Models TEC-404 & TEC-405 1/4 DIN Temperature Controllers

**Design Features**
- 1/4 DIN size – 96 mm × 96 mm
- Model TEC-404 Temperature Control with dial/potentiometer setpoint
- Model TEC-405 Temperature Control with pushwheel setpoint
- Laser trimmed ASIC components
- On-off or time proportional selection
- Short panel depth – only 2.0” (51 mm) required
- Digital display, 0.56” (14 mm) red LED
- Wide selection of output options
- Universal power input, 90-264 VAC or 20-32 VAC/VDC
- Sensor break protection
- Good performance at a very low price

**Potentiometer Setpoint**

<table>
<thead>
<tr>
<th>Hardware Code: TEC-404-</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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A Part Number based on the hardware code and any software pre-programming will be issued at time of order.

**Pushwheel Setpoint**

<table>
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<th>Hardware Code: TEC-405-</th>
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<th>2</th>
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A Part Number based on the hardware code and any software pre-programming will be issued at time of order.

**Power Input**

| BOX 7 | 4 = 90-264 VAC 50/60 Hz  
|-------|----------------------|
| 5 = 20-32 VAC 50/60 Hz, 20 - 32 VDC

**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

**Standard Range Code** *(TEC-404 only)*

| BOX 3 | 4 = 0 to 300°C  
|-------|----------------------|
| 6 = 0 to 600°C  
| 0 = Other

**Control Mode**

| BOX 4 | 1 = On - Off (used for valves & solenoids)  
|-------|----------------------|
| 2 = Proportional (common for electric heaters)

**Output 1**

| 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 | 0 = Not Available

**Alarm**

| BOX 7 | 0 = None  
|-------|----------------------|
| 1 = Relay: 3A / 240 VAC Deviation alarm

**Communication**

| BOX 8 | 0 = Not Available

**Range code** *(TEC-405 only)*

| BOX 3 | X = 0 to 499°F  
|-------|----------------------|
| V = 0 to 999°F  
| W = 0 to 1999°F  
| C = 0 to 299°C  
| E = 0 to 499°C  
| H = 0 to 999°C

*Other ranges are available for large volume orders. Consult Tempco for more information.*
Power Input
Standard: 90 - 264 VAC, 50/60 Hz, 5VA
Optional: 20 - 32 VAC 50/60 Hz, 20 - 32 VDC, 5VA

Signal Input
Accuracy: ±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 per second
Cold Junction Compensation: ±0.1°C / 1°C
Common Mode Rejection Ratio (CMRR): 120 dB
Normal Mode Rejection Ratio (NMRR): 60 dB
Sensor Break Protection: Upscale

Output 1
Relay Rating: 5 Amp, 240 VAC
SSR drive: Pulsed DC, 20 V at 20 mA maximum
Current Loop: 4 - 20 mA, 0 - 20 mA, maximum load: 500Ω
Voltage: 0 - 10 VDC, minimum load 500 KΩ

Control
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

Adjustment
Setpoint: Single turn wirewound potentiometer (TEC-404)
Setpoint Resolution: 0.2% of span
Accuracy of Setpoint: ±2% of span
Repeatability of Setpoint: ±0.1% of span
Setpoint: 3-digit or 4-digit pushwheel switch (TEC-405)
Manual Reset: Adjustable up to 2.6% of span
Setpoint Resolution: ±1 Least Significant Digit
Accuracy of Setpoint: ±1% of span
Repeatability of Setpoint: ±1 Least Significant Digit

Display
Single 4-digit LED Display: 0.56" (14 mm) Red

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 1 mm
Shock: 200 m/s² (20g)
Dimensions: 3-3/4 × 3-3/4 × 2-9/16" (96 × 96 × 65 mm) H×W×D
Depth behind panel: 2" (53 mm)
Panel Cutout: 3-5/8" × 3-5/8" (92 × 92 mm) H×W
Weight: 0.55 lb. (250 grams)

Approval Standards
Safety Standard: UL3121-1
EN61326
Protective Class: Front panel: IP 30
Housing and Terminals: IP 20

Rear Terminal Connections

Potentiometer Setpoint
TEC-404 Stock and Common Part Numbers
(Power Input: 90-264 VAC, Proportional Mode)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Signal Input</th>
<th>Range</th>
<th>Output</th>
<th>Alarm</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEC57401</td>
<td>J tc</td>
<td>50-850°F</td>
<td>relay</td>
<td>none</td>
</tr>
<tr>
<td>TEC57402</td>
<td>J tc</td>
<td>50-550°F</td>
<td>relay</td>
<td>none</td>
</tr>
<tr>
<td>TEC57403</td>
<td>K tc</td>
<td>50-850°F</td>
<td>relay</td>
<td>none</td>
</tr>
<tr>
<td>TEC57404</td>
<td>K tc</td>
<td>50-550°F</td>
<td>relay</td>
<td>none</td>
</tr>
<tr>
<td>TEC57405</td>
<td>RTD</td>
<td>50-550°F</td>
<td>relay</td>
<td>none</td>
</tr>
<tr>
<td>TEC57406</td>
<td>J tc</td>
<td>0-300°C</td>
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<tr>
<td>TEC57407</td>
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<tr>
<td>TEC57409</td>
<td>K tc</td>
<td>0-600°C</td>
<td>relay</td>
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</tr>
</tbody>
</table>

Pushwheel Setpoint
TEC-405 Stock and Common Part Numbers
(Power Input: 90-264 VAC, Proportional Mode)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Signal Input</th>
<th>Range</th>
<th>Output</th>
<th>Alarm</th>
</tr>
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<tbody>
<tr>
<td>TEC57511</td>
<td>J tc</td>
<td>0-999°F</td>
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<tr>
<td>TEC57512</td>
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<td>TEC57513</td>
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<tr>
<td>TEC57514</td>
<td>K tc</td>
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<td>relay</td>
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<tr>
<td>TEC57515</td>
<td>J tc</td>
<td>0-299°C</td>
<td>relay</td>
<td>none</td>
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<tr>
<td>TEC57516</td>
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<td>0-299°C</td>
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<td>TEC57517</td>
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<td>TEC57518</td>
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<tr>
<td>TEC57519</td>
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<td>relay</td>
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</tr>
<tr>
<td>TEC57520</td>
<td>RTD</td>
<td>0-499°C</td>
<td>relay</td>
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