#NSA-A/CP-PBS, NSA-A/CP-SBS – 11/15/2019

Overview

The Carrier Thermistor Flush Mount Button Sensors Series features a stainless steel or white plastic button sensor with two, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured using proven encapsulation process to eliminate the effects of moisture upon the sensors and to increase the response times using our high quality, thermally conductive epoxy. This sensor uses a small, low profile design, and should be used in applications where aesthetics is your primary concern. Each unit is supplied with a mounting kit such that they can be hidden underneath cabinets or shelving units, in decorative metal plates, trim, drywall or from a ½" piece of conduit coming down from the ceiling or roof. Note that if painting the sensors, be sure to coat with as little paint as possible to not affect the accuracy or responsiveness of the sensor.

Applications: Museums, Historical Buildings, Monitoring Space Temperatures, Office Buildings, Schools, Retail, Remote Sensor

Part Numbers
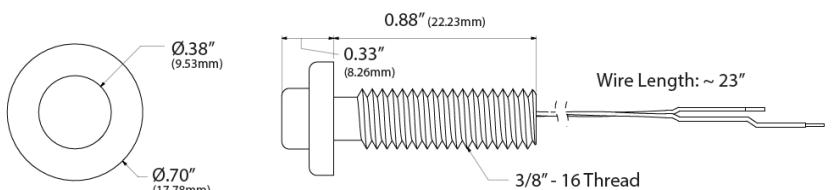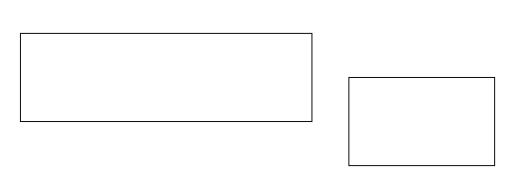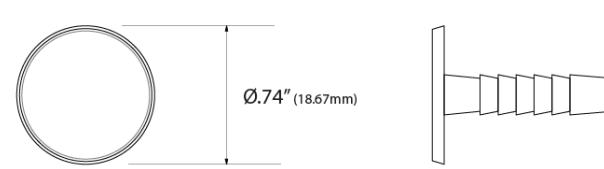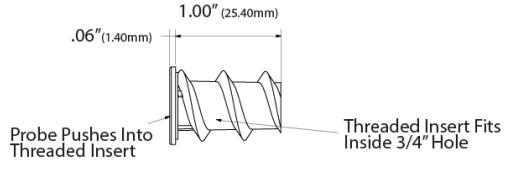
NSA-A/CP-PBS   **NSA-A/CP-SBS**

Specifications

Sensor Type | Sensor Curve:	Thermistor | Non-Linear, NTC (Negative Temperature Coefficient)
Number Sensing Points | Number Wires:	One | Two (Non-Polarity Sensitive)
Sensor Output @ 25°C (77°F) | (Lead Wire Colors):	10KΩ nominal | (White/Green)
Accuracy 0-70°C (32-158°F):	+/-0.2°C (+/-0.36°F)
Stability:	Sensor Dependent; Contact Carrier for more information on specific sensor
Response Time (63% Step Change):	10 Seconds nominal
Power Dissipation Constant:	3 mW/°C
Button Sensor Enclosure Material:	**NSA-A/XX-SBS Series**: 304 Stainless Steel | **NSA-A/XX-PBS Series**: ABS
Plastic Button Flammability Rating:	UL94-HB
Operating | Storage Temperature Range:	**NSA-A/XX-PBS Series**: -40 to 70°C (-40 to 158°F) | -40 to 85°C (-40 to 185°F) **NSA-A/XX-SBS Series**: -40 to 150°C (-40 to 302°F) | -40 to 85°C (-40 to 185°F)
Operating Humidity Range:	10 to 95% RH, non-condensing
Lead Length | Conductor Size:	24" (61cm) | 22 AWG (0.65mm)
Lead Wire Insulation | Wire Rating:	Etched Teflon (PTFE) Colored Leads | Mil Spec 16878/4 Type E)
Conductor Material:	Silver Plated Copper
Product Dimensions (Length x Diameter):	**NSA-A/XX-PBS Series**: 1.00" (25.4mm) x 0.750" (19mm) **NSA-A/XX-SBS Series**: 1.20" (30.48mm) x 0.700" (17.78mm)
Product Weight:	**NSA-A/XX-PBS Series**: 0.04 lbs. (18.15g) | **NSA-A/XX-SBS Series**: 0.10 lbs. (45.36g)
Agency Approvals:	CE, RoHS2, WEEE

Specifications subject to change without notice.

