



**Sensata**  
Technologies

# **THERMOSTAT PROBE PACKAGES: NARROW DIFFERENTIAL CONTROL**



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## THERMOSTAT PROBE PACKAGES: NARROW DIFFERENTIAL CONTROL



### Introduction

Klixon® Narrow Differential Control thermostat probes are designed to provide reliable, consistent performance over a long cycle life in the harshest environments. These probes provide accurately open and close with a narrow 2°F to 8°F differential, providing tight temperature control. Based on the M2 Series thermostat, these devices have outstanding vibration and shock resistance, with a temperature range from 0°F to 240°F. These characteristics enable users to closely control the temperature in applications like aircraft environmental control systems or travelling wave tube (TWT) coolant systems.

### Features

- Hermetically Sealed (probe only)
- Narrow differential between open and close set points
- Snap-action switching
- Pre-set, non-adjustable calibration
- High resistance to shock and vibration
- Qualified to MIL-PRF-24236/25

### PERFORMANCE

The standard narrow differential probe utilizes silver contacts. Gold plated contacts can be furnished to assure reliable circuit switching under low wattage conditions. *(See second table below.)*

### Contact Ratings (Resistive)

Based on standard differential

30 VAC/DC	125 VAC	Life Cycles
2.0 Amps	2.0 Amps	250,000 cycles

### Gold Contact Ratings (Resistive)

Based on standard differential

<b>30 VAC/DC</b>	500 mA and below
<b>115 VAC</b>	200 mA and below
<b>230 VAC</b>	100 mA and below



## PERFORMANCE (CONTINUED)

### Characteristics

<b>Contact Resistance</b>	0.100 ohms per MIL-STD-202, Method 307 <i>Contact resistance shown is for the M2 thermostat and does not include resistance of wire leads or connector.</i>
<b>Dielectric Strength</b>	1250 VAC, rms, 60 cycles for 1 minute, per MIL-STD-202, Method 301
<b>Salt Spray Resistance</b>	Per MIL-STD-202, Method 101, Condition B, 5% Solution
<b>Ambient Temperature Range</b>	-65°F to 400°F (-53.9°C to 204.4°C) <i>Maximum ambient exposure should be limited to 100°F above operating temperature for close on rise devices or 100°F below the operating temperature for open on rise devices.</i>
<b>Operating Temperature Range</b>	0°F to +240°F, (-17.8°C to 115.6°C)

The standard operating temperatures, differential and tolerances are shown in the table below, but can be customized to meet your specific requirements.

Operating Temperature Range	Differentials Available	Closing Temperature Tolerance*	
		Standard	Special
0 to 240°F (-17.8 to 115.6°C)	2 to 5°F (1.1 to 2.8°C)	+/- 5°F (+/- 2.8°C)	+/-4°F (+/-2.2°C)

\* Tolerances are based on precision factory calibration and test equipment. Customers checking tolerances should allow for differences in test equipment of  $\pm 1^\circ\text{F}$ .



## CONFIGURATIONS

Standard narrow differential probe packages are comprised of the following physical features, but many other variants are available to meet your needs.

PLEASE NOTE: The orientation of the connector with respect to the package body is not controlled.

### Configuration Options

Custom configurations are available

<b>Probe Body Thread Sizes</b>	Standard lengths are available in $\frac{1}{2}$ " increments, from 1.5" to 6". Standard probe bodies are available with the following thread sizes: $\frac{3}{4}$ " - 16 $\frac{1}{2}$ " - 14 NPT
<b>Termination</b>	Standard connector is a Sealtron B8002G-10SL-4P-F (or equivalent) Standard wire leads are AWG #18 stranded wire with white or black Teflon* insulation (per MIL-W-22759) (Teflon is a trademark of E. I. Dupont de Namers and Co.)
<b>Finish</b>	The standard material is stainless steel
<b>Other</b>	Other styles are available, as well as custom designs



## CONFIGURATIONS (CONTINUED)

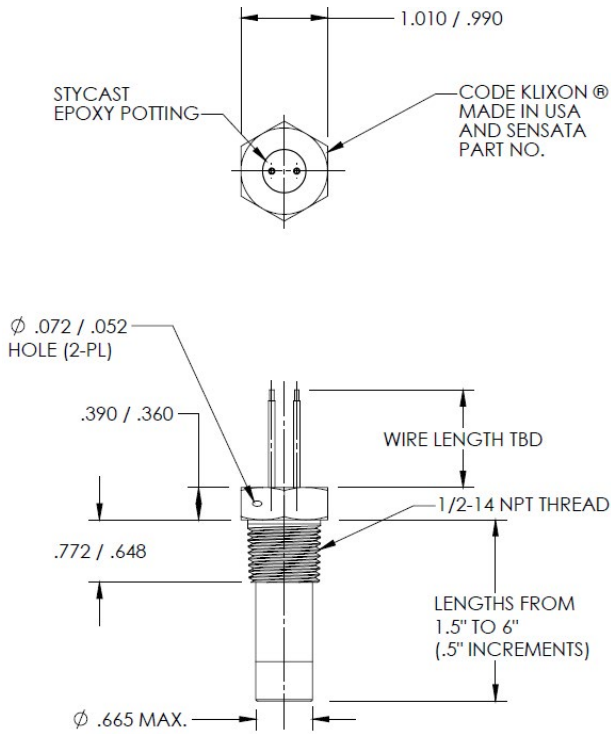
### Standard Part Numbers and Configurations

