



RH TT OUTSIDE AIR

Relative Humidity (RH), Temperature Transmitter (TT)

The ACI Relative Humidity with Temperature Transmitter Outside Air Series utilizes a thermoset polymer capacitive sensing element with a factory applied hydrophobic filter to deliver a proportional analog current or voltage output signal. The hydrophobic 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 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.

The temperature transmitter can be used as either a two-wire 4 to 20 mA proportional output or as a 3-Wire voltage output transmitter that includes a 100 Ohm or 1K Ohm Class A, Platinum RTD. All RH-TT Series Outside Air transmitters are mounted in a IP66/NEMA 4X enclosure with a 4.5" polycarbonate tube to protect the sensing elements from dust, rain, and snow. These units should be installed under an eave or protective shield on the north side of the building out of direct sunlight. The RH transmitter is conformally coated for added protection from moisture and other contaminants. NIST Calibration Certificates (Temperature and RH) are included for all TTM RH part series.

Applications: Monitoring Outdoor Temperature and Humidity, Humidification, Dehumidification, Roof Top Units, Air Handlers, Enthalpy and Dew Point Control Calculations, Process Control, Wash Down, Warehouse and NIST Certified Applications

The ACI RH TT 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, 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)
TT Supply Voltage Supply Current:	+8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC
TT Maximum Load Resistance:	(Terminal Voltage - 8.5 V) 0.020 A
TT Output Signals:	Current Output: 4-20 mA (2-Wire Loop Powered) Voltage Output: 1-5 VDC/2-10 VDC (3-Wire)
TT Calibrated Accuracy Linearity ¹:	Temperature Spans < 500°F (260°C): +/- 0.2% Temp Spans > 500°F (260°C): +/- 0.5%
TT Temperature Drift ²:	Temperature Spans < 100°F (38°C): +/- 0.04%/°F Temp Spans > 100°F (38°C): +/- 0.02%/°F
TTM100/TTM1K Certification Points:	3 Point NIST: 20%, 50%, 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span
TT Warm Up Time Warm Up Drift:	10 Minutes +/- 0.1%
Operating TT Temperature Range:	-40 to 185°F (-40 to 85°C)
Operating TT RH Range:	0 to 90% RH, non-condensing
Platinum RTD (PTC) Number Wires Wire Colors:	Two A/TT100/TTM100 Series: Brown/Brown A/TT1K/TTM1K Series: Black/Black
Platinum RTD Sensor Output @ 32°F (0°C):	A/TT100/TTM100 Series: 100 Ohms Nominal A/TT1K/TTM1K Series: 1000 Ohms Nominal



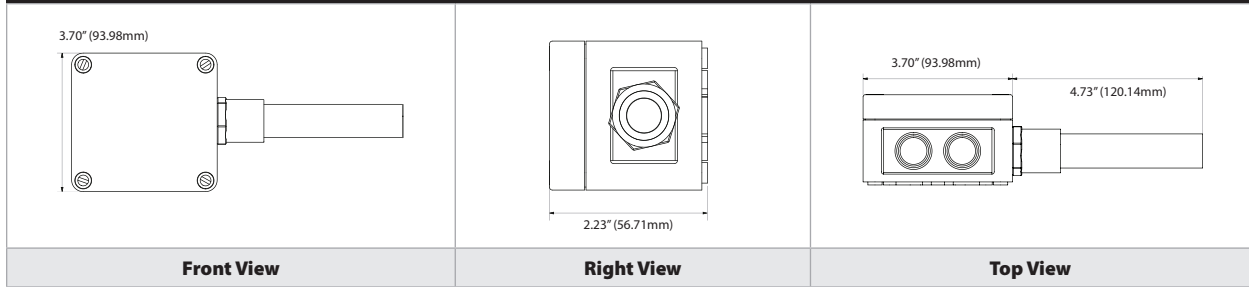


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Platinum RTD Tolerance Class Accuracy:	+/- 0.06% Class A Tolerance Formula: +/- °C = (0.15°C + (0.002 * t) where t is the absolute value of Temperature above or below 0°C in °C)
Platinum RTD Sensor Stability:	+/-0.03% after 1000 Hours @ 572°F (300°C)
Platinum RTD Response Time (63% Step Change):	8 Seconds nominal
Enclosure (Material, Flammability, Temperature, NEMA/IP Rating):	"-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66)
Sensing Tube Dimensions Tube Material	4.73" (120.14 mm) x 0.845" (21.46mm) ASA/PC FA-30
Product Dimensions (L x W x D):	See drawings on back of data sheet
Product Weight:	A/RHx-TT-O-4X Series: 0.56 lbs (0.254 kg)
Agency Approvals:	RoHS, WEEE

Note¹: A Transmitter is calibrated at 71°F (22°C) Nominal | **Note²:** Temperature Drift is referenced to 71°F nominal calibration temperature

DIMENSIONAL DRAWING



CUSTOM ORDERING

Model # Example: **A/** **RH2** **TT100** **0-4X** **1** **20-120°F**

		MODEL #
A. Sensor Series <i>No Selection Required</i>	A/	A/
B. Accuracy <i>Select One (1)</i>	RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3%	
C. Model Series <i>Select One (1)</i>	TT100 = 100 Ohms TTM100 = Matched 100 Ohms (3 Point RH & Temperature NIST) TT1K = 1K Ohms TTM1K = Matched 1K Ohms (3 Point RH & Temperature NIST)	
D. Configuration <i>Select One (1)</i>	O-4X = Outside Air (NEMA 4X Enclosure)	O-4X
E. Transmitter Output <i>Select One (1)</i>	4 = 4 to 20 mA 1 = 1 to 5 VDC* 2 = 2 to 10 VDC*	
F. Calibrated Span	Specify Span in °F or °C (Best Accuracy in 100°F Increments)	

Note*: A Temperature Transmitter Output of 1-5 VDC or 2-10 VDC would have a RH Output of 0-5 VDC or 0-10 VDC

ACCESSORIES ORDERING (NIST)

Model # Example: **NIST RH CERT**

Model #	Description
NIST RH TTM CERT - 5PT.	TTM Temperature and RH Calibration Certificate (5 Point NIST)

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

