

## Overview

The Carrier Thermistor Wall Plate Series features a decorative, single gang brushed Stainless Steel wall plate with two, 14 inch 22 AWG Etched Teflon colored lead wires to differentiate the different NTC sensor types. The sensors in this series are manufactured using proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase the thermal response times using our high quality, thermally conductive epoxy. A foam pad is included to insulate the sensor from thermal drafts within the wall, since they are designed to be mounted over a standard single gang junction box or directly over a hole in the wall with the use of drywall anchors to monitor ambient air temperatures in a space. Tamper Proof mounting screws are available upon request.

**Applications:** Space Temperature Sensing, Decorative Wall Plate Applications, Tamper Proof Applications, Schools, Gymnasiums



## Part Numbers

NSA-HH/CP-SP-C

## Specifications

<b>Sensor Type   Sensor Curve:</b>	Thermistor   Non-Linear, NTC (Negative Temperature Coefficient)
<b>Number Sensing Points:</b>	One
<b>Number Wires:</b>	Two (Non-Polarity Sensitive)
<b>Sensor Series Outputs @ 25°C (77°F)   (Lead Wire Colors):</b>	10KΩ nominal   (White/Green)
<b>Accuracy 0-70°C (32-158°F):</b>	+/-0.2°C (+/-0.36°F)
<b>Stability:</b>	Sensor Dependent; Contact Carrier for more information on sensor in question
<b>Response Time (63% Step Change):</b>	15 Seconds nominal
<b>Power Dissipation Constant:</b>	3 mW/°C
<b>Plate Material:</b>	430 Stainless Steel (Brushed Stainless Steel Finish)
<b>Foam Material   Flammability Rating:</b>	Cross-Linked Polyethylene   FMVSS-302
<b>Operating   Storage Temperature Range:</b>	-40 to 71°C (-40 to 160°F)   -40 to 71°C (-40 to 160°F)
<b>Operating Humidity Range:</b>	10 to 95% RH, non-condensing
<b>Lead Length   Conductor Size:</b>	14" (35.56cm)   22 AWG (0.65mm)
<b>Lead Wire Insulation   Wire Rating:</b>	Etched Teflon (PTFE) Colored Leads   MIL-W-16878/4 (Type E)
<b>Conductor Material:</b>	Silver Plated Copper
<b>Product Dimensions (L x W x D):</b>	4.50" (114.3mm) x 2.78" (70.6mm) x 0.187" (4.76mm)
<b>Product Weight:</b>	0.14 lbs. (63.5g)
<b>Agency Approvals:</b>	CE, RoHS2, WEEE

