Sensata
Technologies

| 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

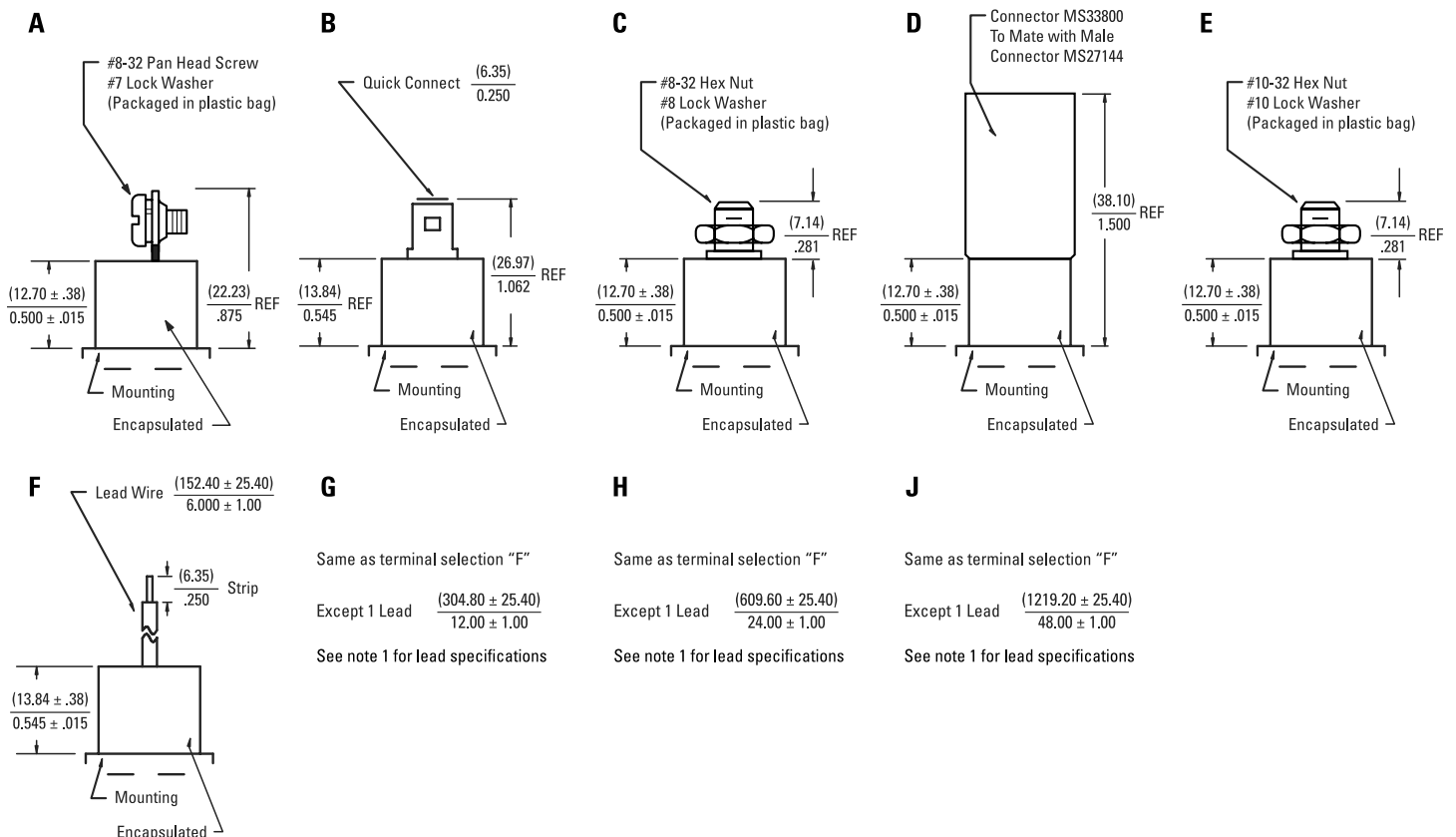| Contact Ratings	Cycles 100,000	Voltage 12 or 32 VDC	Amps 3 (Resistive)	Case Type Grounded Case
Contact Operations	Either close on rise (make) or open on rise (break), SPST (Single Pole, Single Throw)			
Operating Temperature	+35ºF to 480ºF (+1.67ºC to 249ºC)			
Dielectric Strength	500 VAC, 60Hz (grounded case) terminals to case across open contacts			
Vibration	.06DA, 10-55 Hz, 20G 20-2000 Hz			
Shock	.75G 6ms duration (sawtooth)			
Military Specifications	5020-13 conforms to MIL-S-12285/1, thermal shock per MIL-STD-202, Method 107, Condition B			
Materials	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
O	Letter "O" = Open on Rise
C	Letter "C" = Close on Rise

