

Overview

The Thermistor Room Series combines option flexibility with attractive styling in our enclosures which include four-way air flow design to minimize self-heating to the sensor. These units are designed to be mounted over a single gang junction box or hole in the wall using drywall anchors. Screw terminal blocks are available for making all connections to your building management system (network). An optional 1/8" Black foam pad with pressure sensitive adhesive is available to insulate the sensor from thermal drafts within the wall or wall surface. A 1/16" Hex driver is needed to secure the cover from being easily removed.

Applications: Space Temperature Sensing, Decorative Wall Sensor Applications, Office Buildings, Schools, Colleges, Commercial Buildings, OEM Opportunities



Part Numbers

NSA-HH/CP-R2-C

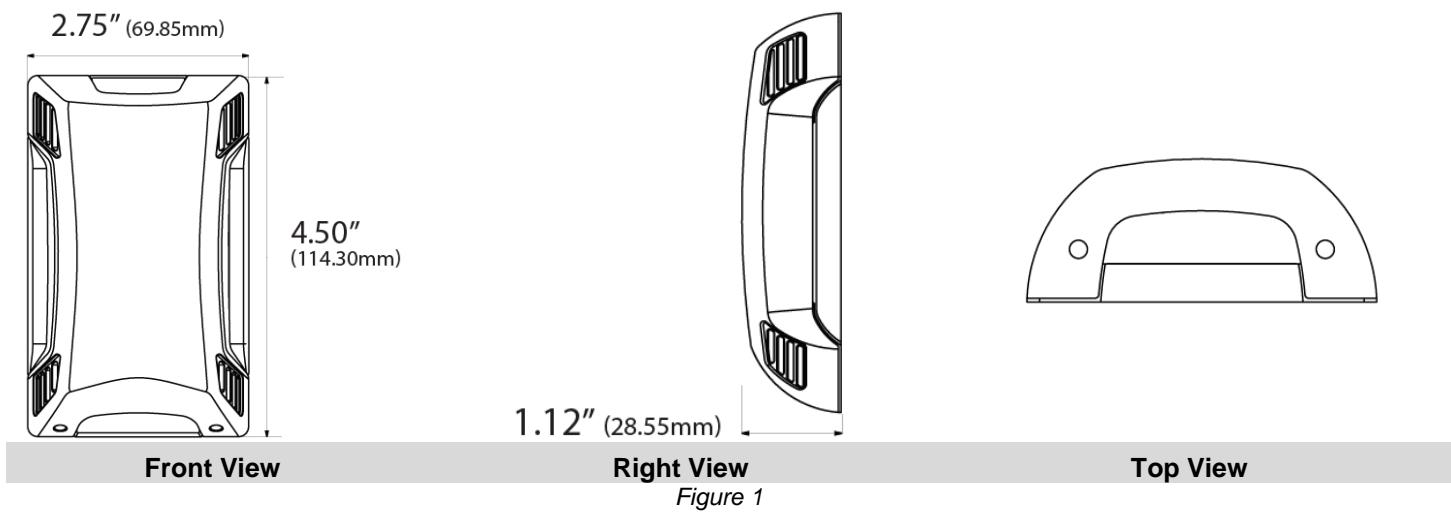
NSA-HH/50K-R2L-C

NSA-A/ROOM-FOAM-PAD

Specifications

Sensor Type Sensor Curve:	Thermistor Non-Linear, NTC (Negative Temperature Coefficient)
Number Temperature Sensing Points:	One
Sensor Output @ 25°C (77°F):	HH/CP Series (Type II): 10KΩ nominal HH/50K Series (Type II): 50KΩ nominal
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
LCD Display Supply Voltage:	+9 to 35 VDC / 24 VAC (50/60 Hz)
LCD Display Supply Current/VA:	< 4 mA / 0.12 VA
LCD Display Accuracy:	+/- 2°F or +/- 2°C @ 71°F (21.5°C) Typical
LCD Display Descriptor:	°F (Fahrenheit) or °C (Celsius)
LCD Display Life Expectancy:	50,000 Hours Minimum
Set Point Specifications Set Point Indication:	Sensor Dependent; Contact Carrier for more information on specific sensor
Set Point Tolerance:	+/- 10% of Range
Override Option:	Short Thermistor (Default); Field (Jumper) Selectable "Dry Contact" Closure (Separate Input); Short Set Point available upon request
Operating Storage Temperature Range:	1.5 to 50°C (35 to 122°F)
Operating Humidity Range:	10 to 95% RH, non-condensing
Connections Wire Size:	Screw Terminal Blocks 16 (1.31 mm ²) to 26 (0.129 mm ²) AWG
Terminal Block Torque Rating:	0.5 Nm (Minimum); 0.6 Nm (Maximum)
LCD Supply Voltage:	+12 to 36 VDC or 24VAC Nominal 50/60 HZ
LCD Descriptor Number of Digits:	°F (Fahrenheit) or °C (Centigrade) 3 42 Segment Display
Enclosure Material Color:	ABS; Plastic, White, UL94-HB
Product Dimensions:	See drawing below
Product Weight:	0.16 lbs. (72.6g)
Agency Approvals:	CE**, RoHS2, WEEE

