

# 14T Series

## Moisture Resistant Temperature Controls



### **Heavy-Duty Sealed Snap-Action Temperature Control**

The 14T line of heavy-duty sealed bimetal disc controls from Therm-O-Disc meets the higher electrical requirements of commercial applications. The design provides moisture resistance for moisture prone environments. The snap-action of the 1" temperature sensing bimetal disc provides high-speed contact separation resulting in exceptional life characteristics at electrical loads up to 25 amps at 120/240VAC. A variety of mounting configurations, lead wires and terminations give maximum design flexibility. The heavy-duty construction and long life characteristics have made the 14T a popular choice for heating, ventilation and air conditioning systems.

### **Features and Benefits**

The 14T features include:

- Sealed construction provides moisture resistance for moisture prone environments.
- High-speed contact separation ensures long contact life.
- A wide variety of mounting configurations, lead wires and terminations provide maximum design flexibility.
- Large 25 amp capacity allows direct control of compressors and fans, reducing the need for additional components.

### **Switch Actions and Typical Applications**

The 14T is available in two switch actions:

**Automatic Reset SPST** – In this configuration, the switch can be built to either open or close its electrical contacts on temperature rise. Once the temperature in the application has returned to the specified reset temperature, the contacts will automatically return to their original state. Typical uses of this construction include limiting and regulating temperatures in air conditioners, heat pumps and fan coil units.

**Automatic Reset SPDT** – This design is the same as the SPST described above with the addition of an auxiliary contact which makes circuit upon opening of the main contacts and breaks circuit when the main contacts reset. Refer to the "General Electrical Ratings" chart for rating limitations on the auxiliary contacts. Typical uses of this construction include fan speed changeover at a specified temperature and lighting of an indicator lamp when an abnormal temperature condition has been reached.

## Mounting Configurations

The 14T is available in a variety of mounting configurations:

Surface Mounting – The surface mounting configuration positions the bimetal disc sensing element firmly against the mounting surface, thereby sensing the actual mounting surface temperature (see figures 1 and 2).

### SPST Surface Mounting

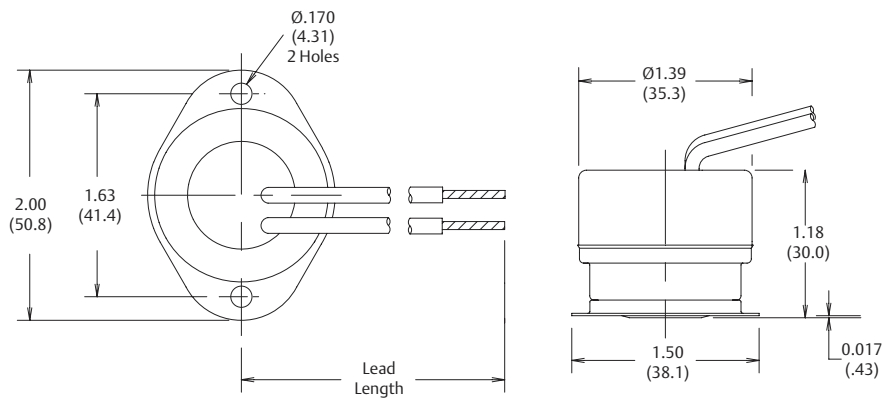


Figure 1

### SPDT Surface Mounting

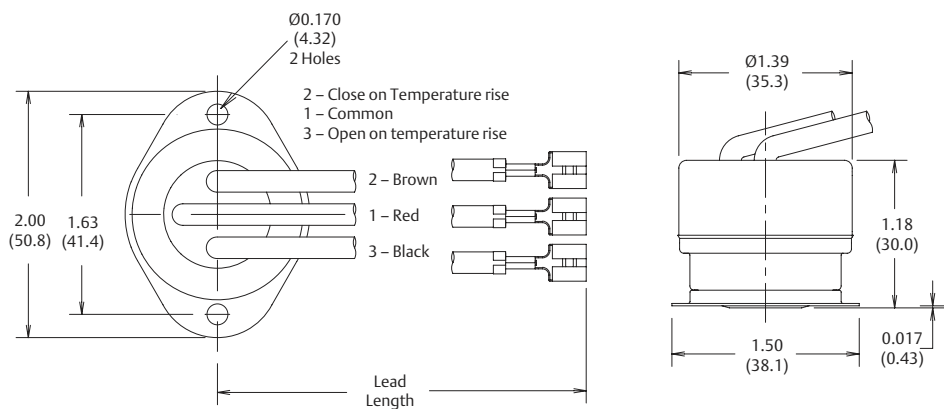


Figure 2

*Dimensions are shown in inches and (millimeters).*

No Mounting Flange – The 14T is available without a mounting flange for customers who wish to design their own mounting method. Dimensions as shown in figures 1 and 2, except there is no mounting bracket shown.



