



Power Input

Standard: 90 - 250 VAC, 47-63 Hz, 10 VA, 5W maximum
Optional: 11 - 26 VAC / VDC, 10 VA, 5W maximum

Signal Input

Resolution: 18 bits **Sampling Rate:** 5 samples / second
Accuracy: ±.24% of span typical
Maximum Rating: -2 VDC minimum, 12 VDC maximum (1 minute for mA input)
Temperature Effect: ±1.5 μV / °C for all inputs except mA input ±3.0 μV / °C for mA input

Sensor Lead Resistance Effect: T/C: 0.2μV/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

Output 1 / Output 2

Relay Rating: 240 VAC, 2 Amp

Pulsed Voltage: Source voltage 5V, Current limiting resistance 66Ω

Linear Output — Characteristics

| Type | Tolerance | Zero Tolerance | Span Capacity | Load |
|----------|-----------|----------------|---------------|-----------|
| 4-20 mA | | 3.6-4.0 mA | 20-21 mA | 500Ω max |
| 0-20 mA | | 0 mA | 20-21 mA | 500Ω max |
| 0-5 VDC | | 0 VDC | 5-5.25 VDC | 10 KΩ min |
| 1-5 VDC | | 0.9-1.0 VDC | 5-5.25 VDC | 10 KΩ min |
| 0-10 VDC | | 0 VDC | 10-10.5 VDC | 10 KΩ min |

Resolution: 15 bit analog to digital converter

Output Regulation: 0.02% for full load change

Output Settling Time: 0.1 sec. (stable to 99.9%)

Isolation Breakdown Voltage: 1000 VAC

Temperature Effect: ±0.01% of span/°C

Solid State Relay (Triac) Output

Rating: 1A / 240 VAC

Inrush Current: 20A for 1 cycle

Min. Load Current: 50 mA rms

Max. Off-state Leakage: 3 mA rms

Max. On-state Voltage: 1.5 VAC rms

Insulation Resistance: 1000 Megohms minimum at 500 VDC

Dielectric Strength: 2500 VAC for 1 minute

Alarm 1 — Programmable

Alarm 1 Relay: Form A, (NO)

Maximum rating: 240 VAC, 2 Amp

Alarm Functions: Dwell timer

Deviation High / Low Alarm
 Deviation Band High / Low Alarm
 Process High / Low Alarm
 Sensor Break Alarm

Alarm Mode: Normal, Latching, Hold, Latching / Hold

Dwell Timer: 0 - 4553.6 minutes

Data Communications

Interface: RS-232 (1 unit), RS-485 (up to 247 units)

Protocol: Modbus Protocol – RTU mode

Address: 1-247

Baud Rate: 0.3 - 38.4 Kbits/sec

Data Bits: 7 or 8 bits

Parity Bit: None, Even or Odd

Stop Bit: 1 or 2 bits

Communication Buffer: 160 bytes

User Interface

Dual 4-digit LED Display: 0.55" (14 mm) Red Process
 0.40" (10 mm) Green Setpoint

Keypad: 4 keys

Programming Port: For automatic setup, calibration and testing

Control Mode

Output 1: Reverse (heating) or direct (cooling) action

Output 2: PID cooling control, cooling P band 50-300% 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°F

Integral time: 0 - 1000 seconds

Derivative time: 0 - 360 seconds

Cycle Time: 0.1 - 90 seconds

Manual Control: Heat (MV1) and Cool (MV2)

Auto-tuning: Cold start and warm start

Failure Mode: Auto-transfer to manual mode with sensor break or A-D converter damage

Ramping Control: 0 - 900°F/min or 0 - 900°F/hr ramp rate

Environmental and Physical

Operating Temperature: 14 to 122°F (-10 to 50°C)

Storage Temperature: -40 to 140°F (-40 to 60°C)

Humidity: 0 to 90% RH, non-condensing

Dielectric Strength: 2000 VAC, 50/60 Hz for 1 minute

Dimensions: 3-3/4 × 3-3/4 × 2-9/16" (96 × 96 × 65 mm) H×W×D
 Depth behind panel: 2" (53 mm)

Panel Cutout: 3-5/8" × 3-5/8" (92 × 92 mm) H×W

Weight: 0.55 lb. (250 grams)

Approval Standards

Safety Standard: UL61010C-1

EN61010-1 (IEC1010-1)

Protective Class: IP 50 front panel standard, all indoor use.

NEMA 4X/IP65 front panel if specified.

IP 20 housing and terminals with protective cover.

EMC: EN61326

Stock and Common Part Numbers

(Power Input: 90-250 VAC, no data com, no NEMA 4X)

| Part Number | Input | Out 1 | Out 2 | Alarm |
|-------------|-------|----------|-------|-------|
| TEC56001 | tc | relay | none | relay |
| TEC56002 | tc | relay | none | none |
| TEC56003 | tc | 4-20 mA | none | none |
| TEC56004 | tc | dc pulse | none | none |
| TEC56005 | RTD | relay | none | none |
| TEC56006 | RTD | DC pulse | none | none |
| TEC56007 | RTD | DC pulse | relay | none |
| TEC56008 | RTD | DC pulse | none | relay |

Rear Terminal Connections

