

44T,48T Series Auto Reset Bitmetal Controls



Low Voltage Temperature Controls

The 44T/48T series line of bimetal temperature switches provide high speed contact separation resulting in exceptional life characteristics. Gold plated contacts with biased closed operation results in a repeatable low resistance with reliable switching action in more rigorous environments. Typical applications include gas appliances and heating systems as well as automotive air ambient, coolant, transmission fluid, emissions, and drivability systems.

Both 44T and 48T provide a variety of terminals, lead wire and mounting configurations, as well as a wide range of temperature calibrations, are available to provide maximum application flexibility.



Features and Benefits

The 44T and 48T features include:

- Epoxy sealed for resistance to contamination from the application environment.
- Vibration resistant construction provides for high reliability.
- High Speed contact separation and contact force ensure long contact life and reliable operation.
- 3/4" snap-action disc for high-speed contact separation and long life.
- Low internal resistance.
- 100% tested for electrical operation.
- Wide range of available calibration temperatures.
- Large selection of terminals and lead wires.
- Surface, airstream or stud mounting configurations.
- A 48TS with a single terminal and grounding through the stud.

Switch Actions and Typical Applications

The 44T and 48T are automatic reset single pole, single throw (SPST) switch that is designed to open its electrical contacts on temperature rise. Once the temperature in the application has returned to the specified reset calibration, the switch will automatically return to the closed position.

Typical uses of the Therm-O-Disc 44T include limiting or regulating temperatures in gas appliances and heating systems that require the thermostat to make/break the millivolt circuit of a thermocouple or the low voltage circuit of other types of devices.

For low voltage applications requiring a "one-shot" or fuse operation, the 44F is a SPST switch whose contacts open on temperature rise. However, the 44F is a single operation device. Once the switch has operated, the "fuse" disc prevents reset of the contacts to their closed state at temperatures above -31°F (-35°C).

Therm-O-Disc 48T can be used in a variety of automotive temperature sensing applications. Each control incorporates high contact force, epoxy sealant and vibration resistant construction which meets ASTM salt spray and other environmental test requirements.

Typical applications include:

- Control of electrically driven coolant fan motors found in most smaller cars which utilize front wheel drive and transverse mounted engines. The switch can carry the electrical load of the coolant fan directly, thus eliminating the need for a fan relay.
- Control of early fuel evaporation heater relay and turn-off of the early fuel evaporation heater on coolant temperature rise. These switches are designed to provide maximum sensitivity and quick thermal response to changes in temperature.
- Ambient air sensing for air conditioning systems, sensors for engine coolant, transmission fluid, emission, and driveability systems. Customized mounting capabilities can satisfy airstream, surface or stud mount requirements.
- Control of such applications as cold engine lockout and engine coolant fans which demand heavier electrical loads up to 14VDC at 10 amps.

Application Configurations

Typical configurations for surface, airstream and stud mounting are shown in the line drawing. A variety of lead wires and terminals are also available for any of the mounting configurations. The 44T/48T open temperature calibration may be specified between 120°-300°F (49°-149°C).

