



# RH OUTSIDE AIR

## Relative Humidity, Outside Air, Nickel RTD

The ACI Relative Humidity with Nickel RTD Outside Air Series utilizes a thermoset polymer capacitive sensing element with factory applied hygroscopic filter to deliver a proportional analog current or voltage output signal. The hygroscopic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Outside Air transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration also can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide

increased flexibility and outstanding long-term reliability. Outside Air configurations feature a weatherproof Euro style enclosure with gasketed cover and conformally coated circuit boards for added moisture and chemical resistance. Three and Five-point NIST Calibration Certificates are available upon request but they must be ordered separately.

**Applications:** Monitor Outdoor Air Humidity, Economizer Control, Psychrometric calculations such as Enthalpy and Dew point, Wash down Applications

**The ACI RH Nickel RTD Outside Air is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, [www.workaci.com](http://www.workaci.com).**

### PRODUCT SPECIFICATIONS

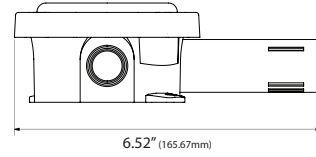
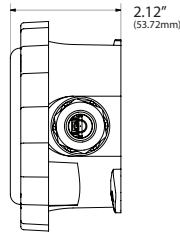
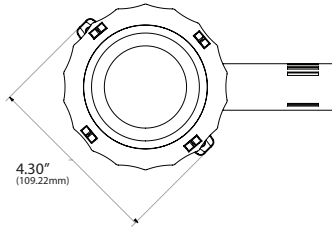
<b>RH Supply Voltage</b>	<b>4-20 mA:</b> 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC   <b>500 Ohm Load:</b> 18 - 40 VDC / 18 - 28 VAC
<b>(Reverse Polarity Protected):</b>	<b>0-5 VDC:</b> 12 - 40 VDC / 18 - 28 VAC   <b>0-10 VDC:</b> 18 - 40 VDC / 18 - 28 VAC
<b>RH Supply Current (VA):</b>	<b>Voltage Output:</b> 8 mA maximum (0.32 VA)   <b>Current Output:</b> 24 mA maximum (0.83 VA)
<b>RH Output Load Resistance:</b>	<b>4-20 mA:</b> 700 Ohms maximum   <b>0-5 VDC or 0-10 VDC:</b> 4K Ohms Minimum
<b>RH Output Signal:</b>	<b>2-wire:</b> 4 - 20 mA (Factory Default)   <b>3-wire:</b> 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable)
<b>RH Accuracy @ 77°F (25°C):</b>	+/- 1% over 20% RH Range between 20 to 90%   +/- 2%, 3%, or 5% from 10 to 95%
<b>RH Measurement Range:</b>	0-100%
<b>Operating RH Range:</b>	0 to 95% RH, non-condensing (Conformally Coated PCB's)
<b>Operating Temperature Range:</b>	-40 to 140°F (-40 to 60°C)
<b>Storage Temperature Range:</b>	-40 to 149°F (-40 to 65°C)
<b>RH Stability   Repeatability   Sensitivity:</b>	Less than 2% drift / 5 years   0.5% RH   0.1% RH
<b>RH Response Time (T63):</b>	20 Seconds Typical
<b>RH Sensor Type:</b>	Capacitive with Hydrophobic Filter
<b>RH Transmitter Stabilization Time:</b>	30 Minutes (Recommended time before doing accuracy verification)
<b>RH Connections   Wire Size:</b>	Screw Terminal Blocks (Polarity Sensitive)   16 (1.31 mm <sup>2</sup> ) to 26 AWG (0.129 mm <sup>2</sup> )
<b>RH Terminal Block Torque Rating:</b>	4.43 to 5.31 lb-in (0.5 to 0.6 Nm)
<b>RH NIST Test Points:</b>	<b>Default Test Points:</b> 3 Points (20%, 50% & 80%) or 5 Points (20%, 35%, 50%, 65% & 80%) <b>1% NIST Test Points:</b> 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50)
<b>Nickel RTD (PTC) Output @ 70°F (21.1°C)</b>	<b>RHx-1K-NI-O Series:</b> 1000 Ohms nominal (1K-Nickel RTD)   Red/Red
<b>(Wire Colors):</b>	
<b>Nickel RTD Sensor Accuracy:</b>	32°F (0°C): +/-0.72°F (0.4°F); 70°F (21.1°C): +/-0.34°F (0.17°C); 130°F (54.4°C): +/-1.00°F (0.56°C)
<b>Nickel Din Standard:</b>	Din 43760
<b>Temperature Coefficient (0-100°C):</b>	6370 ppm/°C
<b>Nickel RTD Stability:</b>	+/-0.05% after 1000 Hours @ 302°F (150°C)
<b>Lead Wire Length   Conductor Size:</b>	14" (35.6 cm)   22 AWG (0.65 mm)
<b>Insulation   Rating:</b>	Etched Teflon (PTFE) Colored Leads   Mil Spec 16878/4 Type E
<b>Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating):</b>	<b>"-EH" Enclosure:</b> ABS Plastic; UL94-V0; -40 to 140°F (-40 to 60°C)
<b>Sensing Tube Dimensions (Length x Diameter):</b>	<b>"-4X" Enclosure:</b> Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66)
<b>Product Dimensions (L x W x D):</b>	<b>"-EH" Models:</b> 3.00" (76.20 mm) x 1.125" (28.75 mm)
<b>Product Weight:</b>	<b>"-4X" Models:</b> 4.73" (120.14 mm) x 0.845" (21.46mm)
<b>Agency Approvals:</b>	See drawings on back of data sheet <b>A/RHx-1K-NI-O Series:</b> 0.59 lbs. (0.27 kg)   <b>A/RHx-1K-NI-O-4X Series:</b> 0.45 lbs. (0.204 kg) CE, RoHS2, WEEE



