



RH OUTSIDE AIR

Relative Humidity, Outside Air

The ACI Relative Humidity Outside Air 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

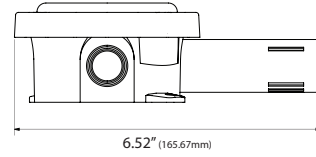
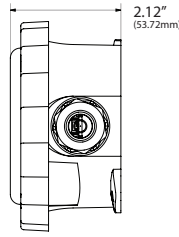
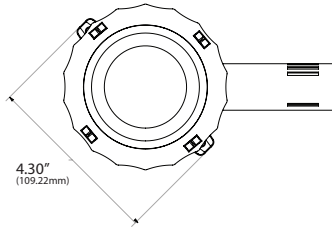
PRODUCT SPECIFICATIONS

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 & 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% 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%) 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)
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)
Sensing Tube Dimensions (Length x Diameter):	"-EH" Models: 3.00" (76.20 mm) x 1.125" (28.75 mm) "-4X" Models: 4.73" (120.14 mm) x 0.845" (21.46mm)
Product Dimensions (L x W x D):	See drawings on back of data sheet
Product Weight:	A/RHx-O Series: 0.59 lbs. (0.27 kg) A/RHx-O-4X Series: 0.45 lbs. (0.204 kg)
Agency Approvals:	CE, RoHS2, WEEE

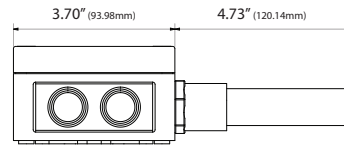
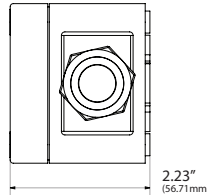
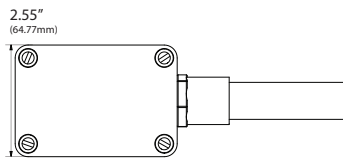


DIMENSIONAL DRAWING

Euro Enclosure [EH]



NEMA 4X Enclosure [4X]



Front View

Right View

Top View

STANDARD ORDERING

Model # Example: **A/RH1-O -OR- 122535**

Model #	Item #	Description
A/RH1-O	122535	RH Outside Air, +/- 1%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure
A/RH2-O	122701	RH Outside Air, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure
A/RH3-O	122936	RH Outside Air, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure
A/RH5-O	123095	RH Outside Air, +/- 5%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure
A/RH2-O-4X	122704	RH Outside Air, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NEMA 4X Enclosure
A/RH3-O-4X	122940	RH Outside Air, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NEMA 4X Enclosure

CUSTOM ORDERING

Model # Example: **A/ RH1 O 010**
A. B. C. D.

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. Configuration Select One (1)	O = Outside Air (Euro Enclosure) O-4X = Outside Air (NEMA 4X Enclosure)	
D. Output Signal Select One (1)	---- = 4 to 20 mA (Default) 010 = 0 to 10 VDC 05 = 0 to 5 VDC	

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
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-O Model Number



RH OUTSIDE AIR

Relative Humidity, Outside Air, Thermistors

The ACI Relative Humidity with Thermistor 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

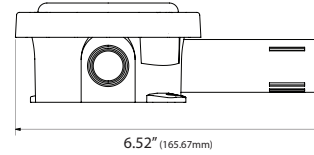
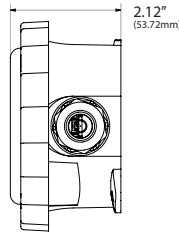
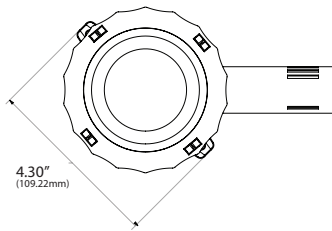
PRODUCT SPECIFICATIONS

