

All of the following wiring advice is based on the most popular configuration of the Trerice TR893 controller. In that there are numerous incompatible options available (such as AC vs. DC power), please confirm that these "shortcuts" apply to the unit in hand.

**Units other than 3 3/4" square are wired to differently numbered screw connections.**

There is a wiring diagram adhered to the side of each controller. All screw connections have a number molded into the controller case immediately next to the screw connection, between the barriers.

## QuickStart Instructions for Controller Model TR8938A90-xxx

(1/4 DIN-96x96mm, Universal AC power, Universal temperature inputs, 4-20mA Control Output)

### Power Connection

Standard power required is AC, anywhere between 100V to 240V, 50 or 60Hz. Connect the AC power lines to screw terminals **11** and **12**. Connect the equipment ground to screw terminal **13**. For best performance, do not separately ground the temperature sensor.

### Control Output Connection

Connect the controlled 4-20mA device (such as the model TA901 I/P transducer) to screw terminals **14** and **15**. Screw terminal **14** is the positive connection (Black wire on the TA901). Do not reverse the polarity of the transducer. If control action reversal is desired, this can be accomplished programmatically by following the instructions in the instruction manual section titled "Setting of control output characteristic".

#### Thermocouple Installation

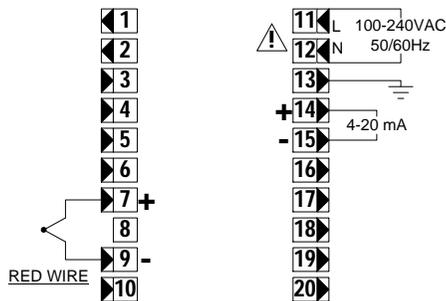
The thermocouple will have two color-coded wires. The red wire is negative. Connect to screw terminal **9**. The other wire (positive) is color-coded to indicate the thermocouple type.

Type J = Red/White  
 Type K = Red/Yellow  
 Type E = Red/Purple  
 Type S = Red/Black

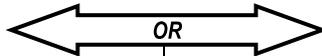
Make a note of the thermocouple type then connect to screw terminal **7**.

*TIP:* If extension wire is required, thermocouple extension wire of the same type (same color-code) must be used. DO NOT USE COPPER WIRE. Do not reverse polarity at any junction (stay red to red, white to white, etc.). Failure to follow these instructions will result in unpredictable erroneous readings.

*TIP:* If polarity is reversed at the screw terminals, heating the sensor will cause the reading to drop.



Thermocouple

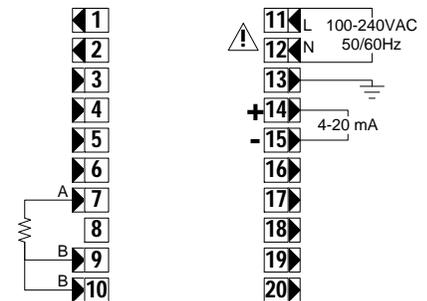


#### RTD Installation

The RTD will have three color-coded wires. Two wires will be of the same color and the remaining wire will be of a different color. (Examples: Red-Red-White, Black-Black-Red, etc.) The two wires of the same color are interchangeable and are to be connected to screw terminals **9** and **10**. The remaining wire is to be connected to screw terminal **7**.

*TIP:* If a multi-meter is available, a resistance reading across the two matched wires will indicate a short circuit (0Ω). A reading from either of these two wires to the remaining wire will be approximately 109Ω at room temperature.

32°F = 100.0Ω  
 65°F = 107.1Ω  
 70°F = 108.1Ω  
 75°F = 109.2Ω  
 80°F = 110.3Ω



RTD



---

## Setting the Sensor & Range Parameter:

*The control as shipped is set for a "Type J" (Red/White) Thermocouple to read in °F.*

To change the Sensor & Range Parameter press and hold the parameter button  for at least 3 seconds until the display indicates . Release the parameter key, then momentarily press it multiple times until the display indicates . (The bottom number may be different.) Use the up  and down  buttons to set the desired sensor/range code. Press the enter button  to set the code into memory. Continue on to "Setting for °F or °C".

Other sensor & range codes are in the Section titled "Table of Measuring Range Codes" in the installation manual.

**Thermocouple** users will identify their type by the color-code tabulated previously.

Type J = Range Code "08"  
Type K = Range Code "05"

*TIP:* Use of the wrong thermocouple code will result in readings that are correct when the sensor is at room temperature, but will introduce errors that increase as the sensor is subjected to temperatures further from room temperature.

**RTD** users will also need to choose a measuring range.

-300°F to 1100°F = Range Code "31"  
-150°F to 200°F = Range Code "32"  
-50°F to 120°F = Range Code "33"  
0°F to 400°F = Range Code "34"

*TIP:* A smaller range span that includes the desired control point gives more precise control than a large span.

*TIP:* If an RTD is installed, and the factory settings have not been changed, the controller will indicate approximately room temperature irrespective of the actual temperature at the RTD. *Also true if incorrectly wired.*

## Setting for °F or °C

To switch between °F and °C, press the parameter button  once more to display . Use the up  and down  buttons to set either °F [F] or °C [C]. Press the enter button  to set the code into memory.

**Press and hold the parameter button  for at least 3 seconds to return to the primary display.**

---

## Placing the Controller into Operation

When the controller is on the primary display, the upper screen [PV] will show the current temperature of the process and the lower screen [SV] will show the desired control point.

**To change the control point:** Press the up  or down  buttons until the desired control point is displayed. Press the enter button  to set the control point into memory.

**For best operation, use the Auto-Tune function to customize the control calculations to the specific process that is being measured.**

Start the process and all related equipment (controller, control valves, transducers, air supply, etc.), set the control point and allow the process to come to operational temperature. After the process arrives at control temperature, press the parameter button  a few times until the display indicates . Use the up  and down  buttons to change the Auto-Tuning from "OFF" to "ON". Press the enter button  to activate.

**What happens next:** *The set-up is done.* The control will default back to the primary screen with no further actions after a time delay.

As the controller exercises Auto-Tuning, the control action will be pure "on/off" control. Assuming a heating application, if the temperature is too high the heating valve will be closed. If the temperature is too low, the heating valve will be full open. There will be no "in-between" or proportional action. This action will continue for three cycles of on/off, or for three hours, whichever comes first. After the Auto-Tuning is complete, the controller will have calculated and start using the optimum values for the Proportional Band, the Integral Time and the Derivative Constant (the P.I.D.) for the measured process. These values will automatically be locked into memory until either manually changed (see page 15 of the installation manual) or until another Auto-Tuning command is input by the user.

**NOTE:** All parameters and settings are stored in a non-volatile memory. The settings will be maintained without electricity (or batteries) in perpetuity until either manually changed, or the controller is destroyed.