TERMINAL SELECTION

A

#8-32 Pan Head Screw
#7 Lock Washer
(Packaged in plastic bag)

$\frac{(12.70 \pm .38)}{0.500 \pm .015}$

$\frac{(22.23)}{.875}$ REF

Mounting

Encapsulated

B

Quick Connect $\frac{(6.35)}{0.250}$

$\frac{(13.84)}{0.545}$ REF

$\frac{(26.97)}{1.062}$ REF

Mounting

Encapsulated

C

#8-32 Hex Nut
#8 Lock Washer
(Packaged in plastic bag)

$\frac{(7.14)}{.281}$ REF

$\frac{(12.70 \pm .38)}{0.500 \pm .015}$

Mounting

Encapsulated

D

Connector MS33800
To Mate with Male
Connector MS27144

$\frac{(38.10)}{1.500}$ REF

$\frac{(12.70 \pm .38)}{0.500 \pm .015}$

Mounting

Encapsulated

E

#10-32 Hex Nut
#10 Lock Washer
(Packaged in plastic bag)

$\frac{(7.14)}{.281}$ REF

$\frac{(12.70 \pm .38)}{0.500 \pm .015}$

Mounting

Encapsulated

F

Lead Wire $\frac{(152.40 \pm 25.40)}{6.000 \pm 1.00}$

$\frac{(6.35)}{.250}$ Strip

$\frac{(13.84 \pm .38)}{0.545 \pm .015}$

Mounting

Encapsulated

G

Same as terminal selection "F"

Except 1 Lead $\frac{(304.80 \pm 25.40)}{12.00 \pm 1.00}$

See note 1 for lead specifications

H

Same as terminal selection "F"

Except 1 Lead $\frac{(609.60 \pm 25.40)}{24.00 \pm 1.00}$

See note 1 for lead specifications

J

Same as terminal selection "F"

Except 1 Lead $\frac{(1219.20 \pm 25.40)}{48.00 \pm 1.00}$
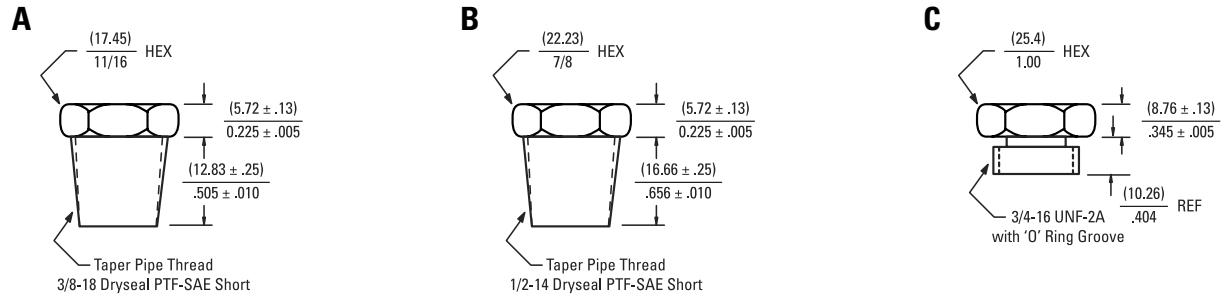
See note 1 for lead specifications

