRA<sup>2</sup> Repeater extend the range of Radio Frequency (RF) signals that are sent between devices. Repeaters ensure error-free communication between system components and prevent interference from neighboring systems.

For systems that extend up to 30 ft (9 m), one (1) Main Repeater is required to set up the system. Up to four (4) Auxiliary Repeaters can be added to extend the RF range for larger system applications. Each Repeater has an RF range of 30 ft (9 m), covering a total area of approximately 2500 ft<sup>2</sup> (232 m<sup>2</sup>).

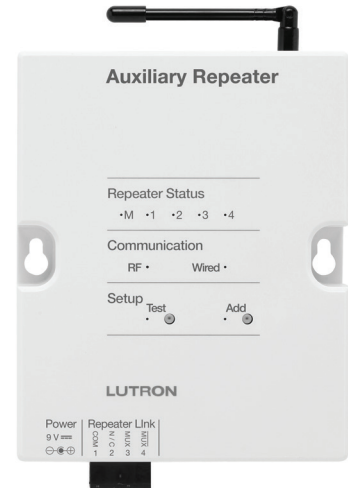
### Models

Model Number*	Repeater Type	Frequency	Antenna Length	Region
RR-MAIN-REP-WH	Main	434 MHz	6.25 in (158.8 mm)	North America, Brazil (BA models only)
RR-MAIN-REP-WHBA				
RR-AUX-REP-WH	Auxiliary			
RR-AUX-REP-WHBA				
RRK-MAIN-REP-WH	Main	868 MHz	3.13 in (79.4 mm)	Europe
RRK-AUX-REP-WH	Auxiliary			

\* Available only in White (WH)



Main Repeater



Auxiliary Repeater

## RadioRA<sup>2</sup> Repeaters

### Specifications

<b>Model Numbers</b>	RR-MAIN-REP-WH, RR-MAIN-REP-WHBA, RR-AUX-REP-WH, RR-AUX-REP-WHBA, RRK-MAIN-REP-WH, RRK-AUX-REP-WH
<b>Power</b>	Main/Auxiliary Repeater: 9 V <sup>===</sup> 300 mA See Low-Voltage Transformer spec (Lutron <sup>®</sup> P/N 369561)
<b>Typical Power Consumption</b>	Main Repeater: 3.1 W Test conditions: one LED on, Ethernet cable plugged in, powered by the 9 V <sup>===</sup> adapter Auxiliary Repeater: 0.6 W Test conditions: one LED on, powered by the 9 V <sup>===</sup> adapter
<b>Regulatory Approvals</b>	Main/Aux (-WH only): cULus listed; FCC certified; Industry Canada certified; COFETEL certified; ASEP certified; Bermuda Department of Telecommunications type approval; CRC certified; INDOTEL certified; SUTEL certified Main/Aux (-WHBA only): ANATEL certified Main/Aux (RRK only): CE marked Adapter (T120-9DC-3-BL): cULus listed; NOM certified
<b>Environment</b>	Ambient operating temperature: 32 °F to 104 °F (0 °C to 40 °C), 0% to 90% humidity, non-condensing. Indoor use only
<b>Low-Voltage Wire Type</b>	Two pairs: one pair 18 AWG (1.0 mm <sup>2</sup> ), one pair 22 AWG to 18 AWG (0.5 mm <sup>2</sup> to 1.0 mm <sup>2</sup> ) twisted shielded – IEC PELV/NEC <sup>®</sup> Class 2 cable
<b>Communications</b>	Repeaters communicate with the system through RF. All devices must be located within 30 ft (9 m) of a Repeater. All Repeaters must be within 60 ft (18 m) of another Repeater. System devices operate on frequencies between 431.0 MHz to 437.0 MHz or 868.125 MHz to 869.850 MHz
<b>ESD Protection</b>	Tested to withstand electrostatic discharge without damage or memory loss, in accordance with IEC 61000-4-2.
<b>Surge Protection</b>	Tested to withstand surge voltages without damage or loss of operation, in accordance with IEEE C62.41-1991 Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits
<b>Power Failure</b>	Power failure memory: should power be interrupted, the Repeater will return to its previous state when power is restored
<b>Mounting</b>	Mount on a wall, ceiling, or level surface using the two #6 (M3) screws provided
<b>Connections</b>	Main Repeater: Ethernet, RS232 and RS485
<b>Warranty</b>	<a href="http://www.lutron.com/TechnicalDocumentLibrary/Warranty.pdf">www.lutron.com/TechnicalDocumentLibrary/Warranty.pdf</a> <a href="http://www.lutron.com/TechnicalDocumentLibrary/Intl_Warranty.pdf">www.lutron.com/TechnicalDocumentLibrary/Intl_Warranty.pdf</a>

