



## | 5020 SERIES

### HERMETICALLY SEALED THERMOSTAT PROBE

#### Introduction

The 5020 series is a single throw, snap-action, hermetically sealed temperature control designed for applications requiring high vibrational resistance. The snap-action disc is located in the very tip of the probe, assuring rapid and true response to temperature. The welded construction (and grounded case) of this sealed thermostat ensures meeting thermal shock specifications of MIL-STD-202, method 107, test condition B. In addition, the tube will withstand a pressure exposure limit of 1500 PSI.



#### Features

- 1/2" disc button style
- Hermetic glass seal, grounded-case only
- Ideal for immersion sensing

#### Applications

- Hydraulic systems
- Degreasers
- Industrial and portable compressors
- Refrigeration systems
- Generator sets
- Chemical baths
- Engine coolant
- Oil and transmission protection



#### SPECIFICATIONS

<b>Contact Ratings</b>	<i>Cycles</i> 100,000	<i>Voltage</i> 12 or 32 VDC	<i>Amps</i> 3 (Resistive)	<i>Case Type</i> Grounded Case
<b>Contact Operations</b>	Either close on rise (make) or open on rise (break), SPST (Single Pole, Single Throw)			
<b>Operating Temperature</b>	+35°F to 480°F (+1.67°C to 249°C)			
<b>Dielectric Strength</b>	500 VAC, 60Hz (grounded case) terminals to case across open contacts			
<b>Vibration</b>	.06DA, 10-55 Hz, 20G 20-2000 Hz			
<b>Shock</b>	.75G 6ms duration (sawtooth)			
<b>Military Specifications</b>	5020-13 conforms to MIL-S-12285/1, thermal shock per MIL-STD-202, Method 107, Condition B			
<b>Materials</b>	Stainless steel body and tube, compression glass seal, Mylar sleeve, epoxy fill potting, stainless or plated steel terminals, fine silver contacts			

