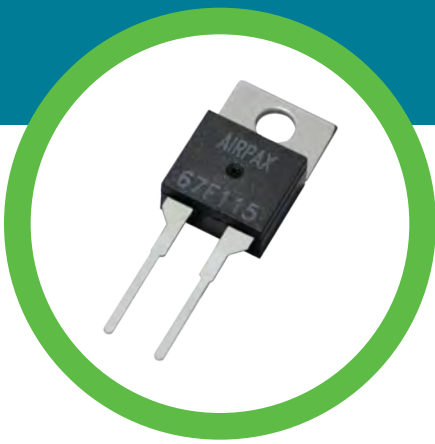




AIRPAX® | 6700 Series

TO-220 BIMETAL DISC THERMOSTAT

FEATURES

- RoHS compliant per EU directive 2002 / 95 / EC
- TO-220 / Y-220 international electronic package standard
- Ideal for surface and air sensing on PC boards and heat sinks
- VDE approved with "P" bracket option
- Gold-plated contacts
- Up to 30,000 life cycles @ max standard amperage
- Up to 100,000 life cycles @ max gold contact amperage

DESCRIPTION

The Airpax™ 6700 series is a RoHS compliant, positive snap action, single pole / single throw, sub-miniature bimetallic thermostat which provides accurate and reliable sensing and switching in a single device.

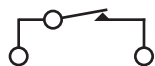
The 6700 series thermostat dimensionally conforms to the international product package standard Y220 / TO220. Thus, the 6700 may be automatically placed and soldered onto PC boards with high speed automated equipment, eliminating the need for the expensive hand placement and termination required today for most power supply thermostats.

The 6700 provides fast, positive response with excellent repeatability. The thermostat has a switch capability of up to 1 amp for 48 VDC or 120 VAC for 30,000 cycles, and achieves low-level switching down to 0.001A to 0.020A at 5 VDC for 100,000 cycles. Temperature is pre-set at the factory and is non-adjustable in the field.

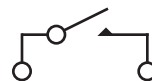
Thermal conductivity is mainly through the terminals and the mounting bracket making the unit ideal for both surface mount and ambient air sensing. The nickel-plated copper mounting bracket comes standard, or you can utilize the laminated plastic mounting bracket for increased dielectric strength and VDE approval.

Primarily developed for thermal management applications on power supplies, the Airpax™ 6700 series is also ideally suited for use on crowded PC boards. Typical uses include turning on an indicator light, sounding an audible alarm, switch on a control circuit to send a message to a display screen or even switching a circuit to shut down a system. Applications include computers and computer peripherals, aircraft, automotive, medical devices and test equipment.

OPERATION SCHEMATICS



Schematic for
Open on Rise
Operation

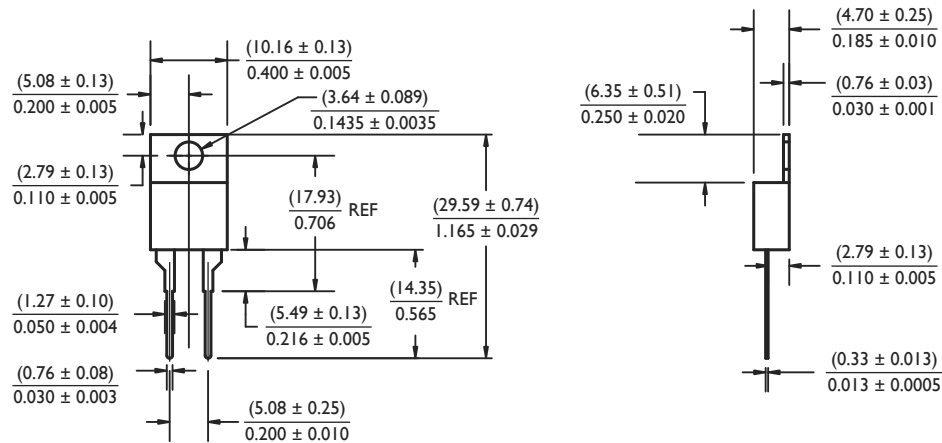


Schematic for
Close on Rise
Operation

SPECIFICATIONS

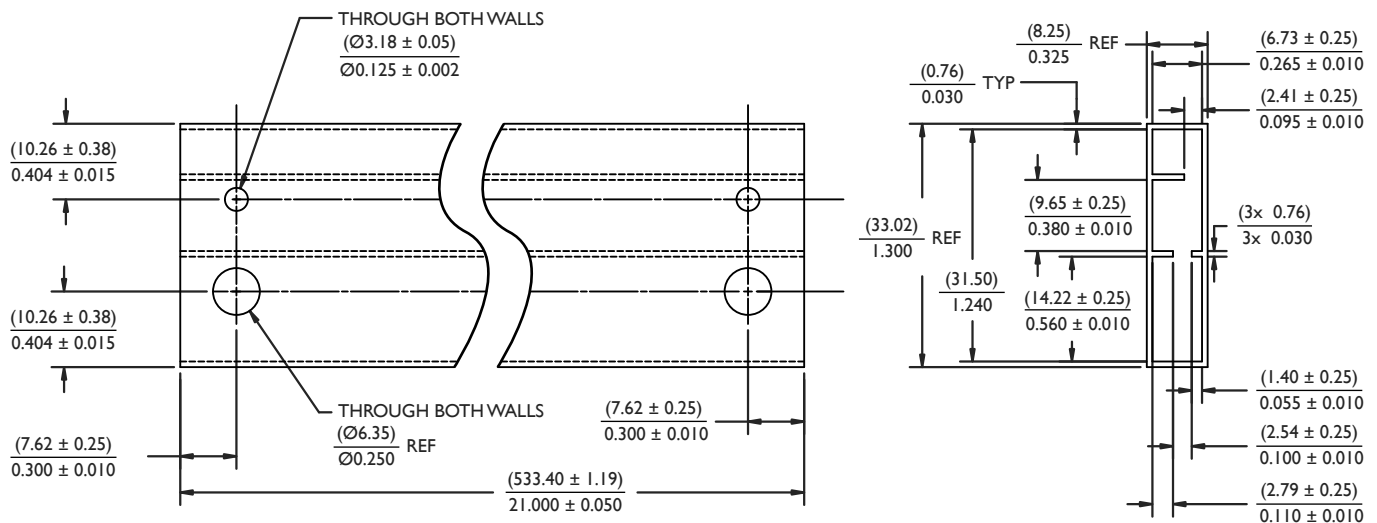
Contact Resistance	50 milliohms max (before and after rated life)		
Contact Ratings	Cycles 20,000 100,000	Voltage 48 VDC 5 VDC	Amps (resistive) 0.5 0.001 (gold)
Contact Operations	Either close on rise (make) or open on rise (break)		
Operating Temperature	40°C to 130°C (104°F to 266°F)		
Temperature Tolerance	Standard of $\pm 5^{\circ}\text{C}$ ($\pm 9^{\circ}\text{F}$) with nominal operating temperature settings in 5°C increments		
Short Term / Long Term Exposure Limit	Short = 260°C (500°F), 10 second duration		Long = -55°C to 160°C (-67°F to 320°F)
Dielectric Strength	Nickel-plated copper bracket has 1480 VAC 60Hz, 1 second duration terminals to case. Plastic bracket has 2000 VAC 60Hz, 1 second duration terminals to case.		
Insulation Resistance	100 Mohms at 500 VDC		
Contact Bounce	3 milliseconds max (make)		
Vibration	Per Mil-Std-202, method 204D, test condition D, 10 to 2,000 Hz		
Shock	Per Mil-Std-202, method 213, test condition C, 100 G's for 6 millisecond duration, ½ sine wave		
Seal	High temperature epoxy sealed for wave soldering and cleaning, moisture proof per Sensata specification S-722 (unit will not leak while submerged in 9" of water for a minimum of two minutes)		
Base Material	PPS (Polyphenylene Sulfide), 94 VO rated		
Terminal Material	65% Copper, 18% Nickel		
Contact Material	Gold-plated or overlay, silver crossbar		
Mounting Bracket Material	Nickel-plated copper (standard) or high pressure laminated plastic ("P" mounting bracket option)		
Chemical Resistance	Unit is resistance to water, salt, alcohol, ammonia, trichlorethane and most other organic solvents		
Solderability	Terminal material is selectively striped with lead-free solder for improved solderability.		
Soldering Heat Resistance	Per Mil-Std-202G, method 210F, test condition C & K, test condition K validated at 260°C for 25 seconds		
Weight	Approximately 0.5 grams		
Agency Approvals	cRUus recognized E36687 VDE approval 0631/12.83 RoHS Compliant per EU Directive 2002/95/EC		

DIMENSIONAL SPECIFICATIONS, inches [mm]



STANDARD PACKAGING

All samples and production orders will be shipped in plastic, industry standard shipping tubes.



STANDARD TEMPERATURE CALIBRATION TABLE

Each thermostat part number consists of functional “building blocks” to enable the user to specify the desired characteristics. Select the proper code in each category, then transfer it to the box indicated. Unless a special requirement is indicated, the part number will be complete when the proper temperature is selected. If you have a special requirement, please call Sensata for a factory assigned number to complete the part number.

Example 1:

A 67F090 thermostat will close (make contact) on a rising temperature from 85°C to 95°C and will reset open (break contact) on a falling temperature within a window of no greater than 6°C lower than the actual close temperature and no less than 60°C ambient temperature.

Example 2:

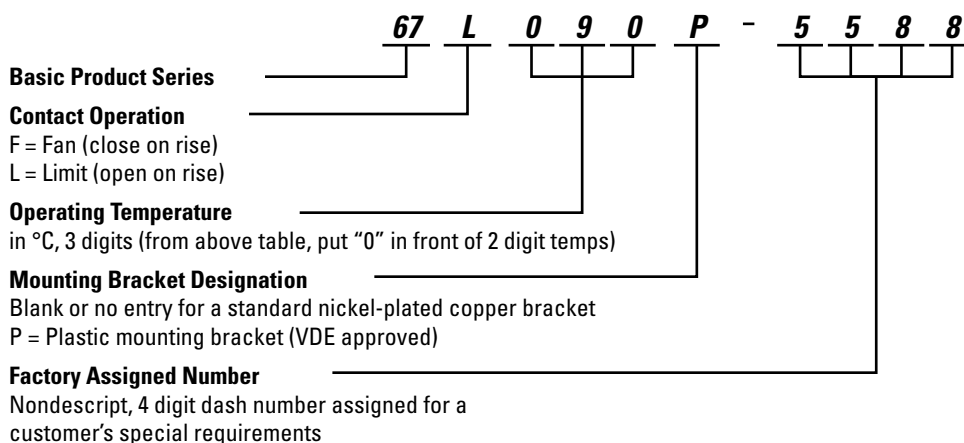
A 67L060P thermostat has a plastic mounting bracket with 2000 VAC dielectric strength and VDE approval. The thermostat will open (break contact) on a rising temperature from 55°C to 65°C and will reset close (make contact) on a falling temperature within a window of no greater than 4°C lower than the actual open temperature and no less than 40°C ambient temperature.

The mounting bracket designation and the 4 digit manufacturing dash number are used for ordering special features and may not appear as part of the marking on the thermostat.

Temperature set point calibration is checked at Sensata Technologies with precision test equipment and proven methods. Because customer checking methods may differ, a typical variance allowed for correlation is $\pm 1^\circ\text{C}$.

OPERATE ($\pm 5^\circ\text{C}$)	MIN DIFFERENTIAL ($^\circ\text{C}$)	MIN RESET ($^\circ\text{C}$)
40	4	20
45	4	20
50	4	30
55	4	30
60	4	40
65	4	40
70	4	50
75	4	50
80	6	55
85	6	55
90	6	60
95	6	60
100	6	70
105	6	70
110	6	80
115	6	80
120	9	85
125	9	85
130	9	90

DECISION TABLES



This document is generated from the Airpax™ Power Protection Catalog # 2455005000 revised in February 2012

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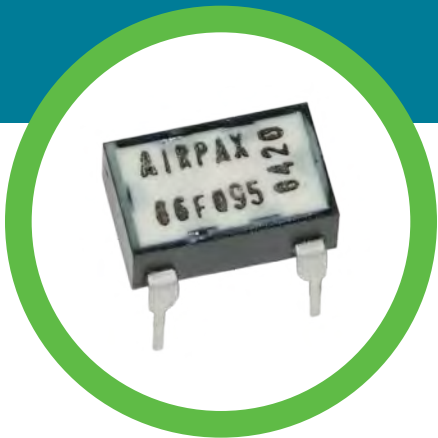
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AIRPAX® | 6600 Series

8-PIN DIP BIMETAL DISC THERMOSTAT

FEATURES

- RoHS compliant per EU directive 2002 / 95 / EC
 - 8-pin DIP international electronic package standard
 - Ideal for surface and air sensing on PC boards
- Gold-plated contacts
 - 30,000 life cycles @ max standard amperage
 - 100,000 life cycles @ max gold contact amperage

DESCRIPTION

The Airpax™ 6600 series is a RoHS compliant, positive snap action, single pole / single throw, sub-miniature bimetallic thermostat which provides accurate and reliable sensing and switching in a single device.

The 6600 series thermostat dimensionally conforms to the international product package standard 8-pin DIP (N8A Dual Inline Package). The 6600 is ideally suited for use on printed circuit boards. Its size and shape conserves space on crowded PC boards and can be installed using auto-insertion equipment. The device is sealed to withstand wave soldering and board washing operations.

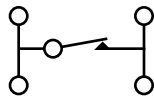
The 6600 provides fast, positive response with excellent repeatability. The thermostat has a switch capability of up to 1 amp for 48 VDC or 120 VAC for 30,000 cycles, and achieves low-level switching down to 0.001 A to 0.020 A at 5 VDC for 100,000 cycles. Temperature is pre-set at the factory and is non-adjustable in the field.

Applications include computers and computer peripherals, aircraft, automotive and test equipment. Typical uses include turning on an indicator light, sounding an audible alarm, switch on a control circuit to send a message to a display screen or even switching a circuit to shut down a system.

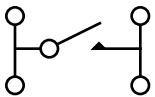
The 6600 thermostat is temperature tested in a computer controlled automated test equipment air-oven. Due to the ideal conditions under which it is tested, independent customer testing may be necessary to ensure that the correct calibration is utilized in the application.

It is the customer’s responsibility to determine whether the product is proper for customer’s use and application.

