

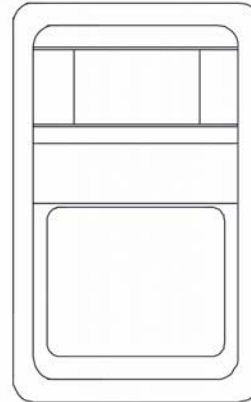
## Thermistor Room Wall Sensor

The TRW Series is a thermistor type 10K Ohms wall mounted room sensor that measures room temperature and provides temperature as input information to a controller such as the BLR-1 and BZU-1.

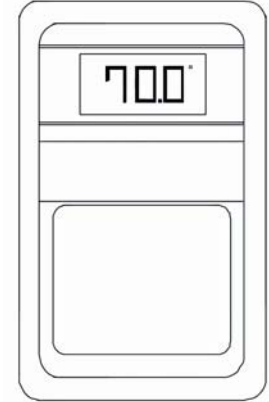
### Overview

The TRW Series consists of four models that measure the room temperature and provide that information to the controllers. The TRW-1 has a thermistor without temperature display. The TRW-2 has a thermistor with a liquid crystal display (LCD) which features an easy to read 3.5 digit display and wide operating range.

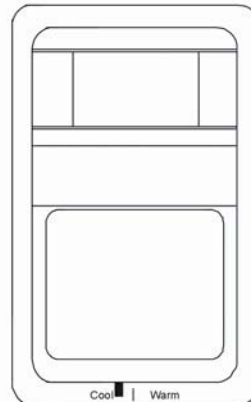
The TRW-3 and TRW-4 allow for local setpoint adjustment using a sliding linear 3K potentiometer in series with the thermistor to allow an offset from the controller setpoint. The local setpoint adjustment provides a local setting of Cool | Warm with an average of  $\pm 5^\circ$  from controller setpoint. The TRW-3 has a thermistor and sliding local setpoint adjustment without temperature display. The TRW-4 has a thermistor and sliding local setpoint adjustment with a LCD. The LCD requires a 24 VAC supply and is easy to incorporate with the controller power supply.



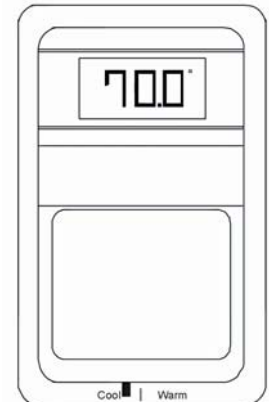
TRW-1



TRW-2



TRW-3



TRW-4

### Features

- Four models
- Low Profile
- 2" x 4" J-box or drywall mount
- Local slide setpoint adjustment
- Output: 10K Ohm @ 77° F
- With or without digital display
- 24 VAC LCD display
- Decorative white color

## Precautions

### General



This symbol is intended to alert the user to the presence of important installation and maintenance (servicing) instructions in the literature accompanying the equipment.



**Warning:** Electrical shock hazard. Disconnect **ALL** power sources when installing or servicing this equipment to prevent electrical shock or equipment damage.

Make all wiring connections in accordance with these instructions and in accordance with pertinent national and local electrical codes. Use only copper conductors.

### Static Electricity

Static charges produce voltages that can damage this equipment. Follow these static electricity precautions when handling this equipment.

- Work in a static free area.
- Touch a known, securely grounded object to discharge any static charge you may have accumulated.
- Use a wrist strap when handling printed circuit boards. The wrist strap must be secured to earth ground.

### Location

Avoid locations where corrosive fumes, excessive moisture, vibration or explosive vapors are present. Avoid electrical noise interference. Do not install near large contactors, electrical machinery, or welding equipment.

This equipment is intended for indoor use only. Operate where ambient temperatures do not exceed 158° F (70° C) or fall below 32° F (0° C) and relative humidity does not exceed 95%, non-condensing.

