

# Series 5011 Hermetically Sealed Surface-Sensing Thermostats



Designed to meet exacting shock and vibration requirements, the Series 5011 button type thermostats are low cost, hermetically sealed units, with single pole, single throw, snap-acting contacts. 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.

Series 5011 can be used for temperature warning or protection. Calibration is factory set and is tamper-proof. Fast response assures maximum protection and control. Contacts can be furnished in either "open on rise" or "close on rise" configurations. This device is normally used as an over-temperature warning device. Sensing an abnormal condition, Series 5011 is actuated 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

- **Operating Temperature Range:**  
140°F to 500°F (+60°C to 260°C)
- **Temperature 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)*
- **Shock:** 75G 6ms duration (sawtooth)
- **Vibration:** .06DA, 10-55Hz, 20G 55-2000Hz
- **Contact Rating for 100,000 Life Cycles:**
  - a. 3 amperes resistive
  - b. 2.0 amp inductive at 120 Vac (isolated base only)
  - c. 32 Vdc max. (grounded case)
- **Dielectric Strength:**  
1000 VRMS 60Hz (isolated case only)  
Terminals to case (contacts open)
- **Insulation Resistance:** 50 megohms at 500 Vdc
- **Thermal Shock:**  
MIL-STD-202, Method 107 Test Condition B

## MATERIALS

- **Button Enclosure:** Cold Rolled Steel, Nickel Plated
- **Seal:** Glass
- **Disc:** Bimetal
- **Potting:** Applications up to 300° F  
Mylar® sleeve, epoxy fill  
Applications above 300° F  
Nomex® sleeve, high temperature epoxy fill
- **Terminals:** Steel, plated or stainless
- **Contact:** Fine silver

\*Exposure limited should be kept to within 100°F of the operating temperature. Consult factory if conditions require otherwise.

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## SELECTION CODE CHART

### A Contact Operation

Choose from codes across for specific contact operation (see chart).

#### CONTACT OPERATION

**Code O** = Open on Rise

**Code C** = Close on Rise

### B Basic Series Number

Code II for all variations of this thermostat.

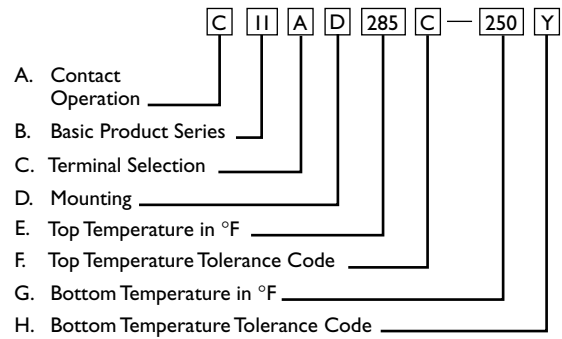
To establish your Airpax Thermostat Part Number precisely, choose the proper code letter from the following tables for terminal selection and mounting. Then complete your selection code chart by using temperature specification tables.

## HOW TO USE THIS CHART

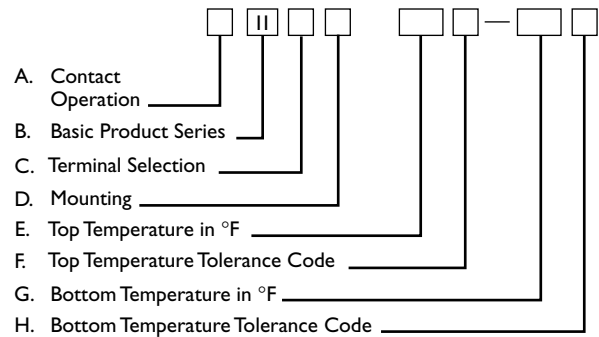
Each thermostat P/N (Part Number) consists of functional “building blocks” to enable the user to specify clearly and precisely the desired characteristics in each selection category. Select the proper Code in each category, then transfer it to “Your PN” boxes to the right. Unless a special requirement (Code Z) is indicated, the entries in “Your PN” boxes will accurately specify a standard catalog item.

When Code Z is used, special features (not specified herein) or a unique part number is required, the last four digits from the part number (bottom temperature and tolerance) will be eliminated and a unique four digit number assigned by Airpax will be inserted. The example shown, records a selection of a standard item with a typical code specified in each “building block” category.