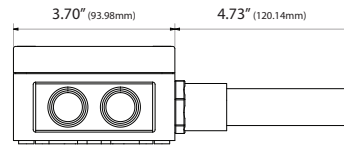
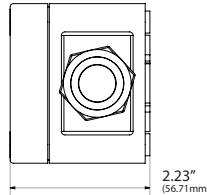
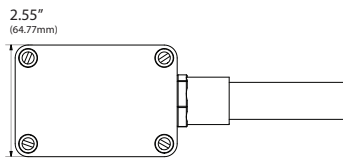


**DIMENSIONAL DRAWING**

**Euro Enclosure [EH]**



**NEMA 4X Enclosure [4X]**



Front View

Right View

Top View

**CUSTOM ORDERING**

Model # Example: **A/** **RH2** **1K-NI** **O** **NIST**

**MODEL #**

<b>A. Sensor Series</b> <i>No Selection Required</i>	<b>A/</b> <input type="text"/>	<b>A/</b>
<b>B. Accuracy</b> <i>Select One (1)</i>	<b>RH1</b> = +/--1% (Specify a 20% Range between 20 to 90% RH) <b>RH2</b> = +/--2%   <b>RH3</b> = +/--3%   <b>RH5</b> = +/--5%	
<b>C. Temperature Sensor</b> <i>No Selection Required</i>	<b>1K-NI</b> <input type="text"/>	<b>1K-NI</b>
<b>D. Configuration</b> <i>Select One (1)</i>	<b>O</b> = Outside Air (Euro Enclosure)   <b>O-4X</b> = Outside Air (NEMA 4X Enclosure)	
<b>E. Output Signal</b> <i>Select One (1)</i>	---- = 4 to 20 mA (Default)   0 to 10 VDC (Field Selectable)   0 to 5 VDC (Field Selectable)	
<b>F. NIST (Temperature)</b> <i>Select One (1)</i>	---- = No NIST Certificate   <b>NIST</b> = NIST Certificate (Must Specify 1, 3 or 5 Points)	

**Note:** Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC

**ACCESSORIES ORDERING [NIST]**

Model # Example: **NIST RH CERT**

Model #	Description
<b>NIST RH CERT</b>	RH Calibration Certificate (Specify 3 Point or 5 Point NIST)

**Note:** When ordering NIST certificates, please add an additional line item under the corresponding A/RHx-XX-O Model Number