Tube Mounting – In this mounting configuration, the 14T is supplied with a saddle-shaped disc cup and a removable spring clip which holds the control firmly on a tube. This configuration is available for 3/8", 1/2", 5/8" O.D. tubes (see figure 3).

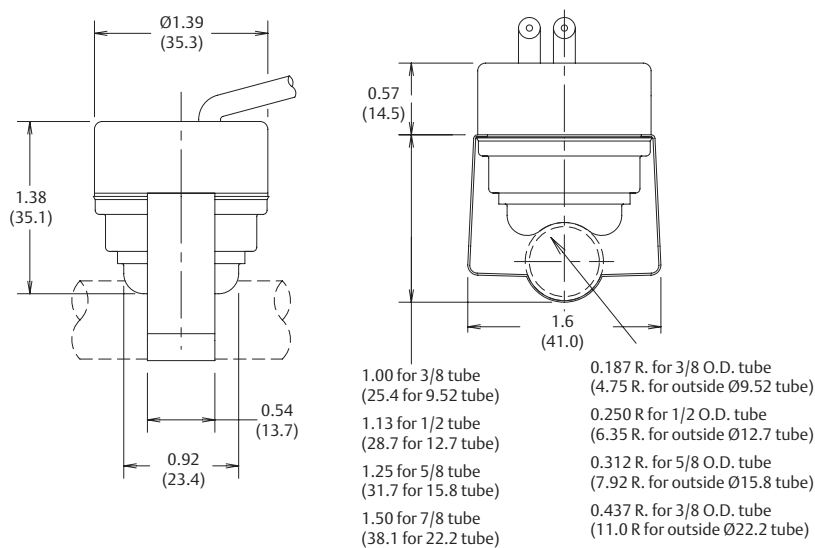


Figure 3

*Dimensions are shown in inches and (millimeters).*

### **Lead Wire and Terminal Configurations.**

The standard lead wires are #18 AWG stranded copper wire with 1/32" thick 105°C PVC insulation. A variety of other lead wire size and insulation thickness combinations are available at additional cost. The standard lead wire direction exits from the top of the control. The lead wire can also be specified to exit perpendicular to the mounting hole centerline for surface mount and parallel to the tube for tube mounting. This can be varied in 45 angular degree increments, if required by the application.



Conduit Connector – The 14T is also available with a conduit connector designed to enclose the lead wires in a rigid thin wall or flexible metal conduit. In this configuration, the leads extend from the top of the control instead of the side (see figure 4).

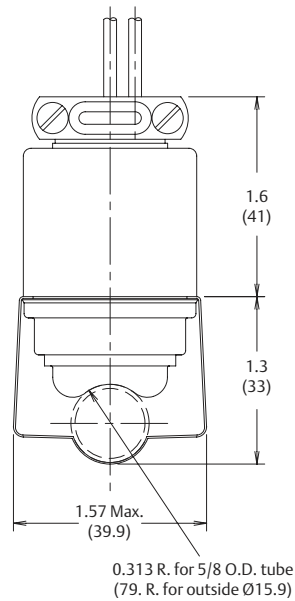


Figure 4

*Dimensions are shown in inches and (millimeters).*

The standard insulation colors are red, brown and black. Other colors can be provided, as required by a specific application.

The standard maximum combined lead wire length is 24" for SPST and 36" for SPDT controls. Additional lead wire and a variety of popular quick connect terminals are available at additional cost.

For more information on optional lead wires, insulation colors and terminations, please consult one of our sales engineers.



