



## RH DUCT

## **Relative Humidity, Duct, Thermistor**

The ACI Relative Humidity with Thermistor 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 Thermistor 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.

RH Supply Voltage	4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VA	C   <b>500 Ohm Load:</b> 18 - 40 VDC / 18 - 28 VAC	
(Reverse Polarity Protected):	<b>0-5 VDC:</b> 12 - 40 VDC / 18 - 28 VAC   <b>0-10 VD</b>	<b>C:</b> 18 - 40 VDC / 18 - 28 VAC	
RH Supply Current (VA):	Voltage Output: 8 mA maximum (0.32 VA)   Current Output: 24 mA maximum (0.83 VA)		
RH Output Load Resistance:	4-20 mA: 700 Ohms maximum   0-5 VDC or (	<b>D-10 VDC:</b> 4K Ohms Minimum	
RH Output Signal:	2-wire: 4 - 20 mA (Factory Default)   3-wire: 0-5	or 0-10 VDC and 4 - 20 mA (Field Selectable	
RH Accuracy @ 77°F (25°C):	+/- 1% over 20% RH Range between 20 to 90%	+/- 2%, 3%, or 5% from 10 to 95%	
RH Measurement Range	0-100%		
Operating RH Range:	0 to 95% RH, non-condensing (Conformally Coated PCB's)		
Operating Temperature Range:	-40 to 140°F (-40 to 60°C)		
Storage Temperature Range:	-40 to 149°F (-40 to 65°C)		
RH Stability   Repeatability   Sensitivity:	Less than 2% drift / 5 years   0.5% RH   0.1% R	::H	
RH Response Time (T63):	20 Seconds Typical		
RH Sensor Type:	Capacitive with Hydrophobic Filter		
RH Transmitter Stabilization Time:	30 Minutes (Recommended time before doing accuracy verification)		
RH Connections   Wire Size:	Screw Terminal Blocks (Polarity Sensitive)   16 (1.31 mm²) to 26 AWG (0.129 mm²)		
RH Terminal Block Torque Rating:	4.43 to 5.31 lb-in (0.5 to 0.6 Nm)		
RH NIST Test Points:	<b>Default Test Points:</b> 3 Points (20%, 50% & 80%) or 5 Points (20%, 35%, 50%, 65% & 80%)		
	1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50)		
Nominal Thermistor Resistive Output @ 77°F (25°C)	RHx-1.8K Series: 1.8KΩ (Red/Yellow)	<b>RHx-CSI Series:</b> 10KΩ (Green/Yellow)	
(Lead Wire Colors) Non-Linear NTC (Negative	<b>RHx-3K Series:</b> 3KΩ (White/Brown)	<b>RHx-10KS Series:</b> $10K\Omega$ (White/Blue)	
Temperature Coefficient):	<b>RHx-AN Series (Type III):</b> $10K\Omega$ (White/White)	RHx-10K-E1 Series: 10KΩ (Gray/Orange)	
	<b>RHx-AN-BC Series:</b> 5.238KΩ (White/Yellow)	RHx-20K Series: 20KΩ (Brown/Blue)	
	<b>RHx-CP Series (Type II):</b> 10KΩ (White/Green)	<b>RHx-100KS Series:</b> 100K $\Omega$ (Black/Yellow)	
Thermistor Accuracy 32-158°F (0-70°C):	+/- 0.36°F (0.2°C) except 10K-E1 Series: +/- 0.54°F (0.3°C)		
	<b>1.8K Series:</b> +/- 0.9°F (0.5°C) @ 77°F (25°C) & +	/- 1.8°F (1.0°C) from 32 to 158°F (0 to 70°C)	
Thermistor Power Dissipation Constant:	3 mW/°C except 1.8K Series: 1 mW/°C; 10K-E1 S	eries: 2 mW/°C	
Thermistor Sensor Response Time (T63):	10 Seconds nominal		
Lead Wire Length   Conductor Size:	14" (35.6 cm)   22 AWG (0.65 mm)		
Insulation   Rating:	Etched Teflon (PTFE) Colored Leads   Mil Spec 16878/4 Type E		
Enclosure Specifications (Material, Flammability,	"-EH" Enclosure: ABS Plastic; UL94-V0; -40 to	140°F (-40 to 60°C)	
Temperature, NEMA/IP Rating):	"-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66)		
Sensing Tube Material   Filter Material:	<b>"EH" Enclosure:</b> 304 Series Stainless Steel   304 Series Stainless Steel		
	"-4X" Enclosure: Schedule 40 PVC (White)   S	Slotted PVC without filter	
Sensing Tube Dimensions (Length x Diameter):	<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 0.84" (21.3	4 mm)	
Product Dimensions (L x W x D):	See drawings on back of data sheet		
Product Weight:	A/RHx-xx-D Series: 1.22 lbs. (0.55 kg)   A/RH	<b>x-xx-D-4X Series:</b> 0.50 lbs. (0.227 kg)	
Agency Approvals:	CE, RoHS2, WEEE		



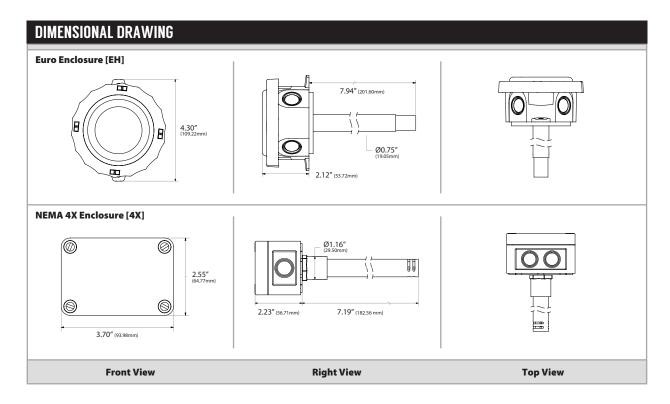






## HUMIDITY | THERMISTORS | RH DUCT





CUSTOM ORDERING	Model # Example: A/ RH2 CP D 010 NIST A. B. C. D. E. F.	MODEL#
A. Sensor Series No Selection Required	A/	A/
B. Accuracy Select One (1)	RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2%   RH3 = +/-3%   RH5 = +/-5%	
C. Temperature Sensor Select One (1)	1.8K   3K   10KS   AN (Type    )   AN-BC   CP (Type   )   CSI   10K-E1   20K   100KS	
D. Configuration Select One (1)	<b>D</b> = Duct (Euro Enclosure)   <b>D-4X</b> (NEMA 4X Enclosure)	
E. Output Signal Select One (1)	= 4 to 20 mA (Default)   <b>010</b> = 0 to 10 VDC   <b>05</b> = 0 to 5 VDC	
F. NIST (Temperature) Select One (1)	= 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  Model # Example: A/SINTERED FILTE		
Model #	Item #	Description
A/SINTERED FILTER	143433	3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probe

ACCESSORIES ORDERING [NIST]  Model # Example: NIST RHCE		Model # Example: NIST RH CERT
Model #	Description	
NIST RH CERT	RH Calibration Certificate (Specify 3 Point or 5 Point NIST)	

 $\textbf{Note:} \ When \ ordering \ NIST \ certificates, please \ add \ an \ additional \ line \ item \ under \ the \ corresponding \ A/RHx-xx-D \ Model \ Number$ 







