Temperature Controllers
Models TEC-4500 & TEC-9500

Model TEC-4500 1/4 DIN & Model TEC-9500 1/16 DIN Ramp & Soak Temperature Controls

Design Features
- Ramp & Soak Programmable Control
- Nine recipes (profiles) available using 64 segments maximum per recipe
- Event Input – one of 8 functions can be chosen: start run mode, hold mode, abort recipe, manual mode, failure transfer, turn off, segment advance, select 2nd set of PID parameters
- Event Output – 3 relays are available. Can be programmed to any segment or end of recipe
- Analog Retransmission – optional mA or VDC transfer of PV or SV values
- Highly accurate universal input with 18 bit analog to digital converter
- Bright 0.40” (10mm) red LED process display
- Fast sample rate – 200ms
- Fuzzy Logic PID Autotune heat and cool control – 2 sets of values can be used
- Optional RS-485 or RS-232 communications interface
- Programming port available for PC connection allowing quick set-up
- Lockout protection guards against unauthorized setting changes
- Bumpless transfer allows continued temperature control if sensor fails
- Universal input, field configurable (Type J T/C default, PT100, mA, V) with high accuracy 18-bit D-A
- Short panel depth required

Agency Approvals

Note: Detailed information on features common to digital microprocessor-based TEC temperature controls and the complete Table of Input Range and Accuracy can be found on page 13-46.

Hardware Code: TEC-4500-

Hardware Code: TEC-9500-

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.

Output 3 BOX 5
0 = None
1 = Relay: 2A / 240 VAC
2 = Pulse DC for SSR drive — 5 VDC (30 mA max)
6 = Triac-SSR output 1A / 240 VAC
7 = Isolated 20V @ 25 mA DC, Output Power Supply
8 = Isolated 12V @ 40 mA DC, Output Power Supply
A = Isolated 5V @ 80 mA DC, Output Power Supply
C = Pulsed voltage to drive SSR, 14V/40mA
9 = Other

Output 4 BOX 6 (TEC-4500 only)
0 = None
1 = Relay: 2A / 240 VAC
2 = Pulse DC for SSR drive — 5 VDC (30 mA max)
3 = Retransmission 4-20mA (default), 0-20 mA
4 = Retransmission 1-5 VDC (default)/ 0-5VDC, 0-10 VDC
6 = Triac-SSR output 1A / 240 VAC
7 = Isolated 20V @ 25 mA DC, Output Power Supply
8 = Isolated 12V @ 40 mA DC, Output Power Supply
A = Isolated 5V @ 80 mA DC, Output Power Supply
C = Pulsed voltage to drive SSR, 14V/40mA
9 = Other

View Product Inventory @ www.tempco.com
### Models TEC-4500 & TEC-9500 Specifications

#### Power Input
- **Standard:** 90-250 VAC, 47-63 Hz, 12 VA, 5W maximum
- **Optional:** 11-26 V AC / VDC, 12 VA, 5W maximum

#### Signal Input
- **Resolution:** 18 bits
- **Sampling Rate:** 5 samples / second
- **Accuracy:** ± .24% of span typical
- **Maximum Rating:** -2 VDC minimum, 12 VDC maximum (1 minute for mA input)
- **Temperature Effect:** ± 1.5 μV / °C for all inputs except mA input
- **Sensor Lead Resistance Effect:** T/C: 0.2μV/ohm 3-wire RTD: 2.6°C/ohm of resistance difference of two leads
- **Burn-out Current:** 200nA
- **Common Mode Rejection Ratio (CMRR):** 120 dB
- **Normal Mode Rejection Ratio (NMRR):** 55 dB
- **Sensor Break Detection:** Sensor open for TC, RTD and mV inputs; Sensor short for RTD input; Below 1 mA for 4-20 mA input; Below 0.25V for 1-5V input; Unavailable for other inputs
- **Sensor Break Response Time:** Within 4 seconds for TC, RTD and mV inputs; 0.1 second for 4-20 mA and 1-5 V inputs

#### Recipe
- **Number of recipes:** 9
- **Number of Segments per recipe:**
  - Recipe 1, 2, 3, 4: 16
  - Recipe 5, 6, 7: 32
  - Recipe 8, 9: 64
- **Event Outputs:** 3

#### Environmental and Physical
- **Operating Temperature:** 14 to 122°F (-10 to 50°C)
- **Storage Temperature:** -40 to 140°F (-40 to 60°C)
- **Humidity:** 0 to 90% RH, non-condensing
- **Dielectric Strength:** 2000 VAC, 50/60 Hz for 1 minute
- **Dimensions:**
  - TEC-4500: 3-3/4 × 3-3/4 × 2-9/16” (96 × 96 × 65 mm) H × W × D
  - TEC-9500: 1-7/8 × 1-7/8 × 4-9/16” (48 × 48 × 116 mm) H × W × D
- **Approval Standards**
  - Safety: UL61010C-1, CSA: C22.2 No. 24-93, EN61010-1 (IEC1010-1)
  - Protective Class: IP30 front panel, indoor use, IP65 front panel with option
  - EMC: EN61326

#### TEC-4500 Stock and Common Part Numbers
**Power Input:** 90-250 VAC

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Signal Input</th>
<th>Out 1</th>
<th>Out 2</th>
<th>Out 3</th>
</tr>
</thead>
<tbody>
<tr>
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<td>TC</td>
<td>relay</td>
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<td>relay</td>
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<tr>
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<tr>
<td>TEC58004</td>
<td>TC</td>
<td>4-20 mA</td>
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<td>none</td>
</tr>
<tr>
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<td>4-20 mA</td>
<td>none</td>
<td>relay</td>
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<tr>
<td>TEC58006</td>
<td>TC</td>
<td>5VDC pulse</td>
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<td>none</td>
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<td>relay</td>
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</table>

#### TEC-9500 Stock and Common Part Numbers
**Power Input:** 90-250 VAC

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Signal Input</th>
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<th>Out 3</th>
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</thead>
<tbody>
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<td>4-20 mA</td>
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<tr>
<td>TEC18005</td>
<td>TC</td>
<td>5VDC pulse</td>
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<td>none</td>
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<tr>
<td>TEC18006</td>
<td>TC</td>
<td>5VDC pulse</td>
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</tbody>
</table>

### TEC-4500 1/4 DIN Rear Terminal Connections
- Use copper conductors, except on T/C input.

### TEC-9500 1/16 DIN Rear Terminal Connections
- Use copper conductors, except on T/C input.