### Design Features

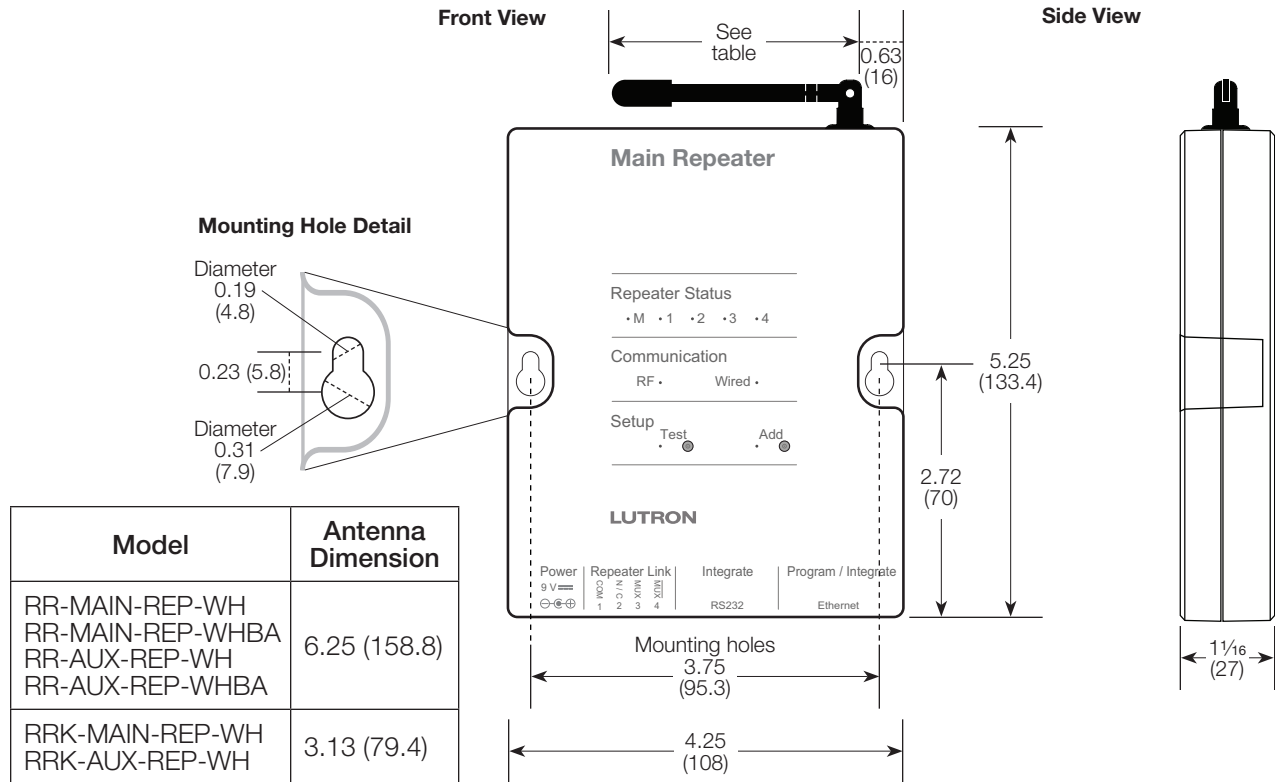
- Test button: enters the system diagnostic mode.
- Can be programmed from a PC.
- RS485 port to connect to other Repeaters through a wired link (daisy-chain).
- Main Repeaters allow configuration and integration to the system through Ethernet or RS232 ports (see chart to the right).
- System with 2 Main Repeaters must be connected via Ethernet.

