

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



Agency Approvals



Configurable for 5 Programmable Outputs

Configurable for 4 Programmable Outputs

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.



Power Input BOX 1

- 4** = 90-250 VAC, 50-60 Hz
5 = 11-26 VAC / VDC

Hardware Code: TEC-4500-

Hardware Code: TEC-9500-

Signal Input — Universal, can be programmed in the field **BOX 2**

- 1** = Universal input (factory default = TC type J)
 Thermocouple: J, K, T, E, B, R, S, N, L, C, P
 RTD: PT100 DIN, PT100 JIS (0 to 60mV)
5 = Voltage: 0-10V, 0-5V, 1-5V, 0-1V
6 = DC Current: 0-20 mA (default), 4-20 mA
9 = Other

Output 1 BOX 3

- 1** = Relay: 2A / 240 VAC
2 = Pulse DC for SSR drive: 5 VDC (30 mA max)
3 = Isolated 4-20mA / 0-20 mA
4 = Isolated 1-5V / 0-5V/0-10VDC
6 = Triac-SSR output 1A / 240 VAC
C = Pulse DC for SSR drive: 14 VDC (40 mA max)
9 = Other

Output 2 BOX 4

- 0** = None
1 = Relay: 2A / 240 VAC
2 = Pulse DC for SSR drive — 5 VDC (30 mA max)
3 = Isolated 4-20mA / 0-20 mA
4 = Isolated 1-5V / 0-5V/0-10V
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

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



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

CONTINUED

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**Output 5 BOX 7**

- 0** = None
- 3** = Retransmission 4-20mA / 0-20 mA
- 4** = Retransmission 1-5V / 0-5V/0-10V
- 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
- D** = Isolated RS-485 interface
- E** = Isolated RS-232 interface

Power Input

Standard: 90-250 VAC, 47-63 Hz, 12 VA, 5W maximum
Optional: 11-26 VAC / VDC, 12 VA, 5W maximum

Signal Input

Resolution: 18 bits **Sampling Rate:** 5 samples / second

Accuracy: $\pm 2.4\%$ of span typical

Maximum Rating: -2 VDC minimum, 12 VDC maximum (1 minute for mA input)

Temperature Effect: $\pm 1.5 \mu\text{V} / ^\circ\text{C}$ for all inputs except mA input
 $\pm 3.0 \mu\text{V} / ^\circ\text{C}$ for mA input

Sensor Lead Resistance Effect: T/C: $0.2 \mu\text{V/ohm}$ 3-wire RTD: 2.6°C/ohm of resistance difference of two leads

Burn-out Current: 200nA

Common Mode Rejection Ratio (CMRR): 120 dB

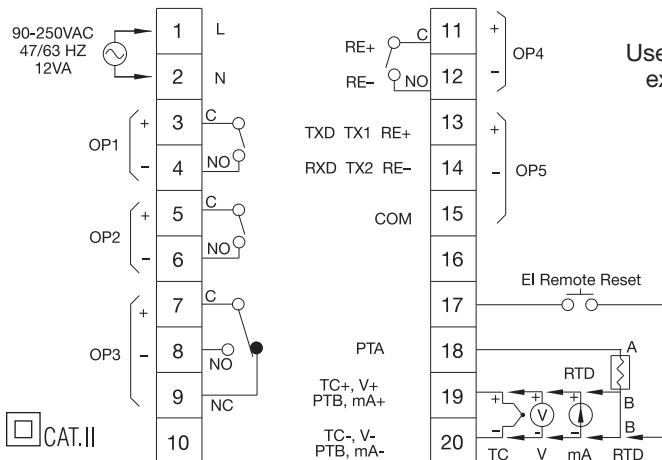
Normal Mode Rejection Ratio (NMRR): 55 dB

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

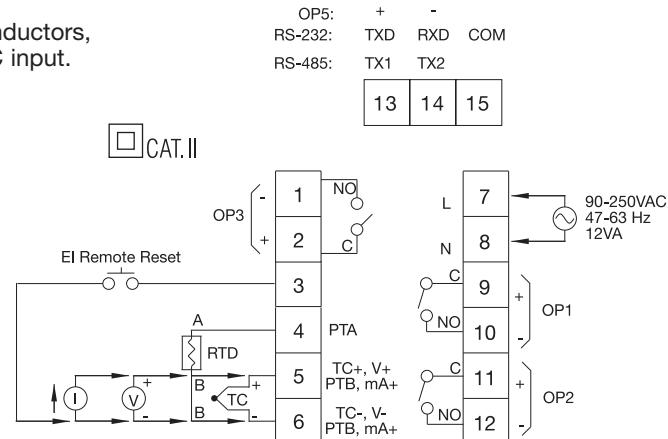
Sensor Break Response Time: Within 4 seconds for TC, RTD and mV inputs; 0.1 second for 4-20 mA and 1-5 V inputs

TEC-4500 Stock and Common Part Numbers
(Power Input: 90-250 VAC)

Part Number	Signal Input	Out 1	Out 2	Out 3
TEC58001	TC	relay	none	relay
TEC58002	TC	relay	relay	none
TEC58003	TC	relay	relay	none
TEC58004	TC	4-20 mA	none	none
TEC58005	TC	4-20 mA	none	relay
TEC58006	TC	5VDC pulse	none	none
TEC58007	TC	5VDC pulse	none	relay

TEC-4500 1/4 DIN Rear Terminal Connections

Use copper conductors, except on T/C input.

TEC-9500 1/16 DIN Rear Terminal Connections

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