

39T Series Moisture Resistant Temperature Controls



Moisture Resistant Temperature Controls

The 39T series of 1/2" (13mm) bimetall disc temperature controls from Therm-O-Disc offers proven reliability in a moisture resistant sealed design. The snap-action of the bimetall disc provides high-speed contact separation resulting in excellent life cycle characteristics. The sealed design provides moisture resistance for moisture prone environments. A variety of lead wire configurations are available to provide maximum design flexibility.

The 39T has been specifically designed to permit easy mounting onto copper or aluminum tubing with excellent retention and thermal response. The stainless steel mounting bracket has been designed to accommodate a wide range of tubing sizes without the need to modify the control platform.

The most popular applications include refrigeration defrost termination and ice cube maker control. It is also applied in a range of heat pump and air conditioning applications.



Features and Benefits

The 39T features include:

- Sealed construction provides moisture resistance for moisture prone environments.
- High-speed contact separation ensures long contact life.
- A variety of lead wire options provide excellent design flexibility.
- All materials have been selected to pass the refrigeration industry's odor and taste tests.
- Controls are 100% operation tested.

Switch Actions and Typical Applications

The 39T is an automatic reset (SPST) switch. The switch can be built to either open or close its electrical contacts on temperature rise or fall. Once the temperature in the application has returned to the specified reset temperature, the contacts automatically return to their original state. Open on rise contact design is typically used for refrigeration defrost termination and ice cube maker control. The type 39TR includes an internal resistor wired in parallel with the contacts which serves as an aid to factory circuit testing where the contacts are open at room temperature.

Mounting Brackets

The 39T (see figure 1) has been specifically designed to permit easy mounting onto copper or aluminum tubing with excellent retention and thermal response. The stainless steel mounting bracket has been designed to accommodate a wide range of tubing sizes without the need to modify the control platform or worry about thermal response. To assure compatibility with other materials, the 39T can be provided with either an aluminum or tin-plated copper sensing surface.

The rugged design of the sensing surface permits carefree handling regardless of the sensing material chosen.

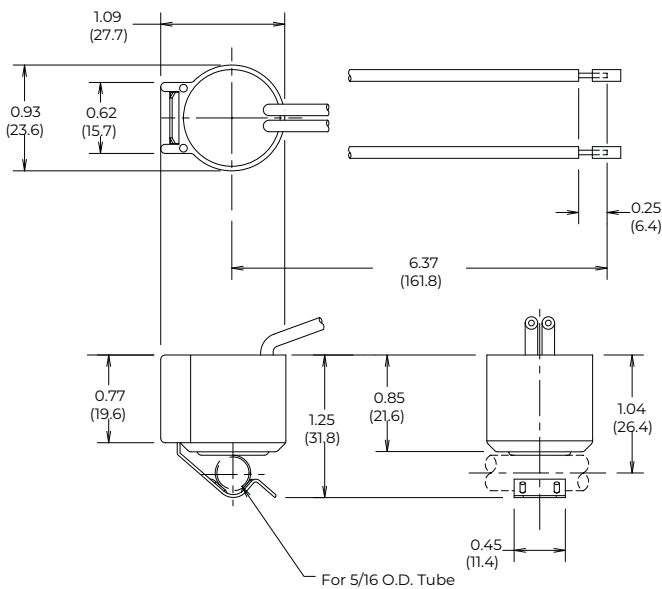


Figure 1
Dimensions are shown in inches and
(millimeters).

Thermal Response

The temperature sensitive bimetal disc is located at the bottom of the disc cup adjacent to the surface to be monitored. Aluminum and tin-plated copper cups are available for calibrations not exceeding 221°F (105°C) and temperature overrides not exceeding 250°F (121°C).

Lead Wire and Terminal Configurations

Standard Lead Wire- The standard leads for the 39T controls are available in lengths between 3" (76.2mm) and 36" (914.4mm) with #18 AWG, 16/30 standard copper wire and 1/32" (0.8mm) thick 105 °C PVC odorless insulation stripped 1/2" (13mm).

In addition, #16 AWG wire can be supplied with 1/32 (0.8mm) or 1/16" (1.6mm) thick insulation. The maximum wire size available is #14 AWG with 1/32" (0.8mm) insulation.

Terminals- A wide variety of terminals can be attached to the 39T lead wires in addition to strip and retain. Please con-sult a Therm-O-Disc sales engineer for further variations of terminals, wire lengths, and/or wire types.

Pin terminals- The 39TB construction provides pin terminals in place of lead wire coming from the thermostat.