	Configuration	Integration
<b>Ethernet</b>	✓	✓
<b>RS232</b>		✓

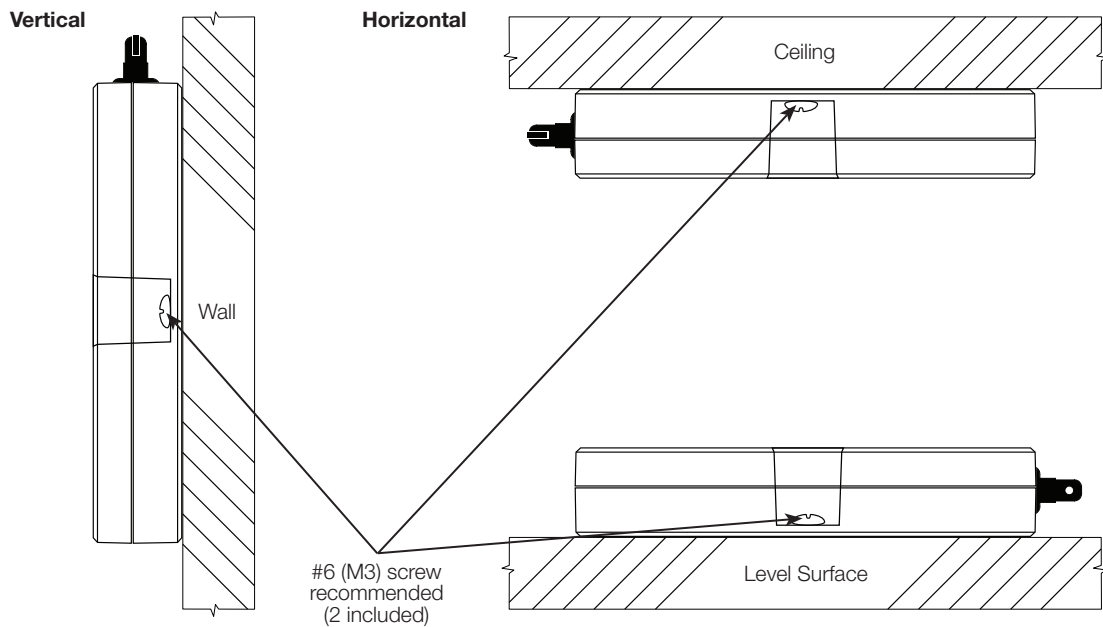
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### Dimensions

All dimensions are shown as: in (mm)