## Installation



**Warning:** Electrical shock hazard. To prevent electrical shock or equipment damage, disconnect **ALL** power sources to controllers and loads before installing or servicing this equipment or modifying any wiring.

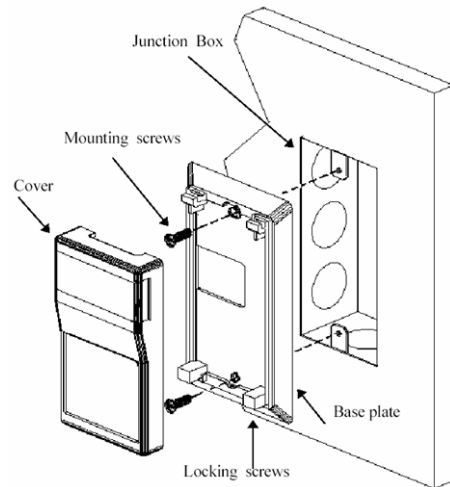


Thermistors are resistive elements, and therefore, are **NOT** polarity sensitive. It is recommended that wiring for these units not be run in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators, and coils.

## Mounting the Device

1. Select mounting location.
2. Pull the wires through the wire-way hole in the base.
3. For junction box installation, secure the base to the junction box using the 6-32 x 1" mounting screws provided.
4. For drywall installation, pre-drill two 3/16" holes 3 1/4" apart on center. Insert the drywall anchors and secure the base using the 6-32 x 1" metal screws provided.
5. Attach the cover by latching the cover to the top of the base. Rotate the cover down and secure it in place by backing out the locking screws (located at the bottom of the base plate) using a 1/16" hex wrench until they are flush with the bottom of the cover.
6. Note: The TRW-2 & 4's LCD module must be unplugged from the 10 pin socket before the base plate can be mounted.

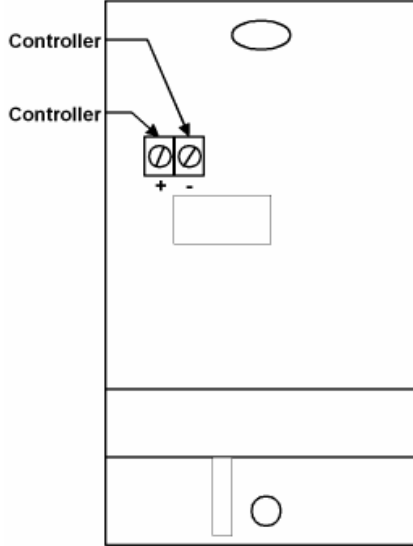
Figure 1: Mounting Diagram



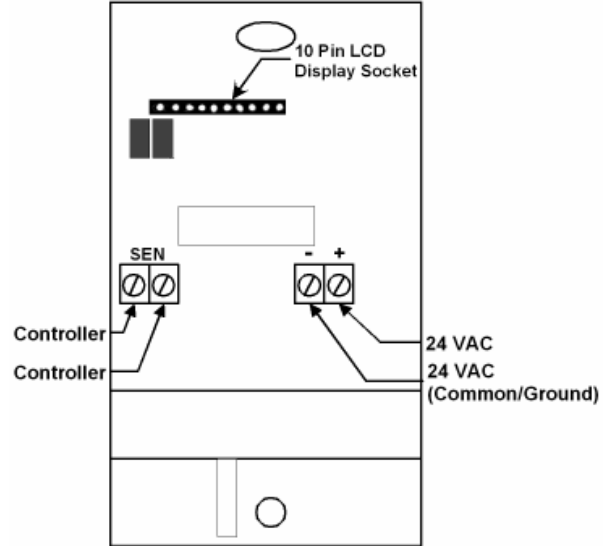
## Wiring Information

All electrical connections are made to screw terminals that accept 18-22AWG twisted pair wire or shielded cable, routed through the back of the enclosure.

