



# RH DUCT

## Relative Humidity, Duct, Platinum RTD

The ACI Relative Humidity with Platinum RTD Duct Series utilizes a thermoset polymer capacitive sensing element with a factory fitted hydrophobic filter to improve its moisture resistance. The sensing elements multilayer construction also provides excellent resistance in applications where dust, dirt, oils and common environmental chemicals are found. The RH duct sensors include on board DIP switches which allow the user to select the desired output signal and can be powered by AC or DC power sources. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration 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 without the need to replace the sensors in the field. Duct configurations feature a weatherproof Euro style enclosure with a gasketed cover and conformally coated circuit boards for increased moisture resistance in high humidity environments. The sensor is protected by a stainless-steel sintered filter. Three and Five-point NIST Calibration Certificates are available and must be ordered separately when placing your order.

**Applications:** Humidification, Dehumidification, Supply / Discharge / Return Air, Economizers, Clean Rooms, Data Centers, Process Control, Schools, Hospitals, Office Buildings

**The ACI RH Platinum RTDs Duct 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

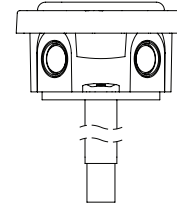
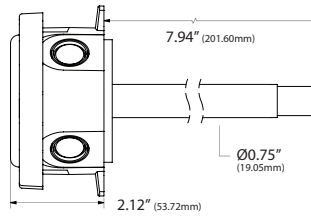
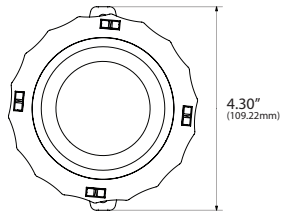
<b>RH Supply Voltage</b> (Reverse Polarity Protected):	<b>4-20 mA:</b> 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC   <b>500 Ohm Load:</b> 18 - 40 VDC / 18 - 28 VAC
<b>RH Supply Current (VA):</b>	<b>0-5 VDC:</b> 12 - 40 VDC / 18 - 28 VAC   <b>0-10 VDC:</b> 18 - 40 VDC / 18 - 28 VAC
<b>RH Output Load Resistance:</b>	<b>Voltage Output:</b> 8 mA maximum (0.32 VA)   <b>Current Output:</b> 24 mA maximum (0.83 VA)
<b>RH Output Signal:</b>	<b>4-20 mA:</b> 700 Ohms maximum   <b>0-5 VDC or 0-10 VDC:</b> 4K Ohms Minimum
<b>RH Accuracy @ 77°F (25°C):</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 Measurement Range:</b>	+/- 1% over 20% RH Range between 20 to 90%   +/- 2%, 3%, or 5% from 10 to 95%
<b>Operating RH Range:</b>	0-100%
<b>Operating Temperature Range:</b>	0 to 95% RH, non-condensing (Conformally Coated PCB's)
<b>Storage Temperature Range:</b>	-40 to 140°F (-40 to 60°C)
<b>RH Stability   Repeatability   Sensitivity:</b>	-40 to 149°F (-40 to 65°C)
<b>RH Response Time (T63)</b>	Less than 2% drift / 5 years   0.5% RH   0.1% RH
<b>RH Sensor Type:</b>	20 Seconds Typical
<b>RH Transmitter Stabilization Time:</b>	Capacitive with Hydrophobic Filter
<b>RH Connections   Wire Size:</b>	30 Minutes (Recommended time before doing accuracy verification)
<b>RH Terminal Block Torque Rating:</b>	Screw Terminal Blocks (Polarity Sensitive)   16 (1.31 mm <sup>2</sup> ) to 26 AWG (0.129 mm <sup>2</sup> )
<b>RH NIST Test Points:</b>	4.43 to 5.31 lb-in (0.5 to 0.6 Nm)
<b>Platinum RTD (PTC)   Number Wires (Wire Colors):</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>Platinum RTD Output @ 32°F (0°C):</b>	<b>RHx-100-2W Series:</b> (Brown/Brown) & <b>RHx-1K-2W Series:</b> (Black/Black)
<b>Platinum RTD Tolerance Class:</b>	<b>RHx-100-3W Series:</b> (Brown/Brown/Black) & <b>RHx-1K-3W Series:</b> (Black/Black/White)
<b>Platinum RTD Din Standard:</b>	<b>RHx-100-xW-D Series:</b> 100 Ohms nominal   <b>RHx-1K-xW-D Series:</b> 1000 Ohms nominal
<b>Temperature Coefficient:</b>	+/- 0.06% Class A   <b>Tolerance Formula:</b> +/- °C = (0.15°C + (0.002 *  t ))
<b>Platinum RTD Stability:</b>	DIN EN 60751 (IEC 751)
<b>Lead Wire Length   Conductor Size:</b>	3850 ppm/ °C
<b>Insulation   Rating:</b>	+/- 0.03% after 1000 Hours @ 572°F (300°C)
<b>Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating):</b>	14" (35.6 cm)   22 AWG (0.65 mm)
<b>Sensing Tube Material   Filter Material:</b>	Etched Teflon (PTFE) Colored Leads   Mil Spec 16878/4 Type E
<b>Sensing Tube Dimensions (Length x Diameter):</b>	<b>"-EH" Enclosure:</b> ABS Plastic; UL94-V0; -40 to 140°F (-40 to 60°C)
<b>Product Dimensions (L x W x D):</b>	<b>"-4X" Enclosure:</b> Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66)
<b>Product Weight:</b>	<b>"EH" Enclosure:</b> 304 Series Stainless Steel   304 Series Stainless Steel
<b>Agency Approvals:</b>	<b>"-4X" Enclosure:</b> Schedule 40 PVC (White)   Slotted PVC without filter
	<b>"-EH" Models with Sintered Filters:</b> 7.75" (196.85 mm) x 0.75" (19.05 mm)
	<b>"-4X" Models:</b> 7.20" (182.88 mm) x 0.840" (21.34 mm)
	See drawings on back of data sheet
	<b>A/RHx-xx-xW-D Series:</b> 1.22 lbs. (0.55 kg)   <b>A/RHx-xx-xW-D-4X Series:</b> 0.50 lbs. (0.227 kg)
	CE, RoHS2, WEEE