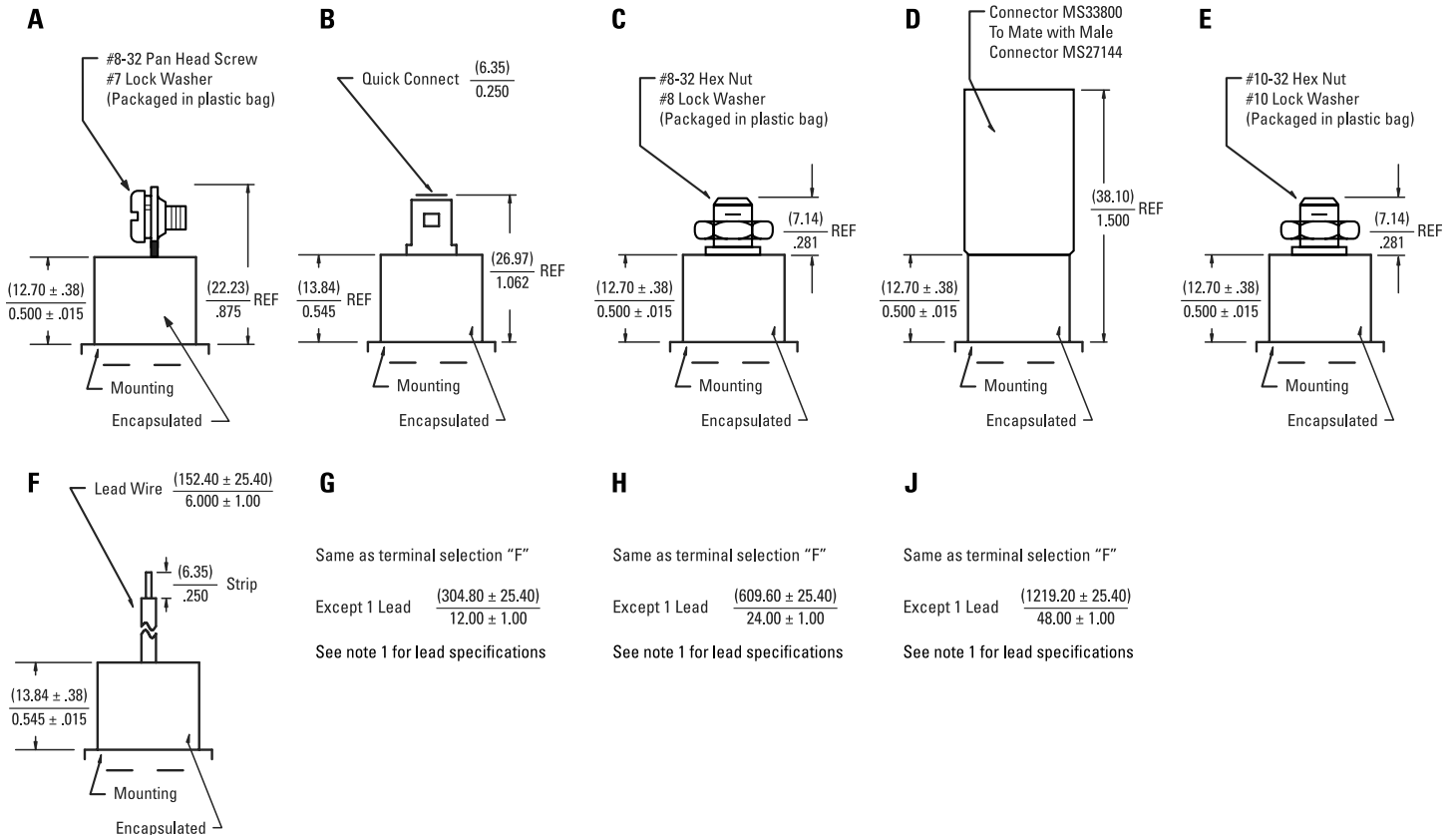


# CONTACT OPERATION

Code	Description
<b>O</b>	Letter "O" = Open on Rise
<b>C</b>	Letter "C" = Close on Rise



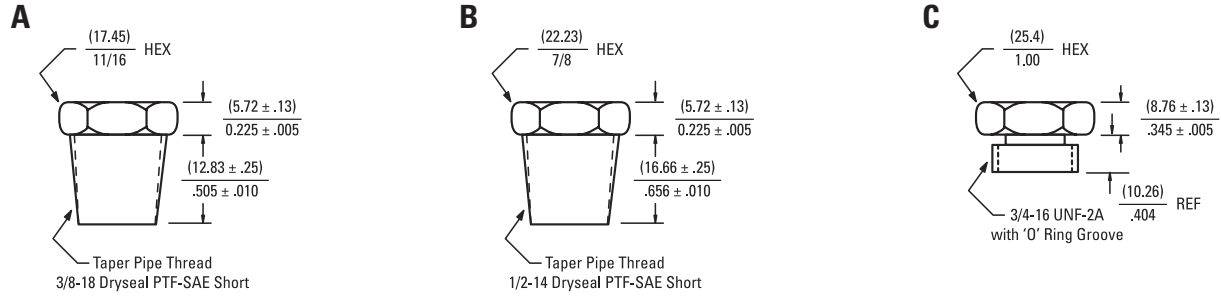
# TERMINAL SELECTION



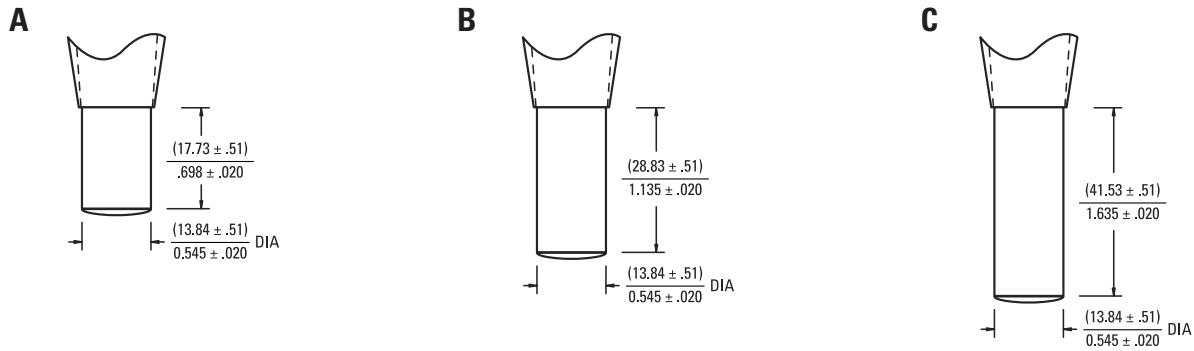
- The standard lead wire (materials) for different temperature ranges are as follows:
  - Up to 220°F (104.4°C) = # 18 AWG stranded. UL Style 1015/CSA approved. (PVC insulation, color black)
  - 221°F to 350°F (105°C to 176.6°C) = #18 AWG stranded. UL Style 1199/CSA approved. (Teflon® TFE insulation, color black)
  - 351°F (177.2°C) and above = #18 AWG stranded. UL style 5288/CSA approved. (Composite of Teflon®, ceramic + glass braid, color brown)
- The marking information on each thermostat will include either the name Sensata or Airpax, contact operation (CLR) close on rise, (OPR) open on rise, top temperature and date code.