## EXAMPLE PN:



## YOUR PN:



## NOTES

- The standard lead wire (materials) for different temperature ranges are as follows:

#### Lead Specifications:

**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. (Insulation: Composite of Teflon®, ceramic and glass braid, color brown)

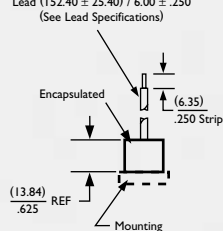
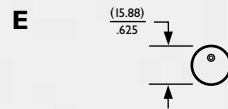
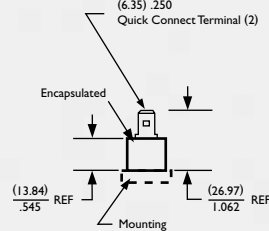
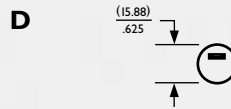
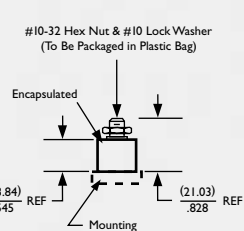
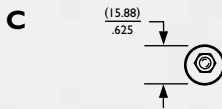
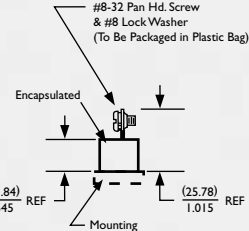
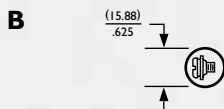
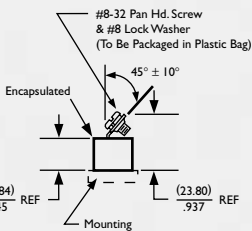
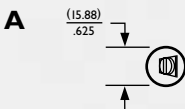
- For Mtg. Code “C” only, encapsulation above the hex is omitted and terminal height is reduced by the amount of encapsulation.
- The marking information on each thermostat will include the name Airpax, contact operation (CLR) close on rise, (OPR) open on rise, top temperature and date code.
- See tables for Operating Temperature Settings and Temperature Tolerance Code Chart.

*\*If either of the popular Preselected Terminals and Mounting are required, specify either RR or SS after OII or CII in your thermostat part number. These letters will be placed in positions C and D on your “building block” specification and part number code.*



# C Terminal Selection

(Grounded Case Only)

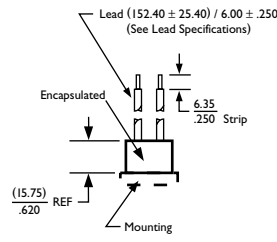
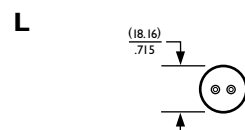
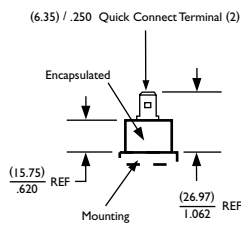
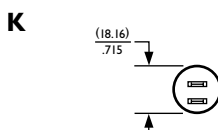
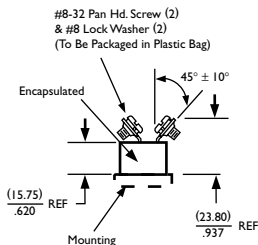
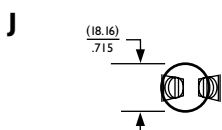


