

Overview and Identification

The BAPI Repeater receives the 418 MHz RF signal from one or more wireless temperature or humidity transmitters which have a range of 100 feet. The Repeater re-transmits the signal at 900 MHz to a distance of 1,000 feet to a BAPI 900 MHz Receiver.

The 900 MHz Receiver then outputs the values to any Analog Output Module through an RS485 four-wire bus. The Analog Output Modules convert the signal to an analog voltage, current or resistance for the controller. The receiver can accommodate up to 127 different Analog Output Modules. It is surface, snaptrack or DIN rail mountable with a 79" extendable antenna for optimum reception.

Note: The Repeater's 900 MHz transmission can only be received by a 900 MHz Receiver, not by a 418 MHz Receiver.

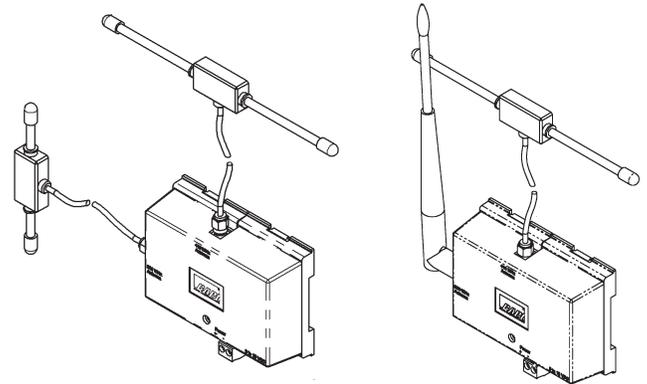
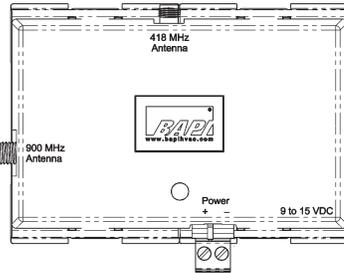


Fig. 1: Standard Repeater with "Whip" antenna (right) and Repeater with optional Extendable Dipole Antenna (left)

Customer Provided Tools and Materials

#2 Philips Screwdriver, Drill, Wire

Mounting and Locating of the Antennas

The Repeater may be located inside a metal enclosure but the antennas must be outside the enclosure. The Repeater comes standard with a 418 MHz Dipole Antenna and a 900 MHz "Whip" Antenna, but is available with a 900 MHz Dipole Antenna.

To mount the 418 MHz Dipole Antenna or 900 MHz Dipole Antenna, peel off the protective film from the adhesive pad and stick the antenna to a wall or other non-metallic support so that antenna is vertical for best reception. Antenna's should be mounted as far away from metal plates or bars as possible to avoid RF energy being reflected back or blocked on the other side of the metal. An antenna will not work inside a metal box. Mounting to drywall between studs, ceiling tiles, brick, or concrete is very common.

Transmission distance performance will vary based on environment. 100 feet is the maximum that can be expected if there are no obstructions. In general, each obstruction will half the expected transmission distance. Obstructions include but are not limited to; walls, partitions, floors, ceilings, doors, tinted glass, ground, many people, vehicles, foliage, rain, snow and fog. Metal (solid or screen) blocks the RF signal preventing propagation but also can bounce the signal around the potential obstacle. Wood, drywall, plaster, brick, and concrete attenuates the signal but will let it pass (if it's not too thick) at a reduced signal strength. Anything that holds water absorbs the signal to the point of blockage like rain, fog, people, ground, dense foliage etc. Elevator shafts and stairwells usually block RF signals.

The 900 MHz "Whip" Antenna simply screws onto the Repeater. Mounting the antenna on a metal surface may limit reception from behind the surface.

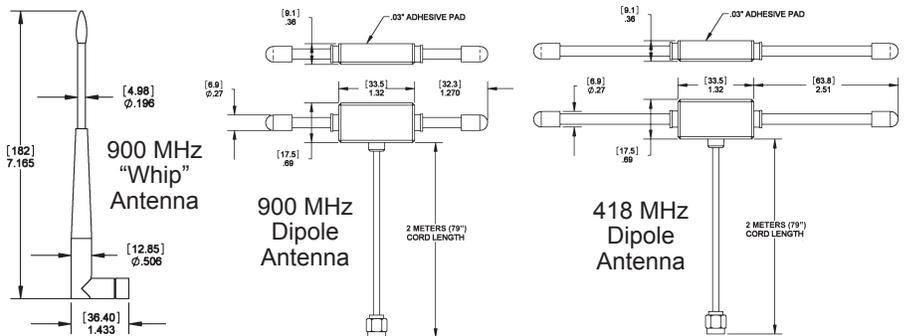


Fig. 2: Repeater antenna types.