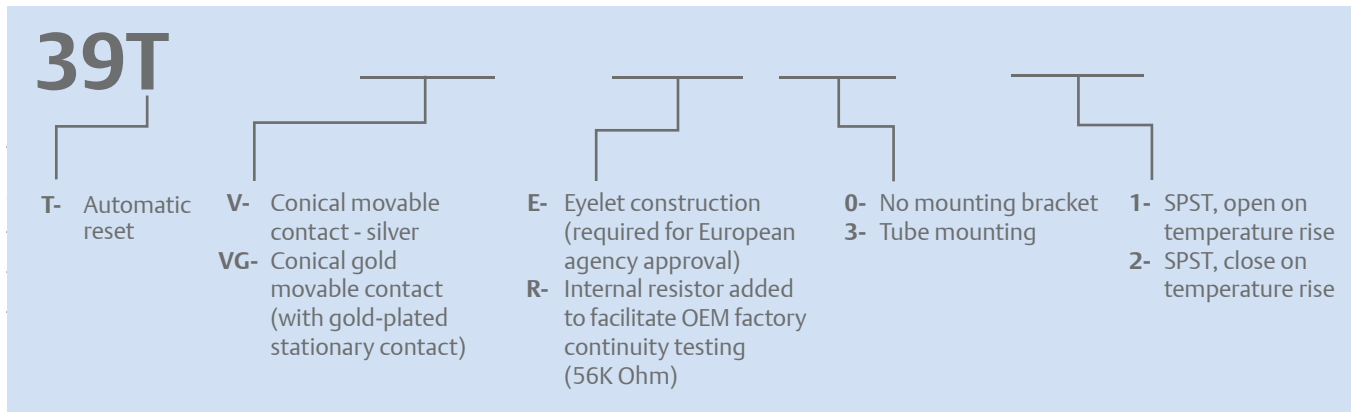
Calibration Temperature, Differentials and Tolerances

To use the calibration chart, locate the range in the left hand column, in which the highest calibration set point (open or close) falls. Then locate, across the top, the range in which the nominal differential falls. The standard open and close set point tolerances are shown where the two columns converge. The chart also indicates what differentials are available in each of the calibration set point ranges. Closer tolerances and special differentials are available at extra cost. Please consult a sales engineer for further information.

Highest calibration Set Point Range (Open or Close)	Nominal Differentials (temperature difference between nominal open and close set point)									
	15-19 °F 8.5-10.5 °C		20-29 °F 11-16 °C		30-39 °F 16.5-21.5 °C		40-50 °F 22-27.5 °C		51-80 °F 28-44.5 °C	
	Open	Close	Open	Close	Open	Close	Open	Close	Open	Close
15 °-80 °F** -9 °-27 °C	±5 ±3	±6 ±3.5	±5 ±3	±6 ±3.5	±5 ±3	±7 ±4	±5 ±3	±7 ±4	- -	- -
81 °-200 °F*** 28 °-93 °C	±5 ±3	±5 ±3	±5 ±3	±5 ±3	±5 ±3	±7 ±4	±5 ±3	±7 ±4	- -	- -
201 °-221 °F*** 94 °-105 °C	±5 ±3	±6 ±3.5	±5 ±3	±7 ±4	±6 ±3.5	±8 ±4.5	±7 ±4	±9 ±5	- -	- -

NOTE: Minimum differential is 15°F (8°C).
The minimum bottom temperature is 0°F (-18°C).

Part Numbering System



General Electrical Ratings

The 39T series of controls has been rated by major agencies throughout the world. 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 Temp	Contact Arrangement	Cycles	Inductive Amperes		Pilot Duty	Resistive Amperes	DC Amperes	Volts AC	Agency Recognition
				FLA	LRA					
39TV	221°F 105°C	SPST	30,000	—	—	125	10.0	120	277	CUL File E29653
			100,000				5.0	120		
			100,000				2.5	240		
39T	221°F 105°C	SPST	30,000	3.6	21.6	125			277	CUL File E29653
			100,000				1	24		
			100,000	2.9	17.4	125		240		
			100,000				1	277		
39TXVE	221°F 105°C	SPST	30,000				5.0	250	250	CB Cert# US/12884/UL
			100,000				2.5	250		
39TVE	221°F 105°C	SPST	100,000	0.8			5	125	250	VDE CERT # 4002298
			100,000	0.4			2.5	250		
			30,000	0.8			5	250		

For complete and current ratings information, please contact our Sales Engineering Department. At thermostat end-of-life, the contacts may remain permanently closed or open.