Model TEC-7400 3/16 DIN

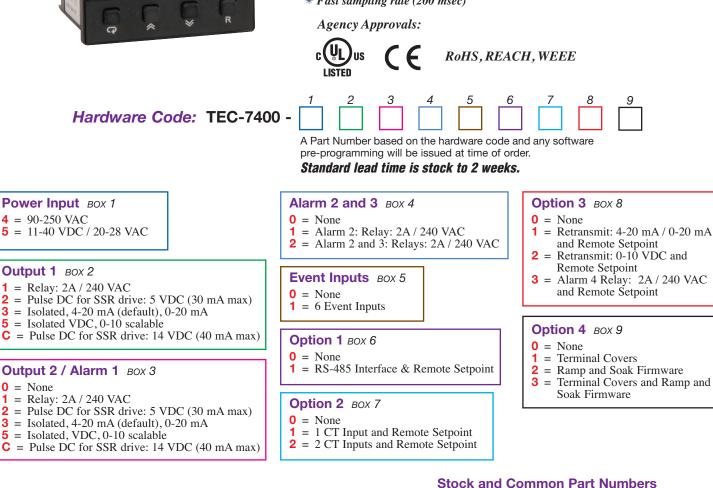


Model TEC-7400 3/16 DIN Temperature Controller

Design Features

- * 3/16 DIN size 72 mm × 72 mm
- * Fuzzy Logic PID Autotune heat and cool control
- * Universal input, field configurable (Type J T/C default, PT100, mA, V) with high accuracy 18-bit D-A
- * Countdown display
- * RS 485 and Analog Retransmission Available
- * Micro USB Programming Port
- * Fast sampling rate (200 msec)

- * Manual control & auto-tune function
- * Wide range of alarm mode selection
- * Lockout protection
- * Bumpless transfer during failure mode
- * Soft-start ramp & dwell timer
- * Bright LCD display using NFPA/IEC standard colors
- * High performance with low cost





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.

Transformer for **Heater Break Alarm** (0-50 Amp current) Part Number: TEC99998 Specifications on page 13-47

Stock and Common Part Numbers (All Stock Part Numbers Include Terminal Covers) (Default Type "J" Thermocouple Input)

Part Number	Output 1	Out 2/ Alm 1	Option 1
TEC45001	Relay	None	None
TEC45002	Relay	Relay	None
TEC45003	Relay	Relay	(2) Relays
TEC45004	Pulse DC	None	None
TEC45005	Pulse DC	Relay	None
TEC45006	Pulse DC	Relay	(2) Relays
TEC45007	4-20mA	None	None
TEC45008	4-20mA	Relay	(2) Relays /

View Product Inventory @ www.tempco.com

Output 1 BOX 2

- 1 = Relay: 2A / 240 VAC

Output 2 / Alarm 1 BOX 3

- $\mathbf{0} = \text{None}$
- 1 = Relay: 2A / 240 VAC
- 2 = Pulse DC for SSR drive: 5 VDC (30 mA max)
- 3 =Isolated, 4-20 mA (default), 0-20 mA
- 5 = Isolated, VDC, 0-10 scalable
- **C** = Pulse DC for SSR drive: 14 VDC (40 mA max)



Temperature Controllers

Accuracy: ±0.05% of span ± 0.0025% / °C

Model TEC-7400 Specifications (3/16 DIN)

Load Resistance: $0-500\Omega$ for current output, $10K\Omega$ minimum for

Power Input

Standard: 90-250 VAC, 47-63 Hz, 12VA, 6W maximum Optional: 11-40 VDC / 20-8 VAC, 47-63 Hz, 12VA, 6W maximum

Signal Input

Resolution: 18 Bits

Sampling Rate: 5 Times / Second (200msec)

Maximum Rating: -2VDC minimum, 12VDC maximum

Sensor Break Detection: Sensor open for thermocouple and RTD inputs, sensor short for RTD input, below 1mA for 4-20mA input, below 0.25V for 1-5V input, not available for other inputs Sensor break responding time: Within 4 seconds for thermocouple

and RTD inputs, 0.1 second for 4-20mA and 1-5V inputs

Remote Set Point Input

Type: Linear current, Linear voltage Range: -3-27mA, -1.3-11.5V Accuracy: ±0.05 % **Input Impedance**: Current: 2.5Ω , Voltage: $1.5M\Omega$ **Resolution**: 18 bits Sampling Rate: 1.66 times/second Maximum Rating: 280mA maximum for current input, 12VDC maximum for voltage input **Temperature Effect**: $\pm 1.5\mu$ V / °C for voltage input, $\pm 3.0\mu$ V / °C for current input