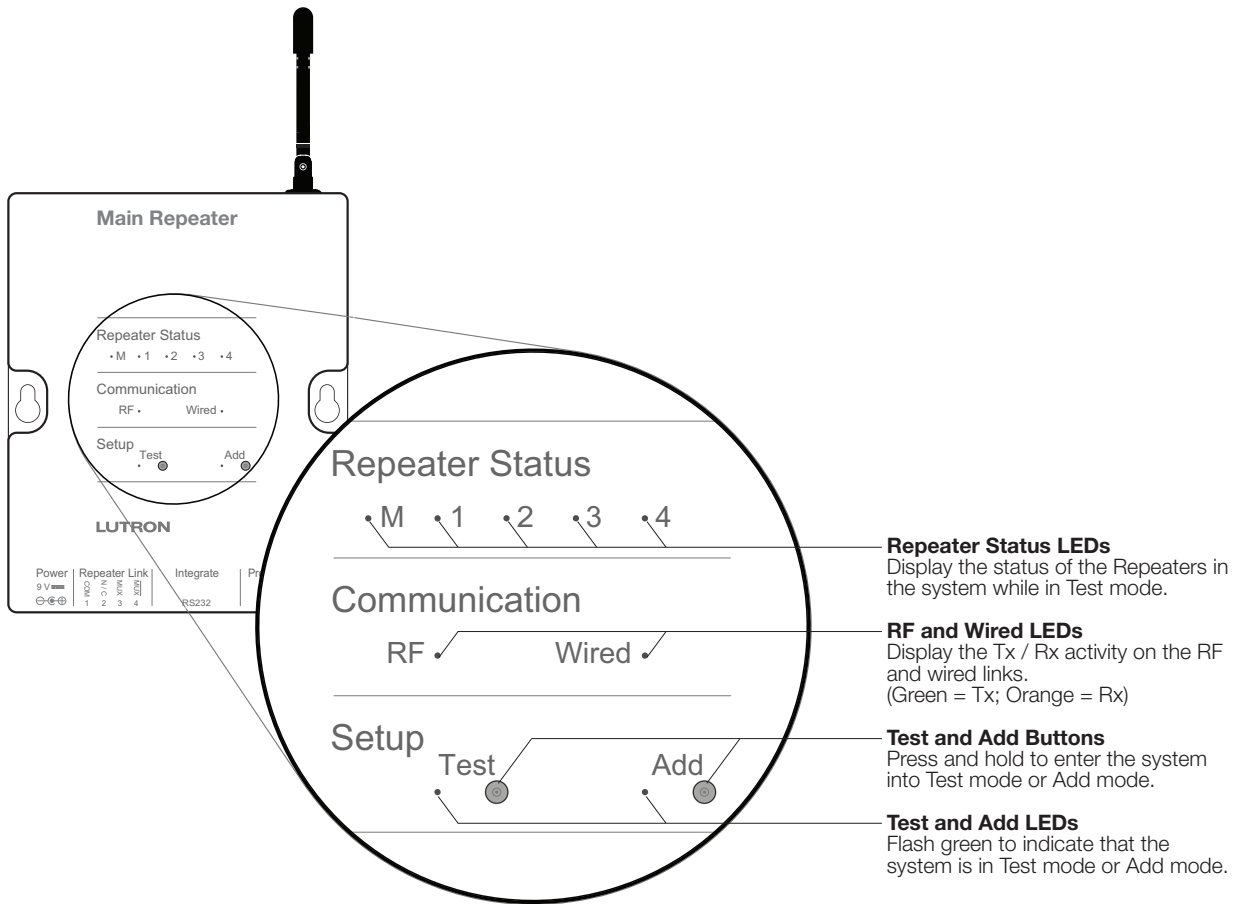


### Mounting

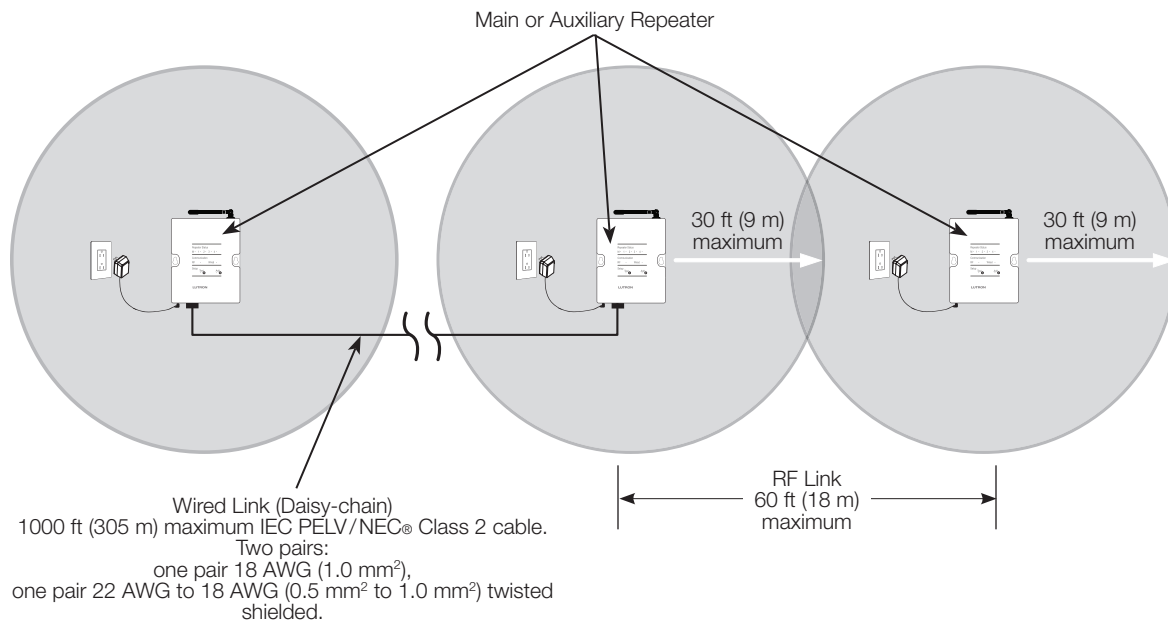


## RadioRA<sup>2</sup> Repeater

### Operation



### Wired and RF Configuration

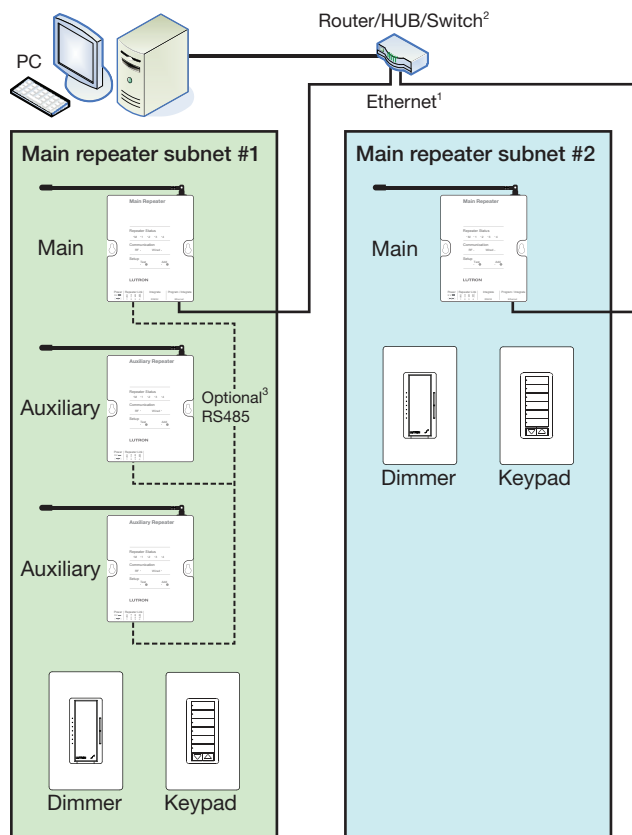


## RadioRA<sup>2</sup> Repeater

### Using Two Main Repeaters for Qualified Dealers/Installers Only

Qualified Level 2 (L2) dealers/installers can upgrade their software to provide support for a 200 device system by enabling the addition of a second main repeater subnet to the system.

*Note: To learn how you can become a qualified L2 dealer/installer, please contact your local Lutron<sup>®</sup> representative.*



<sup>1</sup> The two main repeaters must be connected by Ethernet during and after PC programming. The two main repeaters do not communicate over the RF link.