OPERATION SCHEMATICS



Schematic for
Open on Rise
Operation

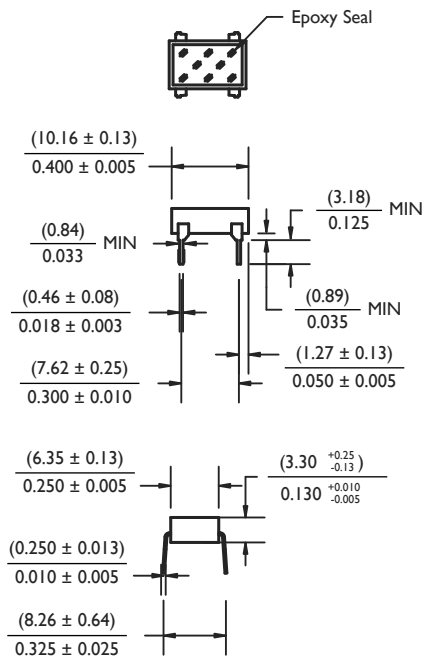


Schematic for
Close on Rise
Operation

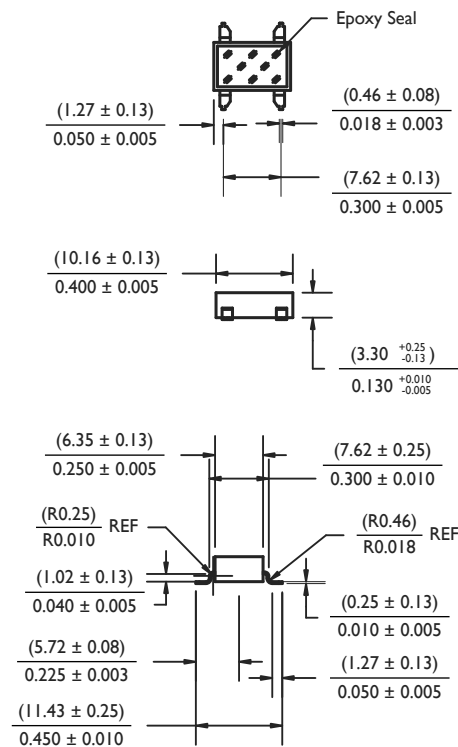
SPECIFICATIONS			
Contact Resistance	50 milliohms max (before and after rated life)		
Contact Ratings	Cycles	Voltage	Amps (resistive)
	25,000	48 VDC	1.0
	30,000	120 VAC	1.0
	100,000	5 VDC	0.020 (gold)
Contact Operations	Either close on rise (make) or open on rise (break)		
Operating Temperature	40°C to 130°C (104°F to 266°F)		
Temperature Tolerance	Standard of ±5°C (±9°F) with nominal operating temperature settings in 5°C increments		
Short Term / Long Term Exposure Limit	Short = 260°C (500°F), 10 second duration		Long = -55°C to 160°C (-67°F to 320°F)
Dielectric Strength	1480 VAC 60Hz, 1 second duration terminals to case		
Insulation Resistance	100 Mohms at 500 VDC		
Contact Bounce	3 milliseconds max (make)		
Vibration	Per Mil-Std-202, method 204D, test condition D, 10 to 2,000 Hz		
Shock	Per Mil-Std-202, method 213, test condition C, 100 G's for 6 millisecond duration, ½ sine wave		
Seal	High temperature epoxy sealed for wave soldering and cleaning, moisture proof per Sensata specification S-722 (unit will not leak while submerged in 9" of water for a minimum of two minutes)		
Base Material	PPS (Polyphenylene Sulfide), 94 VO rated		
Terminal Material	65% Copper, 18% Nickel		
Contact Material	Gold-plated or overlay, silver crossbar		
Chemical Resistance	Unit is resistance to water, salt, alcohol, ammonia, trichlorethane and most other organic solvents		
Soldering Heat Resistance	Per Mil-Std-202F, method 210A, test condition E		
Weight	Approximately 0.45 grams		
Mechanical Life	1,000,000 operations		
Agency Approvals	cRUus recognized E36687 VDE approval 0631/12.83 RoHS Compliant per EU Directive 2002/95/EC		

DIMENSIONAL SPECIFICATIONS, inches [mm]

Standard 8-Pin DIP Configuration

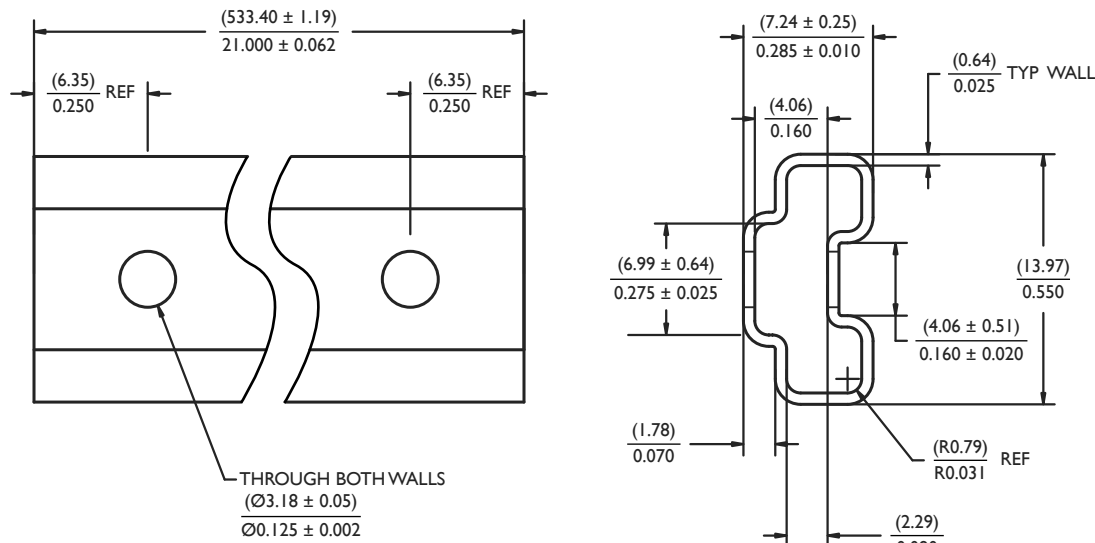


Surface Mount (Gullwing, SMT) Configuration



STANDARD PACKAGING

Standard and surface mount samples and production orders will be shipped in plastic, industry standard DIP shipping tubes.



STANDARD TEMPERATURE CALIBRATION TABLE

Each thermostat part number consists of functional “building blocks” to enable the user to specify clearly and precisely the desired characteristics in each category. Select the proper code in each category, then transfer it to the box indicated. Unless a special requirement is indicated, the part number will be complete when the proper temperature is selected. If you have a special requirement, please call Sensata for a factory assigned number to complete the part number.

Example :

A 66F095 thermostat will close (make contact) on a rising temperature from 90°C to 100°C and will reset open (break contact) on a falling temperature within a window of no greater than 6°C lower than the actual close temperature and no less than 60°C ambient temperature.

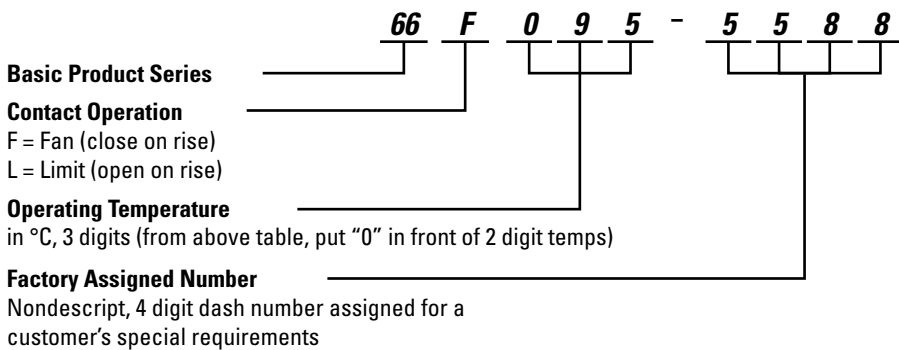
Special requirements require a 4 digit manufacturing dash number for ordering special features, 4 digit marking may not appear as part of the marking on the thermostat.

Special requirements may include VDE, ±3.0°C (±5.4°F) operating temperature tolerance, or surface mount (gullwing, SMT).

Temperature set point calibration is checked at Sensata Technologies with precision test equipment traceable to the US National Institute of Standards and Technology and Proven Methods. Because customer checking methods may differ, a typical variance allowed for correlation is ±1.1°C (±2.0°F).

OPERATE (±5°C)	MIN DIFFERENTIAL (°C)	MIN RESET (°C)
40	4	20
45	4	20
50	4	30
55	4	30
60	4	40
65	4	40
70	4	50
75	4	50
80	6	55
85	6	55
90	6	60
95	6	60
100	6	70
105	6	70
110	6	80
115	6	85
120	9	90
125	9	90
130	9	90

DECISION TABLES





AIRPAX® | ComboSense™ 6024 Series

TEMPERATURE SENSOR & THERMOSTAT PROBE

FEATURES

- Thermostat & temperature sensor in one robust package
- Stainless steel or brass construction
- Ideal for immersion sensing where mounting holes are limited

DESCRIPTION

The Airpax™ 6024 thermal sensor-switch offers the function and reliability of a grounded case snap-action thermostat with the sensing capability of a solid-state thermistor in a single economical package. The switch is available in temperature ranges from 40°C to 130°C, with a variety of terminal and body options.

The 6024 series is ideal for sensing engine oil / coolant or transmission fluid for overheat conditions. Additionally, it provides a solution for engine applications where mounting holes are limited.

THERMOSTAT SPECIFICATIONS

Contact Ratings	Cycles 30,000	Voltage 120VAC / 48VDC	Amps 1 (resistive)
Contact Operations	Either close on rise (make) or open on rise (break), SPST (Single Pole, Single Throw)		
Operating Temperature	40°C to 130°C (104°F to 266°F), std tolerance $\pm 5^{\circ}\text{C}$ ($\pm 8^{\circ}\text{F}$)		
Dielectric Strength	500 VAC, 60Hz thermostat terminals to case across open contacts <i>Note: Do not apply dielectric test voltage to the thermistor terminal as permanent damage could occur to the sensor element.</i>		
Insulation Resistance	50 megaohms, minimum at 500 VDC		
Vibration	.06DA, 10-55 Hz, 20G 10-2000 Hz		
Shock	.75G 6ms duration (sawtooth)		
Materials	Stainless steel or brass body and tube, Mylar sleeve, epoxy fill potting, stainless or plated steel terminals, fine silver contacts, gold-plated crossbar for low level switching		

TEMPERATURE SENSOR SPECIFICATIONS

Solid-State Sensor	Conventional NTC (Negative Temperature Coefficient) and PTC (Positive Temperature Coefficient) thermistors available. Specific resistance values and tolerances are per customer specifications.
Operating Temperature	-40°C to 120°C (-40°F to 248°F) (other ranges available)

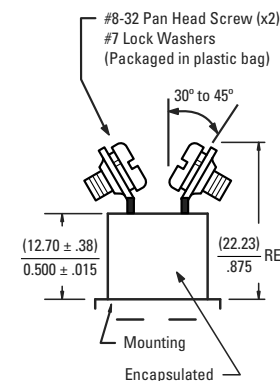
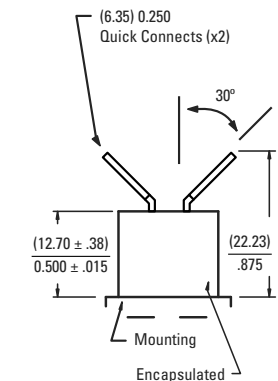
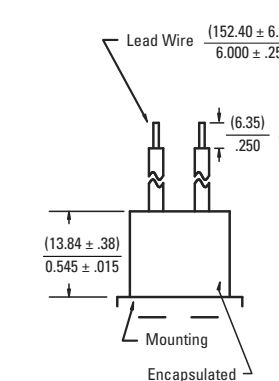
1. CONTACT OPERATION

CODE	DESCRIPTION
O	Letter “O” = Open on Rise
C	Letter “C” = Close on Rise

To build your part number (PN), choose the proper codes from pages 2 to 3.

Consult Sensata Technologies when a code Z is used to indicate a special requirement. For each 6024, Sensata will assign a unique, customer-specific four digit nondescript number to complete the customer specific part number build.

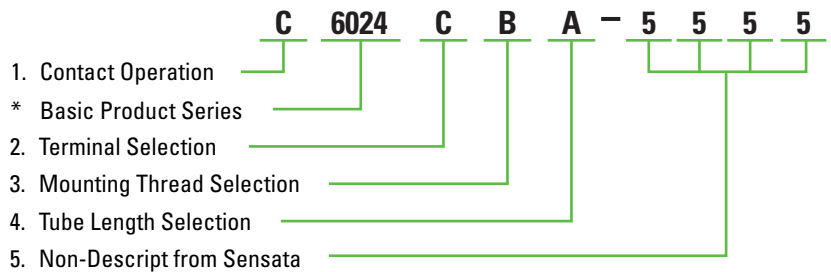
2. TERMINAL SELECTION

A 	B 	C 	Z Special Requirements Customer to Specify
D Same as terminal selection “C” Except 2 Leads $\frac{(304.80 \pm 25.40)}{12.00 \pm 1.00}$ See note 1 for lead specifications	E Same as terminal selection “C” Except 2 Leads $\frac{(609.60 \pm 25.40)}{24.00 \pm 1.00}$ See note 1 for lead specifications	F Same as terminal selection “C” Except 2 Leads $\frac{(1219.20 \pm 25.40)}{48.00 \pm 1.00}$ See note 1 for lead specifications	

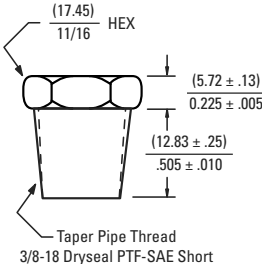
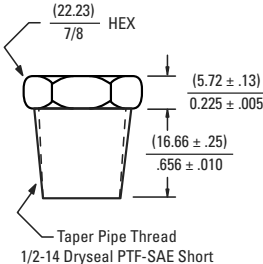
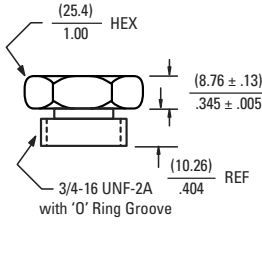
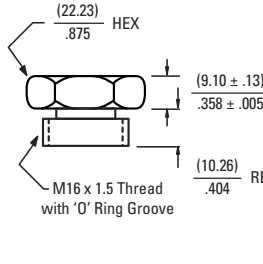
1. The standard lead wire (materials) for different temperature ranges are as follows:
A. Up to 220°F (104.4°C) = # 18 AWG stranded. UL Style 1015/CSA approved. (PVC insulation, color black)
B. 221°F to 350°F (105°C to 176.6°C) = #18 AWG stranded. UL Style 1199/CSA approved. (Teflon® TFE insulation, color black)

EXAMPLE : C6024CBA-5555

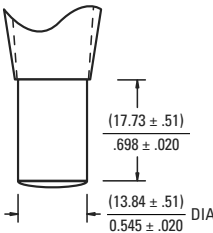
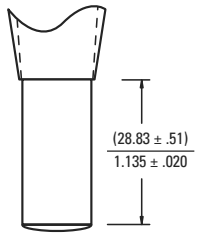
Close contacts on temperature rise, 5100 series, isolated case 6" flying leads, 1/2-14 PTF threads, .698" tube length. Non-descript assigned for thermostat temperature and thermistor selection.



3. MOUNTING THREAD SELECTION

A	B	C	D	Z
 (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	 (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	 (25.4) 1.00 HEX (8.76 ± .13) .345 ± .005 (10.26) .404 REF 3/4-16 UNF-2A with 'O' Ring Groove	 (22.23) .875 HEX (9.10 ± .13) .358 ± .005 (10.26) .404 REF M16 x 1.5 Thread with 'O' Ring Groove	Special Requirements Customer to Specify

4. TUBE LENGTH SELECTION

A	B	Z
 (17.73 ± .51) .698 ± .020 (13.84 ± .51) 0.545 ± .020 DIA	 (28.83 ± .51) 1.135 ± .020 (13.84 ± .51) 0.545 ± .020 DIA	Special Requirements Customer to Specify

See the chart to the right for recommended thermostat temperature setpoints with their corresponding temperature reset points.

OPERATE ($\pm 5^{\circ}\text{C}$)	MIN DIFFERENTIAL ($^{\circ}\text{C}$)	MIN RESET ($^{\circ}\text{C}$)
40	4	20
45	4	20
50	4	30
55	4	30
60	4	40
65	4	40
70	4	50
75	4	50
80	6	55
85	6	55
90	6	60
95	6	60
100	6	70
105	6	70
110	6	80
115	6	80
120	9	85
125	9	85
130	9	90



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AIRPAX® | 5100 Series

HERMETICALLY SEALED THERMOSTAT PROBE

FEATURES

- RoHS compliant per EU directive 2002 / 95 / EC
- 1/2" disc button style
- Hermetic glass seal, isolated-case only
- Ideal for immersion sensing

DESCRIPTION

The Airpax™ 5100 series is a single throw, snap-action, hermetically sealed temperature control designed for applications requiring high vibrational resistance in an isolated case. The snap-action disc is located in the very tip of the probe, assuring rapid and true response to temperature. The welded construction 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.

Typical applications include hydraulic systems, degreasers, industrial and portable compressors, refrigeration systems, generator sets, chemical baths, engine coolant, oil and transmission protection.

SPECIFICATIONS

Contact Ratings	<i>Cycles</i>	<i>Voltage</i>	<i>Amps</i>	<i>Case Type</i>
	100,000	120VAC / 32 VDC	3 (resistive)	isolated case
	100,000	125VAC pilot duty to 240VAC	1.5 (resistive)	isolated case
	6,000	240VAC	2.5 (resistive)	isolated case
Contact Operations	Either close on rise (make) or open on rise (break), SPST (Single Pole, Single Throw)			
Operating Temperature	+35°F to 480°F (+1.67°C to 249°C)			
Dielectric Strength	1800 Vrms, 60Hz terminals to case			
Insulation Resistance	60 megaohms at 500 VDC			
Vibration	.06DA, 10-55 Hz, 20G 20-2000 Hz			
Shock	.75G 6ms duration (sawtooth)			
Pressure Exposure Limit	Standard tube will withstand 1500 psi max. Higher pressure ratings available upon request			
Approvals	UL E36687 and E66685, CSA LR25561-6 and LR25561-8			
Materials	Stainless steel body and tube, compression glass seal, Mylar sleeve, epoxy fill potting, stainless or plated steel terminals, fine silver contacts			

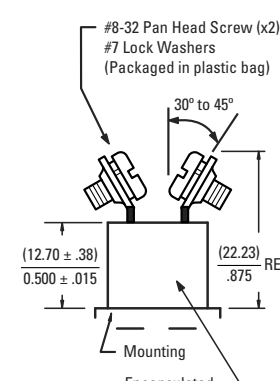
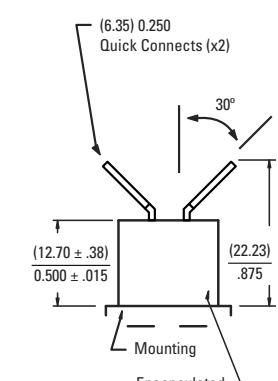
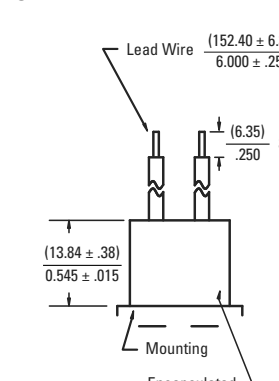
1. CONTACT OPERATION

CODE	DESCRIPTION
O	Letter “O” = Open on Rise
C	Letter “C” = Close on Rise

To build your part number (PN), choose the proper codes from pages 2 to 4.

