



# RR2552 SPREAD SPECTRUM REPEATER

Installation & Operation Instructions

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**Do not use this product in any safety related applications where human life may be affected.**

## GENERAL INFORMATION

The RR2552B repeater uses the reliable 900 MHz spread spectrum technology to work with any ACI wireless system to boost or extend the range of wireless sensors and is easily installed. The RR2552B has an 8 position dipswitch that is user selectable to set the address of the RR2552B to match the Network ID of the receiver/transceiver in each system so there is no programming required. The RR2552B must be powered with 24 VAC. Two Duracell DL123 3V lithium batteries are included for temporary power to position the repeater before final installation and wiring. Without the use of the RR2552B wireless repeater, all systems will be a point to point system, meaning that the sensor and transceiver will communicate directly with each other. Sensor distance and reliability can be increased with the addition of a RR2552B(s) repeater.

## MOUNTING INSTRUCTIONS

### PRECAUTIONS

- **To maintain high performance, do not install sensors, repeaters, or receivers in the following areas:**
  - Inside metal enclosure / panel
  - Inside or immediately next to elevator shaft or elevator banks
  - In front of or immediately next to large trees or large body of water
  - Do not mount above false ceiling. Mount in wall 1" below ceiling.
- **Use the battery option to determine mounting location before wiring.**
- **Do not put more than two RR2552B repeaters in series.**
- **No more than three (3) repeaters should be installed per wireless system.**
- **Contact ACI Tech Support for further assistance.**

## SETTING REPEATABLE NETWORK ID

The RM2432 or MOD9200's has a network ID assigned to them through the configuration software (default network ID of 1). If there are multiple ACI wireless systems running in a building at the same time, each receiver or transceiver needs to have its own separate network ID # which is set through the configuration software. If a repeater is added to a system, the repeater has Binary dip switches that must match the network ID of the system the repeater is being added to. If there is only one ACI wireless system running, the network ID is probably set to default 1. With all the dip switches off on the repeater, the default address is binary "1" (default).

**TABLE 1: REPEATABLE NETWORK ID SWITCH SETTING**

| Switch #32 | Switch #16 | Switch #8 | Switch #4 | Switch #2 | Switch #1 | Network Address |
|------------|------------|-----------|-----------|-----------|-----------|-----------------|
| OFF        | OFF        | OFF       | OFF       | OFF       | OFF       | 1               |
| OFF        | OFF        | OFF       | OFF       | OFF       | ON        | 2               |
| OFF        | OFF        | OFF       | OFF       | ON        | OFF       | 3               |
| OFF        | OFF        | OFF       | OFF       | ON        | ON        | 4               |
| OFF        | OFF        | OFF       | ON        | OFF       | OFF       | 5               |
| OFF        | OFF        | ON        | OFF       | OFF       | OFF       | 9               |
| OFF        | ON         | OFF       | OFF       | OFF       | OFF       | 17              |
| ON         | OFF        | OFF       | OFF       | OFF       | OFF       | 33              |

Example: To set the Network ID to "2", depress the "+1" switch to "ON" to add "1" to the Base ID of "1".

To set the Network ID to "3", set the "+1" switch to "OFF", and the "+2" switch to "ON" to add "2" to the Base ID of "1" equaling "3". See **Table 1** for switch positions.



## DETERMINING REPEATER LOCATION

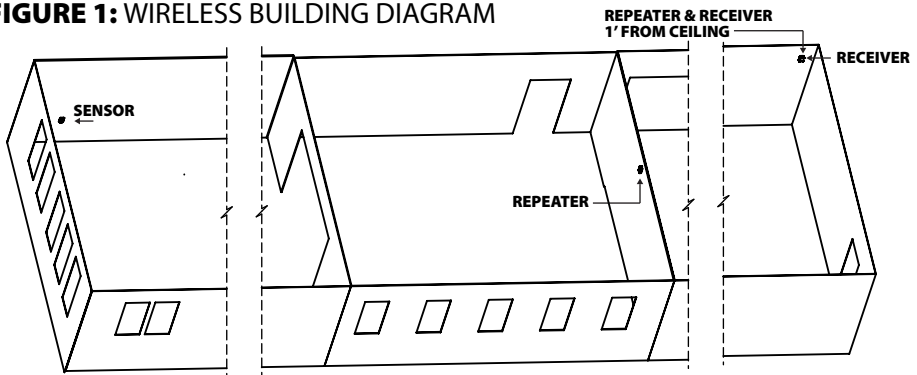
Remove the battery from the sensor that is not connected to the receiver, and press the yellow transmit button. This dissipates any capacitive charge left in the sensor. Leave the sensor in the space.