**F**  
Same as Terminal Selection "E"  
Except Lead (304.80 ± 25.40) / 12.00 ± 1.00  
(See Lead Specifications)

**G**  
Same as Terminal Selection "E"  
Except Lead (609.60 ± 25.40) / 24.00 ± 1.00  
(See Lead Specifications)

**H**  
Same as Terminal Selection "E"  
Except Lead (1219.20 ± 25.40) / 48.00 ± 1.00  
(See Lead Specifications)

# C Terminal Selection (Isolated Case Only)



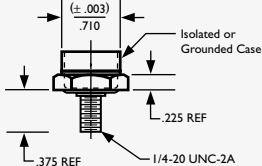
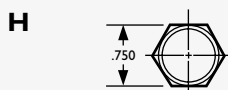
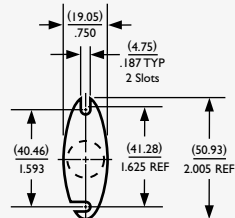
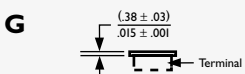
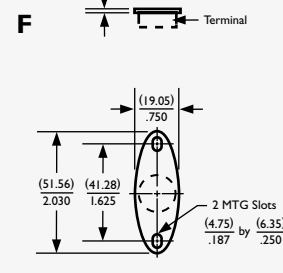
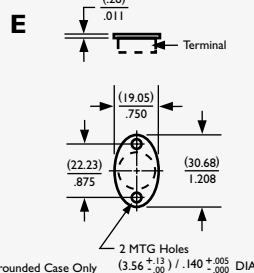
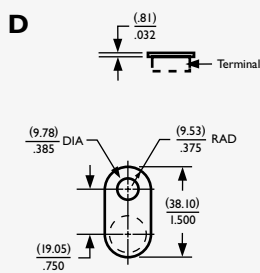
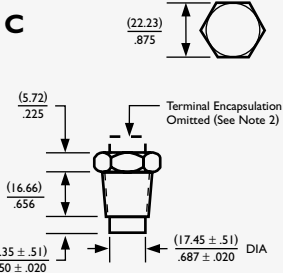
**M**  
Same as Terminal Selection "L"  
Except Lead (304.80 ± 25.40) / 12.00 ± 1.00  
(See Lead Specifications)

**N**  
Same as Terminal Selection "L"  
Except Lead (609.60 ± 25.40) / 24.00 ± 1.00  
(See Lead Specifications)

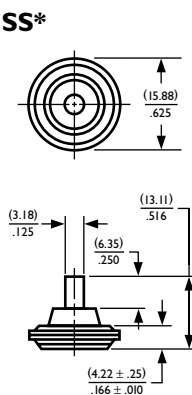
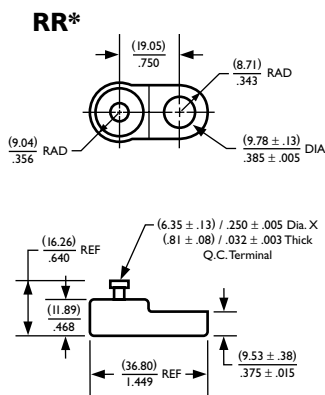
**P**  
Same as Terminal Selection "L"  
Except Lead (1219.20 ± 25.40) / 48.00 ± 1.00  
(See Lead Specifications)

**Z Special Requirements Customer to Specify**

# D Mounting (Isolated and Grounded Case)



# Preselected Terminals and Mountings



**Z Special Requirements Customer to Specify**

TEMPERATURE SPECIFICATIONS

To complete your part number on Airpax Series 5011 Thermostats, the following information and charts will allow completion of “building blocks” E, F, G and H.

Table 1

OPERATING TEMPERATURE SETTINGS

	°F	°C	°F	°C	°F	°C
Temperature Setting	+140° to +250°	+60° to +121.1°	+251° to +400°	+121.6° to +204.4°	+401° to +500°	+205° to +260°
Standard Tolerance	±5°	±2.8°	±10°	±5.6°	±25°	±13.9°
Standard Nominal Differential	25	13.9	35	19.4	40	22.2

Table 2

TEMPERATURE TOLERANCE CODE FOR PART NUMBER SELECTION

CODE	A	C	N	X	Y
±°F	5	10	25	Maximum	Minimum
±°C	2.8	5.6	13.9	Maximum	Minimum

**E Top Temperature in °F**

Select any temperature in the range of 140°F to 500°F. See Table 1. For operating temperatures below 140°F, please consult factory.

**F Top Temperature Tolerance Code**

Choose from the codes in Table 2, but don't select a tolerance more restrictive than those specified in Table 1.

**G Bottom Temperature in °F**

The bottom or reset temperature is obtained by subtracting the Standard Nominal Differential of the applicable range (Table 1) from the Top Temperature selected in step F.

**H Bottom Temperature Tolerance Code**

Choose from the codes in Table 2, applying the same restrictions used in selecting the Top Temperature Tolerance in step G. A minimum reset temperature is standard (code “Y” designation).

Temperature set point calibration is checked at Airpax with precision test equipment traceable to the National Bureau of Standards and Proven Methods. Because customer checking methods may differ, a typical variance for correlation is ±2°F.

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

*This information is subject to change without notice.*



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