Consult Sensata Technologies when a code Z is used to indicate a special requirement. Sensata will assign a unique, customer-specific four digit nondescript number. To complete the customer specific part number build, replace the bottom temperature and tolerance (codes 7 & 8) after the “-” dash with the assigned four digit nondescript.

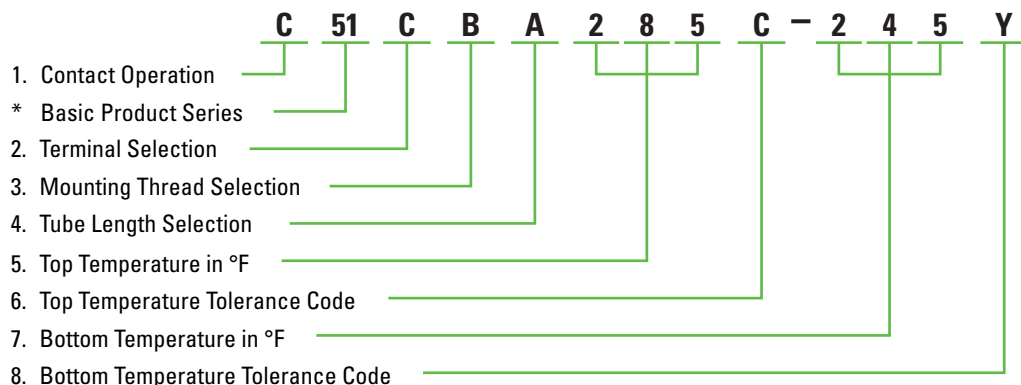
2. TERMINAL SELECTION

A 	B 	C 	Z Special Requirements Customer to Specify
D Same as terminal selection “C” Except 2 Leads $\frac{(609.60 \pm 25.40)}{24.00 \pm 1.00}$ See note 1 for lead specifications	E Same as terminal selection “C” Except 2 Leads $\frac{(609.60 \pm 25.40)}{24.00 \pm 1.00}$ See note 1 for lead specifications	F Same as terminal selection “C” Except 2 Leads $\frac{(1219.20 \pm 25.40)}{48.00 \pm 1.00}$ 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 stranded. 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.

EXAMPLE : C51CBA285C-245Y

Close contacts on temperature rise, 5100 series, isolated case 6" flying leads, 1/2-14 PTF threads, .698" tube length, 285°F top temperature with a $\pm 10^\circ\text{F}$ 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.



3. MOUNTING THREAD SELECTION

A Taper Pipe Thread 3/8-18 Dryseal PTF-SAE Short	B Taper Pipe Thread 1/2-14 Dryseal PTF-SAE Short	C 3/4-16 UNF-2A with 'O' Ring Groove	Z Special Requirements Customer to Specify
E Taper Pipe Thread 1/2-14 Dryseal PTF-SAE Short (22.23) 7/8 HEX	F Taper Pipe Thread 1/2-14 Dryseal PTF-Special Short (22.23) 7/8 HEX	G Taper Pipe Thread 1/2-14 Dryseal PTF-Special Short (22.23) 7/8 HEX	Z Special Requirements Customer to Specify

4. TUBE LENGTH SELECTION

A	B	C	Z Special Requirements Customer to Specify
-----------------	-----------------	-----------------	---

5. TOP TEMPERATURE IN °F

	°F	°C	°F	°C	°F	°C
Temperature Setting	35°F to 250°F	1.7°C to 121.1°C	251°F to 400°F	94°C to 149°C	401°F to 480°F	150°C to 163°C
Standard Tolerance	±5°F	±2.8°C	±10°F	±5.6°C	±25°F	±13.9°C
Nominal Differential	20°F	11.1°C	40°F	22.2°C	40°F	22.2°C

NOTES:

- Select any temperature in the range of 140°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'

6. TOP TEMPERATURE TOLERANCE

CODE	A	C	N	X	Z
± °F	±5°F	±10°F	±25°F	Maximum	Customer to Specify
± °C	±2.8°C	±5.6°C	±13.9°C	Maximum	Customer to Specify

NOTES:

- The standard tolerance for the top temperature is based on the temperature range the top temperature falls in, please refer to "5. Top Temperature in °F" chart, and select the appropriate code for a standard top temperature tolerance.

7. BOTTOM TEMPERATURE IN °F

"Bottom Temperature in °F" equals the "Top Temperature in °F" minus the "Nominal Differential in °F for that temperature".

Example 1: 150°F – 25°F = 125°F

Example 2: 300°F – 35°F = 265°F

Example 3: 405°F – 40°F = 365°F

NOTES:

- Specify the °F temperature in the part numbering scheme as a three digit code without the °F in the part number (example 350°F, put in the code as '350')

8. BOTTOM TEMPERATURE TOLERANCE

CODE	A	C	N	Y	Z
± °F	±5°F	±10°F	±25°F	Minimum	Customer to Specify
± °C	±2.8°C	±5.6°C	±13.9°C	Minimum	Customer to Specify

NOTES:

- The typical standard bottom temperature tolerance is a 'Y' = minimum trip, which indicates the "reset" trip occurs at or above the lower temperature set point.
- The other standard tolerances are based on the temperature range the bottom temperature is in. The most convenient solution is to use either the 'Y' minimum reset code or choose the same tolerance code selection used in "6. Top Temperature Tolerance Code".



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AIRPAX® | 5024 EGR Series

CUSTOM HIGH TEMPERATURE SENSOR PACKAGES

FEATURES

- High temperature sensing NTC thermistor technology
- Fast response stainless steel packages in various thread sizes
- Lead wire or integral connector terminal options
- Available in 150°C or 300°C constructions

DESCRIPTION

The Airpax™ 5024 EGR temperature sensors provide up to 300°C temperature sensing capability in fast response stainless steel packages. Developed for the exhaust gas recirculation market, the new 5024 EGR temperature sensors provide accurate high temperature output in the fastest responding immersion package on the market today.

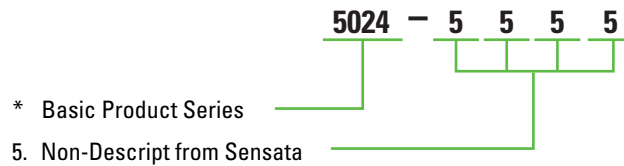
Please contact Sensata Technologies for assistance in applying the Airpax™ 5024 EGR temperature sensors to meet your high temperature sensing needs.

SPECIFICATIONS

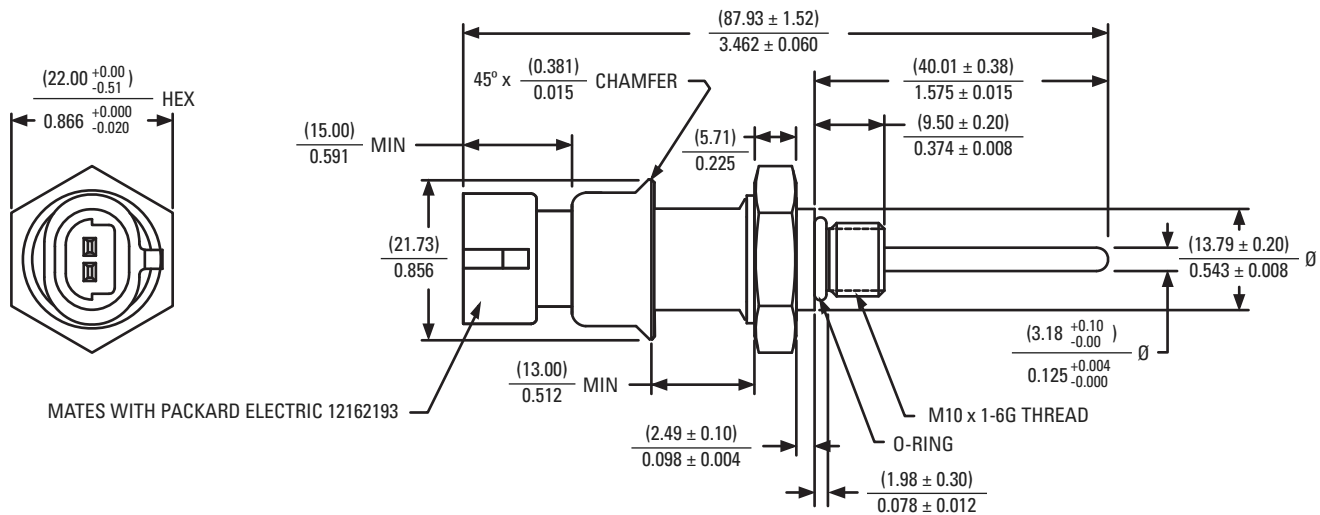
Max Operating Temperature	-55°C to 300°C (-67°F to 572°F)
Temperature Tolerance	150°C max version: 25°C ± 0.4°C, 150°C ± 0.6°C 300°C max version: 25°C ± 0.8°C, 300°C ± 3.7°C
Body Material	304 Stainless Steel
Sensor Type	150°C max version: 3,000 ohms @ 25C, NTC 300°C max version: 49,120 ohms @ 25C, NTC
Mating Connector	150°C max version: Packard Electric 12162193 300°C max version: Packard Electric 12162197

EXAMPLE : 5024-5555

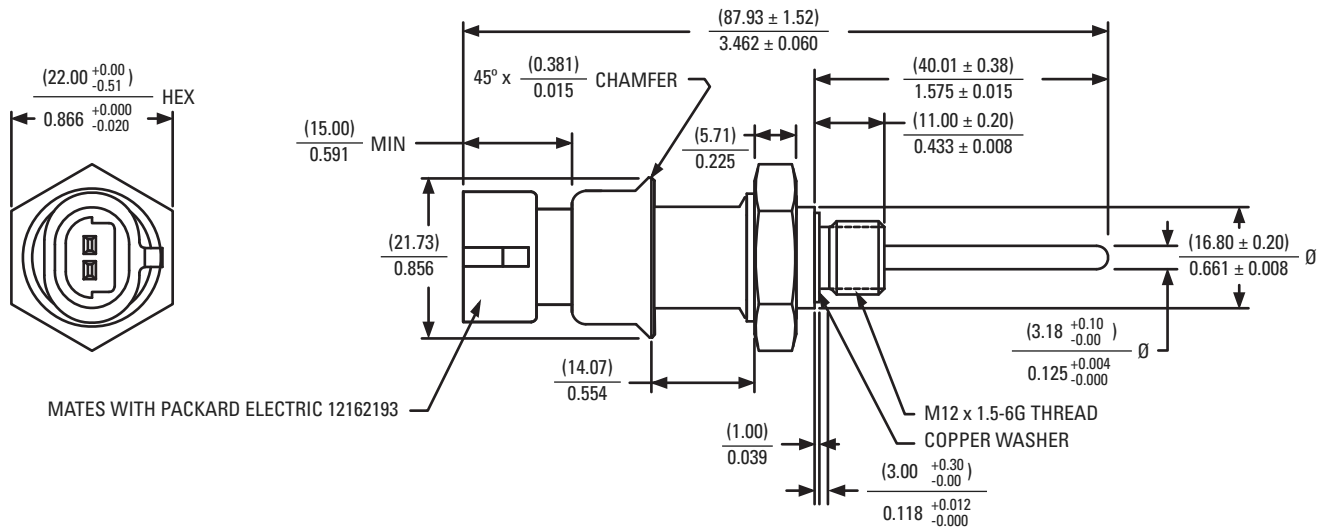
5024 series assigned a unique, 4-digit non-descript by Sensata Technologies to specify the body, terminals and sensing element.



5024 EGR 150°C MAX CONFIGURATION



5024 EGR 300°C MAX CONFIGURATION



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AIRPAX® | 5024 Series

CUSTOM TEMPERATURE SENSOR PACKAGES

FEATURES

- Available sensing technologies include thermistor, RTD or IC
- Stainless steel, brass or plastic construction

DESCRIPTION

The Airpax™ 5024 series are custom temperature sensors designed to meet your applications needs.

Immersion probes generally used to sense and monitor temperature changes in applications requiring the sensor to be immersed in a media (air, water, oil, fuel, transmission fluid, hydraulic fluid, and the like) while maintaining the integrity of the sensor with regards to the elements. These sensor assemblies have the ability to monitor temperature changes, feed information to a microprocessor, and allow the microprocessor to make decisions based on predetermined readings. The devices can also be used to drive a gauge or certain sensors with extreme changes in output with temperature can be used to pull in and drop out relays. Various package styles and termination are available.

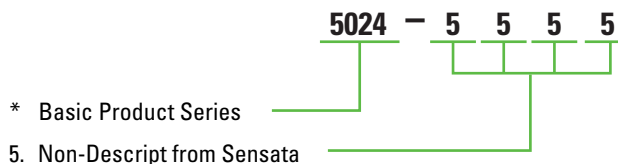
Surface sensing assemblies are generally used in controlled environments where severe conditions will not come into play. The surface sensing device can signal a microprocessor and allow the microprocessor to turn on or turn off different peripheral hardware at different predetermined milestone points. Various package styles allow the surface sensing device to be used in power supplies, switching stations, generator sets, personal computers, and a wide variety of other applications. The device will sense the temperature of the surface it is mounted to and provides an active feedback to its host.

Transmissions, brakes, hydraulic lines, manifold and heat exchangers require fluid and air temperature to be monitored at all times. Sensata has worked in these environments for many years and can provide package styles that are very responsive to these environments. These devices in turn would constantly monitor and feedback information reflecting changes in temperature to a gage, microprocessor, relay, or other device, allowing the end user to operate the equipment under optimum conditions and be alerted when these conditions deteriorate.

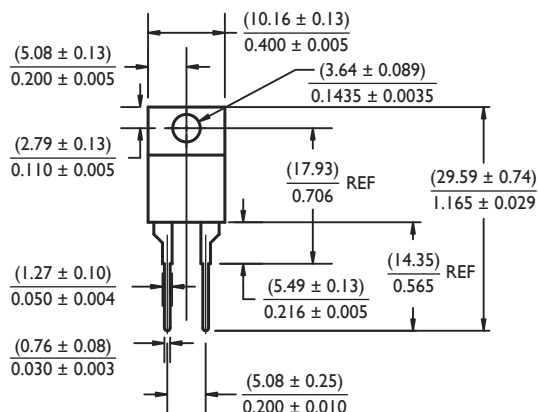
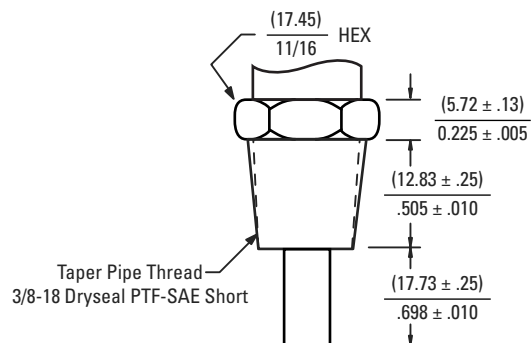
Sensata has years of experience in working with applications requiring temperature sensing of air and fluids. Our expertise in packaging, screw machining, and overmolding, enable us to work with our customer to provide fast thermal response in the products we manufacture. We offer a multi-varied assortment of termination, as well as connectors, both secondary and integral. Thread sizes for immersion style, package styles for surface sensing, and that design that has to be unique to the application set Sensata apart with their flexibility to package the sensing element the way you want it.

