10H LINEAR LIMIT Series

Special Purpose Control

Snap-Action Capillary Controls

The 10H series temperature control from Therm-O-Disc was originally developed to sense hot spots along the length of electric baseboard heaters. It is also used in other applications where it is necessary to sense temperatures along a continuous length.

The 10H capillary tube is vacuum-charged with selected fluids to give specific calibrations. When the calibration temperature is reached, a change in fluid vapor pressure allows the diaphragm to snap through and operate the contacts. The snap-action design provides high-speed contact separation and excellent reliability.

Typical applications for the 10H include electric baseboard heaters and gas furnaces.

Features and Benefits

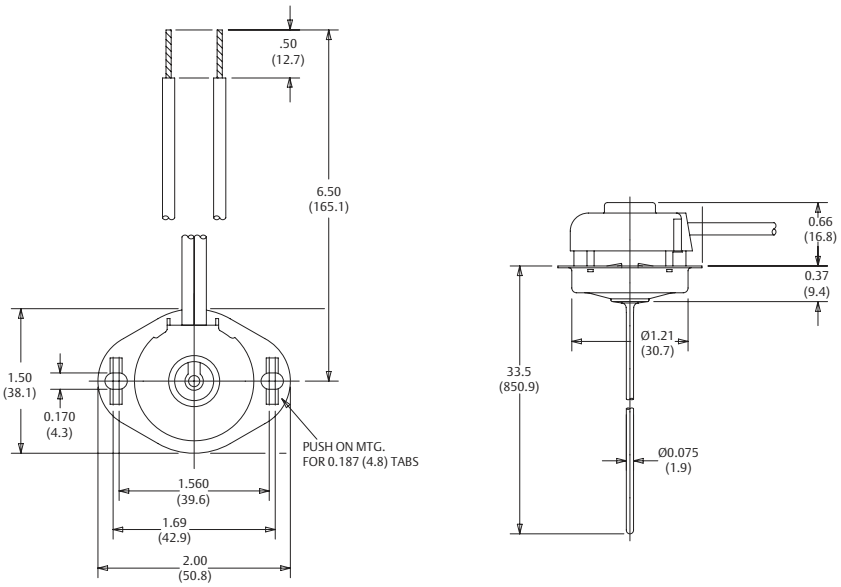
The 10H features include:

- The ability to sense temperature along a continuous length.
- Excellent sensitivity. Since the capillary tube is charged, the 10H responds to the hottest spot along the capillary tube.
- High-speed contact separation for long contact life.
- Design flexibility provided by a variety of switch actions, capillary tube lengths, mounting brackets and terminations.

Switch Actions

The 10H is available in two switch actions:

Automatic Reset (Type 10H11) – SPST contacts open on temperature rise and automatically reset on temperature fall *(see figure 1)*.

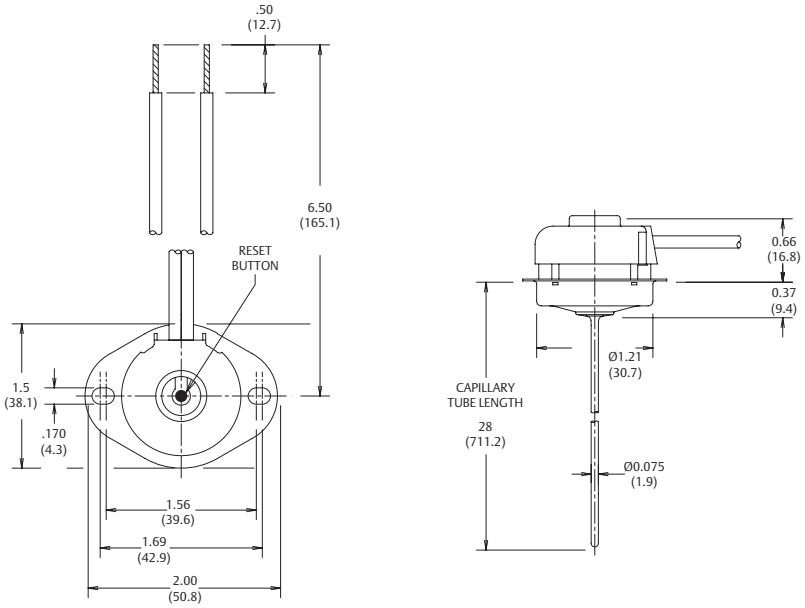


Shown with terminal cover and "push on" mounting bracket.

Figure 1

Dimensions are shown in inches and (millimeters).

Manual Reset (Type 10H14) – SPST contacts open on temperature rise and can be reset when the control has cooled to a lower temperature and the reset button has been depressed. The 10H manual reset is agency recognized as an “M1 trip free” construction, which means that if the reset button is held down, the control can cycle thermally *(see figure 2)*.



Shown with required terminal cover and standard mounting bracket.

Figure 2

Dimensions are shown in inches and (millimeters).

Thermal Characteristics

The 10H can be calibrated to open on temperature rise between 150°F (65.6°C) and 350°F (177°C), with a standard tolerance of ±15°F (±8.5°C). The 10H automatic reset will reclose the contacts at approximately 40°F (22°C) below its open temperature. Manual reset controls may automatically reset when exposed to temperatures below -31°F (-35°C).

Capillary Tube

The 10H is available with the copper capillary tube in preferred lengths from 24” to 144” as measured from the bottom of the mounting flange.

Mounting Brackets

The standard mounting bracket *(see figure 2)* has two slots, each .170” (4.318mm) wide. An alternate “push on” mounting bracket *(see figure 1)* is also available.

Terminations

Standard leads are two 6 1/2” (165.1mm), #14 AWG, 105°C, 1/32” (10.8mm) thick, black PVC insulation, stripped 1/2” (12.7mm). Also available (automatic reset only) are 1/4”(6.30mm), 90° angle, .032” (0.8mm) blade terminals. A snap-on terminal cover is available for controls supplied with lead wires.

General Electrical Ratings

The 10H 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	Maximum Capillary Temperature (°F)	Maximum Switchcase Temperature (°F)	Resistive Amperes	Volts AC	Cycles	Agency Recognition
10H11	350	221	25	120/240/277	100,000	UL Guide MBPR2, File MH-5304
10H14	350	221	25	120/240/277	6,000	CSA File LR19988

NOTE: For complete and current ratings, please consult a Therm-O-Disc sales engineer.
At thermostat end-of-life, the contacts may remain permanently open or closed.

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.