Temperature Controllers

Model TEC-9090 1/16 DIN

Model TEC-9090 1/16 DIN Temperature Controller

Design Features

✴ 1/16 DIN size – 48 mm x 48 mm
✴ Fuzzy Logic PID Autotune heat & cool control
✴ Short panel depth – only 3-7/8” (86 mm) required
✴ Universal input, field configurable (Type J T/C default, PT100, mA, V) with high accuracy 18-bit D-A
✴ Highly versatile – 6 types of inputs available
✴ Optional relay alarm output
✴ Universal input power 90-264 VAC, 20-32 VAC/VDC or 10-18 VDC
✴ Wide variety of alarm mode selections
✴ Bright 0.40” (10 mm) red LED process display
✴ 0.31” (8 mm) green LED setpoint display
✴ High performance at a low price

Dual Display, Configurable for 2 Programmable Outputs!

Hardware Code: TEC-9090-

Power Input BOX 1

1 = 90-264 VAC
2 = 20-32 VAC/VDC
6 = 10-18 VDC
9 = Other

Output 1 BOX 5

1 = Relay: 3A / 240 V AC
2 = Pulse DC for SSR drive: 20 VDC (20 mA max)
3 = 4-20 mA, linear (max load 500 Ω)
4 = 0-20 mA, linear (max load 500 Ω)
5 = 0-10 VDC, linear (min. impedance 10 KΩ)
6 = Triac-SSR output 1A / 240 V AC
9 = Other

Output 2 BOX 6

1 = None

Alarm BOX 7

0 = None
1 = Relay: 2A / 240 VAC, Field Configurable
9 = Other

Data Communications BOX 8

0 = None

Units — °F or °C BOX 9

1 = °F on faceplate
2 = °C on faceplate

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.

Agency Approvals

Power Input BOX 1

Signal Input — (hardware jumper change between TC & RTD) BOX 2

1 = Field configurable (default – max per input type)
9 = Other

Range code BOX 3

1 = Field configurable (default – max per input type)
9 = Other

Control Mode BOX 4

1 = Field Configurable
3 = Field Configurable
9 = Other

Hardware Code: TEC-9090-

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.

Agency Approvals
Temperature Controllers

Model TEC-9090 Specifications (1/16 DIN)

Power Input
Standard: 90-264 VAC, 47-63 Hz, 5VA, 5W maximum
Optional: 20-32 VAC/VDC, 5VA, 5W maximum or 10-18 VDC, 5W maximum

Signal Input
Accuracy: ±24% of span typical
Cold Junction Compensation: 0.1°C/°C ambient typical
Sensor Break Detection: Protection mode configurable
External Resistance: 100 ohms maximum
Normal Mode Rejection: 60 dB
Common Mode Rejection: 120 dB
Sampling Rate: 5 samples/second

Output 1
Relay Rating: 240 VAC, 3 Amp
Pulsed Voltage: Source voltage 20V (20 mA max)
Current: 4 - 20 mA, at 500Ω max
Current: 0 - 20 mA, at 500Ω max
Voltage: 0 - 10 VDC, at 10 KΩ min
Solid State Relay (Triac) Output
Rating: 1A / 240 VAC
Inrush Current: 20A for 1 cycle
Min. Load Current: 50 mA rms
Dielectric Strength: 2500 VAC for 1 minute

Approval Standards
Safety: UL873, CSA22.2/142-87, IEC1010-1
EMC Emission: EN50081-1
EMC Immunity: EN50082-1
Protective Class: Front Panel: IP30
Housing and Terminals: IP 20

Alarm — Programmable
Alarm Relay: Form A, (NO)
Maximum rating: 240 VAC, 3 Amp
Alarm Functions:
  - Deviation High or Low Alarm
  - Deviation Band High or Low Alarm
  - Process High Alarm
  - Sensor Break Alarm
Dwell Timer: 0 - 6553.5 minutes

User Interface
Dual 4-digit LED Display: 0.40" (10 mm) Red Process Display
0.31" (8 mm) Green Setpoint Display
Keypad: 4 keys

Control Mode
Output 1: Reverse (heating) or direct (cooling) action
ACC/Off: 0 - 20% of span hysteresis control (P band = 0)
P or PD: 0 - 100.0% offset adjustment
PID: Fuzzy logic modified
  Proportional band: 0.1 - 360°F (0 - 200°C)
  Integral time: 0 - 3600 seconds
  Derivative time: 0 - 1000 seconds
Cycle Time: 0 - 120 seconds
Auto-tuning: Cold start and warm start
Ramping Control: 0 - 360°F/min (200°C/min)

Environmental and Physical
Operating Temperature: 14 to 122°F (-10 to 50°C)
Humidity: 0 to 90% RH, non-condensing
Dielectric Strength: 2000 VAC, 50/60 Hz for 1 minute
Dimensions: 1-7/8 × 1-7/8 × 3-3/4" (48 × 48 × 94 mm) H×W×D
Depth behind panel: 3-3/8" (86 mm)
Panel Cutout: 1-25/32 × 1-25/32" (45 × 45 mm) H×W
Weight: 0.37 lb. (170 grams)

Stock and Common Part Numbers
(Power Input: 90-264 VAC)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Signal Input</th>
<th>Out 1</th>
<th>Alarm</th>
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<tbody>
<tr>
<td>TEC11002</td>
<td>TC relay</td>
<td>relay</td>
<td>relay</td>
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<tr>
<td>TEC11001</td>
<td>TC relay</td>
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<td>none</td>
</tr>
<tr>
<td>TEC11007</td>
<td>TC 4-20 mA</td>
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<td>none</td>
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<tr>
<td>TEC11003</td>
<td>TC DC pulse</td>
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<td>none</td>
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<td>TEC11009</td>
<td>RTD relay</td>
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</tr>
<tr>
<td>TEC11010</td>
<td>RTD DC pulse</td>
<td>none</td>
<td>none</td>
</tr>
</tbody>
</table>

Rear Terminal Connections

(800) 323-6859 • Email: sales@tempco.com