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	
RH Supply Current (VA):	0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC	
RH Output Load Resistance:	Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA)	
RH Output Signal:	4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum	
RH Accuracy @ 77°F (25°C):	2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable)	
RH Measurement Range:	+/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95%	
Operating RH Range:	0-100%	
Operating Temperature Range:	0 to 95% RH, non-condensing (Conformally Coated PCB's)	
Storage Temperature Range:	-40 to 140°F (-40 to 60°C)	
RH Stability Repeatability Sensitivity:	-40 to 149°F (-40 to 65°C)	
RH Response Time (T63):	Less than 2% drift / 5 years 0.5% RH 0.1% RH	
RH Sensor Type:	20 Seconds Typical	
RH Transmitter Stabilization Time:	Capacitive with Hydrophobic Filter	
RH Connections Wire Size:	30 Minutes (Recommended time before doing accuracy verification)	
RH Terminal Block Torque Rating:	Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²)	
RH NIST Test Points:	4.43 to 5.31 lb-in (0.5 to 0.6 Nm)	
Nominal Thermistor Resistive Output @ 77°F (25°C)	Default Test Points: 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)
Non-Linear NTC (Negative Temperature Coefficient):	RHx-1.8K Series: 1.8KΩ (Red/Yellow)	RHx-CSI Series: 10KΩ (Green/Yellow)
	RHx-3K Series: 3KΩ (White/Brown)	RHx-10KS Series: 10KΩ (White/Blue)
	RHx-AN Series (Type III): 10KΩ (White/White)	RHx-10K-E1 Series: 10KΩ (Gray/Orange)
	RHx-AN-BC Series: 5.238KΩ (White/Yellow)	RHx-20K Series: 20KΩ (Brown/Blue)
	RHx-CP Series (Type II): 10KΩ (White/Green)	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)	
Thermistor Power Dissipation Constant:	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 Sensor Response Time (T63):	3 mW/°C except 1.8K Series: 1 mW/°C; 10K-E1 Series: 2 mW/°C	
Lead Wire Length Conductor Size:	10 Seconds nominal	
Insulation Rating:	14" (35.6 cm) 22 AWG (0.65 mm)	
Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating):	Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E	
Sensing Tube Dimensions (Length x Diameter):	"-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)	
	"-EH" Models: 3.00" (76.20 mm) x 1.125" (28.75 mm)	
	"-4X" Models: 4.73" (120.14 mm) x 0.845" (21.46mm)	
Product Dimensions (L x W x D):	See drawings on back of data sheet	
Product Weight:	A/RHx-xx-O Series: 0.59 lbs. (0.27 kg) A/RHx-xx-O-4X Series: 0.45 lbs. (0.204 kg)	
Agency Approvals:	CE, RoHS2, WEEE	

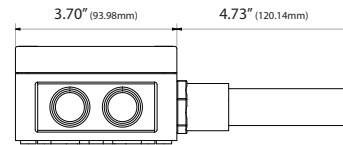
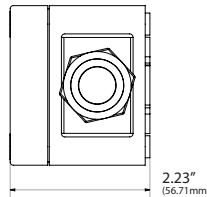
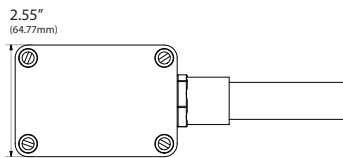


DIMENSIONAL DRAWING

Euro Enclosure [EH]



NEMA 4X Enclosure [4X]



Front View

Right View

Top View

CUSTOM ORDERING

Model # Example: **A/** **RH2** **CP** **O** **010** **NIST**

MODEL #

A. Sensor Series <i>No Selection Required</i>	A/ →	MODEL # A/
B. Accuracy <i>Select One (1)</i>	RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5%	
C. Temperature Sensor <i>Select One (1)</i>	1.8K 3K 10KS AN (Type III) AN-BC CP (Type II) CSI 10K-E1 20K 100KS	
D. Configuration <i>Select One (1)</i>	O = Outside Air (Euro Enclosure) O-4X = Outside Air (NEMA 4X Enclosure)	
E. Output Signal <i>Select One (1)</i>	---- = 4 to 20 mA (Default) 010 = 0 to 10 VDC 05 = 0 to 5 VDC	
F. NIST (Temperature) <i>Select One (1)</i>	---- = 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 [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-O Model Number