Sensor Break Detection: Below 1mA for 4-20mA input, below 0.25V for 1-5V input, not available for other inputs

Event Input

Number of Event Inputs: 2 Logic Low: -10V minimum, 0.8V maximum Logic High: 2V minimum, 10V maximum

CT Input

CT type: TEC99998 Accuracy: $\pm 2\%$ of full scale reading, ± 1 digit maximum Input Impedance: 294Ω Measurement Range: 0-50A AC Output of CT: 0-5V DC CT Mounting: Wall (Screw) mount Sampling Rate: 1 time/second

Output 1 /Output 2

Type: Relay, pulsed voltage, linear voltage and linear current Relay Rating: 2A, 240V AC, 200000 life cycles for resistive load **Pulsed Voltage:** Source voltage 5V, Current limiting resistance 66Ω Linear Output Resolution: 15 Bits Isolation Breakdown Voltage: 1000 V AC

Load Capacity of Linear Output: Linear current: 500 maximum, Linear voltage: $10K\Omega$ minimum

Alarm

Relay Type: Form A

Maximum Rating: 2A, 240VAC, 200000 life cycles for resistive load Alarm Functions: Dwell timer, Deviation low, Deviation high, Deviation band low, Deviation band high, Process high, Process low Alarm Mode: Latching, Hold, Normal, Latching/Hold

Dwell Timer: 0.1-4553.6 minutes

Data Communications

Interface: RS-485	Protocol: Modbus RTU		
Address: 1-247	Baud Rate: 2.8 - 115.2 Kbits/sec		
Parity Bit: None, Even or Odd	Stop Bit: 1 or 2 Bits		
Data Length: 7 or 8 Bits	Communication Buffer: 160 bytes		

voltage output Isolation Breakdown: 1000VAC minimum Integral Linearity Error: ±0.005% of span Linear Output Ranges: 0-22.2mA (0-20mA / 4-20mA), 0-5.55V (0-5V, 1-5V), 0-11.1V (0-10V) **Display Type:** 4 digit LCD display Upper Display Size: 0.58" (15mm)

User Interface Keypad: 4 Keys

No. of Display: 3 Lower Display Size: 0.32" (8.3mm)

Programming Port

Analog Retransmission

Resolution: 15 Bits

Output Signal: 4-20 mA, 0-20 mA, 0-10V

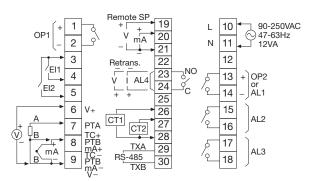
Interface: Micro USB PC Communication Function: Automatic Setup, Calibration and Firmware Upgrade

Control Mode

Output 1: Reverse (Heating) or Direct (Cooling) Action Output 2: PID cooling control, Cooling P band 50~300% of PB, Dead band -36.0 ~ 36.0 % of PB **ON-OFF:** 0.1-90.0 (°F) hysteresis control (P band = 0) P or PD: 0-100.0 % offset adjustment PID: Fuzzy logic modified Proportional band 0.1 ~ 900.0°F, Integral time 0-3600 seconds, Derivative time 0-360.0 seconds Cycle Time: 0.1-90.0 seconds Manual Control: Heat (MV1) and Cool (MV2) Failure Mode: Auto transfer to manual mode while sensor break or A-D Converter damage Ramping Control: 0 to 900.0°F / Minute or 0 to 900.0°F / Hour Ramp Rate Profiler Availability: Option No. of Segments / Program: 4 / 8 / 16 **Environmental and Physical Specifications Operating Temperature:** -10°C to 50°C Storage Temperature: -40°C to 60°C Humidity: 0 to 90 % RH (Non-Condensing) **Insulation Resistance**: $20M\Omega$ minimum (@500V DC) Dielectric Strength: 2000V AC, 50/60 Hz for 1 Minute Vibration Resistance: 10 to 55 Hz, 10m/s2 for 2 Hours Shock Resistance: 200 m / s2 (20g) Moldings: Flame retardant polycarbonate Mounting: Panel **Dimensions W × H × D**: 2-27/32 × 2-27/32 × 2-3/8" $(72 \times 72 \times 59 \text{ mm})$

Depth Behind Panel: 2" (50 mm) **Cut Out Dimensions**: 2-11/16 × 2-11/16" (68 × 68 mm) Weight: .41 lbs. (190 g)

Rear Terminal Connections



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