Dimensional Drawing



Accessories

Part Number	Description
NSA-A/ROOM-FOAM-PAD	1/8" foam insulation pad with adhesive (3" x 2", black)

Installation

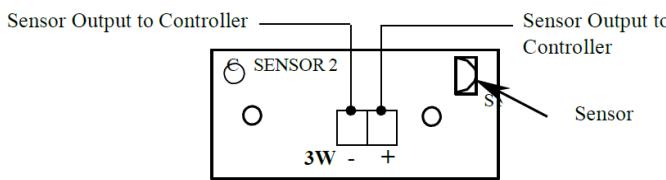
READ THESE INSTRUCTIONS BEFORE YOU BEGIN INSTALLATION

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.

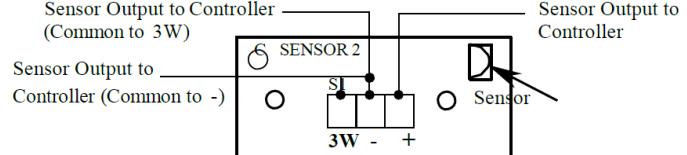
Room Temperature Sensors

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 All /100-3W-R and /1000-3W-R



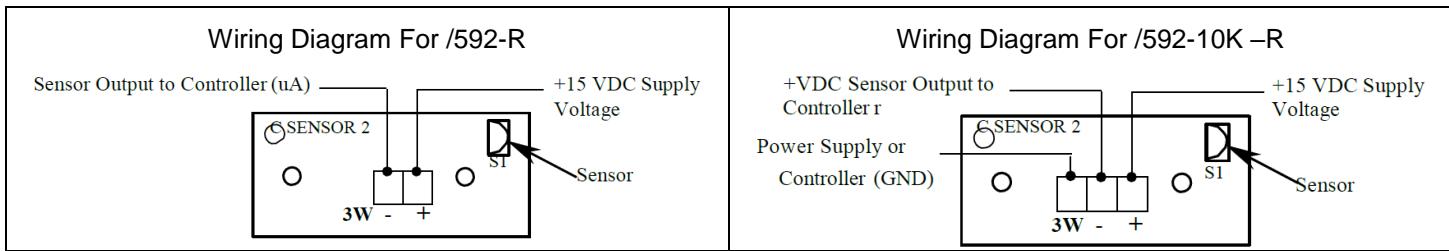


Figure 2

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.

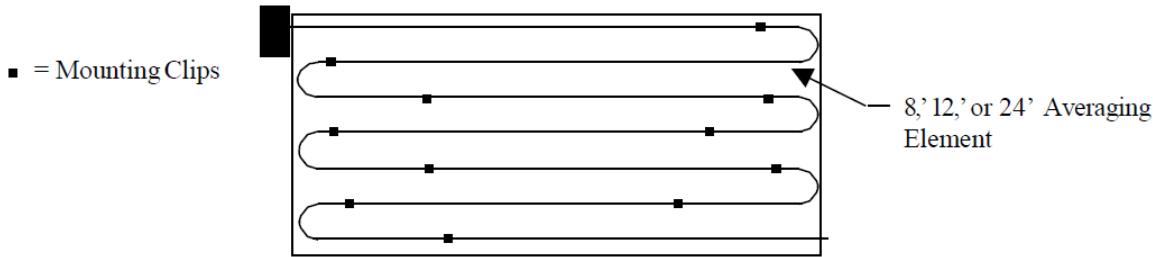


Figure 3

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

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