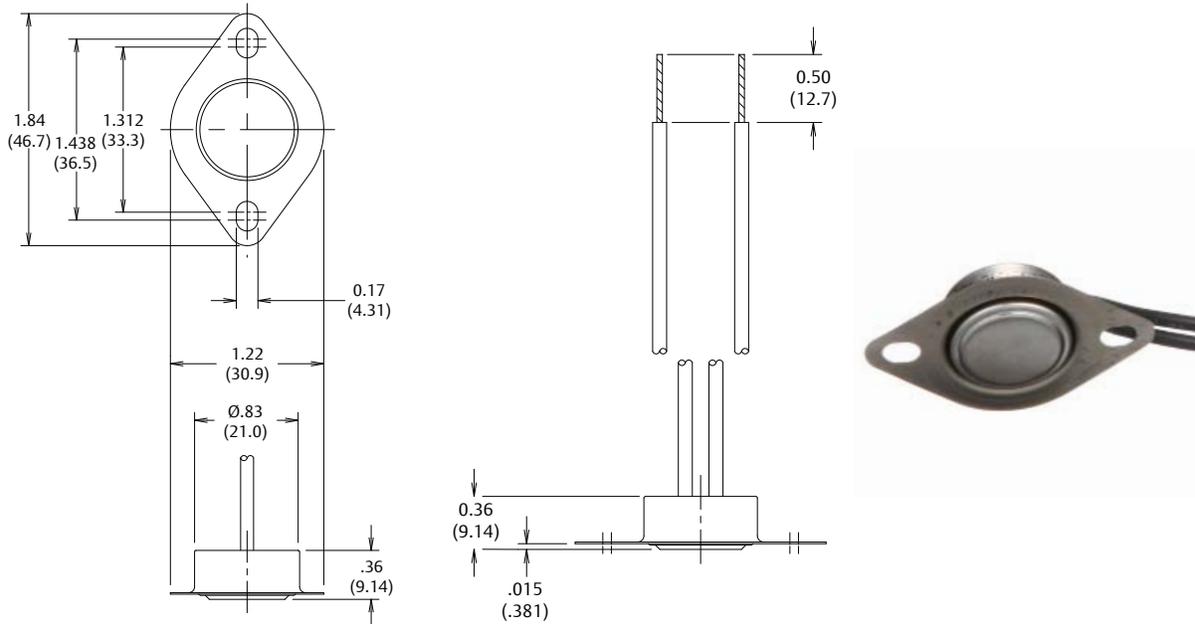


Figure 1
 Dimensions are shown in inches and (millimeters). **Surface Mounting**

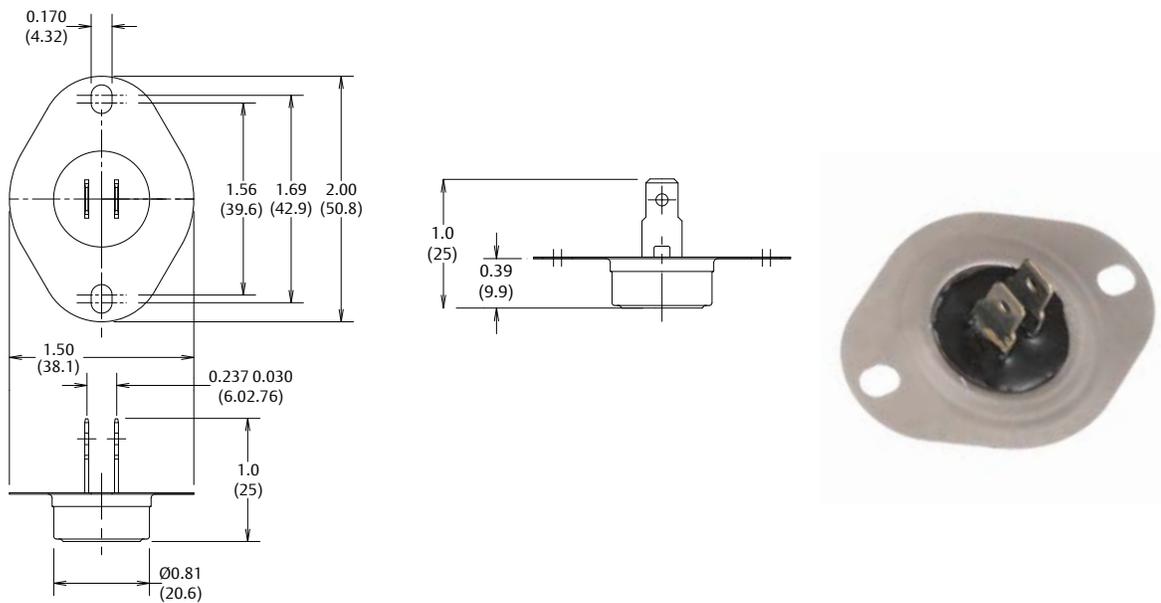


Figure 2
 Dimensions are shown in inches and (millimeters). **Airstream Mounting**

