

CT325 Miniature DC Temperature Controller

Tight control in a small package

Overview

The CT325 Miniature DC Temperature Controller is designed for use with Minco Thermofoil™ heaters and RTD or thermistor sensors. It offers inexpensive on/off temperature control of your process or equipment with accuracy many times better than bimetal thermostats. Easily read and adjust the set point temperature using a voltmeter, then monitor the actual signal temperature at the other end. Operating from your 4.75 to 60 volt DC power supply, the controller can switch up to 4 amps power to the heater. A bright LED indicates when power is applied to the heater.

The entire unit is epoxy filled for moisture resistance, with a through-hole for a mounting bolt. A terminal block provides the power input, sensor input and heater output connections.

- Tight control in a small package means that enclosures or panel spaces are not required which allows successful portable device implementation
- Simple control without complicated programming can reduce set-up time
- Three-wire RTD connection cancels lead resistance for highly accurate temperature readings
- Solid state on-off control with adjustable set point improves durability compared to electro-mechanical devices
- Flexible heating control compliments all Minco Thermofoil™ Heaters for convenient off the shelf operation
- Uses standard 100 Ω or 1000 Ω platinum RTD or 50 kΩ thermistor sensor input
- Single DC power source provides power to the controller and heater up to 240 watts

Applications

- IV solutions for medical/surgical applications
- Military batteries
- Enclosures to maintain the temperature of electronics
- Ruggedized laptop LCDs and harddrives

Custom design options

Minco can customize the design of the CT325 for special applications. Specific temperature ranges, other sensor options, and special packaging are possible for volume OEM applications.



CT325 DC Controller

Specifications

Input: 100 Ω or 1000 Ω platinum RTD, 0.00385 Ω/Ω/°C, 2 or 3-leads, or 50 k Ω NTC thermistor, 2-lead.

Setpoint range: 2 to 200°C (36 to 392°F) for platinum RTD input. 25 to 75°C (77 to 167°F) for thermistor input. Consult factory for other ranges.

Setpoint stability: ±0.02% of span/°C.

V_{temp} signal: 0.010 V/°C over specified range.

Platinum RTD sensor		Thermistor sensor	
2°C	0.02 V	25°C	0.25 V
50°C	0.50 V	50°C	0.50 V
100°C	1.00 V	75°C	0.75 V
200°C	2.00 V		
Accuracy:	±1% of span	Accuracy:	±2% of span
Linearity:	±0.1% of span	Linearity:	±2% of span

Deadband: ±0.1°C (0.2°F).

Input power: 4.75 to 60 VDC.

Output: Open drain, 4 amps max. DC.

Leadwire compensation: (3-wire RTD) ±0.06°C/ Ω for 100 Ω or 1000 Ω platinum up to 25 Ω per leg.

Fault protection: Heater disabled on RTD short or thermistor open. No heater protection; external fuse is recommended.

Operating ambient temperature range: -40 to 70°C (-40 to 158°F).

Relative humidity: 0 to 95% non-condensing.

Physical: Polycarbonate case, epoxy sealed for moisture resistance.

Weight: 1 oz. (28g).

Connections: Terminal block for wires AWG 22 to AWG 14.

Mounting: Mounting hole for #6 screw through or #8 thread forming screw.

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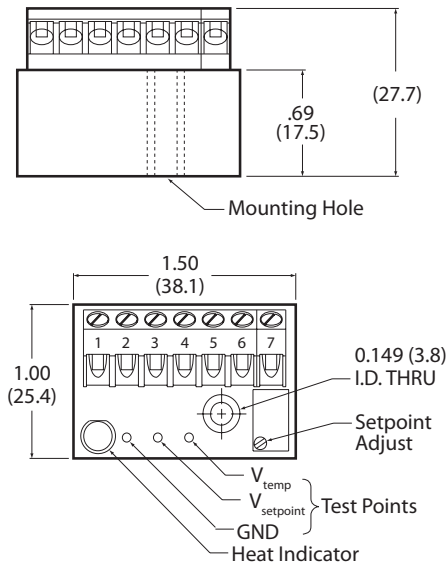
Specification options

CT325	Model number
PD	Sensor type from table below
1	Power supply: 1 = 4.75 to 10 VDC 2 = 7.5 to 60 VDC
C	Temperature range: A = 25 to 75°C (thermistor only) C = 2 to 200°C (RTD only)
1	Dead band: 1 = 0.1°C
CT325PD1C1 = Sample part number	

Sensor type	Code
100 Ω platinum RTD	PD
1000 Ω platinum RTD	PF
50 kΩ thermistor	TF

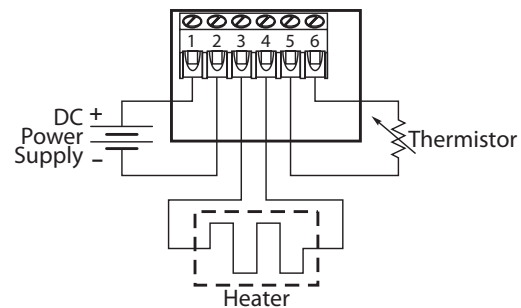
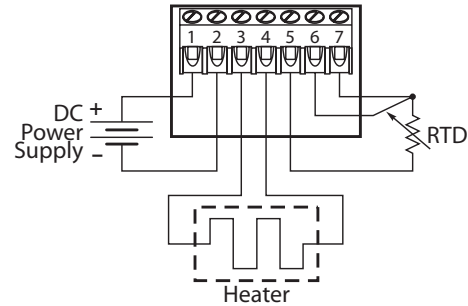
50kΩ thermistor sensor TS665TF is available.

Dimensions in inches (mm)



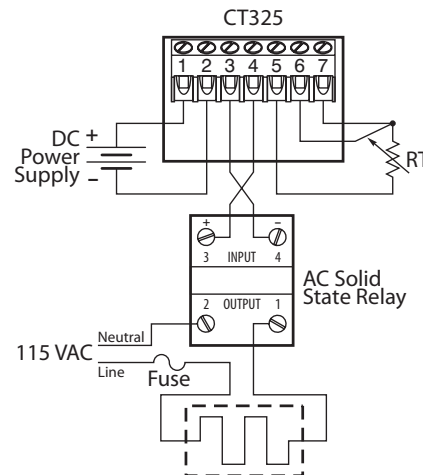
Specifications subject to change.

Wiring diagrams



AC powered heaters

The CT325 can provide the control signal to an external solid state relay to switch AC power. Use 15 VDC as the control voltage.



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