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Dimensional Drawing

Stainless Button Sensor

Ø.38″ (9.53mm)
Ø.70″ (17.78mm)
0.88″ (22.23mm)
0.33″ (8.26mm)
Wire Length: ~ 23″
3/8″ - 16 Thread

Plastic Button Sensor

Ø.74″ (18.67mm)

1.00″ (25.40mm)
.06″ (1.40mm)
Probe Pushes Into Threaded Insert
Threaded Insert Fits Inside 3/4″ Hole

Front and Top / Right Views	Spacers / Anchors

Figure 1

Installation – Plastic Sensor

Thermistors and RTD temperature sensors are both non-polarity and non-position sensitive. All thermistor and RTD type sensors are included with (2) 22 AWG stranded etched Teflon wires for making all of the proper connections.

Mounting in sheetrock is done through a ½" hole using regular hand tools as shown in Figure 2. Mounting into marble or rock can be done directly in a ¼" hole without the threaded insert.
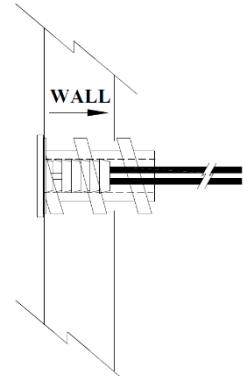
WALL

Figure 2

Installation – Stainless Steel Sensor

This unit is suitable for mounting in many different locations such as in a cabinet, control panel, walls, or in a standard mounting plate. The spacers are to be used to insulate the brass or stainless steel threaded portion of the sensor from any drafts or temperature changes in the wall as well as to mount the sensor into the wall.

Board or Panel Mounting using the 3/8" Hex Nut or 1" or 2" Delrin Spacer

First drill a 3/8" hole in the board or panel and insert the button sensor (2) wires through the hole and thread the hex nut or 1" or 2" spacer onto the button sensor until tight. If the plate or panel is relatively thin, similar to a one gang junction box cover be sure to use the 1" or 2" Delrin spacer depending on the thickness of the box or enclosure. The Delrin spacer will insulate the sensor from any drafts inside the wall. A small piece of foam or insulation may be inserted in the bottom of the Delrin spacer to better insulate the sensor if necessary.

Drywall Mounting using the 1" or 2" Delrin Spacer

First drill a 5/8" hole in the drywall. Next insert the button sensor (2) wires through the top of 1" or 2" Delrin spacer. Now thread the 1" or 2" Delrin spacer onto the back of the button sensor. Now make all of the wire connections using either crimp on connectors or wire nuts. A small piece of foam or insulation may be inserted into the bottom of the 1" or 2"Delrin spacer to better insulate the sensor if necessary. Next insert the button sensor assembly into the wall until it is flush to the wall as shown in Figure 2Figure 1 You may need to gently tap the button sensor assembly with a hammer for it to go into the drywall.

½" Conduit Mounting using the 1" or 2" Delrin Spacer

First insert the button sensor (2) wires through the top of 1" or 2" Delrin spacer. Now thread the 1" or 2" Delrin spacer onto the back of the button sensor. Now make all of the wire connections using either crimp on connectors or wire nuts. A small piece of foam or insulation may be inserted into the bottom of the 1" or 2"Delrin spacer to better insulate the sensor if necessary. Next insert the button sensor assembly into the ½" conduit until it is flush to the end of the conduit as shown in Figure 3 below. You may need to tap the button sensor assembly using a 3/8" socket and hammer for it to go into the conduit.
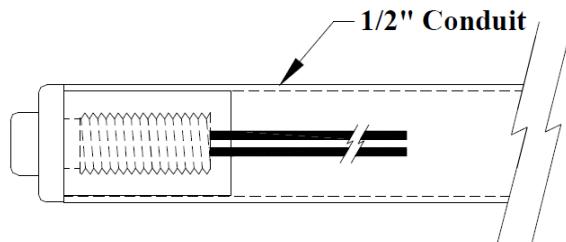

Figure 3

Troubleshooting

Problem	Reason
Sensor reads 0 ohms or very low	Sensor or wires are shorted together
Sensor reads infinity or very high	Sensor or wires have been damage and are open
Erratic readings	Bad wire connections - Condensation or Moisture problem

W.E.E.E. Directive

At the end of their useful life the packaging and product should be disposed of via a suitable recycling center. Do not dispose of with household waste. Do not burn.