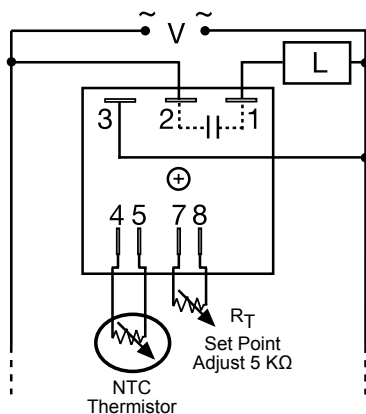


# TCR9C

## Temperature Controller



### Wiring Diagram



V = Voltage  
L = Load

**Caution:** NTC Thermistor must be electrically insulated, 1500 volts RMS minimum.

### Description

The TCR9C of solid-state temperature control is a low cost modular approach to accurate control of temperature. The high power output is available in 20 amperes and provides setpoint temperature control. The efficient mounting surface allows for utilization of equipment as the heat sink. Designed for use with resistive loads.

#### Operation

**Setpoint Control:** TCR9C is a single setpoint temperature controller. When the thermistor resistance is high (above the setpoint), the solid-state output is ON. When the thermistor resistance decreases (temperature increases) to setpoint or below, the output turns OFF. It must be recognized that temperature differential (under and overshoot) is largely due to the system as a whole. The mass of the system, size of the heaters and sensor all play an important part. Single setpoint control is best when there is little or no lag time between heater and sensor, and when the heater is not oversized.

### Features & Benefits

- NTC thermistor sensing for low cost setpoint control
- Solid-state output to control resistive heaters
- External adjustment of the setpoint
- Small package, encapsulated, single-screw mounting
- Metal mounting surface utilizes equipment as heat sink

### Accessories



**P1015-13** (AWG 10/12), **P1015-64** (AWG 14/16), **P1015-14** (AWG 18/22) **Female Quick Connect**  
These 0.25 in. (6.35 mm) female terminals are constructed with an insulator barrel to provide strain relief.

### Specifications

#### Control

<b>Type</b>	Single setpoint, negative temperature coefficient resistance sensing
<b>Sensor Type</b>	Thermistor, negative temperature coefficient (customer supplied)
	Electrically insulated for 1500V RMS min.
<b>Adjustment</b>	Temperature setpoint selected by means of an external resistance
<b>Accuracy</b>	≤ ±5% of the setpoint resistance Add the tolerance of the NTC thermistor and the drift of the adj. pot over temp. range
<b>Setpoint vs. Ambient Temperature and Operating Voltage</b>	±5% of setpoint resistance
<b>Reset Time</b>	≤ 150ms
<b>Input</b>	
<b>Voltage</b>	120 - 240VAC
<b>Tolerance</b>	±15%
<b>AC Line Frequency</b>	50/60 Hz

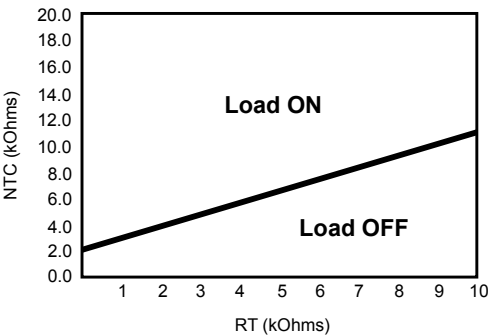
#### Output

Type	Solid state		
Form	Non-isolated, single pole, zero voltage switching		
Rating	Model	Steady State	Inrush**
	C	20A	200A**
Minimum Load Current	100mA		
Voltage Drop	≅ 2V at rated current		
Off State Leakage Current	≅ 5mA @ 230VAC		
Protection			
Dielectric Breakdown	≥2000 volts terminals to mounting surface		
Isolation Voltage	≥100mΩ		
Circuitry	Encapsulated		
Mechanical			
Mounting	Surface mount with one #10 (M5 x 0 .8) screw		
Dimensions	<b>H</b> 50.8 mm (2.0"); <b>W</b> 50.8 mm (2.0"); <b>D</b> 38.4 mm (1.51")		
Termination	0.25 in. (6.35mm) male quick connect terminals		
Environmental			
Operating/Storage			
Temperature	-40° to 60°C / -40°to 85°C		
Humidity	95% relative, non-condensing		
Weight	≅ 2.7 oz (77 g)		

\*\* Must be bolted to a metal surface using the included heat sink compound. The maximum mounting surface temperature is 90°C. Inrush: non-repetitive for 16ms.

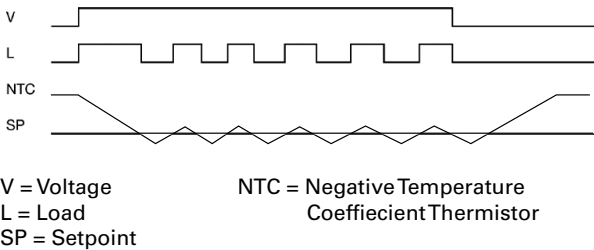
# TCR9C

## Adjustment vs. Thermistor Resistance



Note: If  $R_T$  value exceeds 13kOhms, the output will not energize.

## Function Diagram



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