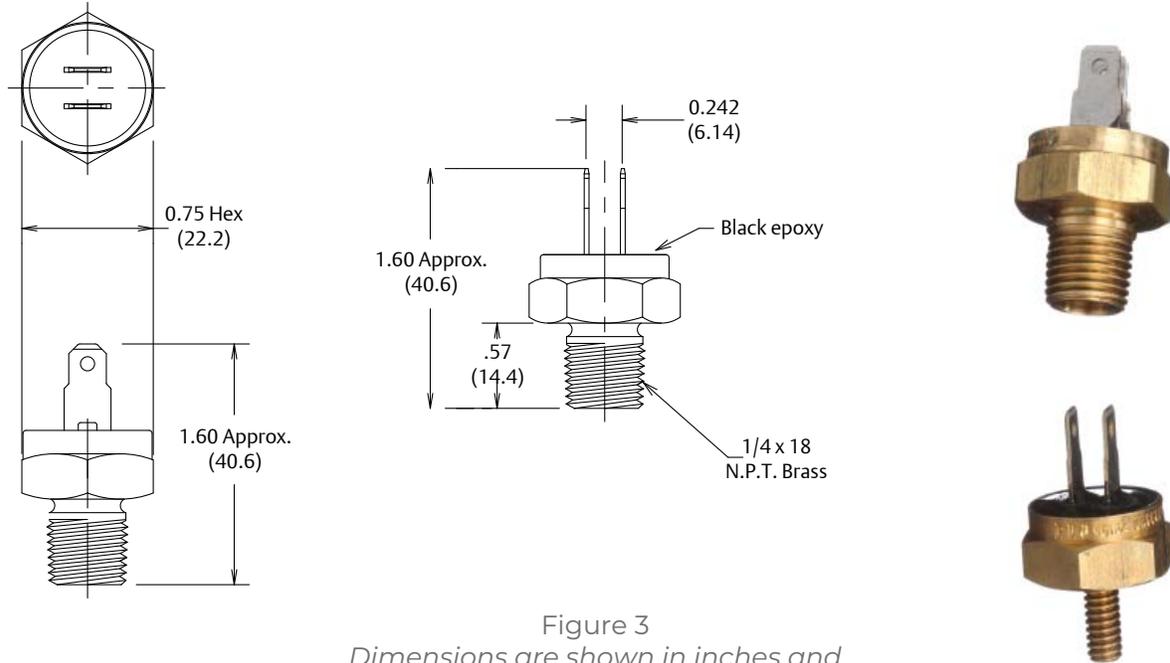


Figure 3
 Dimensions are shown in inches and (millimeters). **Stud Mounting**

General Electrical Ratings*

The agency ratings can be used as a guide when evaluating specific applications. However, the mechanical, electrical, thermal and environmental conditions to which a control may be exposed in an application may differ significantly from agency test conditions. Therefore, the user must not rely solely on agency ratings, but must perform adequate testing of the product to confirm that the control selected will operate as intended in the user's application.

Thermostat Type	Max. Temperature	Comments	Cycle Rating	Pilot amps	Resistive amps	Volts AC	Agency Recognition
44T	300°F	Gold Contacts	100,000	- 40	1.0 -	12VDC 26	UL File MH-5304
44F			Fuse	- 40	1.0 -	12VDC 26	
44TA			100,000	40	-	26	UL
44FA			Fuse	40	-	26	File MH-5304
44T	300°F	Gold Contacts Gas Appliance Thermostat	100,000	- 40	1.0 -	12VDC 26	CSA Z21.23
44TG	200°F	Gold Contacts Auto-matic Gas Shut-off device, 120°F min. reclose	100	- 40	1.0 -	12VDC 26	CSA Z21.22
48T			100,000		10	14VDC	

*Consolidated ratings. For complete and current ratings, please contact a sales engineer.

Calibration Temperatures and Tolerance 44T/48T

Open Temperature	Open Tolerance	Prime Differential*
120 °-200 °F (48.9 °-93.3 °C)	± 8 °F (± 4.4 °C)	20°-50°F (11.1°-27.8°C)
201°-250°F (93.9°-121.1°C)	± 10°F (± 5.6°C)	30°-50°F (16.7°-27.8°C)
251°-300°F (121.7°-148.9°C)	± 12°F (± 6.7°C)	30°-50°F (16.7°-27.8°C)

* Prime Differential = The difference between the nominal opening temperature and the minimum reset temperature.

Calibration Example

Normally closed, open on temperature rise.

Open = 190°±8°F

40°F Prime Differential

This specification means that the thermostat will open its contacts at 190°±8°F and reclose at a temperature not lower than 190°-40°F = 150°F.

Typical Temperature Switch Configurations

Therm-O-Disc can supply our 44T/48T Temperature Switches in a wide variety of configurations. Some specifications are shown on the “Typical Configurations” chart. According to specific applications, switches with different mountings, diameters, thread types, connections and housings are available. Our sales engineers can assist in selecting a switch package that is tailored to specific requirements.

For testing purposes, calibrated samples and/or equal mass thermocouple samples can be provided. Please contact one of our Sales Engineers for details.