Mounting of the Repeater

The Repeater body can be mounted in snap track, DIN Rail or on a surface. For snaptrack mounting, push in the blue mounting tabs and the unit will fit into the board slots of 2.75" snap track. For DIN Rail mounting, push out the blue mounting tabs, then catch the EZ mount hook on the edge of the DIN rail as shown in Figure 5 and rotate into place. For surface mounting, push out the blue mounting tabs and attach to the surface using four screws, one in each blue tab.

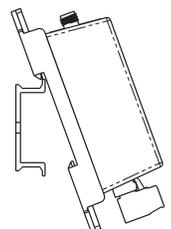


Fig. 3: Catch the EZ Mount hook on the edge of the DIN Rail, then rotate into place.

Specifications subject to change without notice.



Termination

The Repeater is powered by 9 to 15 VDC. Connect the terminal labeled “-” to the power supply’s ground. Connect the terminal labeled “+” to the positive power supply terminal.

Wireless System Diagnostics

Possible Problems:

Temperature or Humidity is reading its low limit or high limit, or the LED at the top of the Analog Output Module is blinking rapidly:

Temperature or Humidity reading is coming out the wrong output module

Temperature or Humidity reading is incorrect

Possible Solutions:

- Check for proper wiring and connections from the output modules to the controller.
- Check to see if the controller’s software is configured properly.
- Check for proper power to the receiver, repeater (if used) and output modules.
- Check that the associated transmitter is transmitting (the LED will flash about once every 20 seconds when it transmits). If not, replace the batteries. Check that the associated receiver is receiving the transmissions (its LED will blink right after the transmitter LED if it receives that transmission.) If it is not receiving the transmissions, move it closer to the transmitter or reposition the antenna for maximum reception. **Note:** The receiver will receive transmissions from all transmitters that are within range, not just the one you are testing.
- Retrain the Analog Output Module.
- Retrain the Analog Output Module.
- Check for proper wiring and connections from the output modules to the controller.
- Check to see if the controller’s software is configured properly.
- Check to see if the correct output module is connected to the correct controller.

Default Status when wireless transmission is interrupted:

If an output module does not receive data from its assigned transmitter for 15 minutes, the red LED on the top of the module will blink rapidly. If this happens, the individual Analog Output Modules will react as follows:

- Resistance Output Modules (BA/ROM) calibrated for temperature will output the highest resistance in their output range.
- Voltage Output Modules (BA/VOM) calibrated for temperature will set their output to 0 volts.
- Current Output Modules (BA/COM) calibrated for temperature will set their output to 4 mA.
- Voltage Output Modules (BA/VOM) calibrated for humidity will set their output to their highest voltage (5 or 10 volts).
- Current Output Modules (BA/COM) calibrated for humidity will set their output to 20 mA.
- Setpoint Output Modules (BA/SOM) will hold their last value indefinitely.
- Relay Output Modules (BA/RyOM Units Only) will go to their default state (example: open for a normally open unit).

When a transmission is received, the output modules will revert to normal operation in 60 seconds or less.

Specifications

WIRELESS REPEATER

Supply Power: 9 to 15 VDC
Power Consumption: 150 mA max. DC
Input: 418 MHz
Output: 900 MHz
Environmental Operation Range:
 Temp: 32°F to 140°F (0°C to 60°C)
 Humidity: 5% to 95% RH non-condensing
Material: ABS Plastic
Material Rating: UL94, V-0

WIRELESS TRANSMITTER

FCC Approval: FCC ID# T4F061213RSO (418MHz only)
Compliance: This device complies with Part 15 of the FCC rules Operation is subject to the following conditions.
 1. This device may not cause harmful interference.
 2. This device must accept any interference received, including interference that may cause undesired operation.
FCC Radio Frequency Interference Statement:
 This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15, Subpart B, of the FCC Rules. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause interference to radio communications.

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