Open the repeater and set the dip switches of the repeater to the network ID of the receiver. If the system is the only one in the building, the network ID will probably set to default 1.

Install the batteries in the battery clips; being mindful of the polarity. Keep J1 in the Vin position.

Take the repeater to an area half way between the transceiver and the sensor(s) that are not connecting.

**FIGURE 1: WIRELESS BUILDING DIAGRAM**



The antenna board on the repeater has three (3) LED's on it (see **Figure 2**, p. 3): Active, Data and Link. The Active LED flashes once every second to indicate power to the board. The Data and Link are visual indications of wireless transmissions.

Hold the repeater high and move the J1 jumper to Battery. The Active LED will start flashing once every second. The Data LED will flash 4-5 looking for the receiver. When the repeater links with the receiver, the Data LED will go solid for 3 seconds and then go out. Watch the Data LED for a couple minutes to make sure it stays connected.

If the repeater does not link, the Data LED will continue to flash looking for a receiver. If this is the case, remove the jumper from J1 and move the repeater closer to the receiver and try connecting again by putting the jumper in the battery position on J1.

Once the repeater is linked, leave the repeater at the spot and go to the space where the non-connected sensor(s) are. Place the battery in the sensor. The Link LED will flash 8-10 times looking for the repeater. Once the sensor is connected, the Link LED on the sensor will flash once every 75 seconds.

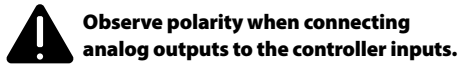
You can verify sensors are linking through the repeater by watching the Data and the Link LED. Every time a sensor transmits through the repeater the Data and Link LED's will flash.

The battery operated mode is intended to be used for site survey or powered to located the repeater and must be with 24 VAC for long term use. The RR2552B will last about 6 hours if used in battery mode.

# WIRING INSTRUCTIONS

## WIRING PRECAUTIONS

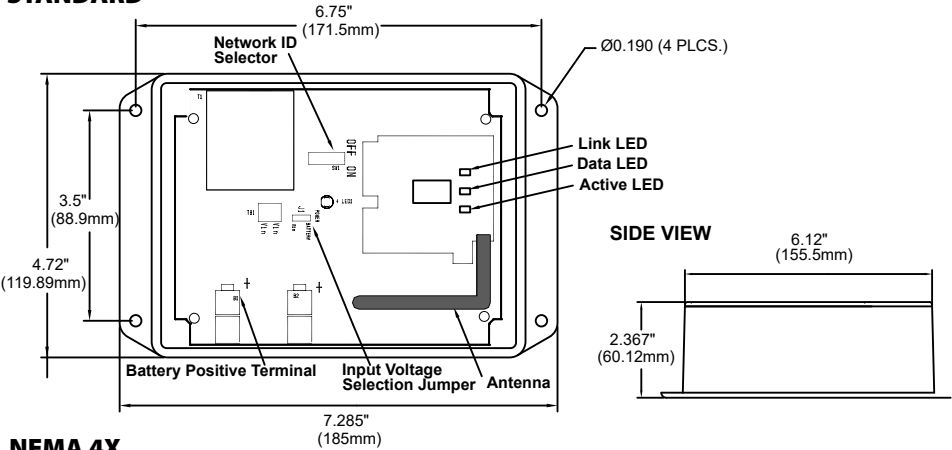
- Remove power before wiring. NEVER connect or disconnect wiring with power applied.
- The RR2552 is full wave rectified.
- It is recommended that you use an isolated UL-listed Class 2 transformer when powering the unit with 24 VAC. Failure to wire the devices with the correct polarity when sharing transformers may result in damage to any device powered by the shared transformer.