<sup>2</sup> The two main repeaters may be connected over Ethernet by one of the following:

- Router
- HUB or switch (only if static IP addresses are being used)
- After PC programming is complete, direct Ethernet connection without a router, HUB, or switch (only if static IP addresses are being used)

<sup>3</sup> Auxiliary repeaters and main repeaters on the same subnet can be optionally connected by RS485 wired links when the repeater RF range is exceeded.

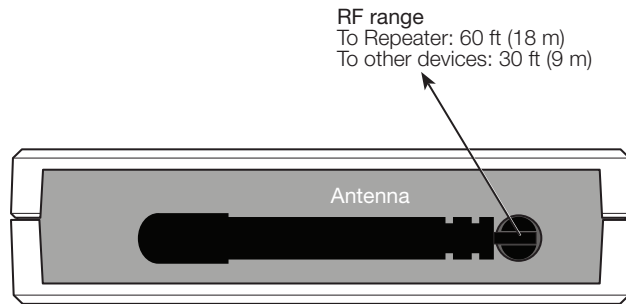
- The RS485 wired link cannot be connected between the two main repeater subnets
- The RS485 wired link cannot be connected between two main repeaters.
- RS485 wired links can be used between any combination of main and auxiliary repeaters on the same subnet.

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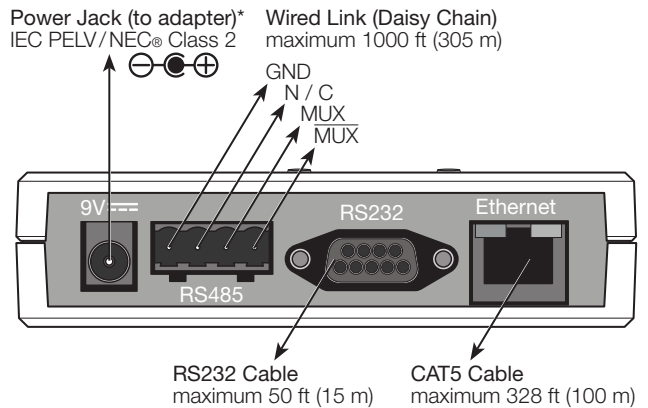
### Connections

#### Main Repeater

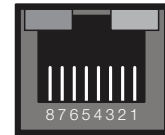
##### Top View



##### Bottom View



#### RS232 and Ethernet Pin Numbering

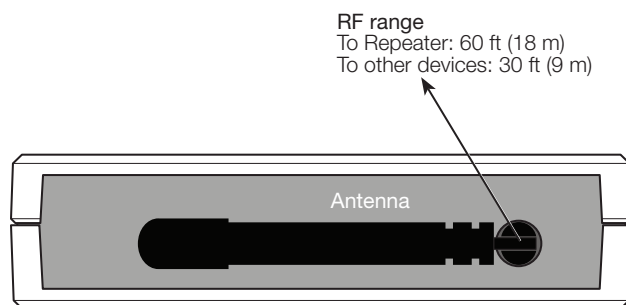


RS232	Pin #
T × D	2
R × D	3
GND	5

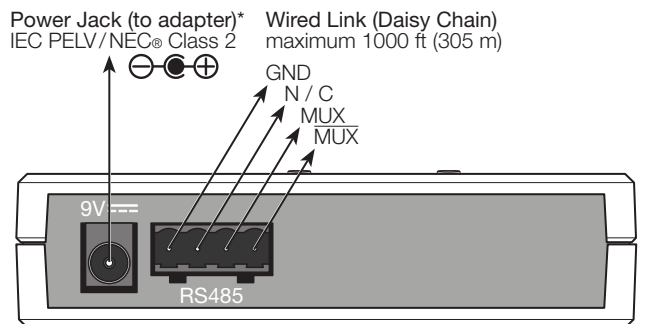
Ethernet	Pin #
T + Ve	1
T - Ve	2
R + Ve	3
R - Ve	6

#### Auxiliary Repeater

##### Top View



##### Bottom View



\* See Low-Voltage Transformer spec (Lutron<sup>®</sup> P/N 369561)