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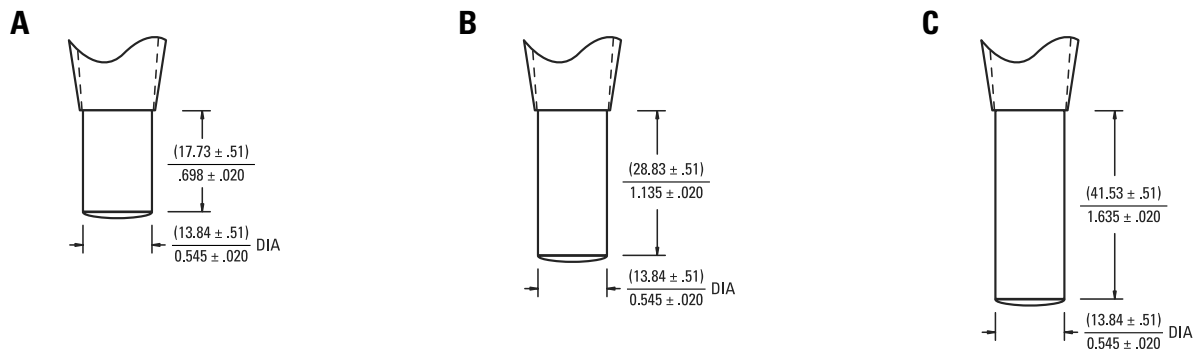
2. The marking information on each thermostat will include either the name Sensata or Airpax, contact operation (CLR) close on rise, (OPR) open on rise, top temperature and date code.

MOUNTING THREAD SELECTION

A

(17.45) / 11/16 HEX

(5.72 ± .13) / 0.225 ± .005

(12.83 ± .25) / .505 ± .010

Taper Pipe Thread
3/8-18 Dryseal PTF-SAE Short

B

(22.23) / 7/8 HEX

(5.72 ± .13) / 0.225 ± .005

(16.66 ± .25) / .656 ± .010

Taper Pipe Thread
1/2-14 Dryseal PTF-SAE Short

C

(25.4) / 1.00 HEX

(8.76 ± .13) / .345 ± .005

(10.26) / .404 REF

3/4-16 UNF-2A
with 'O' Ring Groove

TUBE LENGTH SELECTION

A

(17.73 ± .51) / .698 ± .020

(13.84 ± .51) / 0.545 ± .020 DIA

B

(28.83 ± .51) / 1.135 ± .020

(13.84 ± .51) / 0.545 ± .020 DIA

C

(41.53 ± .51) / 1.635 ± .020

(13.84 ± .51) / 0.545 ± .020 DIA

TEMPERATURE CODES AND TOLERANCE

Temperature Scale	Fahrenheit	Celsius	Fahrenheit	Celsius	Fahrenheit	Celsius
Top Temperature Settings	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
Standard Top Temperature Tolerance (code)	±5°F (A)	±2.8°C (A)	±10°F (C)	±5.6°C (C)	±25°F (N)	±13.9°C (N)
Nominal Temperature Differential	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 numbe r. 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	B	C	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.

C   20   A   -   C   -   B   2 8 5   B   2 4 5   Y

Contact Operation

| **O, C** |
| See Contact Operation Table. |

Basic Product Series

| **20** |

Terminal Selection

| **A, B, C, D, E, F, G, H, J** |
| See Terminal Selection Table. |

Mounting Thread Selection

| **A, B, C** |
| See Mounting Thread Selection Table. |

Tube Length Selection

| **A, B, C** |
| See Tube Length Selection Table. |

Top Temperature in °F

| See Top Temperature in °F Table. |

Top Temperature Tolerance Code

| **A, C, N** |
| See Temperature Codes and Tolerance Table (Available in Increments of 5°F) |

Bottom Temperature (in °F)

| See Temperature Codes and Tolerance Table |

Bottom Temperature Tolerance Code

| **A, C, N, Y** |
| See Temperature Codes and Tolerance Table |

AGENCY APPROVALS AND CERTIFICATIONS

RoHS compliant per EU directive 2002 / 95 / EC

WARNINGS

DANGER

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.

Danger Electric shock risk

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 can result in death or serious injury

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