

LEADWIRE CONFIGURATION EXPLANATION

A resistance temperature detector determines the temperature by measuring resistance. The sensing element is usually a small diameter wire manufactured so that its resistance will change in a known and consistent manner. To measure the resistance accurately and consistently, other extraneous resistances must be compensated for or minimized. A major cause of extraneous resistance is leadwire in series with the RTD. The readout is the sum of the bulb resistance and the leadwire resistances. The leadwire resistance can be compensated in most applications by a three wire RTD leadwire configuration.

In the three wire configuration, the power supply is taken to one side of the resistance temperature detector. This puts the other two leadwires in opposite arms of the wheatstone bridge so that they cancel each other out and have little effect on the bridge output voltage. In the 3 wire configuration, the resistance of the lead wire length is compensated for in the Wheatstone bridge. This design is recommended for most industrial applications.

An even more accurate wire configuration is the 4 wire design. In this design, leadwires #1 and #2 are on one side of the power supply while leadwires #3 and #4 are on the other side of the power supply. All four leadwire resistances in this case are negated and the bulb resistance stands as the resistance input alone. We strongly recommend this design. You must have a good 4 wire input device. Call us for recommendations.

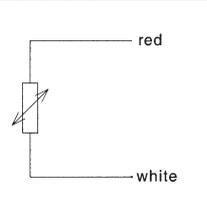
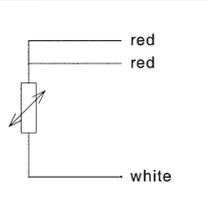
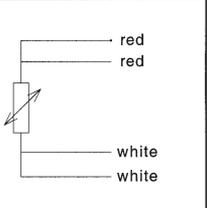
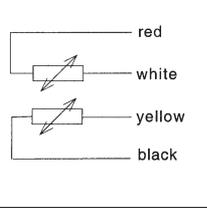
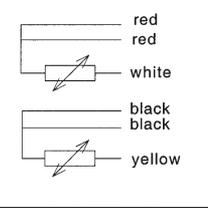
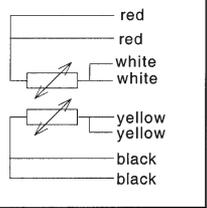
SECTION 3

Note:

For numbering sequence of connectors and terminal blocks see Section 6.

***Note:**

The different colors for the 2nd set are used when the wire are not otherwise distinguishable

SEENOTE	2 - Wire Configuration	3 - Wire Configuration	4 - Wire Configuration
SINGLE			
* 2 DUAL			

RTD Operation and Installation Instructions:

RTD's are installed by means of compression fittings, welded or spring-loaded NPT fittings, or bayonet fittings.

Follow these instructions for installation of an RTD with a 1/2" x 1/2" NPT fitting:

- (1) Insert RTD into process hole or opening.
- (2) Tighten probe into place by turning probe into threaded connection.

If cold-end termination of the RTD is wired into head and you have a spring loaded fitting, then the wires should be disconnected from the terminal block to prevent twisting and shorting.

ELECTRICAL:

Make sure the extension wire is clean so that a good electrical connection will result at the terminal block. We recommend the use of a lacquer, cement, or other moisture proof sealing to prevent oxidation and the loosening of terminals. Connect the positive extension wire to the positive RTD wire and the negative extension wire to the negative RTD wire. Wires are color coded for identification as follows:

When using THERMOCOUPLE STYLE PLUGS (6A type, see pg 6-3)

Two Wire Configuration:

Connect the white wire to the positive connection terminal and connect the red wire to the negative connection terminal.

Three Wire Configuration:

The two red wires are common. Connect the white wire to the largest pin connection terminal and the two red wires to the two small pin connection terminals. The second red wire is the compensating lead wire.