



Power Input

Standard: 90-250 VAC, 47-63 Hz, 8VA, 4W maximum
Optional: 11-40 VDC / 20-28 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: TEC99998
Accuracy: $\pm 2\%$ of full scale reading, ± 1 digit maximum
Input Impedance: 294 Ω
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 66 Ω
Linear Output Resolution: 15 Bits
Isolation Breakdown Voltage: 1000 V AC
Load Capacity of Linear Output: Linear current: 500 Ω maximum, Linear voltage: 10K Ω 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
Address: 1-247
Parity Bit: None, Even or Odd
Data Length: 7 or 8 Bits
Protocol: Modbus RTU
Baud Rate: 2.8 - 115.2 Kbits/sec
Stop Bit: 1 or 2 Bits
Communication Buffer: 160 bytes

Analog Retransmission

Output Signal: 4-20 mA, 0-20 mA, 0-10V
Resolution: 15 Bits
Accuracy: $\pm 0.05\%$ of span $\pm 0.0025\%$ / $^{\circ}\text{C}$
Load Resistance: 0-500 Ω for current output, 10K Ω minimum for voltage output
Isolation Breakdown: 1000VAC minimum
Integral Linearity Error: $\pm 0.005\%$ of span
Linear Output Ranges: 0-22.2mA (0-20mA / 4-20mA), 0-5.55V (0-5V, 1-5V), 0-11.1V (0-10V)

User Interface

Keypad: 4 Keys
Display Type: 4 digit LCD display
No. of Display: 2
Upper Display Size: 0.4" (10mm)
Lower Display Size: 0.19" (4.8mm)

Programming Port

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

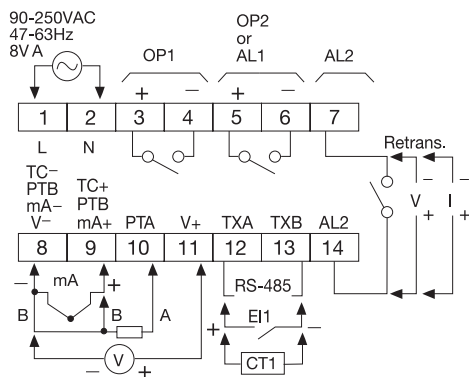
Control Mode

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 ($^{\circ}\text{F}$) hysteresis control (P band = 0)
P or PD: 0-100.0 % offset adjustment
PID: Fuzzy logic modified Proportional band 0.1 ~ 900.0 $^{\circ}\text{F}$, 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 $^{\circ}\text{F}$ / Minute or 0 to 900.0 $^{\circ}\text{F}$ / Hour Ramp Rate

Environmental and Physical Specifications

Operating Temperature: -10 $^{\circ}\text{C}$ to 50 $^{\circ}\text{C}$
Storage Temperature: -40 $^{\circ}\text{C}$ to 60 $^{\circ}\text{C}$
Humidity: 0 to 90 % RH (Non-Condensing)
Insulation Resistance: 20M Ω 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 x H x D: 1-7/8 x 15/16 x 3-5/8" (48 x 24 x 92 mm)
Depth Behind Panel: 3-5/16" (84 mm)
Cut Out Dimensions: 7/8 x 1-25/32" (22 x 45 mm)
Weight: 4 oz (120 g)
 IP50 for the front panel, IP20 for rear terminals and housing.
 All indoor use.

Rear Terminal Connections



Stock and Common Part Numbers (Default Type "J" Thermocouple Input)

Part Number	Output 1	Out 2/ Alm 1	Option 1
TEC04001	Relay	None	None
TEC04002	Relay	Relay	None
TEC04003	Relay	Relay	Event Input
TEC04004	Pulse DC	None	None
TEC04005	Pulse DC	Relay	None
TEC04006	Pulse DC	Relay	Event Input
TEC04007	4-20mA	None	None
TEC04008	4-20mA	Relay	Event Input