EXAMPLE : 5024-5555

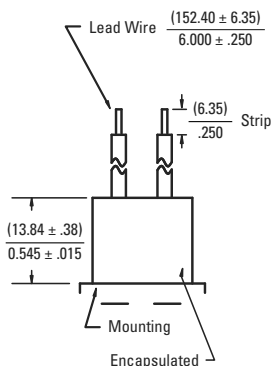
5024 series assigned a unique, 4-digit non-descript by Sensata Technologies to specify the body, terminals and sensing element.



TYPICAL PACKAGE CONFIGURATIONS



TYPICAL TERMINALS



Operation Characteristics

The Airpax™ 5024 series temperature sensors are available in a variety of physical packages with several types of solid-state elements. These devices exhibit a predictable change in electrical output as a function of temperature.

Custom Capabilities

Sensata allows you to design the product to meet the requirements of each and every application. Something out of the ordinary is not out of the ordinary for us. We make the unique, daily.

Quality

ISO 9001 registered, Sensata Technologies is a certified supplier to many of the market leaders.

- 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)



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AIRPAX® | 5020 Series

HERMETICALLY SEALED THERMOSTAT PROBE

FEATURES

- RoHS compliant per EU directive 2002 / 95 / EC
- 1/2" disc button style
- Hermetic glass seal, grounded-case only
- Ideal for immersion sensing

DESCRIPTION

The Airpax™ 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.

Typical applications include hydraulic systems, degreasers, industrial and portable compressors, refrigeration systems, generator sets, chemical baths, engine coolant, oil and transmission protection.

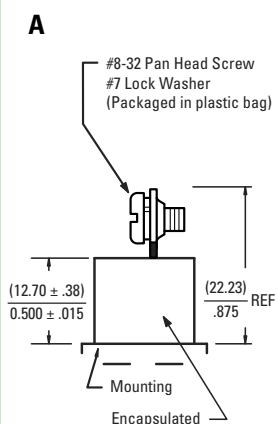
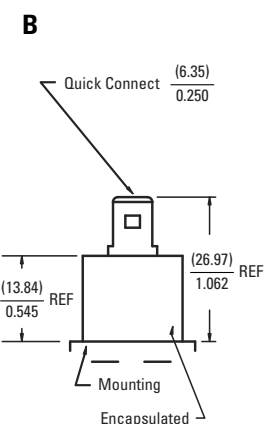
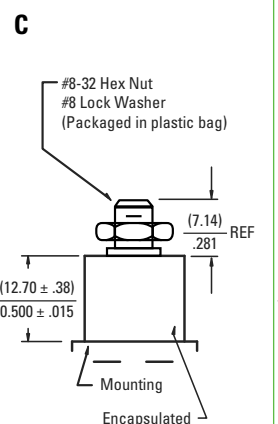
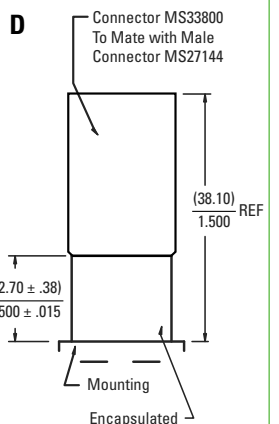
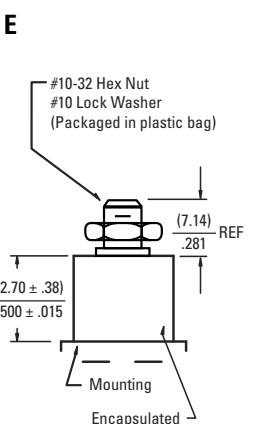
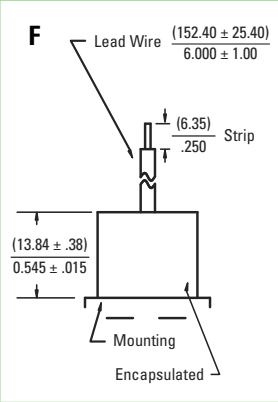
SPECIFICATIONS

Contact Ratings	<i>Cycles</i> 100,000	<i>Voltage</i> 12 or 32 VDC	<i>Amps</i> 3 (resistive)	<i>Case Type</i> grounded case
Contact Operations	Either close on rise (make) or open on rise (break), SPST (Single Pole, Single Throw)			
Operating Temperature	+35°F to 480°F (+1.67°C to 249°C)			
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			

1. CONTACT OPERATION	
CODE	DESCRIPTION
O	Letter “O” = Open on Rise
C	Letter “C” = Close on Rise

To build your part number (PN), choose the proper codes from pages 2 to 4.

Consult Sensata Technologies when a code Z is used to indicate a special requirement. Sensata will assign a unique, customer-specific four digit nondescript number. To complete the customer specific part number build, replace the bottom temperature and tolerance (codes 7 & 8) after the “-” dash with the assigned four digit nondescript.

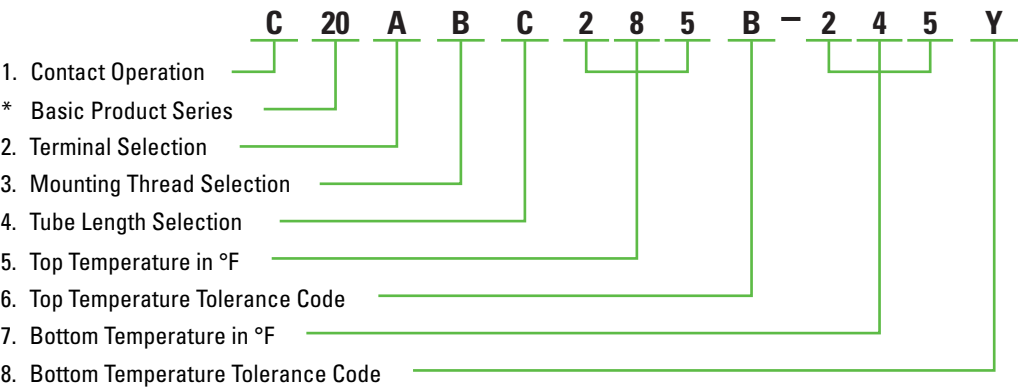
2. TERMINAL SELECTION				
A 	B 	C 	D 	E 
F 	G Same as terminal selection “F” Except 1 Lead (304.80 ± 25.40) / 12.00 ± 1.00 See note 1 for lead specifications	H Same as terminal selection “F” Except 1 Lead (609.60 ± 25.40) / 24.00 ± 1.00 See note 1 for lead specifications	J Same as terminal selection “F” Except 1 Lead (1219.20 ± 25.40) / 48.00 ± 1.00 See note 1 for lead specifications	Z Special Requirements Customer to Specify

1. The standard lead wire (materials) for different temperature ranges are as follows:
A. Up to 220°F (104.4°C) = # 18 AWG stranded. 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)

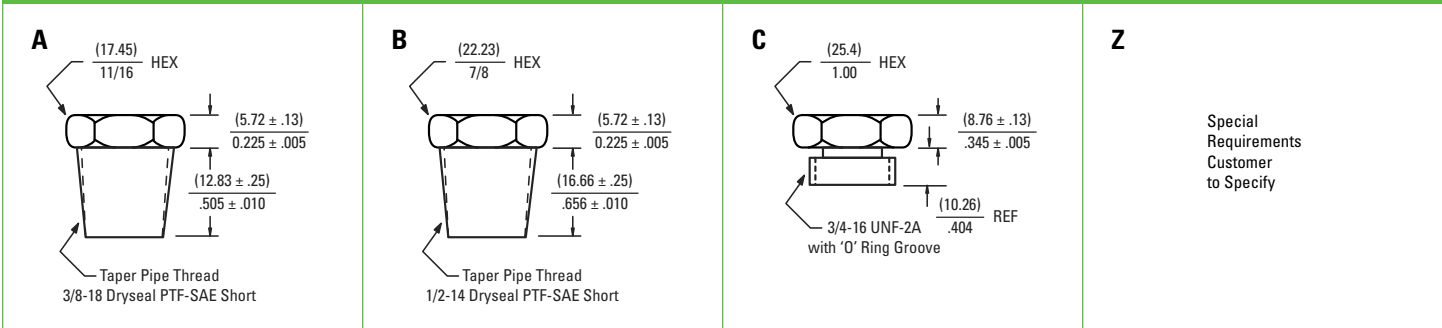
2. The marking information on each thermostat will include either the name Sensata or Airpax, contact operation (CLR) close on rise, (OPR) open on rise, top temperature and date code.

EXAMPLE : C20ABC285C-245Y

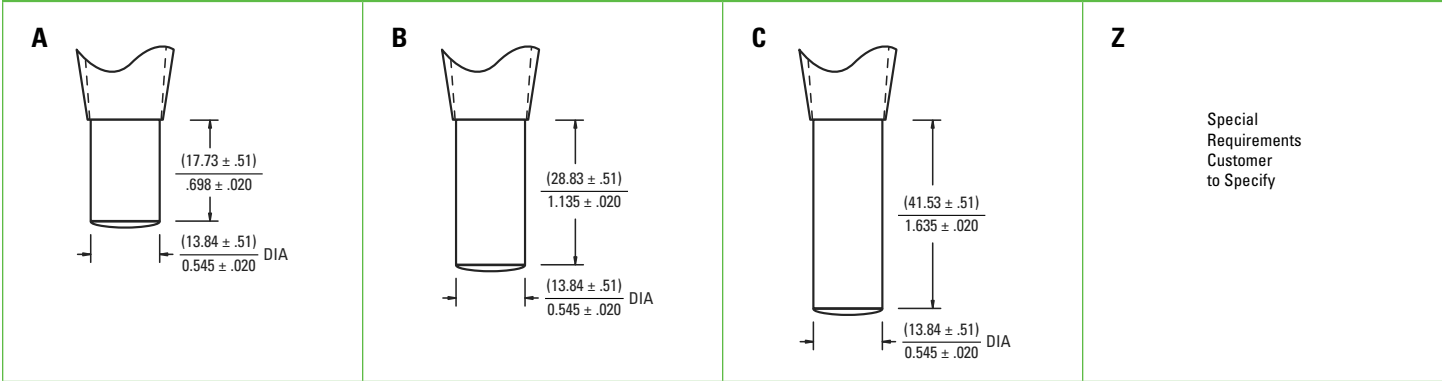
Close contacts on temperature rise, 5020 series, grounded case 8-32" screw terminal, 1/2-14 PTF threads, 1.635" tube length, 285°F top temperature with a ±8°F standard top tolerance and a standard 40°F differential between top and bottom temperature for temperature range of 251°F to 400°F, differential 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.



3. MOUNTING THREAD SELECTION



4. TUBE LENGTH SELECTION



5. TOP TEMPERATURE IN °F

	°F	°C	°F	°C	°F	°C
Temperature Setting	35°F to 250°F	1.7°C to 121.1°C	251°F to 400°F	94°C to 149°C	401°F to 480°F	150°C to 163°C
Standard Tolerance	±5°F	±2.8°C	±10°F	±5.6°C	±25°F	±13.9°C
Nominal Differential	20°F	11.1°C	40°F	22.2°C	40°F	22.2°C

NOTES:

- Select any temperature in the range of 140°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'

6. TOP TEMPERATURE TOLERANCE

CODE	A	C	N	X	Z
± °F	±5°F	±10°F	±25°F	Maximum	Customer to Specify
± °C	±2.8°C	±5.6°C	±13.9°C	Maximum	Customer to Specify

NOTES:

- The standard tolerance for the top temperature is based on the temperature range the top temperature falls in, please refer to "5. Top Temperature in °F" chart, and select the appropriate code for a standard top temperature tolerance.

7. BOTTOM TEMPERATURE IN °F

"Bottom Temperature in °F" equals the "Top Temperature in °F" minus the "Nominal Differential in °F for that temperature".

Example 1: 150°F – 25°F = 125°F

Example 2: 300°F – 35°F = 265°F

Example 3: 405°F – 40°F = 365°F

NOTES:

- Specify the °F temperature in the part numbering scheme as a three digit code without the °F in the part number (example 350°F, put in the code as '350')

8. BOTTOM TEMPERATURE TOLERANCE

CODE	A	C	N	Y	Z
± °F	±5°F	±10°F	±25°F	Minimum	Customer to Specify
± °C	±2.8°C	±5.6°C	±13.9°C	Minimum	Customer to Specify

NOTES:

- The typical standard bottom temperature tolerance is a 'Y' = minimum trip, which indicates the "reset" trip occurs at or above the lower temperature set point.
- The other standard tolerances are based on the temperature range the bottom temperature is in. The most convenient solution is to use either the 'Y' minimum reset code or choose the same tolerance code selection used in "6. Top Temperature Tolerance Code".



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AIRPAX® | 5011 Series

1/2" DISC, HERMETICALLY SEALED THERMOSTAT

FEATURES

- RoHS compliant per EU directive 2002 / 95 / EC
- 1/2" disc button style
- Hermetic glass seal
- Ideal for surface and immersion sensing

DESCRIPTION

Designed to meet exacting shock and vibration requirements, the Airpax™ 5011 series thermostat is a RoHS compliant, positive snap action, single pole / single throw, hermetically sealed unit. Normally supplied with a grounded case construction, an additional terminal can be provided on the case for a positive ground lead or as an isolated device when the unit is insulated from ground.

The 5011 series can be used for temperature warning or protection. Calibration is factory set and is tamperproof. Sensing an abnormal condition, the 5011 actuates and controls a warning light or alarm. Such applications may include the protection of printed circuit boards, bearing mountings, air or water cooled engines and transmissions. A custom package for special mounting is available and includes a threaded brass plug for fluid-sensing applications, aluminum adapter for bolt mounting and insulated base furnished with leads or terminals. It can also be equipped with an adapter and spring clip for mounting on tubing with an O.D. from 3/8" to 1".

SPECIFICATIONS

Contact Ratings	<i>Cycles</i>	<i>Voltage</i>	<i>Amps</i>	<i>Case Type</i>
	100,000	120 VAC	3 (resistive)	Ground / Isolated case
	100,000	120 VAC	2 (inductive)	Isolated case
	100,000	32 VDC	3 (resistive)	Grounded case
Contact Operations	Either close on rise (make) or open on rise (break), SPST (Single Pole, Single Throw)			
Operating Temperature	+140°F to 480°F (+60°C to 249°C)			
Temperature Tolerance	Standard of ±5°F with nominal operating temperature settings in 5°F increments			
Long Term Exposure Limit	-65°F to 625°F (-53.8°C to 329.4°C)			
	Note: Please consult the factory if lead wire/terminal exposure temperatures are expected to exceed 220°F. (Refer to inside notes B & C)			
Dielectric Strength	1000 VRMS 60Hz (isolated case) terminals to case (contacts open)			
Insulated Resistance	50 megohms at 500 Vdc			
Thermal Shock	MIL-STD-202, Method 107 Test Condition B			
Materials	Cold-rolled steel, nickel plated enclosure with a glass seal. Applications up to 300°F have a Mylar® sleeve with an epoxy fill, those above 300°F have a Nomex® sleeve and a high temperature epoxy fill.			
	*Exposure limited should be kept to within 100°F of the operating temperature. Consult factory if conditions require otherwise.			