**Figure 2: TRW-1 & 3 Terminal Connections**



**Figure 3: TRW-2 & 4 Terminal Connections**



### TRW-1 & 3 Connections

The TRW-1 & 3 requires 2-wire connection to the BLR-1 or BZU-1 which are NOT polarity sensitive. To connect the TRW-1 & 3 thermistor outputs, attach one wire to the left terminal block marked (+) and the other wire to the right terminal of (+). The TRW-1 & 3 does not require a power supply see Figure 2.

### TRW-2 & 4 Connections

The TRW-2 & 4 requires 4-wire connection to the BLR-1 or BZU-1. To connect the TRW-2 & 4 thermistor outputs which are NOT polarity sensitive, attach one wire from the left side of terminal (SEN) and the other wire to the right side of terminal (SEN). The TRW-2 & 4 requires a 24 VAC input power supply for the LCD. The 24 VAC power supply to the LCD display must be isolated from the sensor outputs to the controllers. Check that the correct power is being provided before connecting. Connect the 24 VAC to the two position terminal block on the right half of the base. Connect the positive wire to the terminal marked (+) and the common/ground to terminal (-). When wiring is completed, install the LCD module by gently inserting back into the 10 pin LCD Display Socket see Figure 3.

## Troubleshooting

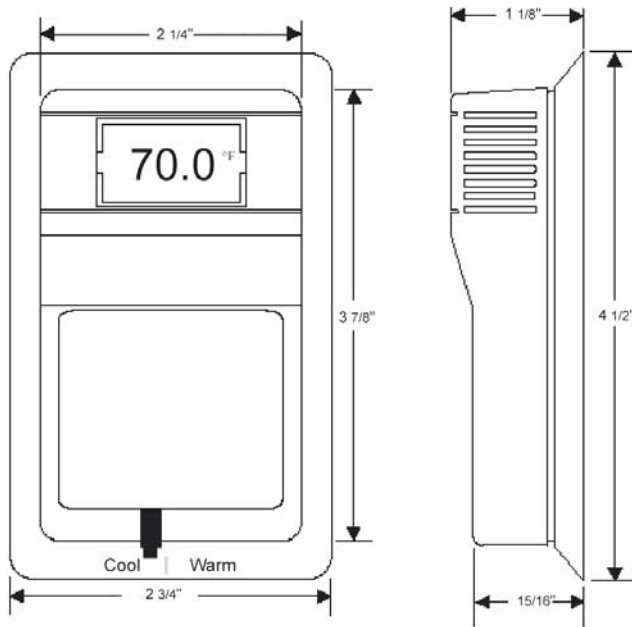
Since the TRW Series are relatively simple devices, very little troubleshooting is necessary. The following Table 1 lists a few common problems with possible solutions.

**Table 1: Troubleshooting Tips**

Problem	Solution
Sensor reads 0 ohms or very low	Sensor or wires are shorted together
Sensor reads infinity or very high	Sensor or wires are open
Erratic readings	Bad wire connection or condensation on board
LCD display not working	Check power connections

## Specifications

Figure 4: Enclosure Dimensions



### Mechanical

- Dimensions in inches (mm): 4 1/2" (114) high, 2 3/4" (70) wide, 1 1/8" (29) deep
- ABS plastic
- Weight: 3.0 ounces (85 grams)

### Electrical

#### Inputs

- TRW-2 & 4 with LCD: 24 VAC, 4mA
- 2-wire 18-22 AWG recommended

#### Output

- Thermistor 10K Ohm @ 77° F (25° C)
- Accuracy +/- 0.2° C (0 to 70° C)
- 2-wire 18-22 AWG recommended
- TRW-3 & 4 with 3K potentiometer: Available offset: ± 5 @ 65 to 75° F  
(Offset is skewed when used outside this range)

#### Environmental

- Operating Temperature: 32 to 158° F (0 to 70° C), Indoor use only
- Humidity: 0 to 95%, non-condensing

#### Agency Compliances

- FCC Part 15 Class A