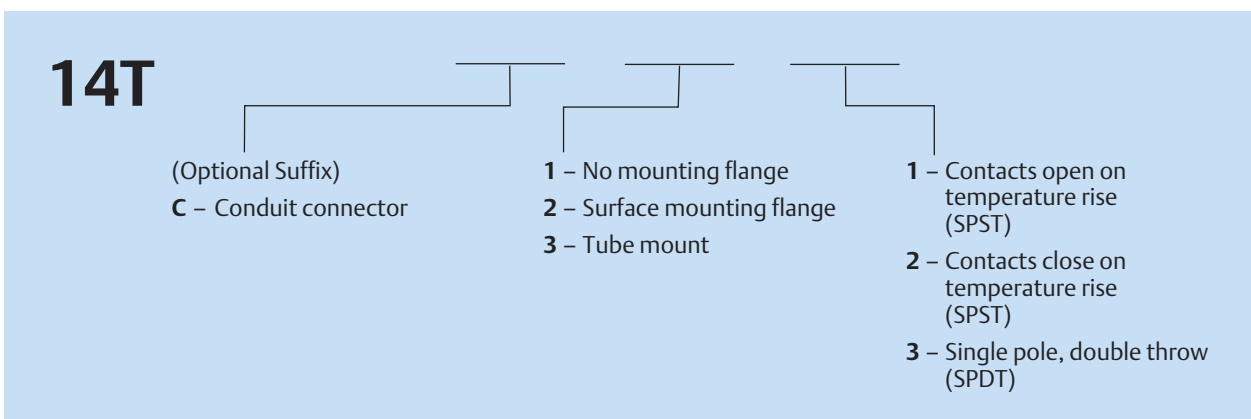
## Calibration Temperatures, Differentials and Tolerances

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 which differentials are available in each of the calibration set point ranges. Tighter open and close tolerances are available at additional cost. For more information on tightened tolerances or availability of differentials not listed in the chart, please consult one of our sales engineers.

## Calibration Temperatures, Differentials and Standard Tolerance of the 14T Series (SPST and SPDT only)

Highest Calibration Set Point Range (Open or Close)	Nominal Differentials (nominal open and close set point)									
	10-14°F 5.5-8°C		15-19°F 8.5-10.5°C		20-29°F 11-16°C		30-39°F 16.5-21.5°C		40-60°F 22-33°C	
	Open	Close	Open	Close	Open	Close	Open	Close	Open	Close
0°-80°F -18°-26°C	±6 ±3.5	±6 ±3.5	±6 ±3.5	±6 ±3.5	±6 ±3.5	±6 ±3.5	±6 ±3.5	±7 ±4	±6 ±3.5	±7 ±4
81°-221°F 27°-105°C	±5 ±3	±5 ±3	±5 ±3	±5 ±3	±5 ±3	±5 ±3	±5 ±3	±5 ±3	±5 ±3	±7 ±4

## Product Numbering System



## General Electrical Ratings

The 14T 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.

Max Temperature	Contact Arrangement	Cycle Rating	Inductive Amperes		Pilot Duty VA	Resistive Amperes	Volts AC	Agency Recognition
			FLA	LRA				
221°F 105°C	SPST or SPDT any load combination except resistive rating on one contact set only	6,000	10	45	125	—	240	UL E29653
		30,000	10	60	125	25	120	
		30,000	5	30	125	25	240	
	SPST or SPDT any combination	30,000	16	72	125	15	240	
		30,000	10	60	125	—	277	
150°F 65.5°C	SPST or SPDT any load combination except resistive rating on one contact set only	100,000	10	60	125	25	120	
		100,000	5	30	125	25	240	
	SPST or SPDT (125VA pilot duty only on contacts 1-2 of SPDT)	100,000	0	0	125	25	277	
221°F 105°C	SPST	30,000	10	60	125	25	120	CSA LR10281
		30,000	5	30	125	25	240	
		6,000	16	72	125	—	120	
		6,000	10	45	125	—	240	
	SPDT (limited to 125VA on one contact)	30,000	10	60	125	25	120	
		30,000	5	30	125	25	240	
	SPST (any load combination)	30,000	7.5	45	125	15	120	
		30,000	3.75	22.5	125	15	240	
		30,000	16	72	125	—	240	

Note: This is a consolidated summary of the 14T series ratings. 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.

### Important Notice

Users must determine the suitability of the control for their application, including the level of reliability required, and are solely responsible for the function of the end-use product.

These controls contain exposed electrical components and are not intended to withstand exposure to water or other environmental contaminants which can compromise insulating components. Such exposure may result in insulation breakdown and accompanying localized electrical heating.

A control may remain permanently closed or open as a result of exposure to excessive mechanical, electrical, thermal or environmental conditions or at normal end-of-life. If failure of the control to operate could result in personal injury or property damage, the user should incorporate supplemental system control features to achieve the desired level of reliability and safety. For example, backup controls have been incorporated in a number of applications for this reason.