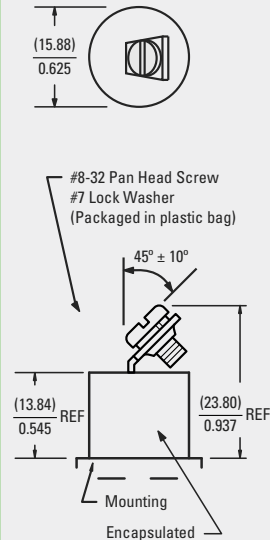
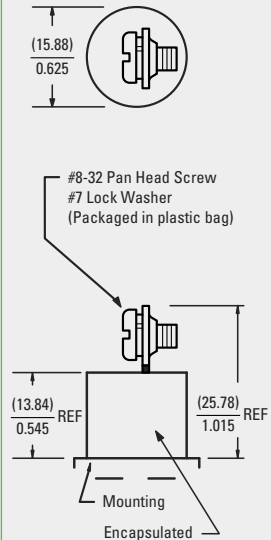
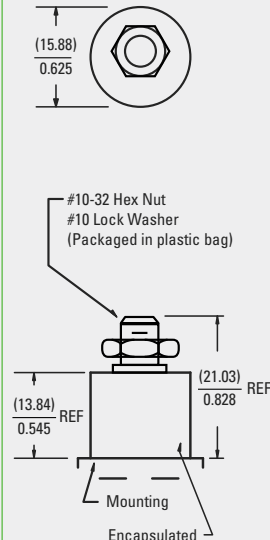
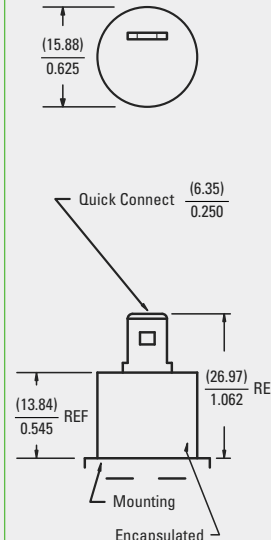
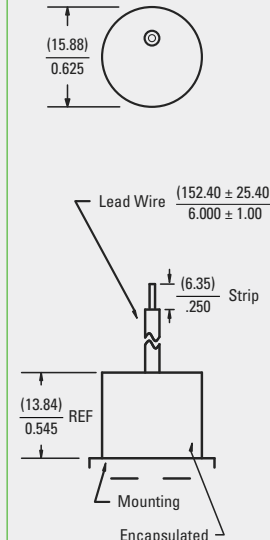
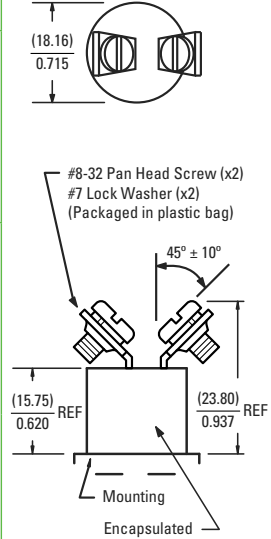
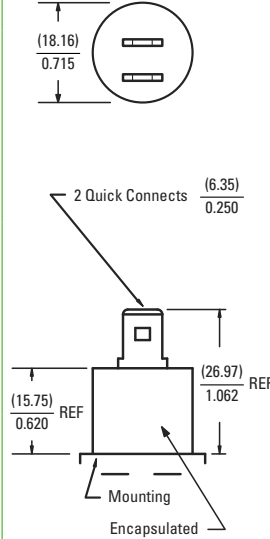
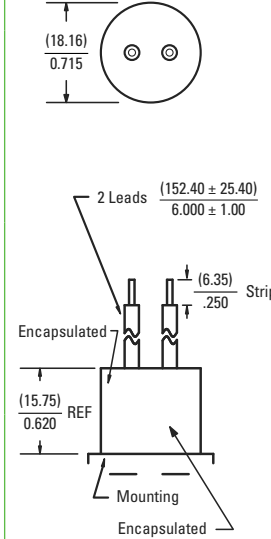
1. CONTACT OPERATION

CODE	DESCRIPTION
O	Letter “O” = Open on Rise
C	Letter “C” = Close on Rise

To build your part number (PN), choose the proper codes from pages 2 to 4.

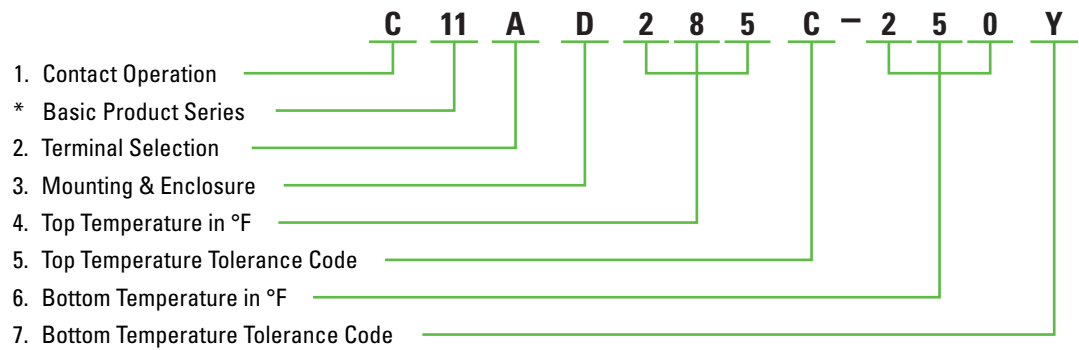
Consult Sensata Technologies when a code Z is used to indicate a special requirement. Sensata will assign a unique, customer-specific four digit nondescript number. To complete the customer specific part number build, replace the bottom temperature and tolerance (codes 6 & 7) after the “-” dash with the assigned four digit nondescript.

2. TERMINAL SELECTION

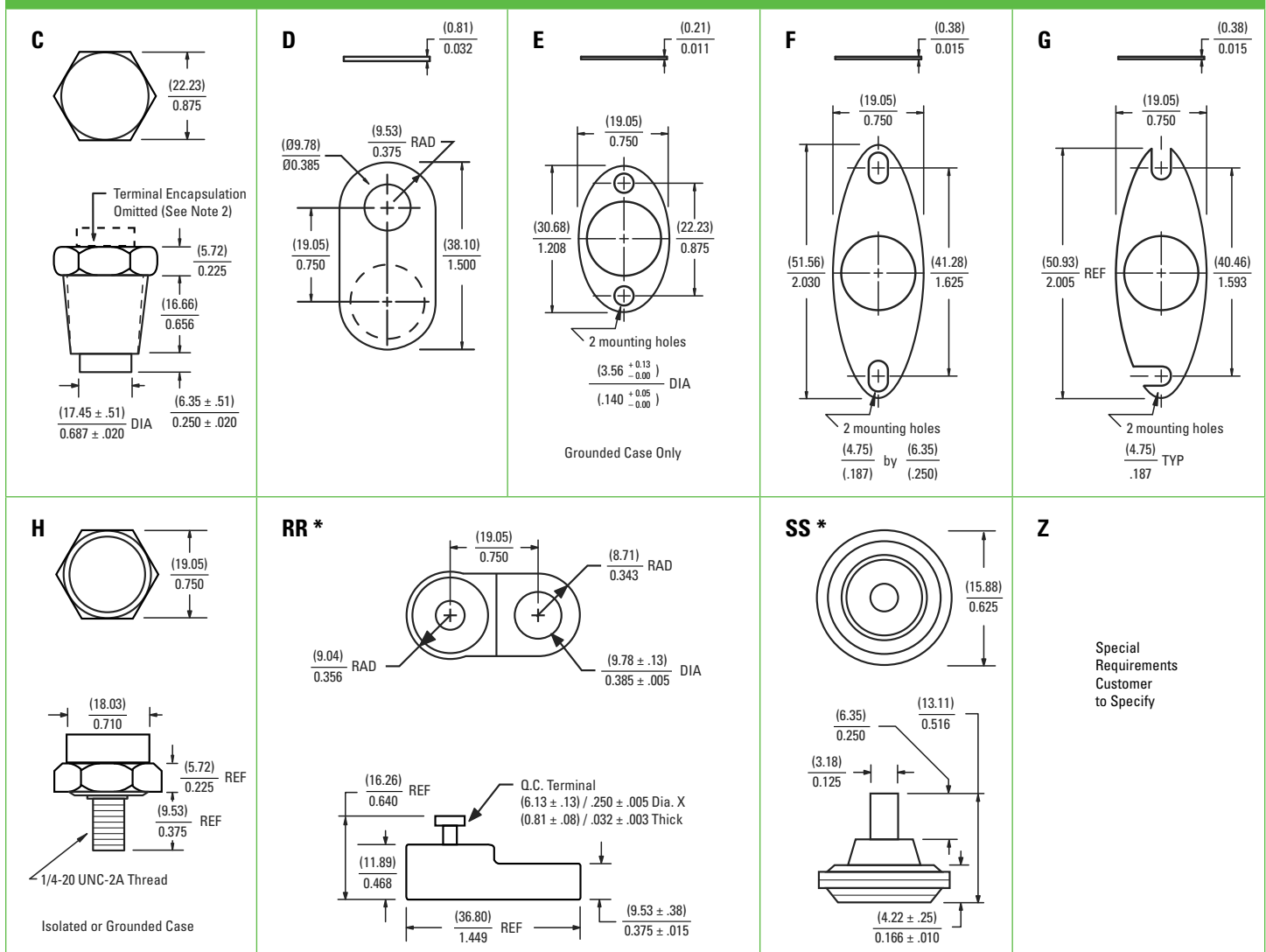
A Pan Head Screw Terminal, #8-32 Grounded Case Only  #8-32 Pan Head Screw #7 Lock Washer (Packaged in plastic bag) 45° ± 10° (15.88) 0.625 (13.84) REF 0.545 (23.80) REF 0.937 Mounting Encapsulated	B Pan Head Screw Terminal, #8-32 Grounded Case Only  #8-32 Pan Head Screw #7 Lock Washer (Packaged in plastic bag) (15.88) 0.625 (13.84) REF 0.545 (25.78) REF 1.015 Mounting Encapsulated	C Quick Connect Terminal, Grounded Case Only  #10-32 Hex Nut #10 Lock Washer (Packaged in plastic bag) (15.88) 0.625 (13.84) REF 0.545 (21.03) REF 0.828 Mounting Encapsulated	D Quick Connect Terminal, Grounded Case Only  Quick Connect (6.35) 0.250 (15.88) 0.625 (13.84) REF 0.545 (26.97) REF 1.062 Mounting Encapsulated	E 6" Lead Wire, Grounded Case Only See note 1 for lead specifications  Lead Wire (152.40 ± 25.40) 6.000 ± 1.00 (15.88) 0.625 (13.84) REF 0.545 (6.35) .250 Strip Mounting Encapsulated
F Same as terminal selection “E” Except 1 Lead (304.80 ± 25.40) 12.00 ± 1.00 See note 1 for lead specifications	J 2 Pan Head Screw Terminals, #8-32 Isolated Case Only  #8-32 Pan Head Screw (x2) #7 Lock Washer (x2) (Packaged in plastic bag) 45° ± 10° (18.16) 0.715 (15.75) REF 0.620 (23.80) REF 0.937 Mounting Encapsulated	K 2 QC Terminals, Isolated Case Only  2 Quick Connects (6.35) 0.250 (18.16) 0.715 (15.75) REF 0.620 (26.97) REF 1.062 Mounting Encapsulated	L 2 Leads, Isolated Case Only See note 1 for lead specifications  2 Leads (152.40 ± 25.40) 6.000 ± 1.00 (18.16) 0.715 (15.75) REF 0.620 (6.35) .250 Strip Mounting Encapsulated	M Same as terminal selection “L” Except 2 Leads (304.80 ± 25.40) 12.00 ± 1.00 See note 1 for lead specifications
G Same as terminal selection “E” Except 1 Lead (609.60 ± 25.40) 24.00 ± 1.00 See note 1 for lead specifications				N Same as terminal selection “L” Except 2 Leads (609.60 ± 25.40) 24.00 ± 1.00 See note 1 for lead specifications
H Same as terminal selection “E” Except 1 Lead (1219.20 ± 25.40) 48.00 ± 1.00 See note 1 for lead specifications				P Same as terminal selection “L” Except 2 Leads (1219.20 ± 25.40) 48.00 ± 1.00 See note 1 for lead specifications
				Z Special Requirements Customer to Specify

EXAMPLE : C11AD285C-250Y

Close contacts on temperature rise, 5011 series, grounded case 8-32" screw terminal, 0.385" single hole mounting bracket, 285°F top temperature with a $\pm 10^\circ\text{F}$ standard top tolerance and a standard 35°F differential between top and bottom temperature for temperature range of 251°F to 400°F , differential helps calculate a bottom temperature of 250°F with a standard minimum reset for contacts to close at or above the bottom temperature set point.



4. MOUNTING AND ENCLOSURE 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)
 - For mounting code "C" only, encapsulation above the hex is omitted and terminal height is reduced by the amount of encapsulation.
 - 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.
- * If you require either of the terminal selections "RR" or "SS", it will require the use of both position 3 (terminal selection), and position 4 (mounting and enclosure selection) in your part number building code. For example: C11RR285C-250Y

5. TOP TEMPERATURE IN °F

	°F	°C	°F	°C	°F	°C
Temperature Setting	140°F to 250°F	60°C to 121.1°C	251°F to 400°F	94°C to 149°C	401°F to 480°F	150°C to 163°C
Standard Tolerance	±5°F	±2.8°C	±10°F	±5.6°C	±25°F	±13.9°C
Nominal Differential	25°F	13.9°C	35°F	19.4°C	40°F	22.2°C

NOTES:

- Select any temperature in the range of 140°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'

6. TOP TEMPERATURE TOLERANCE

CODE	A	C	N	X	Z
± °F	±5°F	±10°F	±25°F	Maximum	Customer to Specify
± °C	±2.8°C	±5.6°C	±13.9°C	Maximum	Customer to Specify

NOTES:

- The standard tolerance for the top temperature is based on the temperature range the top temperature falls in, please refer to "5. Top Temperature in °F" chart, and select the appropriate code for a standard top temperature tolerance.

7. BOTTOM TEMPERATURE IN °F

"Bottom Temperature in °F" equals the "Top Temperature in °F" minus the "Nominal Differential in °F for that temperature".

Example 1: 150°F – 25°F = 125°F

Example 2: 300°F – 35°F = 265°F

Example 3: 405°F – 40°F = 365°F

NOTES:

- Specify the °F temperature in the part numbering scheme as a three digit code without the °F in the part number (example 350°F, put in the code as '350')

8. BOTTOM TEMPERATURE TOLERANCE

CODE	A	C	N	Y	Z
± °F	±5°F	±10°F	±25°F	Minimum	Customer to Specify
± °C	±2.8°C	±5.6°C	±13.9°C	Minimum	Customer to Specify

NOTES:

- The typical standard bottom temperature tolerance is a 'Y' = minimum trip, which indicates the "reset" trip occurs at or above the lower temperature set point.
- The other standard tolerances are based on the temperature range the bottom temperature is in. The most convenient solution is to use either the 'Y' minimum reset code or choose the same tolerance code selection used in "6. Top Temperature Tolerance Code".



SENSATA TECHNOLOGIES

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AIRPAX® | 5004 Series

1/2" BIMETAL DISC THERMOSTAT

FEATURES

- RoHS compliant per EU directive 2002 / 95 / EC
- 1/2" disc button style
- High amperage switching
- Ideal for surface and air sensing

DESCRIPTION

The Airpax™ 5004 series is a RoHS compliant, positive snap action, single pole / single throw, bimetallic thermostat which provides accurate and reliable sensing and switching in a single device. The 5004 series is ideal for applications where higher amperage switching is required. The 5004 is designed for operation at 240VAC, ideally suited for use in Europe, Canada, the United States and other geographical areas using 240VAC.

The basic switch assembly is operated by a bimetal disc with positive, reinforced snap-action, which is known for its reliable repeatability. The construction of the switch assembly offers excellent shock and vibration resistance. Thermal response is fast due to low mass.

The 5004 series offers many terminal and mounting options to fit your application needs. For high humidity and contaminating atmosphere applications, the device is sealed with a non-volatile resin. Narrow differential devices are ideal for control, while standard differentials can be used for high or low temperature limit switches. The series 5004 thermostat is cRUus certified, with VDE approval available upon request.

SPECIFICATIONS

Contact Ratings	Cycles	Voltage	Amps (resistive)
	50,000	120 VAC	15
	100,000	240 VAC	10
Contact Operations	Either close on rise (make) or open on rise (break), SPST (Single Pole, Single Throw)		
Operating Temperature	+35°F to 325°F (+1.67°C to 162.78°C)		
Temperature Tolerance	Standard of ±5°F with nominal operating temperature settings in 5°F increments		
Long Term Exposure Limit	-40°F to 350°F (-40°C to 176.67°C)		
Dielectric Strength	1500 VRMS 60Hz, 1 minute, terminals to case		
Weight	3.4 grams (0.12 oz)		

* cRUus certified to 168°C operating temperature. Loads under 100mA, 5Vdc, will require gold-plated contacts, with recommended minimum load of 10mA, 5Vdc.

