

# Temperature Controllers



Models TEC-905 & TEC-900 1/16 DIN

**Model TEC-905 1/16 DIN Controller & Model TEC-900 1/16 DIN Indicator Only**



*Simple Setpoint and Display!*



*Display only!*

Agency Approvals



## Design Features

- \* 1/16 DIN size – 48 mm × 48 mm
- \* Short panel depth – only 3-3/8" (86 mm) required
- \* Laser trimmed ASIC components
- \* On-off or time proportional selections
- \* Wide selection of output options
- \* Universal power input, 90-264 VAC
- \* Sensor break protection
- \* Good performance at a very low price
- \* Model TEC-905 control with pushwheel setpoint
- \* Model TEC-900 indicator only

## Temperature Controller

**Hardware Code:** TEC-905-

|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|   |   |   |   |   | 0 | 0 | 0 |

A Part Number based on the hardware code and any software pre-programming will be issued at time of order.

**Standard lead time is stock to 2 weeks.**

## Temperature Indicator

**Hardware Code:** TEC-900-

|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|   |   |   | 0 | 0 | 0 | 0 | 0 |

A Part Number based on the hardware code and any software pre-programming will be issued at time of order.

**Standard lead time is stock to 2 weeks.**

### Power Input BOX 1

**4** = 90-264 VAC 50/60 Hz

### Signal Input BOX 2

- 1** = Thermocouple: Type J
- 2** = Thermocouple: Type K
- 3** = RTD: 100 ohm PT, DIN 0.00385
- 4** = RTD: 100 ohm PT, JIS 0.00392
- 9** = Other

### Control Mode BOX 4

(TEC-905 only)

- 1** = On - Off (used for valves & solenoids)
- 2** = Proportional (common for electric heaters)

### Range code (TEC-905 only) BOX 3

- X** = 0 to 499°F      **C** = 0 to 299°C
- V** = 0 to 999°F      **E** = 0 to 499°C
- W** = 0 to 1999°F    **H** = 0 to 999°C

*Other ranges are available for large volume orders. Consult Tempco for more information.*

### Range code (TEC-900 only) BOX 3

#### Thermocouple

- A** = 0 to 1200°F – Type J
- B** = 0 to 600°C – Type J
- C** = 0 to 2000°F – Type K
- D** = 0 to 1100°C – Type K

#### RTD

- E** = -32 to 752°F
- F** = 0 to 400°C

### Output 1 (TEC-905 only) BOX 5

- 1** = Relay: 5A / 240 VAC
- 2** = Pulse DC for SSR drive: 20 VDC (20 mA max)
- 3** = 4-20 mA, linear (max load 500 ohms)
- 4** = 0-20 mA, linear (max load 500 ohms)
- 5** = 0-10 VDC, linear (min. impedance 500K ohms)
- 9** = Other

### Output 2 BOX 6

#### Alarm BOX 7

#### Communication BOX 8

- 0** = Not Available



### Power Input

**Standard:** 90-264 VAC, 50/60 Hz, 5VA

### Signal Input

**Accuracy:**  $\pm 1.0\%$  of full scale at 77°F/25°C

**Thermocouple:** Type J or K

**RTD:** 3-wire Pt100 DIN or JIS

**Sampling Rate:** 3 samples / second

**Cold Junction Compensation:**  $\pm 0.1^\circ\text{C}$  /  $1^\circ\text{C}$

**Common Mode Rejection Ratio (CMRR):** 120 dB

**Normal Mode Rejection Ratio (NMRR):** 60 dB

**Sensor Break Protection:** Upscale

### Output 1 (for TEC-905 only)

**Relay Rating:** 240 VAC, 5 Amp

**SSR drive:** Pulsed DC, 20 V at 20 mA maximum

**Current:** 4 - 20 mA, 0 - 20 mA, maximum load: 500 $\Omega$

**Voltage:** 0 - 10 VDC, minimum load 500K $\Omega$

### Control (for TEC-905 only)

**Proportional Band:** 2.2% of span

**ON-OFF Hysteresis:** 1% of span

**Cycle time:** 20 seconds for relay output, 1 second for pulsed voltage output, 0.02 second for linear current or voltage output

**Control Action:** Reverse Action

### Approval Standards

**Safety Standard:** UL3121-1

**Protective Class:** Front panel: IP 30

Housing and Terminals: IP 20

**EMC:** EN61326

### Adjustment (for TEC-905 only)

**Setpoint:** 3-digit or 4-digit pushwheel switch

**Manual Reset:** Adjustable up to 2.6% of span

**Setpoint Resolution:**  $\pm 1$  Least Significant Digit

**Accuracy of Setpoint:**  $\pm 1\%$  of span

**Repeatability of Setpoint:**  $\pm 1$  Least Significant Digit

### Display

**Process Indicator:** 3-1/2 digit, 0.4" / 10 mm red LED display

**Output Status Indicator:** Red LED lamp (for TEC-905 only)

### Environmental and Physical

**Operating Temperature:** 32 to 122°F (0 to 50°C)

**Humidity:** 0 to 90% RH, non-condensing

**Dielectric Strength:** 2000 VAC, 50/60 Hz for 1 minute

**Vibration:** 10 - 55 Hz, amplitude 1mm

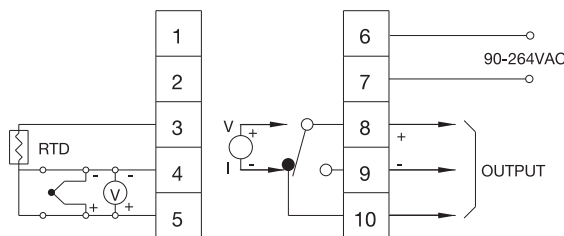
**Shock:** 200 m/s<sup>2</sup> (20g)

**Dimensions:** 1-7/8  $\times$  1-7/8  $\times$  3-3/4" (48  $\times$  48  $\times$  94 mm) H $\times$ W $\times$ D  
Depth behind panel: 3-3/8" (86 mm)

**Panel Cutout:** 1-25/32"  $\times$  1-25/32" (45  $\times$  45 mm) H $\times$ W

**Weight:** 0.42 lb. (190 grams)

### Rear Terminal Connections



**NOTE:** Terminals 8, 9 and 10 are not used for Model TEC-900.

### TEC-905 Stock and Common Part Numbers

(Power Input: 90-264 VAC, Proportional Mode)

| Part Number | Signal Input | Range    | Output |
|-------------|--------------|----------|--------|
| TEC17511    | J tc         | 0-999°F  | relay  |
| TEC17512    | J tc         | 0-499°F  | relay  |
| TEC17513    | K tc         | 0-1999°F | relay  |
| TEC17514    | K tc         | 0-999°F  | relay  |
| TEC17515    | J tc         | 0-499°C  | relay  |
| TEC17516    | J tc         | 0-299°C  | relay  |
| TEC17517    | K tc         | 0-999°C  | relay  |
| TEC17518    | K tc         | 0-499°C  | relay  |
| TEC17519    | RTD          | 0-999°F  | relay  |
| TEC17520    | RTD          | 0-499°C  | relay  |

### TEC-900 Stock and Common Part Numbers

(Power Input: 90-264 VAC, Indicator Only)

| Part Number | Signal Input | Range    |
|-------------|--------------|----------|
| TEC17021    | J tc         | 0-1200°F |
| TEC17022    | K tc         | 0-2000°F |
| TEC17023    | J tc         | 0-600°C  |
| TEC17024    | K tc         | 0-1100°C |
| TEC17025    | RTD          | 32-752°F |
| TEC17026    | RTD          | 0-400°C  |