Many other styles are available

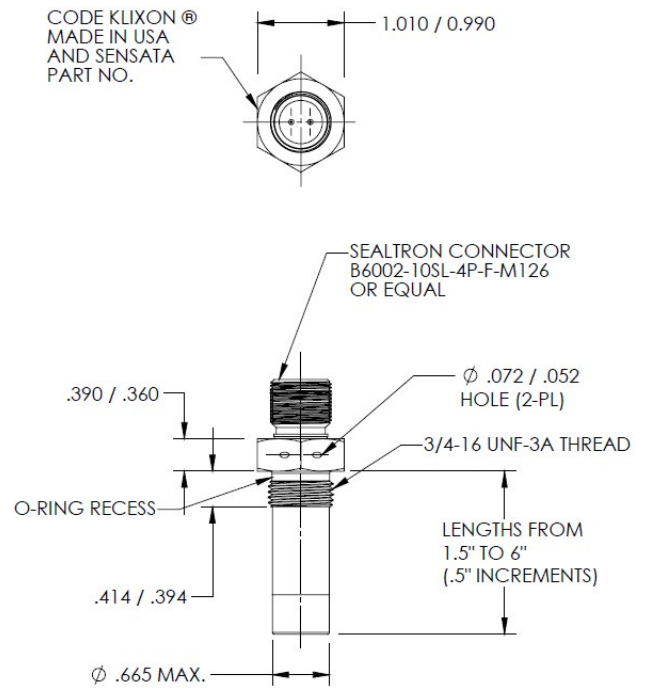
<b>21545</b>	½" pipe thread with leads
<b>21546</b>	¾" - 16 thread with connector
<b>21547</b>	¾" - 16 thread with leads
<b>21550</b>	½" pipe thread with connector

# DIMENSIONS

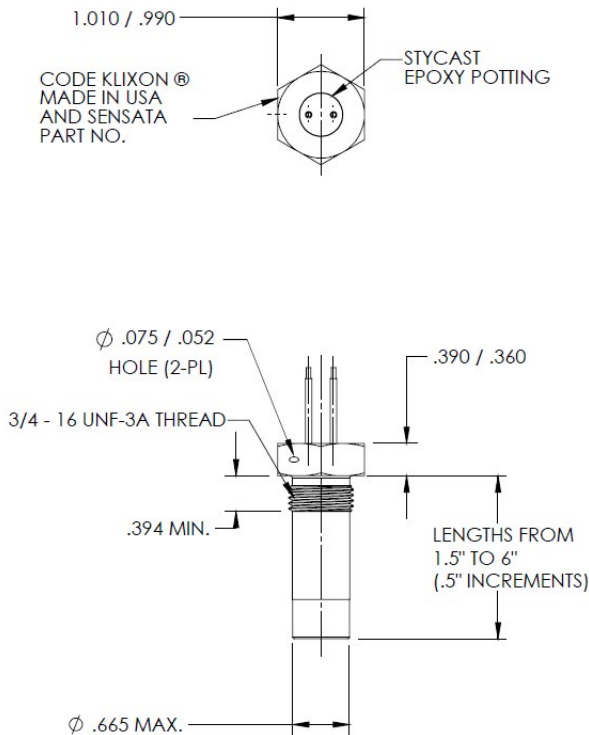
### 21545



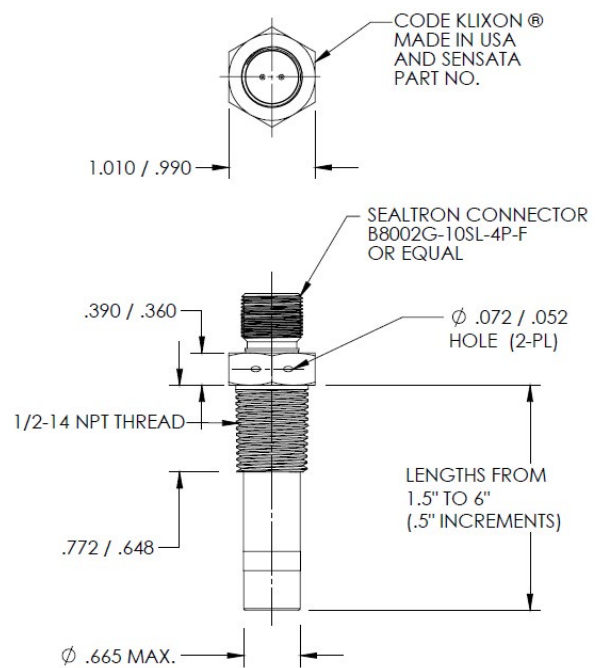
### 21546



### 21547



### 21550





## ORDERING OPTIONS

Example : 21546-06-XXX-03

### Basic Package

21545 (or 21546, 21544, 21547, or 21550)

Basic package describes general physical appearance and basic thermostat incorporated into device

### Probe Length

Probe length times 2

(probe length is the length in inches from bottom of the hex to bottom of the device)

### Operating Characteristics

Assigned consecutively (Sensata will assign this number at the time your order is taken)

### Wire Leads

For wire leads, this is the length of wire in 6 inch increments (for 6" it would be 1, for 12" it would be 2, for 18" it would be 3, etc.). For connectors, contact Sensata Technologies for this code.



## WARNINGS



#### RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE

- The product's side panels may be hot, allow the product to cool before touching
- Follow proper mounting instructions including torque values
- Do not allow liquids or foreign objects to enter this product

**Failure to follow these instructions can result in serious injury, or equipment damage.**



#### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power before installing or working with this equipment
- Verify all connections and replace all covers before turning on power

**Failure to follow these instructions will result in death or serious injury.**

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