## Dimensional Drawing

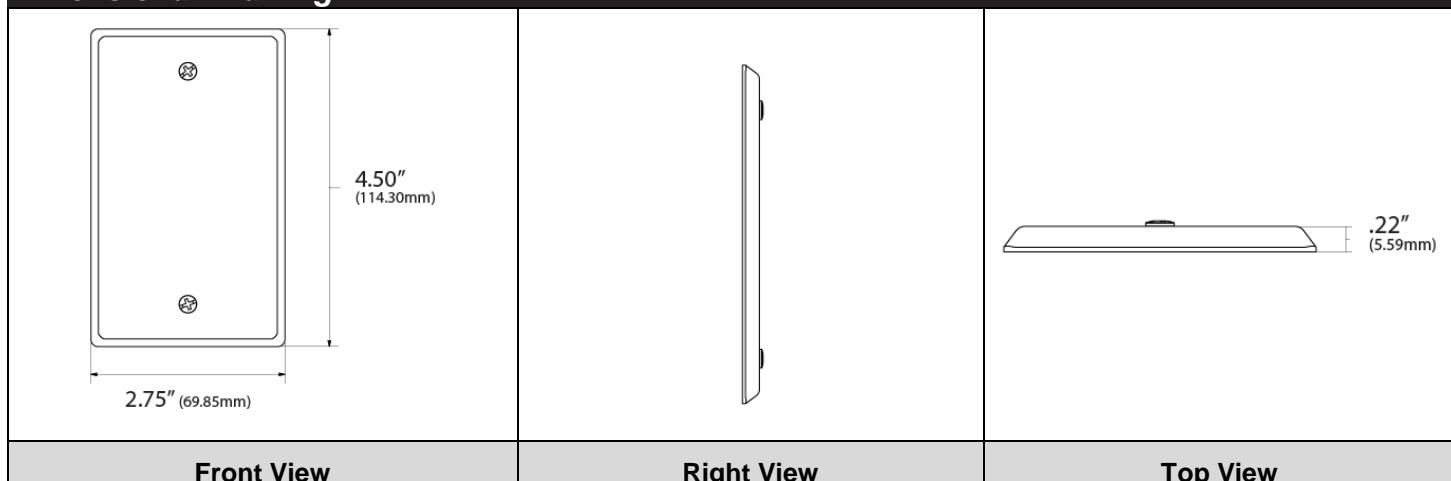


Figure 1

## Installation

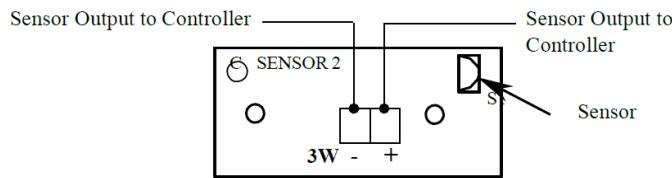
### READ THESE INSTRUCTIONS BEFORE YOU BEGIN INSTALLATION

All thermistors and RTD temperature sensors are both non-polarity and non-position sensitive. Carrier recommends the use of 18 to 20 AWG twisted pair wire or shielded cable for all sensor installations.

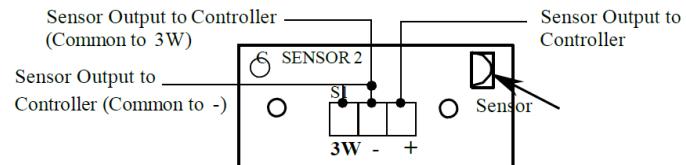
### Room Temperature Sensors

All thermistor type room units are supplied with a two-pole terminal block and all RTD's and 592 temperature sensors will be supplied with either a two or three-pole screw terminal block. This unit is suitable for either drywall mounting or junction box mounting. The room sensor is provided with screw terminal blocks for all connections. Remove the cover from the unit and mount the housing base to the wall using the (2) 6/32" x 1" machine screws. Replace the cover and tighten down, using the (2) 1/16" Allen Screws located on the bottom of the enclosure.

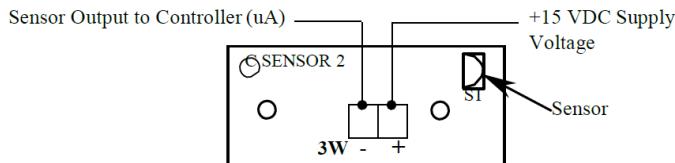
#### Wiring Diagram For All 2-Wire Resistive Room Temperature Sensors



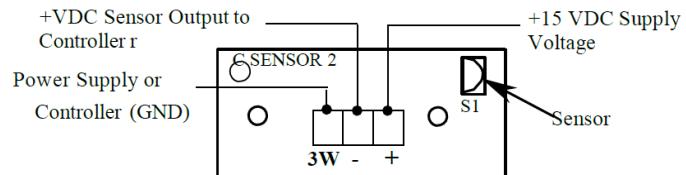
#### Wiring Diagram For /100-3W-R and /1000-3W-R