RH OUTSIDE AIR

Relative Humidity, Outside Air, Platinum RTDs

The ACI Relative Humidity with Platinum 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

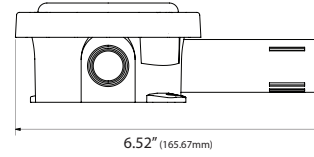
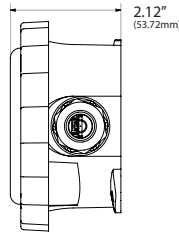
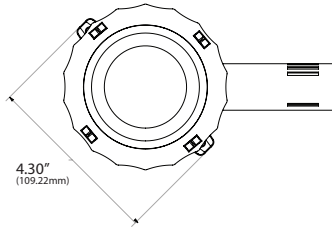
PRODUCT SPECIFICATIONS

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 & 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% 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%) 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)
Platinum RTD (PTC) Number Wires (Wire Colors):	RHx-100-2W Series: (Brown/Brown) & RHx-1K-2W Series: (Black/Black) RHx-100-3W Series: (Brown/Brown/Black) & RHx-1K-3W Series: (Black/Black/White)
Platinum RTD Output @ 32°F (0°C):	RHx-100-xW-O Series: 100 Ohms nominal RHx-1K-xW-O Series: 1000 Ohms nominal
Platinum RTD Tolerance Class:	+/- 0.06% Class A Tolerance Formula: +/-°C = (0.15°C + (0.002 * [t]))
Platinum RTD Din Standard:	DIN EN 60751 (IEC 751)
Temperature Coefficient:	3850 ppm/°C
Platinum RTD Stability:	+/- 0.03% after 1000 Hours @ 572°F (300°C)
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)
Sensing Tube Dimensions (Length x Diameter):	"-EH" Models: 3.00" (76.20 mm) x 1.12" (28.75 mm) "-4X" Models: 4.73" (120.14 mm) x 0.84" (21.46 mm)
Product Dimensions (L x W x D):	See drawings on back of data sheet
Product Weight:	A/RHx-xx-xW-O Series: 0.59 lbs. (0.27 kg) A/RHx-xx-xW-O-4X Series: 0.45 lbs. (0.204 kg)
Agency Approvals:	CE, RoHS2, WEEE

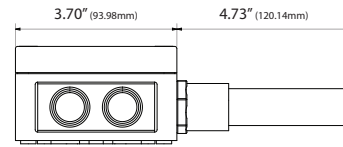
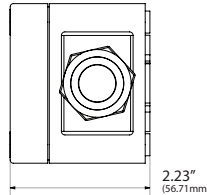
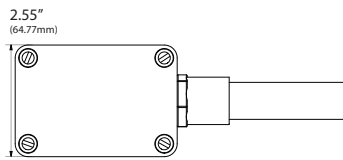


DIMENSIONAL DRAWING

Euro Enclosure [EH]



NEMA 4X Enclosure [4X]



Front View

Right View

Top View

CUSTOM ORDERING

Model # Example: **A/** **RH2** **100** **2W** **O** **010** **NIST**

MODEL #

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



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

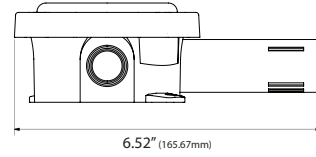
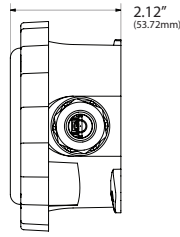
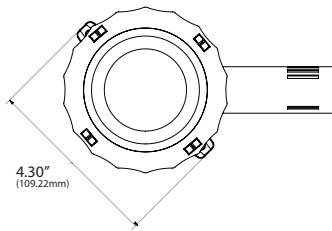
PRODUCT SPECIFICATIONS

