

RR2552 Spread Spectrum Repeater



General Description

The mesh network Series 2000 RR2552 signal repeater utilizes reliable Spread Spectrum Radio technology. It can be installed easily in minutes to increase the transmission distance between wireless sensors and the receivers.

The maximum radio transmission distance is dependent on building type. The maximum open air transmission distance between two repeaters is one mile. In a typical commercial building with steel I-beam construction, concrete floors with reinforcing rod, and metal stud walls, it can be expected that transmissions will penetrate vertically through floors and horizontally through 200 to 500 feet of walls, furniture and air.

Multiple repeaters can be used to extend the transmission distance to thousands of feet inside any commercial and industrial buildings.

The Series 2000 sensor Data & Link LED confirms the data transmission was received by the receiver for fast and reliable positioning of the repeaters during installation. There is no need for special wireless installation equipment.

The Trs Systems Series 2000 wireless system can be used with any LON, BacNet, MODbus, or DDC control system or panel.

Determining Repeater Location

To select the proper repeater location first install and power the receiver or transceiver. The receiver will have a Network ID assigned to it during initial programming. The repeater must have the same Network ID as the receiver or transceiver. Set the Network ID on the repeater using the Network ID DIP Switch (see Setting The Network ID on page 2).

The battery operated Test Mode is intended to be used only during the initial installation to determine the optimum location for a repeater in the system prior to wiring 24 VAC to the repeater. To operate the unit in Test Mode, move the jumper (J1 located near the battery terminals on the PWB) from 24 VAC to Battery. Install (2) batteries - Type 3.0V LiMNO2 1400 mAH (e.g. Duracell DL123A, Varta CR123A). The repeater is now functional and can be moved to different locations to determine proper system performance.

While the repeater is attempting to connect to the receiver the Data LED will blink rapidly. Once a connection has been established the Data-Link LED will blink once to indicate the data transmission has been received and transmitted successfully. The Active LED will blink once every second to indicate that the repeater is functional.

Specifications

Input Voltage:

- 24 VAC 60 Hz
- 14-20 AWG

Dimensions:

- 7.3" x 4.7" x 2.25"

Operating Temperature:

- -30 F to 160 F

Operating Humidity:

- 5 to 95% non-condensing

Case

- Flame Retardant ABS Plastic (Black)
- UL Flame Rating – 94-5VA

Receiver RF Characteristics

- Operating Frequency Channel
 - 902 – 928 MHz
- Receiver Sensitivity (avg. power)
 - -110 dBm

Transmitter RF Characteristics

- Data Rate – 20 kbit/s nominal
- Transmit Power Output
 - 11 dBm

Approvals

- FCC certified

Ordering Information

<u>Model</u>	<u>Description</u>
RR2552B	Two Way Repeater
RR2552BE	Same as RR2552B except in NEMA4 Enclosure

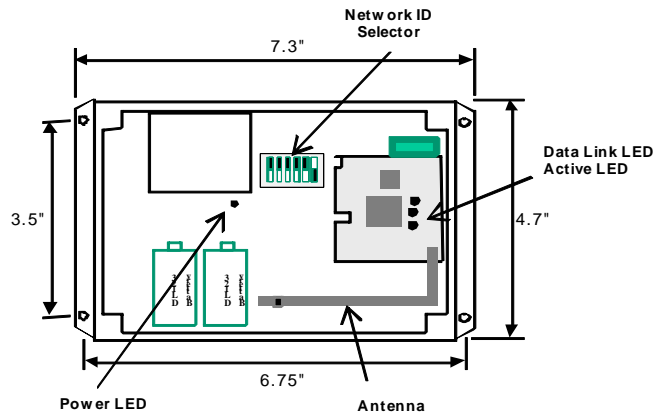


Figure 1

Setting The Repeater Network ID

The repeater must have the same Network ID as the receiver (1 to 64). The repeater Network ID is field programmable using the Network ID Selector Switch to add numbers to the Base Network ID of "1".

When all (6) switches are set to the top "OFF" the Network ID is set to "1". To set a different Network ID depress the appropriate DIP Switch. Each switch adds a number to the Base Network ID of 1.

For 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 below for switch positions.

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	OFF	ON	ON	OFF	6
OFF	OFF	OFF	ON	ON	ON	7
OFF	OFF	OFF	ON	ON	ON	8
OFF	OFF	ON	OFF	OFF	OFF	9
OFF	OFF	ON	OFF	OFF	ON	10
OFF	OFF	ON	OFF	ON	OFF	11
OFF	OFF	ON	OFF	ON	ON	12
OFF	OFF	ON	ON	OFF	OFF	13
OFF	OFF	ON	ON	OFF	ON	14
OFF	OFF	ON	ON	ON	OFF	15
OFF	OFF	ON	ON	ON	ON	16
:	:	:	:	:	:	:
:	:	:	:	:	:	:
ON	ON	ON	ON	OFF	OFF	61
ON	ON	ON	ON	OFF	ON	62
ON	ON	ON	ON	ON	OFF	63
ON	ON	ON	ON	ON	ON	64

Repeater Network ID Dip Switch Setting

Installation

A signal repeater can be installed 200 to 500 feet from a receiver as needed to improve transmission distance/reliability between sensors and the receiver.

⚠ CAUTION

Sensors, Repeaters and Receivers should **NOT** be installed in the following areas:

- Inside a metal enclosure/panel
- Inside or immediately next to an elevator shaft/elevator banks
- In front of or immediately next to large trees or a large body of water

Transmission distance and performance will be drastically reduced.

Performance of the device is generally better when the repeater is installed elevated from the ground as much as possible.

Mount the RR2552 to the wall using four #10 screws.

Check to see that the Test Mode Jumper (J1) has been moved from "Battery" to "24 VAC".

Connect 24 V 60 Hz to the power input terminals using 16-20 AWG wire.

⚠ Caution

For long term operation the Repeater requires 24 VAC. The repeater will function for only 4 to 6 hours in the Test Mode on a set of batteries.

⚠ CAUTION

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

Limitation of Liability - Trs Systems' liability shall not exceed the purchase price paid for the products giving rise to any liability. In no event shall Trs be liable for any special, consequential or incidental damages arising in any way from using this product by the customers.