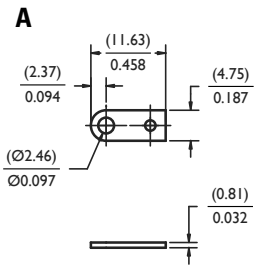
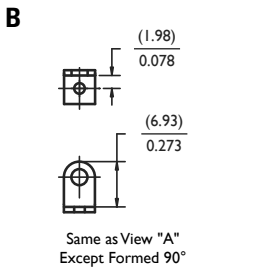
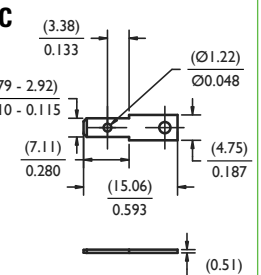
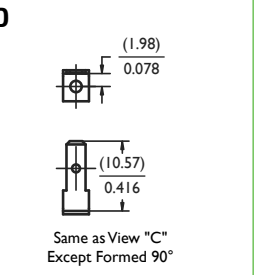
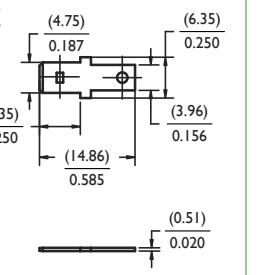
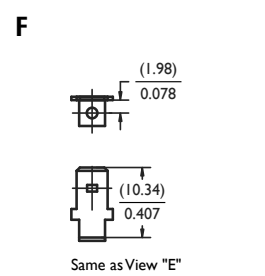
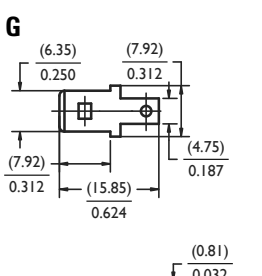
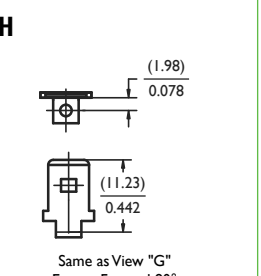
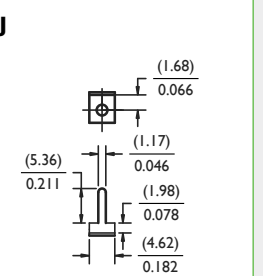
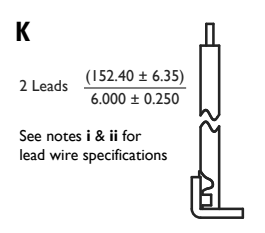
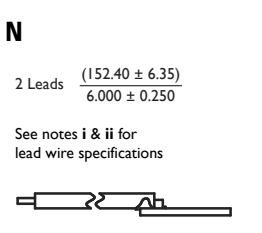
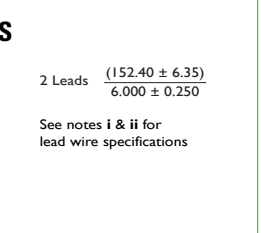
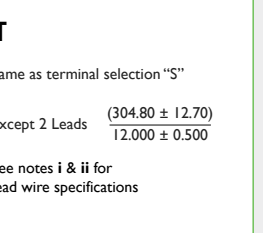
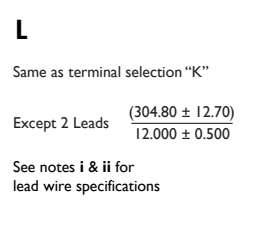
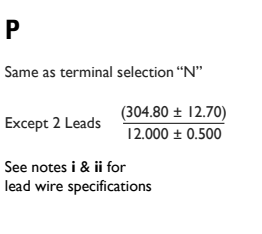
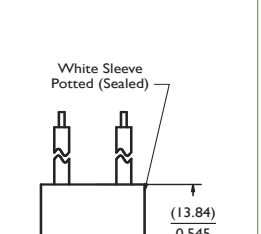
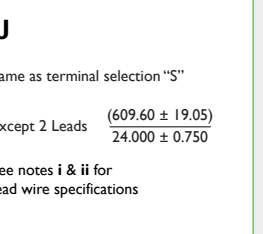
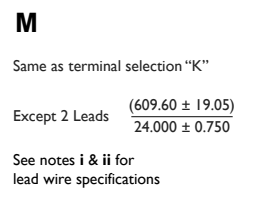
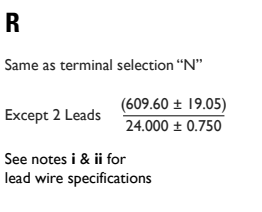
1. CONTACT OPERATION

CODE	DESCRIPTION
O	Letter “O” = Open on Rise
C	Letter “C” = Close on Rise

To build your part number (PN), choose the proper codes from pages 2 to 4.

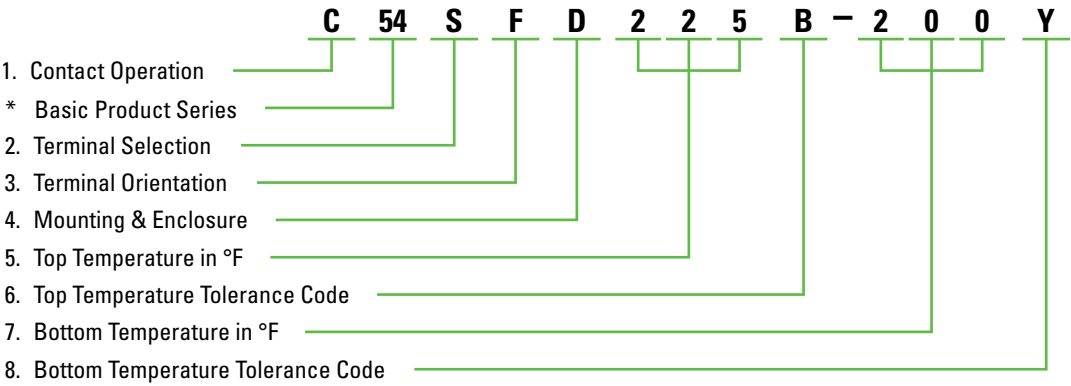
Consult Sensata Technologies when a code Z is used to indicate a special requirement. Sensata will assign a unique, customer-specific four digit nondescript number. To complete the customer specific part number build, replace the bottom temperature and tolerance (codes 7 & 8) after the “-” dash with the assigned four digit nondescript.

2. TERMINAL SELECTION

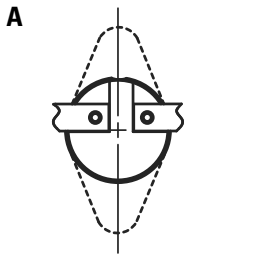
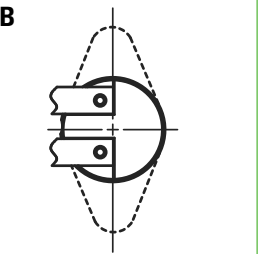
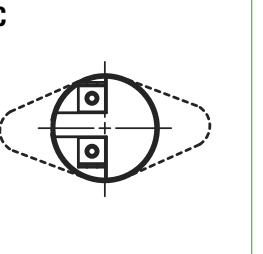
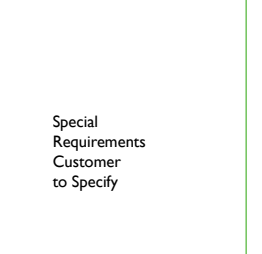
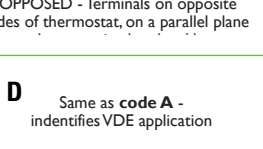
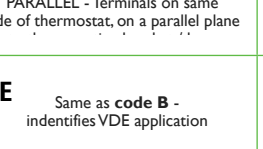
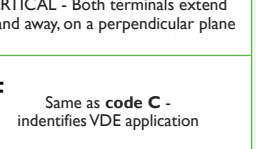
A 	B  Same as View "A" Except Formed 90°	C 	D  Same as View "C" Except Formed 90°	E 
F  Same as View "E" Except Formed 90°	G 	H  Same as View "G" Except Formed 90°	J 	NOTES : <i>The standard lead wire materials for different temperature ranges are as follows :</i> <i>i. Up to 220°F (104.4°C): #18 stranded UL 1015 AWN and CSA TEW approved, black PVC insulation</i> <i>ii. 221°F to 350°F (105°C to 176.6°C): #18 stranded black 'type I' TFE, Teflon® insulation per MIL-W-22759</i>
K  See notes i & ii for lead wire specifications	N  See notes i & ii for lead wire specifications	S  See notes i & ii for lead wire specifications	T  Same as terminal selection "S" Except 2 Leads (304.80 ± 12.70) 12.000 ± 0.500 See notes i & ii for lead wire specifications	
L  Same as terminal selection "K" Except 2 Leads (304.80 ± 12.70) 12.000 ± 0.500 See notes i & ii for lead wire specifications	P  Same as terminal selection "N" Except 2 Leads (304.80 ± 12.70) 12.000 ± 0.500 See notes i & ii for lead wire specifications		U  Same as terminal selection "S" Except 2 Leads (609.60 ± 19.05) 24.000 ± 0.750 See notes i & ii for lead wire specifications	
M  Same as terminal selection "K" Except 2 Leads (609.60 ± 19.05) 24.000 ± 0.750 See notes i & ii for lead wire specifications	R  Same as terminal selection "N" Except 2 Leads (609.60 ± 19.05) 24.000 ± 0.750 See notes i & ii for lead wire specifications		Z  Special Requirements Customer to Specify	

EXAMPLE : 054SFD225B-200Y

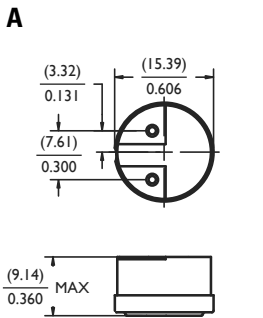
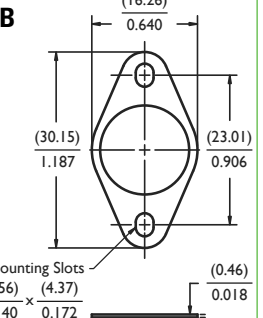
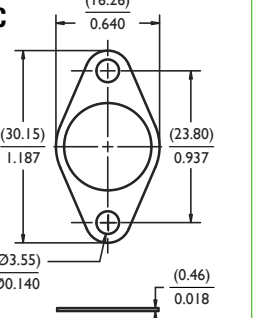
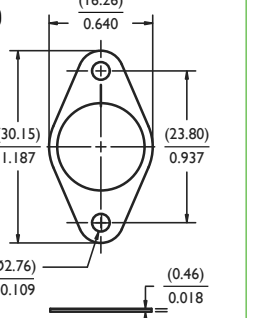
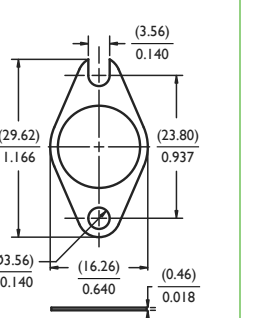
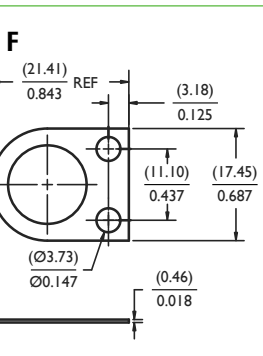
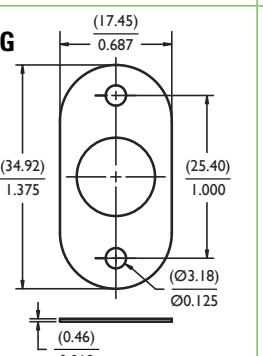
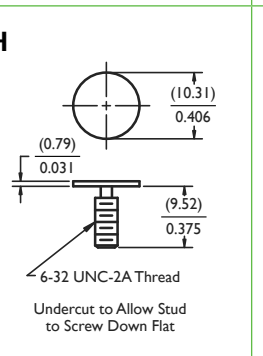
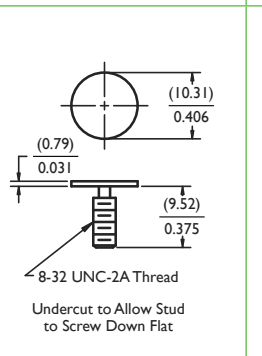
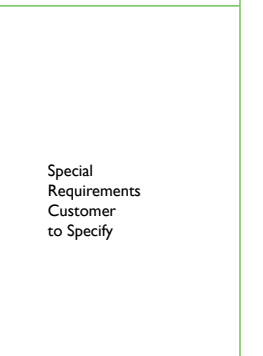
Open contacts on temperature rise, 5004 series, 6.0" vertical potted leads with vertical orientation and VDE approval, 0.109" two hole mounting bracket, 225°F top temperature with a ±8°F standard top tolerance and a standard 25°F differential between top and bottom temperature for temperature range of 201°F to 300°F, differential helps calculate a bottom temperature of 200°F with a standard minimum reset for contacts to close at or above the bottom temperature set point.



3. TERMINAL ORIENTATION

A  OPPOSED - Terminals on opposite sides of thermostat, on a parallel plane	B  PARALLEL - Terminals on same side of thermostat, on a parallel plane	C  VERTICAL - Both terminals extend up and away, on a perpendicular plane	Z  Special Requirements Customer to Specify	NOTES : <i>Terminal orientation restrictions :</i> <i>'A' (Opposed) = A, B, E, G, J, R to T, Z</i> <i>'B' (Parallel) = A, B, E, R to T, Z</i> <i>'C' (Vertical) = C, D, F, H, K to P, U to Z</i>
D  Same as code A - identifies VDE application	E  Same as code B - identifies VDE application	F  Same as code C - identifies VDE application		

4. MOUNTING AND ENCLOSURE SELECTION

A 	B  2 Mounting Slots	C 	D 	E 
F 	G 	H 	J 	Z  Special Requirements Customer to Specify

5. TOP TEMPERATURE IN °F

	°F	°C	°F	°C	°F	°C
Temperature Setting	35°F to 200°F	1.6°C to 93°C	201°F to 300°F	94°C to 149°C	301°F to 325°F	150°C to 163°C
Standard Tolerance	±5°F	±2.8°C	±8°F	±4.4°C	±10°F	±5.6°C
Nominal Differential	15°F	8.3°C	25°F	13.8°C	30°F	16.7°C

NOTES:

- Select any temperature in the range of 35°F to 325°F. Standard choices fall on the 5°F increments, for example 35°F, 40°F, 45°F, 50°F... up to 320°F or 325°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 90°F, put in code '090'

6. TOP TEMPERATURE TOLERANCE

CODE	A	B	C	X	Z
± °F	±5°F	±8°F	±10°F	Maximum	Customer to Specify
± °C	±2.8°C	±4.4°C	±5.6°C	Maximum	Customer to Specify

NOTES:

- The standard tolerance for the top temperature is based on the temperature range the top temperature falls in, please refer to "5. Top Temperature in °F" chart, and select the appropriate code for a standard top temperature tolerance.

7. BOTTOM TEMPERATURE IN °F

"Bottom Temperature in °F" equals the "Top Temperature in °F" minus the "Nominal Differential in °F for that temperature".

Example 1: 50°F – 15°F = 35°F

Example 2: 250°F – 25°F = 225°F

Example 3: 310°F – 30°F = 280°F

NOTES:

- Specify the °F temperature in the part numbering scheme as a three digit code without the °F in the part number (example 90°F, put in the code as '090')

8. BOTTOM TEMPERATURE TOLERANCE

CODE	A	B	C	Y	Z
± °F	±5°F	±8°F	±10°F	Minimum	Customer to Specify
± °C	±2.8°C	±4.4°C	±5.6°C	Minimum	Customer to Specify

NOTES:

- The typical standard bottom temperature tolerance is a 'Y' = minimum trip, which indicates the "reset" trip occurs at or above the lower temperature set point.
- The other standard tolerances are based on the temperature range the bottom temperature is in. The most convenient solution is to use either the 'Y' minimum reset code or choose the same tolerance code selection used in "6. Top Temperature Tolerance Code".



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AIRPAX® | 5003 Series

1/2" BIMETAL DISC THERMOSTAT

FEATURES

- RoHS compliant per EU directive 2002 / 95 / EC
- 1/2" disc button style
- Low profile design
- Ideal for surface and air sensing

DESCRIPTION

The Airpax™ 5003 series is a RoHS compliant, positive snap action, single pole / single throw, bimetallic thermostat which provides accurate and reliable sensing and switching in a single device. The 5003 series is ideal for applications when space is at a premium. Overall depth without projecting terminals is only 0.250 inches.

The basic switch assembly is operated by a bimetal disc with positive, reinforced snap-action, which is known for its reliable repeatability. The construction of the switch assembly offers excellent shock and vibration resistance. Thermal response is fast due to low mass.

The 5003 series offers many terminal and mounting options to fit your application needs. For high humidity and contaminating atmosphere applications, the device is sealed with a non-volatile resin. Narrow differential devices are ideal for control, while standard differentials can be used for high or low temperature limit switches. The series 5003 thermostat is cRUus certified.

