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 point NIST Calibration Certificates are available.

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, workaci.com.

PRODUCT SPECIFICATIONS

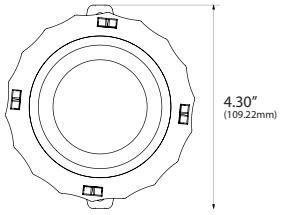
RH Supply Voltage (Reverse Polarity Protected):	**4-20 mA:** 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC | **500 Ohm Load:** 18 - 40 VDC / 18 - 28 VAC **0-5 VDC:** 12 - 40 VDC / 18 - 28 VAC | **0-10 VDC:** 18 - 40 VDC / 18 - 28 VAC
RH Supply Current (VA):	**Voltage Output:** 8 mA maximum (0.32 VA) | **Current Output:** 24 mA maximum (0.83 VA)
RH Output Load Resistance:	**4-20 mA:** 700 Ohms maximum | **0-5 VDC or 0-10 VDC:** 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%, or 3% 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% RH
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 mm^2) to 26 AWG (0.129 mm^2)
RH Terminal Block Torque Rating:	4.43 to 5.31 lb-in (0.5 to 0.6 Nm)
RH NIST Test Points:	**Default Test Points:** 3 Points (20%, 50% & 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) (Lead Wire Colors) Non-Linear NTC (Negative Temperature Coefficient):	**RHx-1.8K Series:** 1.8KΩ (Red/Yellow) **RHx-3K Series:** 3KΩ (White/Brown) **RHx-AN Series (Type III):** 10KΩ (White/White) **RHx-AN-BC Series:** 5.238KΩ (White/Yellow) **RHx-CP Series (Type II):** 10KΩ (White/Green) **RHx-CSI Series:** 10KΩ (Green/Yellow) **RHx-10KS Series:** 10KΩ (White/Blue) **RHx-10K-E1 Series:** 10KΩ (Gray/Orange) **RHx-20K Series:** 20KΩ (Brown/Blue) **RHx-50K Series:** 50KΩ nominal (Brown/Yellow) **RHx-100KS Series:** 100KΩ (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) **1.8K Series:** +/- 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 Series: 2 mW/°C
Thermistor Sensor Response Time (T63):	10 Second 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, Temperature, NEMA/IP Rating):	**"-EH" Enclosure:** ABS Plastic | UL94-V0 | -40 to 140°F (-40 to 60°C) **"-4X" Enclosure:** Polystyrene Plastic | UL94-V2 | -40 to 158°F (-40 to 70°C) | NEMA 4X (IP 66) **"-BB" Enclosure:** Aluminum | -40 to 140°F (-40 to 60°C)
Sensing Tube Material | Filter Material:	**"EH" Enclosure:** 304 Series Stainless Steel | 304 Series Stainless Steel **"-4X" Enclosure:** Schedule 40 PVC (White) | Slotted PVC without filter **"-BB" Enclosure:** Schedule 40 PVC (White) | Slotted PVC without filter
Sensing Tube Dimensions (Length x Diameter):	**"-EH" Models with Sintered Filters:** 7.75" (196.85 mm) x 0.75" (19.05 mm) **"-4X" Models:** 7.20" (182.88 mm) x 0.840" (21.34 mm) **"-BB" Enclosure:** 7.20" (182.88 mm) x 0.840" (21.34 mm)
Product Dimensions (L x W x H):	See drawings on back of data sheet

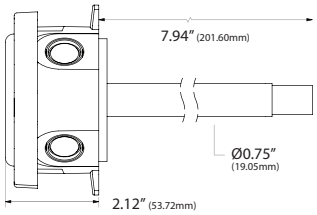
PRODUCT SPECIFICATIONS

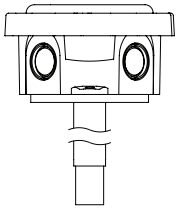
Product Weight:	**A/RHx-xx-D Series:** 1.22 lbs. (0.55 kg) | **A/RHx-xx-D-4X Series:** 0.50 lbs. (0.227 kg) | **A/RHx-D-BB Series:** 0.90 lbs. (0.41 kg)
Agency Approvals:	UKCA, CE, RoHS2, WEEE

DIMENSIONAL DRAWING

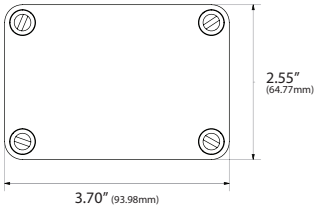
Euro Enclosure [EH]

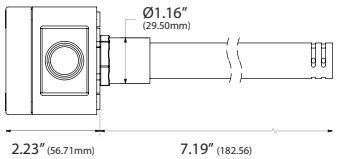


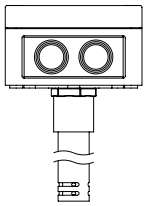




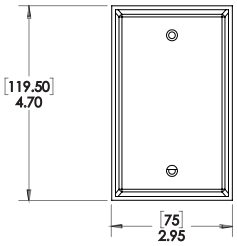
NEMA 4X Enclosure [4X]

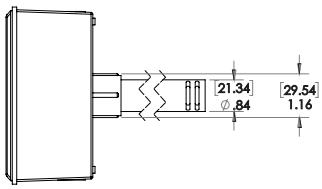


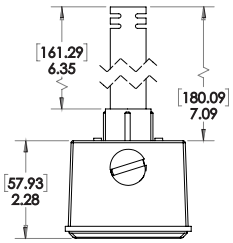




NEMA 3R Enclosure [D-BB]







Front View	Right View	Top View

CUSTOM ORDERING

Model # Example: A/ (A.) | RH2 (B.) | CP (C.) | D (D.) | (E.) | NIST (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%	
C. Temperature Sensor *Select One (1)*	**1.8K** | **3K** | **10KS** | **AN** (Type III) | **AN-BC** | **CP** (Type II) | **CSI** | **10K-E1** | **20K** | **50K** | **100KS**	
D. Configuration *Select One (1)*	**D** = Duct (Euro Enclosure) | **D-4X** = Duct (NEMA 4X Enclosure) | **D-BB** = Duct (NEMA 3R Enclosure)	
E. Output Signal *Select One (1)*	**----** = 4 to 20 mA (Default) | 0 to 10 VDC (Field Selectable) | 0 to 5 VDC (Field Selectable)	
F. NIST (Temperature & RH) *Select One (1)*	**----** = No NIST Certificate | **NIST** = NIST Certificate (3 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