RH Supply Voltage	4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC
(Reverse Polarity Protected):	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%, 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% 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%) 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)
Nickel RTD (PTC) Output @ 70°F (21.1°C)	RHx-1K-NI-O Series: 1000 Ohms nominal (1K-Nickel RTD) Red/Red
(Wire Colors):	
Nickel RTD Sensor Accuracy:	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)
Nickel Din Standard:	Din 43760
Temperature Coefficient (0-100°C):	6370 ppm/°C
Nickel RTD Stability:	+/-0.05% after 1000 Hours @ 302°F (150°C)
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)
Sensing Tube Dimensions (Length x Diameter):	"-EH" Models: 3.00" (76.20 mm) x 1.125" (28.75 mm) "-4X" Models: 4.73" (120.14 mm) x 0.845" (21.46mm)
Product Dimensions (L x W x D):	See drawings on back of data sheet
Product Weight:	A/RHx-1K-NI-O Series: 0.59 lbs. (0.27 kg) A/RHx-1K-NI-O-4X Series: 0.45 lbs. (0.204 kg)
Agency Approvals:	CE, RoHS2, WEEE

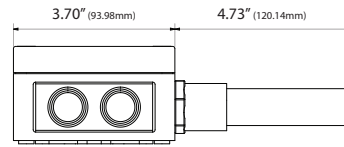
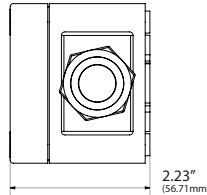
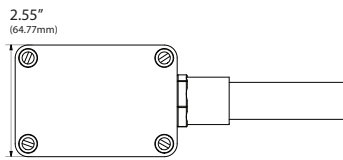


DIMENSIONAL DRAWING

Euro Enclosure [EH]



NEMA 4X Enclosure [4X]



Front View

Right View

Top View

CUSTOM ORDERING

Model # Example: **A/** **RH2** **1K-NI** **O** **010** **NIST**

MODEL #

A. Sensor Series <i>No Selection Required</i>	A/ <input type="text"/>	A/
B. Accuracy <i>Select One (1)</i>	RH1 = +/--1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/--2% RH3 = +/--3% RH5 = +/--5%	
C. Temperature Sensor <i>No Selection Required</i>	1K-NI <input type="text"/>	1K-NI
D. Configuration <i>Select One (1)</i>	O = Outside Air (Euro Enclosure) O-4X = Outside Air (NEMA 4X Enclosure)	
E. Output Signal <i>Select One (1)</i>	---- = 4 to 20 mA (Default) 010 = 0 to 10 VDC 05 = 0 to 5 VDC	
F. NIST (Temperature) <i>Select One (1)</i>	---- = 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 [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-O Model Number



RH OUTSIDE AIR

Relative Humidity, Outside Air, Balco RTD

The ACI Relative Humidity with Balco 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

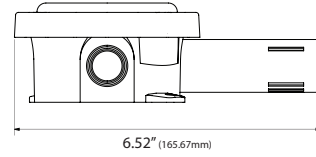
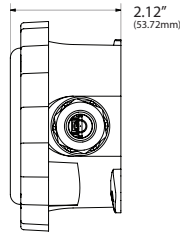
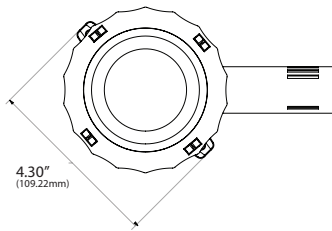
PRODUCT SPECIFICATIONS