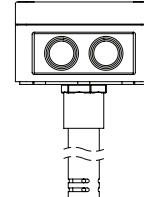
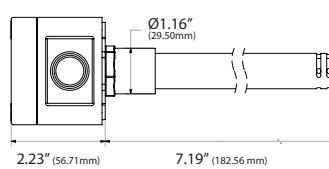
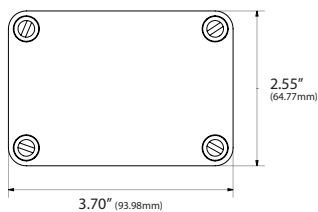


## DIMENSIONAL DRAWING

### Euro Enclosure [EH]



### NEMA 4X Enclosure [4X]



Front View

Right View

Top View

## CUSTOM ORDERING

Model # Example: A/ RH2 1K 2W D 010 NIST

## MODEL #

<b>A. Sensor Series</b> No Selection Required	A/
<b>B. Accuracy</b> Select One (1)	RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2%   RH3 = +/-3%   RH5 = +/-5%
<b>C. Model Series</b> Select One (1)	100 = 100 Ohm Platinum RTD   1K = 1K Ohm Platinum RTD
<b>D. Number of Wires</b> Select One (1)	2W = Two Wires   3W = Three Wires
<b>E. Configuration</b> Select One (1)	D = Duct (Euro Enclosure)   D-4X (NEMA 4X Enclosure)
<b>F. Output Signal</b> Select One (1)	---- = 4 to 20 mA (Default)   010 = 0 to 10 VDC   05 = 0 to 5 VDC
<b>G. NIST (Temperature)</b> Select One (1)	---- = No NIST Certificate   NIST = 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

Model # Example: A/SINTERED FILTER

Model #	Item #	Description
A/SINTERED FILTER	143433	3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probe

## ACCESSORIES ORDERING [NIST]

Model # Example: NIST RH CERT

Model #	Description
NIST RH CERT	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-D Model Number