SPECIFICATIONS

Contact Ratings	Cycles	Voltage	Amps (resistive)
	100,000	120 VAC	5
	100,000	240 VAC, 24VDC	3
	100,000	48 VDC	1.5
Contact Operations	Either close on rise (make) or open on rise (break), SPST (Single Pole, Single Throw)		
Operating Temperature	+35°F to 325°F (+1.67°C to 162.78°C)		
Temperature Tolerance	Standard of ±5°F with nominal operating temperature settings in 5°F increments		
Long Term Exposure Limit	-40°F to 350°F (-40°C to 176.67°C)		
Dielectric Strength	1500 VRMS 60Hz, 1 minute, terminals to case		
Weight	2.3 grams (0.08 oz)		

* cRUus certified to 168°C operating temperature. Loads under 100mA, 5Vdc, will require gold-plated contacts, with recommended minimum load of 10mA, 5Vdc.

1. CONTACT OPERATION

CODE	DESCRIPTION
O	Letter "O" = Open on Rise
C	Letter "C" = Close on Rise

To build your part number (PN), choose the proper codes from pages 2 to 4.

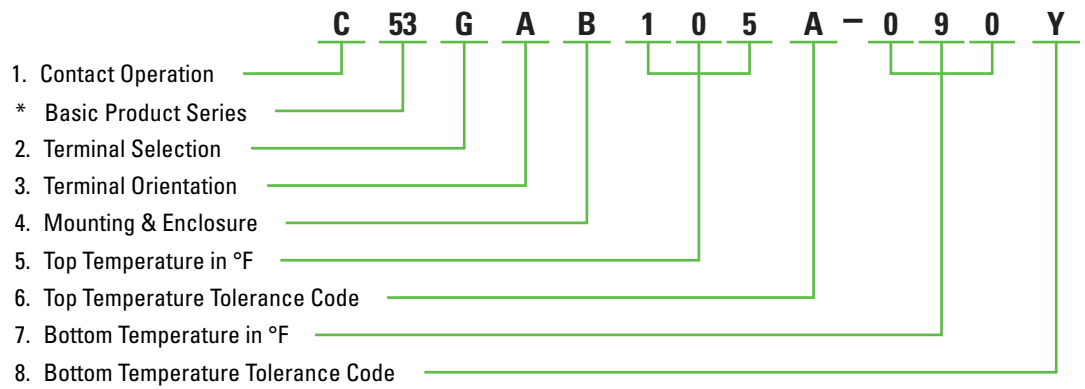
Consult Sensata Technologies when a code Z is used to indicate a special requirement. Sensata will assign a unique, customer-specific four digit nondescript number. To complete the customer specific part number build, replace the bottom temperature and tolerance (codes 7 & 8) after the "-" dash with the assigned four digit nondescript.

2. TERMINAL SELECTION

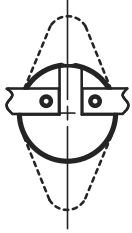
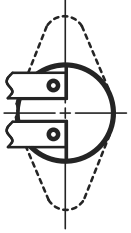
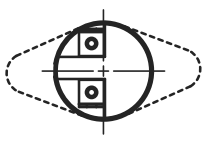
A (Ø1.40) Ø0.055 (3.96) 0.156 (1.22) 0.048 (9.04) 0.356 (0.41) 0.016	B (Ø1.52) Ø0.060 (3.96) 0.156 (1.57) 0.062 (11.43) 0.450 (0.41) 0.016	C (1.96) 0.077 (7.24) 0.285 Same as View "B" Except Formed 90°	D (1.22) 0.048 (3.96) 0.156 (7.90) 0.311 (0.41) 0.016 (3.45) 0.136 (2.36) 0.093	E (3.38) 0.133 (Ø1.22) Ø0.048 (2.79 - 2.92) 0.110 - 0.115 (7.11) 0.280 (14.68) (3.96) 0.156 (0.51) 0.020
F (1.98) 0.078 (10.69) 0.421 Same as View "E" Except Formed 90°	G (4.75) 0.187 (6.35) 0.250 (6.35) 0.250 (14.86) 0.585 (3.96) 0.156 (0.51) 0.020	H (1.98) 0.078 (10.72) 0.422 Same as View "G" Except Formed 90°	J (6.35) 0.250 (7.92) 0.312 (7.92) 0.312 (15.47) 0.609 (3.96) 0.156 (0.81) 0.032	K (1.98) 0.078 (11.23) 0.442 Same as View "J" Except Formed 90°
L (2.36) 0.093 (6.91) 0.272 (1.17) 0.046 (1.55) 0.061 (3.96) 0.156	M 2 Leads $\frac{(152.40 \pm 6.35)}{6.000 \pm 0.250}$ See notes i & ii for lead wire specifications	R 2 Leads $\frac{(152.40 \pm 6.35)}{6.000 \pm 0.250}$ See notes i & ii for lead wire specifications	U 2 Leads $\frac{(152.40 \pm 6.35)}{6.000 \pm 0.250}$ See notes i & ii for lead wire specifications	V Same as terminal selection "U" Except 2 Leads $\frac{(304.80 \pm 12.70)}{12.000 \pm 0.500}$ See notes i & ii for lead wire specifications
NOTES : <i>The standard lead wire materials for different temperature ranges are as follows :</i> <i>i. Up to 220°F (104.4°C): #18 stranded UL 1015 AWN and CSA TEW approved, black PVC insulation</i> <i>ii. 221°F to 350°F (105°C to 176.6°C): #18 stranded black 'type I' TFE, Teflon® insulation per MIL-W-22759</i>	N Same as terminal selection "M" Except 2 Leads $\frac{(304.80 \pm 12.70)}{12.000 \pm 0.500}$ See notes i & ii for lead wire specifications	S Same as terminal selection "R" Except 2 Leads $\frac{(304.80 \pm 12.70)}{12.000 \pm 0.500}$ See notes i & ii for lead wire specifications	White Sleeve Potted (Sealed) (13.84) 0.545 (16.13) 0.635	W Same as terminal selection "U" Except 2 Leads $\frac{(609.60 \pm 19.05)}{24.000 \pm 0.750}$ See notes i & ii for lead wire specifications
	P Same as terminal selection "M" Except 2 Leads $\frac{(609.60 \pm 19.05)}{24.000 \pm 0.750}$ See notes i & ii for lead wire specifications	T Same as terminal selection "R" Except 2 Leads $\frac{(609.60 \pm 19.05)}{24.000 \pm 0.750}$ See notes i & ii for lead wire specifications		Z Special Requirements Customer to Specify

EXAMPLE : C53GAB105A-090Y

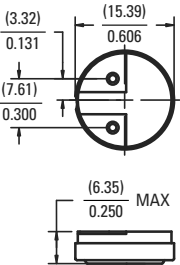
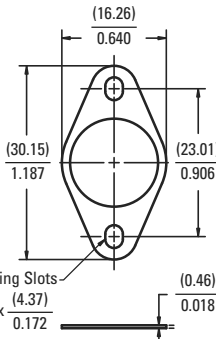
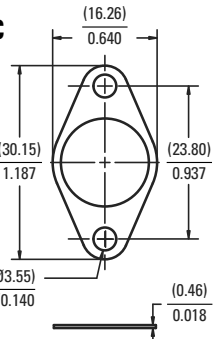
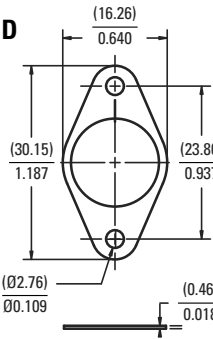
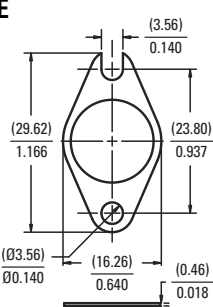
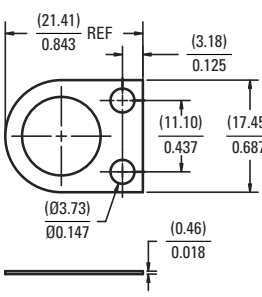
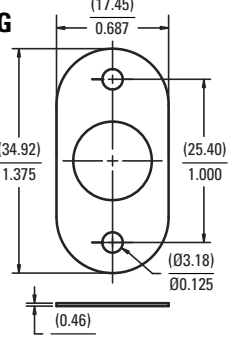
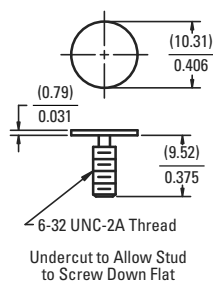
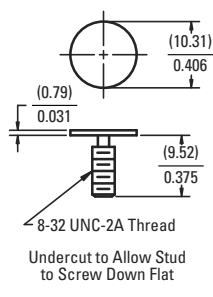
Close contacts on temperature rise, 5003 series, 0.25" horizontal quick-connects with opposed orientation, 0.140" two hole mounting bracket, 105°F top temperature with a $\pm 5^\circ\text{F}$ standard top tolerance and a standard 15°F differential between top and bottom temperature for temperature range of 35°F to 200°F , differential helps calculate a bottom temperature of 90°F with a standard minimum reset for contacts to open at or above the bottom temperature setpoint.



3. TERMINAL ORIENTATION

A  OPPOSED - Terminals on opposite sides of thermostat, on a parallel plane to the mounting bracket / base	B  PARALLEL - Terminals on same side of thermostat, on a parallel plane to the mounting bracket / base	C  VERTICAL - Both terminals extend up and away, on a perpendicular plane to the mounting bracket / base	Z Special Requirements Customer to Specify	NOTES : Terminal orientation restrictions : 'A' (Opposed) = A, B, E, G, J, R to T, Z 'B' (Parallel) = A, B, E, R to T, Z 'C' (Vertical) = C, D, F, H, K to P, U to Z
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4. MOUNTING AND ENCLOSURE SELECTION

A 	B  2 Mounting Slots	C 	D 	E 
F 	G 	H  6-32 UNC-2A Thread Undercut to Allow Stud to Screw Down Flat	J  8-32 UNC-2A Thread Undercut to Allow Stud to Screw Down Flat	Z Special Requirements Customer to Specify

5. TOP TEMPERATURE IN °F

	°F	°C	°F	°C	°F	°C
Temperature Setting	35°F to 200°F	1.6°C to 93°C	201°F to 300°F	94°C to 149°C	301°F to 325°F	150°C to 163°C
Standard Tolerance	±5°F	±2.8°C	±8°F	±4.4°C	±10°F	±5.6°C
Nominal Differential	15°F	8.3°C	25°F	13.8°C	30°F	16.7°C

NOTES:

- Select any temperature in the range of 35°F to 325°F. Standard choices fall on the 5°F increments, for example 35°F, 40°F, 45°F, 50°F... up to 320°F or 325°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 90°F, put in code '090'

6. TOP TEMPERATURE TOLERANCE

CODE	A	B	C	X	Z
± °F	±5°F	±8°F	±10°F	Maximum	Customer to Specify
± °C	±2.8°C	±4.4°C	±5.6°C	Maximum	Customer to Specify

NOTES:

- The standard tolerance for the top temperature is based on the temperature range the top temperature falls in, please refer to "5. Top Temperature in °F" chart, and select the appropriate code for a standard top temperature tolerance.

7. BOTTOM TEMPERATURE IN °F

"Bottom Temperature in °F" equals the "Top Temperature in °F" minus the "Nominal Differential in °F for that temperature".

Example 1: 50°F – 15°F = 35°F

Example 2: 250°F – 25°F = 225°F

Example 3: 310°F – 30°F = 280°F

NOTES:

- Specify the °F temperature in the part numbering scheme as a three digit code without the "°F" in the part number (example 90°F, put in the code as '090')

8. BOTTOM TEMPERATURE TOLERANCE

CODE	A	B	C	Y	Z
± °F	±5°F	±8°F	±10°F	Minimum	Customer to Specify
± °C	±2.8°C	±4.4°C	±5.6°C	Minimum	Customer to Specify

NOTES:

- The typical standard bottom temperature tolerance is a 'Y' = minimum trip, which indicates the "reset" trip occurs at or above the lower temperature set point.
- The other standard tolerances are based on the temperature range the bottom temperature is in. The most convenient solution is to use either the 'Y' minimum reset code or choose the same tolerance code selection used in "6. Top Temperature Tolerance Code".



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AIRPAX® | 4100 Series

BIMETAL THERMOSTAT, BRASS PROBE

FEATURES

- RoHS compliant per EU directive 2002 / 95 / EC
- Isolated or grounded case
- Low-cost brass probe, multiple configurations
- Ideal for immersion sensing

DESCRIPTION

The Airpax™ 4100 series is a brass probe, bimetal disc immersion thermostat designed to provide low-cost thermal protection in temperature ranges from 40°C to 120°C (104°F to 248°F) in 5°C increments. Its standard gold-plated crossbar contacts allow it to be used in very low-current, low-voltage applications.

The 4100 features epoxy/crimp protection that enables it to meet NEMA 4 and 13 (IP67) standards. It can withstand a variety of harsh environments, including pressure washing. The thermostat is available in both English and metric housings, with a wide assortment of terminations, including standard automotive connectors, in either isolated or grounded case configurations.

Typical applications for the Airpax 4100 include monitoring the temperature of engine manifolds, oil, coolant and hydraulic systems. It is also suited to refrigeration systems, heat exchangers and HVAC systems. These applications are found in such varied segments as off-road vehicles, air compressors, marine engines, mining equipment, long-haul trucks, railroads, public transportation and engine-generator sets.

SPECIFICATIONS

Contact Ratings	<i>Cycles</i>	<i>Voltage</i>	<i>Amps (resistive)</i>
	5,000	28 VDC	3
	30,000	32 VDC	1
	30,000	120 VAC	1
Contact Operations	Either close on rise (make) or open on rise (break), SPST (Single Pole, Single Throw)		
Max Operating Temperature	40°C to 130°C (104°F to 266°F) with nominal operating temperature settings in 5°C increments.		
Temperature Tolerance	Standard tolerance of ± 5°C (± 9°F). Optional tolerances of ± 3°C (± 5.4°F) and ± 10°C (± 18°F).		
Dielectric Strength	600VAC, 60Hz terminals to case		
Shock	MIL-STD-202, 213C		
Vibration	MIL-STD-202, 204D		
Materials	Brass, epoxy/crimp seal (NEMA 4 & 13)		

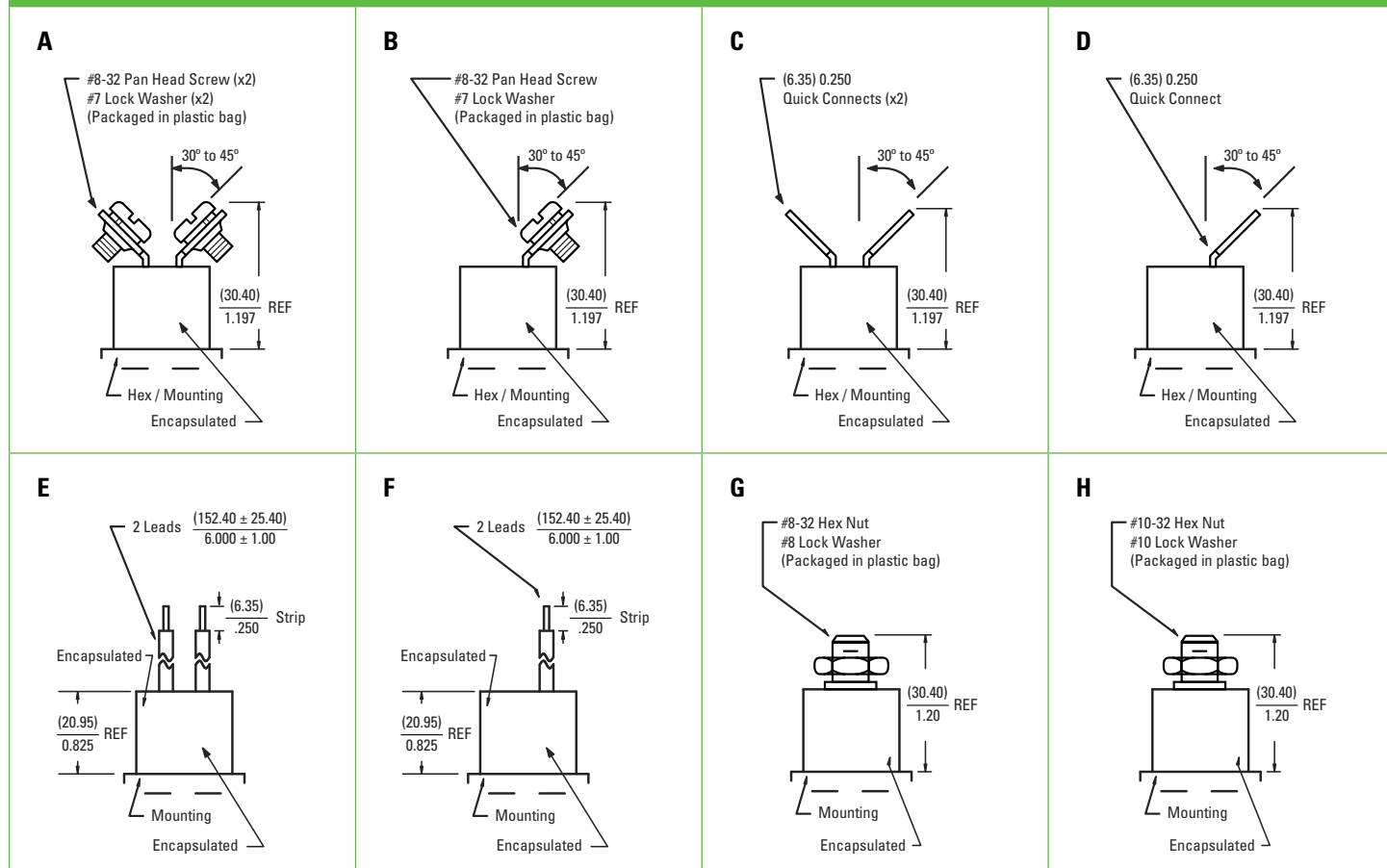
1. CONTACT OPERATION

CODE	DESCRIPTION
O	Letter "O" = Open on Rise
C	Letter "C" = Close on Rise

To build your part number (PN), choose the proper codes from pages 2 to 4.