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
RH Supply Current (VA):	0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC
RH Output Load Resistance:	Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA)
RH Output Signal:	4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum
RH Accuracy @ 77°F (25°C):	2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable)
RH Measurement Range:	+/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95%
Operating RH Range:	0-100%
Operating Temperature Range:	0 to 95% RH, non-condensing (Conformally Coated PCB's)
Storage Temperature Range:	-40 to 140°F (-40 to 60°C)
RH Stability Repeatability Sensitivity:	-40 to 149°F (-40 to 65°C)
RH Response Time (T63):	Less than 2% drift / 5 years 0.5% RH 0.1% RH
RH Sensor Type:	20 Seconds Typical
Humidity Transmitter Stabilization Time:	Capacitive with Hydrophobic Filter
Humidity Connections Wire Size:	30 Minutes (Recommended time before doing accuracy verification)
Humidity Terminal Block Torque Rating:	Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²)
Humidity NIST Test Points:	4.43 to 5.31 lb-in (0.5 to 0.6 Nm)
Balco RTD Output @ 70°F (21.1°C) (Wire Colors):	Default Test Points: 3 Points (20%, 50% and 80%) or 5 Points (20%, 35%, 50%, 65% & 80%)
Balco RTD Sensor Accuracy 70°F (21.1°C):	1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50)
Balco RTD Temperature Coefficient (0-100°C):	RHx-BALCO-O Series: 1000 Ohms nominal (Balco RTD) Orange/Yellow
Balco RTD Stability:	+/- 1.0%
Temperature Sensor Response Time (T63):	4618 ppm/°C
Lead Wire Length Conductor Size:	+/-0.05% after 1000 Hours @ 302°F (150°C)
Insulation Rating:	10 Seconds nominal
Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating):	14" (35.6 cm) 22 AWG (0.65 mm)
Sensing Tube Dimensions (Length x Diameter):	Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E
Product Dimensions (L x W x D):	"-EH" Enclosure: ABS Plastic; UL94-V0; -40 to 140°F (-40 to 60°C)
Product Weight:	"-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66)
Agency Approvals:	"-EH" Models: 3.00" (76.20 mm) x 1.125" (28.75 mm)
	"-4X" Models: 4.73" (120.14 mm) x 0.845" (21.46mm)
	See drawings on back of data sheet
	A/RHx-BALCO-O Series: 0.59 lbs. (0.27 kg) A/RHx-BALCO-O-4X Series: 0.45 lbs. (0.204 kg)
	CE, RoHS2, WEEE

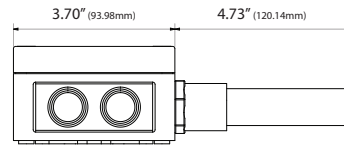
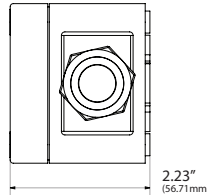
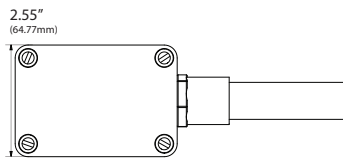


DIMENSIONAL DRAWING

Euro Enclosure [EH]



NEMA 4X Enclosure [4X]



Front View

Right View

Top View

CUSTOM ORDERING

Model # Example: A/ RH2 BALCO O 010 NIST

MODEL #

A. Sensor Series <i>No Selection Required</i>	A/ <input type="text"/>	A/
B. Accuracy <i>Select One (1)</i>	RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5%	
C. Temperature Sensor <i>No Selection Required</i>	BALCO <input type="text"/>	BALCO
D. Configuration <i>Select One (1)</i>	O = Outside Air (Euro Enclosure) O-4X = Outside Air (NEMA 4X Enclosure)	
E. Output Signal <i>Select One (1)</i>	---- = 4 to 20 mA (Default) 010 = 0 to 10 VDC 05 = 0 to 5 VDC	
F. NIST (Temperature) <i>Select One (1)</i>	---- = 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 [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-O Model Number