#### Wiring Diagram For /592-R



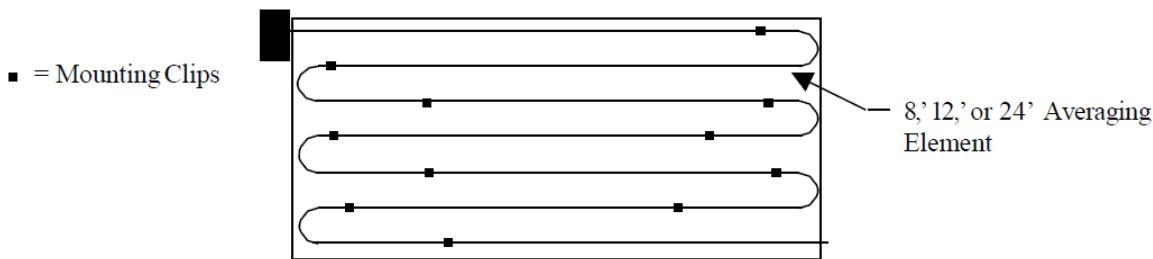
#### Wiring Diagram For /592-10K -R



*Figure 2***Duct and Duct Averaging Sensors**

Duct temperature sensors - drill a 3/8" hole in the duct and insert the probe through the hole until the foam pad is tight to the duct. Now insert (2) screws through the mounting holes in flange and tighten them until the unit is held firmly to the duct.

Duct Averaging sensors - Drill a 3/8" hole in the duct and insert the averaging element through the hole until the foam pad is tight to the duct. Now insert the (2) screws through the holes in the mounting flange and tighten until the unit is held firmly to the duct. The sensor should then be strung in a crisscross pattern throughout the duct (see Figure 3) using the mounting clips provided, in a pattern that covers the greatest surface area of the duct, to insure that there is no stratification. When bending the copper tubing, be careful that you use a gradual bend and that you DO not kink the copper tubing.

*Figure 3***Fluid Immersion Temperature Sensors**

The Fluid Immersion-type sensors are provided with a 2 1/2", 4", or 6 1/4" insertion length, 304 series stainless steel thermowell. The thermowell has a 1/2" NPT external or process thread and a 1/2" NPT internal or instrument thread. Heat transfer compound may be used but it is not necessary.

**Strap-On Temperature Sensors**

The Strap-On sensors, are provided in a NEMA 1 rated junction box with an adjustable 2" to 5" pipe clamp. The unit should be mounted on the bottom side of the pipe to ensure proper heat transfer and a true temperature reading. Heat transfer compound and insulating the sensor will help the overall accuracy of the sensor. By ordering extra straps, and fastening them together, it is possible to make them fit larger pipes.

**Outside Air Temperature Sensors**

The Outdoor Air temperature sensors are provided in a weatherproof enclosure. An optional weatherproof Aluminum Bell Box or NEMA 4X Polycarbonate enclosure is also available upon request for an additional charge. All of the mounting hardware is provided with the sensor. Be sure to mount the sensor out of direct sunlight, with the sensor probe pointing downward.

**Stainless Plate Temperature Sensors**

The Stainless Plate temperature sensors are mounted on the back of a 1 Gang stainless steel plate. The foam pad insulates the sensor from any drafts in the wall. (2) 6/32" x 1" machine screws are provided for junction box mounting. Be sure that the sensor is not mounted on an outside wall, due to the extreme temperature changes from either drafts or heat transfer.

**Troubleshooting**

<b>Sensor reads 0 ohms or very low</b>	Sensor or wires are shorted together
<b>Sensor reads infinity or very high</b>	Sensor or wires are open
<b>Erratic readings</b>	Bad wire connections - Condensation or Moisture problem
<b>No Voltage or Current Output</b>	Check Power Supply Voltage
<b>No Voltage Signal Output (592-10K)</b>	Touch sensor and verify that the voltage output increases with Voltmeter from (-) to (3W) Terminal (Reading in VDC)
<b>No Current Signal Output (592)</b>	Measure Current output changes from (-) to Controllers Input Terminal (Reading in uA)