TEC-6400 DIN RAIL Temperature Controller

Design Features

* ✳ *DIN Rail Mount, 35 mm*
* ✳ *Fuzzy modified PID heat and cool control*
* ✳ *Universal input (TC, 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 stabilized with digital filter*
* ✳ *High performance with low cost*

Agency Approvals:

c ⒰L us LISTED   CE   *RoHS, REACH, WEEE*

Hardware Code: TEC-6400 - [1] [2] [3] [4] [5]

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.

Power Input *BOX 1*

4 = 90-250 VAC
5 = 11-40 VDC / 20-28 VAC

Output 1 *BOX 2*

1 = Relay: 2A / 240 VAC
2 = Pulse DC for SSR drive: 5 VD
    (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
    (40mA max)

Output 2 / Alarm 1 *BOX 3*

0 = 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 (40mA max)

Option 1 *BOX 4*

0 = None
1 = RS-485 Interface
2 = 1 Event Input EI 1
3 = 1 CT Input (CT 1)

Option 2 *BOX 5*

0 = None
1 = Retransmit: 4-20mA / 0-20mA
2 = Retransmit: 0-10 VDC
3 = Alarm 2 Relay: 2A / 240 VAC
4 = 1 Event Input EI 2
5 = 1 CT Input (CT 2)

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*Transformer for
Heater Break Alarm*
(0-50 Amp current)
Part Number: TEC99998

SOUTHWEST HEATER AND CONTROLS

10610 Control Place, Dallas Texas 75238

Main# 214-340-7500   Toll Free#: 800-687-2220   EMAIL: sales@swhc.com   WEB: www.swhc.com

TEC-6400 Specifications

Power Input
Standard: 90-250 VAC, 47-63 Hz, 8VA, 4W maximum
Optional: 11-40 VDC / 20-8 VAC, 47-63 Hz, 8VA, 4W 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

Event Input
Number of Event Inputs: 1
Logic Low: -10V minimum, 0.8V maximum
Logic High: 2V minimum, 10V maximum

CT Input
CT type: CT98-1
Accuracy: ±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: 500Ω maximum, Linear voltage: 10KΩ 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

Output Signal
Output Signal: 4-20 mA, 0-20 mA, 0-10V
Resolution: 15 Bits
Accuracy: ±0.05% of span ± 0.0025% / °C
Load Resistance: 0-500Ω for current output, 10KΩ minimum for voltage output
Isolation Breakdown: 1000VAC minimum
Linear Output Ranges: 0-22.2mA (0-20mA / 4-20mA), 0-5.55V (0-5V, 1-5V), 0-11.1V (0-10V)

User Interface
Keypad: 4 Keys
Display Type: 4 digit LCD display
No. of Display: 2
Upper Display Size: 0.31" (8mm)
Lower Display Size: 0.25" (6.5mm)

Programming Port
Interface: Micro USB
PC Communication Function: Automatic Setup, Calibration and Firmware Upgrade
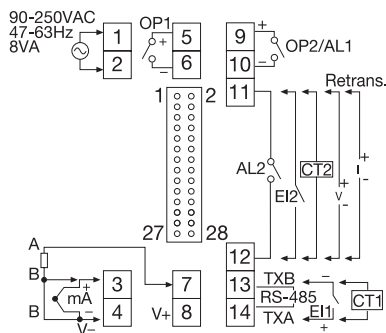
Control Mode
Output 1: Reverse (Heating) or Direct (Cooling) Action
Output 2: PID cooling control, Cooling P band 50~300% of PB, Dead band -36.0 ~ 36.0 % of PB
ON-OFF: 0.1-90.0 (°F) hysteresis control (P band = 0)
P or PD: 0-100.0 % offset adjustment
PID: Fuzzy logic modified Proportional band 0.1 ~ 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

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: 20MΩ 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: DIN Rail, 35 mm
Dimensions W × H × D: 3-3/4 × 7/8 × 3-11/16" (96 × 22.5 × 83 mm)
Depth Behind Panel (mm): n/a
Cut Out Dimensions (mm): n/a
Weight: .35 lbs. (160 g)

Rear Terminal Connections

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 2
TEC80001	Relay	None	None
TEC80002	Relay	Relay	None
TEC80003	Relay	Relay	Relay
TEC80004	Pulse DC	None	None
TEC80005	Pulse DC	Relay	None
TEC80006	Pulse DC	Relay	Relay
TEC80007	4-20mA	none	none
TEC80008	4-20mA	Relay	Relay

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