## MOUNTING THREAD SELECTION



## TUBE LENGTH SELECTION



## TEMPERATURE CODES AND TOLERANCE

Temperature Scale	Fahrenheit	Celsius	Fahrenheit	Celsius	Fahrenheit	Celsius
<b>Top Temperature Settings</b>	35°F to 250°F	1.7°C to 121.1°C	251°F to 400°F	121.7°C to 204.4°C	401°F to 480°F	205°C to 248.9°C
<b>Standard Top Temperature Tolerance (code)</b>	±5°F (A)	±2.8°C (A)	±10°F (C)	±5.6°C (C)	±25°F (N)	±13.9°C (N)
<b>Nominal Temperature Differential</b>	20°F	11.1°C	40°F	22.2°C	40°F	22.2°C

- Note*
- Select any temperature in the range of 35°F to 480°F. Standard choices fall on the 5°F increments, for example 140°F, 145°F, 150°F, 155°F... up to 475°F or 480°F
  - Specify the °F temperature in the part numbering scheme as a three digit code without the "°F" in the part number. For example, for 200°F, put in code '200'
  - Bottom Temperature in °F equals the "Top Temperature in °F" minus "Nominal Differential in °F". For example 310°F - 30°F = 280°F

Tolerance Code	A	C	N	Y ( Bottom Temp Only)
±°F	±5°F	±10°F	±25°F	Minimum
±°C	±2.8°C	±5.6°C	±13.9°C	Minimum

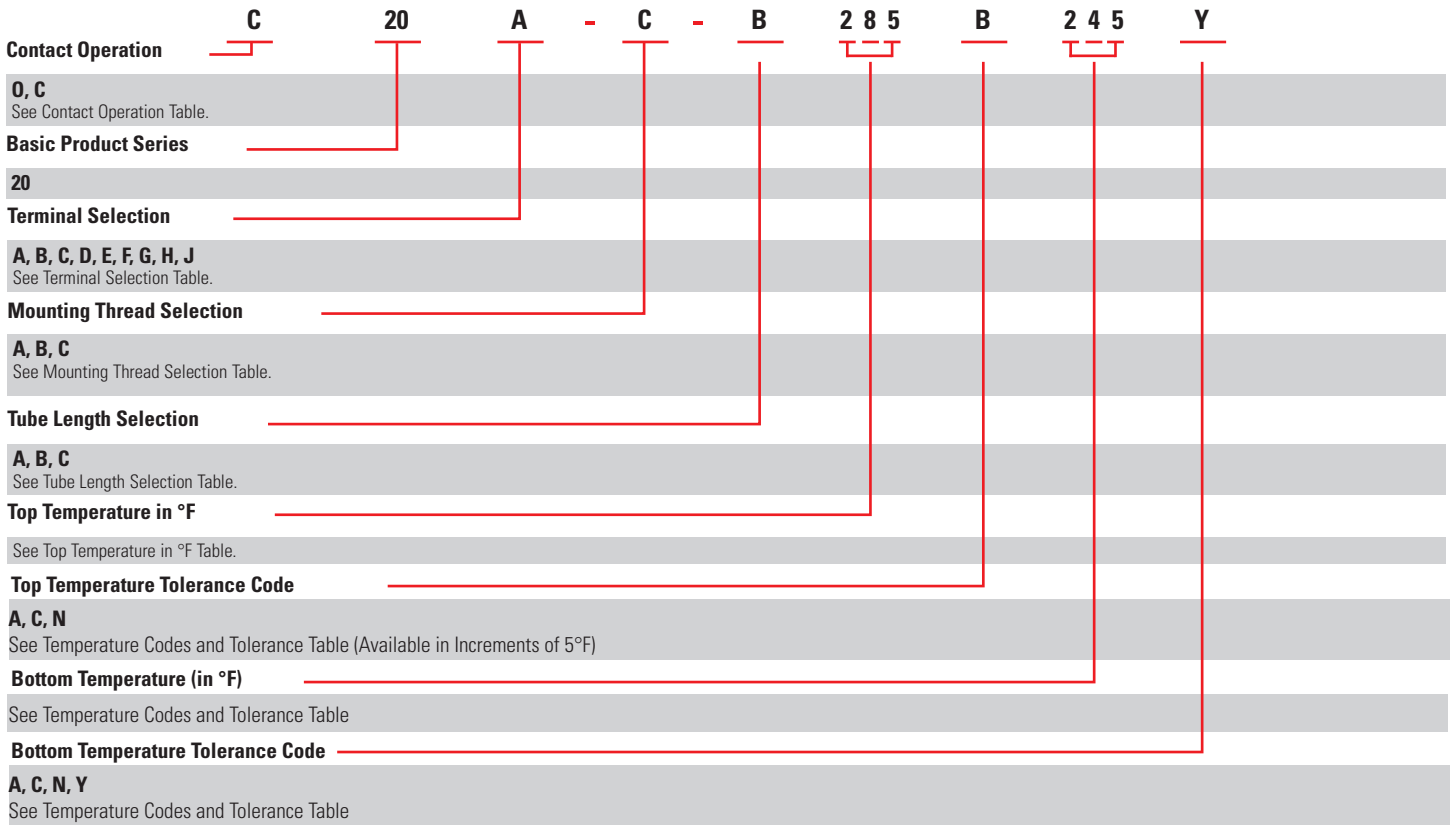
- Note*
- The standard tolerance for the top temperature is based on the temperature range the top temperature falls in, please refer to the temperature setting chart, and select the appropriate code for a standard top temperature tolerance
  - For bottom temperature tolerance a "Y" = minimum trip, which indicates the "reset" trip occurs at or above the lower temperature set point.