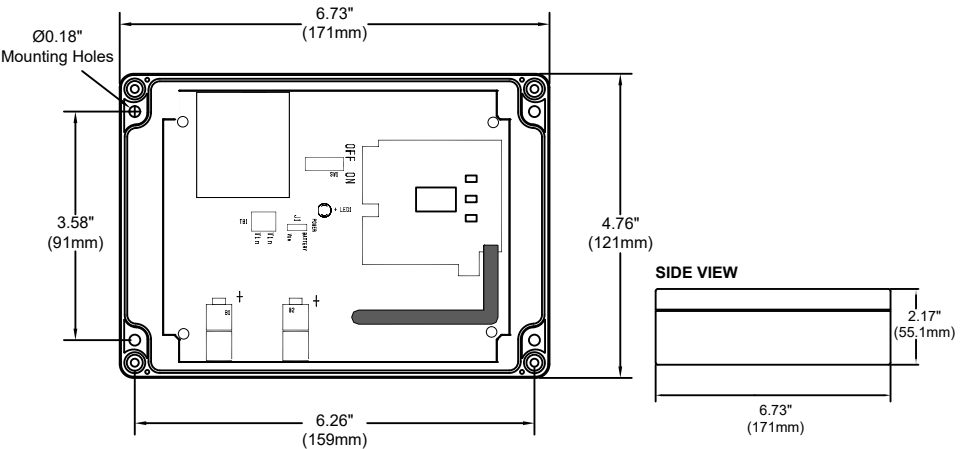
## WIRING

Connect 24VAC 60Hz to the TB1 terminals using 16-26 AWG twisted pair wire (see **Figure 2**). Check all connections before applying power to the unit.

**FIGURE 2: ENCLOSURE DIMENSIONS**  
**STANDARD**



## NEMA 4X



# TROUBLESHOOTING

## Data LED is flashing on the antenna board:

- Confirm the dip switches on the repeater set to the Network ID of the receiver.
- Repeater is too far away from the receiver. Move repeater closer, or rotate 90°.
- Make sure repeater is mounted 1’ below the ceiling, not above false ceiling.

## Active LED is not flashing:

- No power or powered with 24 VDC. Make sure the repeater is powered with 24 VAC only.
- Repeater is in battery mode and batteries are dead.
- Make sure J1 is in 24V mode.

# PRODUCT SPECIFICATIONS

| PRODUCT SPECIFICATIONS                    |                                                                                                                                                             |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply Voltage †:                         | 24 VAC, 60 Hz (full wave rectified)                                                                                                                         |
| Supply Current:                           | 300 mA                                                                                                                                                      |
| Connections:                              | Screw Terminal Blocks                                                                                                                                       |
| Wire Size:                                | 16 AWG (1.31 mm²) to 26 AWG (0.129 mm²)                                                                                                                     |
| Terminal Block Torque Rating:             | 0.37 ft-lb (0.5 Nm) Nominal                                                                                                                                 |
| Operating Temperature Range:              | 14 to 140°F (-10 to 60°C)                                                                                                                                   |
| Operating Humidity Range:                 | 30 to 50% RH, Noncondensing                                                                                                                                 |
| Storage Temperature Range:                | -4 to 176°F (-20 to 80°C), 70% RH                                                                                                                           |
| Data Protocol:                            | IEEE 802.15.4-2003/2006                                                                                                                                     |
| RF Characteristics:                       | 900 MHz, Operating Frequency 10 channels between 902 – 928 MHz<br><b>Transmitter Power:</b> 11 dBm   <b>Receiver Sensitivity:</b> -11 dBm                   |
| Transmission Distance:                    | 200 – 300 ft horizontally depending on building type and constructions, and typically one floor above and below the transceiver vertically                  |
| Network Addressable:                      | 1 to 64, Dip switch selectable   All switches set to OFF = Address 1 (default)<br>Address of repeater must match the Network ID of the receiver/transceiver |
| Enclosure Material   Flammability Rating: | <b>Standard:</b> ABS Plastic   UL94-5VA   <b>NEMA 4X:</b> Polycarbonate Plastic   UL94 HB                                                                   |

# WARRANTY

The ACI Wireless Series are covered by ACI's Two (2) Year Limited Warranty, which is located in the front of ACI'S SENSORS & TRANSMITTERS CATALOG or can be found on ACI's website: [www.workaci.com](http://www.workaci.com).

# W.E.E.E. DIRECTIVE

At the end of their useful life the packaging and product should be disposed of via a suitable recycling centre. Do not dispose of with household waste. Do not burn.