Consult Sensata Technologies when a code Z is used to indicate a special requirement. Sensata will assign a unique, customer-specific four digit nondescript number. To complete the customer specific part number build, place a "-" dash after the PN preceded by the assigned four digit nondescript.

2. TERMINAL SELECTION (ISOLATED & GROUNDED CASE)



3. THREAD TYPE / BODY CONFIGURATION

CODE	THREAD TYPE	LENGTH	HEX SIZE
A	1/4" -18 NPTF	0.485"	0.688" x 0.225"
B	3/8" -18 NPTF	0.585"	0.688" x 0.225"
C	1/2" -14 NPTF	0.656"	0.875" x 0.225"
D	3/4" -16 NPTF	0.498"	1.0" x 0.225"
E	M14 - 1.5	11mm	22mm x 5.7mm
F	M16 - 1.5	11.5mm	24mm x 5.7mm
G	M18 - 1.5	12.5mm	27mm x 5.7mm

4. PROBE LENGTH

CODE	LENGTH (ENGLISH)	LENGTH (METRIC)
A	0	0
B	0.500"	12.7mm
C	1.0"	25.4mm
D *	1.5"	38.1mm
E *	2.0"	50.8mm
F	0.750"	19.1mm
* Probes D & E are not available with thread / body configurations A, E or F		

5. TEMPERATURE CALIBRATIONS (°C)

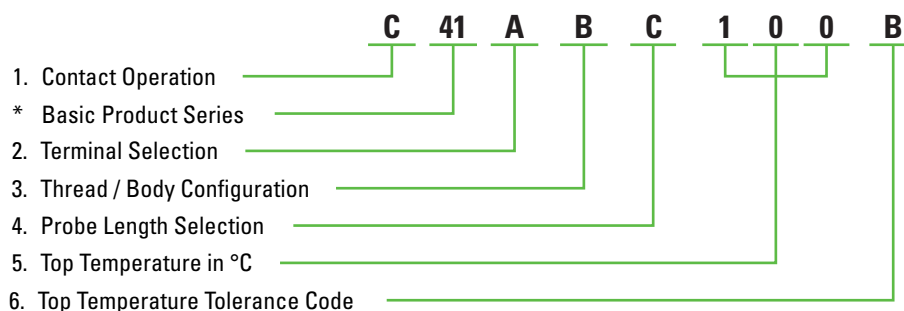
SETPOINT (°C)	MINIMUM DIFFERENTIAL	MINIMUM RESET
40	4	20
45	4	20
50	4	30
55	4	30
60	4	40
65	4	40
70	4	50
75	4	50
80	6	55
85	6	55
90	6	60
95	6	60
100	6	70
105	6	70
110	6	80
115	6	80
120	9	85
125	9	85
130	9	90

EXAMPLE : C41CAC100B

Close contacts on temperature rise, 4100 series, isolated case 8-32" screw terminals, 3/8" - 18 NPTF threads, 1.0" probe, 100°C top temperature with a $\pm 5^\circ\text{C}$ standard top tolerance and a standard 45°F differential between top and bottom temperature for temperature range of 95°C to 130°C with a standard minimum reset

6. TOP TEMPERATURE TOLERANCE CODE

CODE	TOLERANCE (°C)
A	$\pm 3^\circ\text{C}$
B	$\pm 5^\circ\text{C}$
C	$\pm 10^\circ\text{C}$

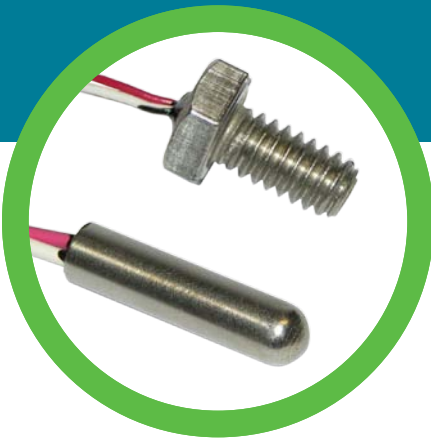




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AIRPAX® | 3000 Series

TEMPERATURE SENSOR PROBES

FEATURES

- Stainless steel probe assemblies
- Thermistor, RTD or IC sensing technologies
- Ideal for immersion, surface and air sensing

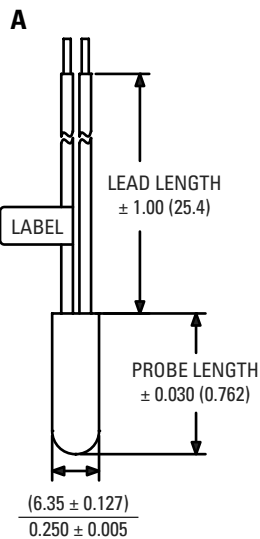
DESCRIPTION

The Airpax™ 3000 series is part of Sensata's growing line of standard temperature sensors. An ideal solution for monitoring and regulating temperature in equipment and processes, the 3000 series offers the choice of thermistor, RTD or Integrated Circuit (IC) temperature sensing technology.

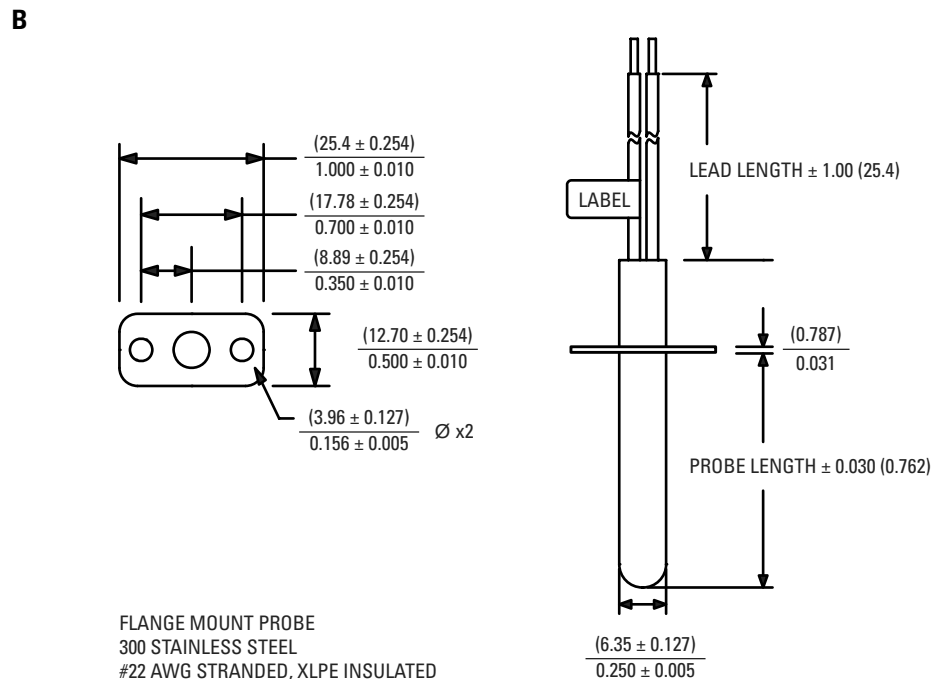
Since no single technology is optimal for every application, the VeriSense™ 3000 offers several thermal-sensing options from which to choose. Thermistor, RTD or Integrated Circuit sensing elements are available. Each of these technologies offers unique advantages. Airpax experts can help select the right temperature sensing technology for a specific application.

The 3000 series offers the advantage of today's best temperature sensing technology in standard, low-cost probe assemblies that ensure the technology performs accurately and reliably in demanding applications. Whether surface, liquid, or ambient air sensing is required, the Airpax™ 3000 series offers an optimal probe assembly. Flexible leads suitable for welding or soldering provide reliable connections and greater access to remote locations.

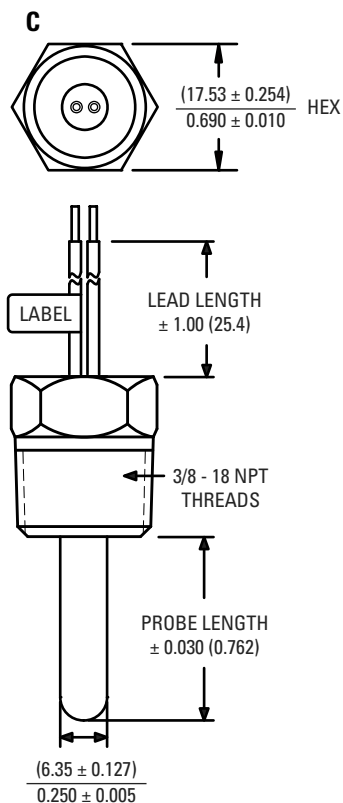
1. BODY SELECTION



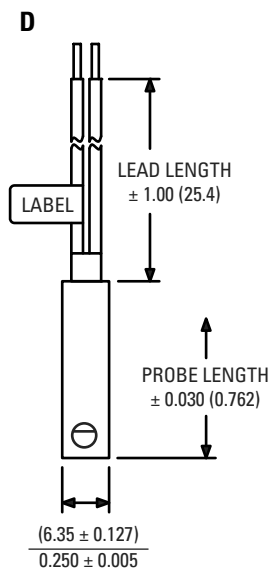
STRAIGHT PROBE
300 STAINLESS STEEL
#22 AWG STRANDED, XLPE INSULATED



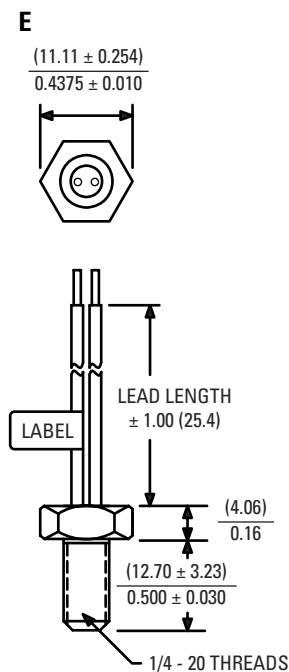
FLANGE MOUNT PROBE
300 STAINLESS STEEL
#22 AWG STRANDED, XLPE INSULATED



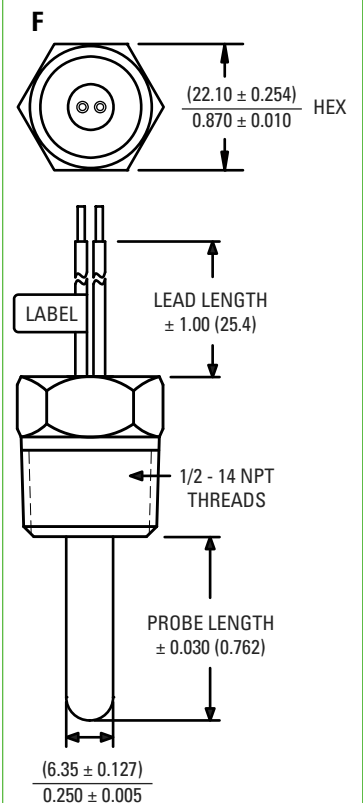
3/8 - 18 NPT THREADED PROBE
300 STAINLESS STEEL
#22 AWG STRANDED, XLPE INSULATED



STRAIGHT PROBE
300 STAINLESS STEEL
#22 AWG STRANDED, XLPE INSULATED



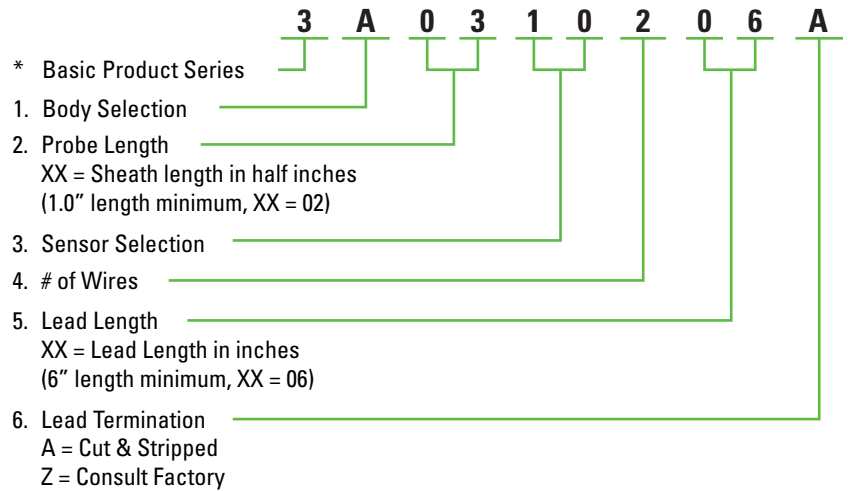
1/4 - 20 THREADED BOLT
300 STAINLESS STEEL
#22 AWG STRANDED, XLPE INSULATED



1/2 - 14 NPT THREADED PROBE
300 STAINLESS STEEL
#22 AWG STRANDED, XLPE INSULATED

EXAMPLE : 3 A 03 10 2 06 A

3A = 3000 series, straight probe
 03 = 1.5" length
 10 = RTD
 2 wire, 06 = 6" leads
 cut & stripped termination

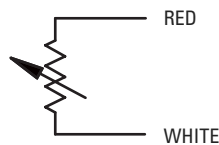
**3. SENSOR SELECTION**

CODE	TYPE	INPUT	OUTPUT	OUTPUT CHANGE W/ TEMPERATURE	TOLERANCE	TEMPERATURE RANGE
10	RTD	1 mA	100Ω at 0°C	0.385Ω per °C	±0.06Ω at 0°C	-40°C to 125°C
11	RTD	1 mA	100Ω at 0°C	0.385Ω per °C	±0.12Ω at 0°C	-40°C to 125°C
15	RTD	1 mA	1,000Ω at 0°C	3.85Ω per °C	±1.2Ω at 0°C	-40°C to 125°C
20	IC	4 to 30 VDC	0.000 Volts at 0°C	10mV per °C	±1°C at 25°C	0°C to 100°C
21	IC	2.7 to 10 VDC	0.600 Volts at 0°C	10mV per °C	±3°C at 25°C	-25°C to 85°C
30	THERMISTOR	10 mA	1,000Ω at 25°C	NON-LINEAR (PTC)	±1.3°C at 25°C	-40°C to 125°C
31	THERMISTOR	0.4 mA	10,000Ω at 25°C	NON-LINEAR (NTC)	±0.2°C, 0°C to 70°C	-40°C to 125°C
ZZ	CONSULT FACTORY	CONSULT FACTORY	CONSULT FACTORY	CONSULT FACTORY	CONSULT FACTORY	CONSULT FACTORY

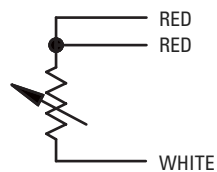
4. NUMBER OF WIRES

CODE	SENSOR WIRING
2	2 wires for sensor codes 10, 11, 15, 30, 31
3	3 wires for sensor codes 10, 11, 15, 20, 21
4	4 wires for sensor codes 10, 11, 15

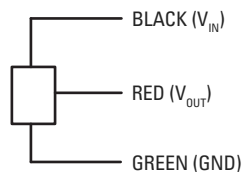
WIRE COLOR SCHEMATIC



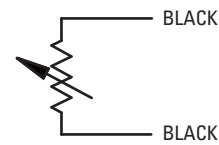
OPTION 10, 11, 15



OPTION 10, 11, 15



OPTION 20, 21, 22



OPTION 30, 31

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