## ORDERING OPTIONS

Example : C20ACB285B-245Y

Close contacts on temperature rise, 5020 series, grounded case 8-32" screw terminal, 1/2-14 PTF threads, 1.635" tube length, 285°F top temperature with a ±8°F standard top tolerance and a standard 40°F differential between top and bottom temperature for temperature range of 251°F to 400°F, differential helps calculate a bottom temperature of 245°F with a standard minimum reset for contacts to close at or above the bottom temperature set point.



## AGENCY APPROVALS AND CERTIFICATIONS



RoHS compliant per EU directive 2002 / 95 / EC



## 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**

Sensata Technologies, Inc. ("Sensata") data sheets are solely intended to assist designers ("Buyers") who are developing systems that incorporate Sensata products (also referred to herein as "components"). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer's systems and products. Sensata data sheets have been created using standard laboratory conditions and engineering practices. Sensata has not conducted any testing other than that specifically described in the published documentation for a particular data sheet. Sensata may make corrections, enhancements, improvements and other changes to its data sheets or components without notice.

Buyers are authorized to use Sensata data sheets with the Sensata component(s) identified in each particular data sheet. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER SENSATA INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN. SENSATA DATA SHEETS ARE PROVIDED "AS IS". SENSATA MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE DATA SHEETS OR USE OF THE DATA SHEETS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. SENSATA DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO SENSATA DATA SHEETS OR USE THEREOF.

All products are sold subject to Sensata's terms and conditions of sale supplied at [www.sensata.com](http://www.sensata.com) SENSATA ASSUMES NO LIABILITY FOR APPLICATIONS ASSISTANCE OR THE DESIGN OF BUYERS' PRODUCTS. BUYER ACKNOWLEDGES AND AGREES THAT IT IS SOLELY RESPONSIBLE FOR COMPLIANCE WITH ALL LEGAL, REGULATORY AND SAFETY-RELATED REQUIREMENTS CONCERNING ITS PRODUCTS, AND ANY USE OF SENSATA COMPONENTS IN ITS APPLICATIONS, NOTWITHSTANDING ANY APPLICATIONS-RELATED INFORMATION OR SUPPORT THAT MAY BE PROVIDED BY SENSATA.

Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA.

## CONTACT US

### Americas

+1 (888) 438 2214  
[sensors@sensata.com](mailto:sensors@sensata.com)

### Europe, Middle East & Africa

+31 (74) 357 8156  
[temperature-info.eu@sensata.com](mailto:temperature-info.eu@sensata.com)

### Asia Pacific

[sales.isasia@list.sensata.com](mailto:sales.isasia@list.sensata.com)  
China +86 (21) 2306 1500  
Japan +81 (45) 277 7117  
Korea +82-10-9218-1179  
India +91 (80) 67920890  
Rest of Asia +886 (2) 27602006  
ext 2808