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 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 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

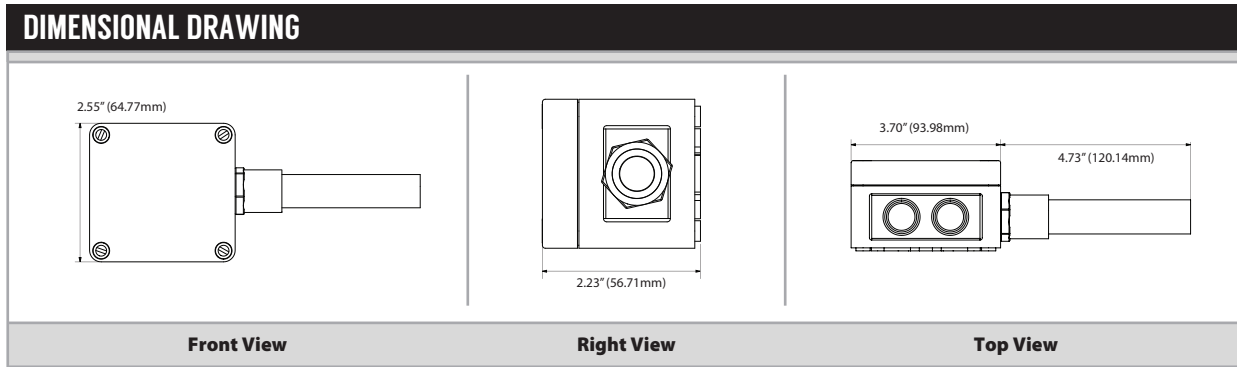
includes a 100 Ohm or 1K Ohm Class A, Platinum RTD. All RH-TT Series Outside Air transmitters are mounted in a IP66/NEMA 4X enclosure with a 4.5" polycarbonate tube to protect the sensing elements from dust, rain, and snow. These units should be installed under an eave or protective shield on the north 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 are available for all RH TTM 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

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
RH Supply Current (VA):	0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC
RH Output Load Resistance:	Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA)
RH Output Signal:	4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum
RH Accuracy @ 77°F (25°C):	2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable)
RH Measurement Range:	+/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95%
Operating RH Range:	0-100%
Operating Temperature Range:	0 to 95% RH, non-condensing (Conformally Coated PCB's)
Storage Temperature Range:	-40 to 140°F (-40 to 60°C)
RH Stability Repeatability Sensitivity:	-40 to 149°F (-40 to 65°C)
RH Response Time (T63):	Less than 2% drift / 5 years 0.5% RH 0.1% RH
RH Sensor Type:	20 Seconds Typical
RH Transmitter Stabilization Time:	Capacitive with Hydrophobic Filter
RH Connections Wire Size:	30 Minutes (Recommended time before doing accuracy verification)
RH Terminal Block Torque Rating:	Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²)
RH NIST Test Points:	4.43 to 5.31 lb-in (0.5 to 0.6 Nm)
TT Supply Voltage Supply Current:	Default Test Points: 3 Points (20%, 50% & 80%) or 5 Points (20%, 35%, 50%, 65% & 80%)
TT Maximum Load Resistance:	1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50)
TT Output Signals:	+8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum
TT Calibrated Accuracy Linearity ¹:	250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC
TT Temperature Drift ²:	(Terminal Voltage - 8.5 V) 0.020 A
TTM100/TTM1K Certification Points:	Current Output: 4-20 mA (2-Wire Loop Powered)
TT Warm Up Time Warm Up Drift:	Voltage Output: 1-5 VDC or 2-10 VDC (3-Wires)
Operating TT Temperature Range:	Temperature Spans < 500°F (260°C): +/- 0.2% Temperature Spans > 500°F (260°C): +/- 0.5%
Platinum RTD (PTC) Number Wires Wire Colors:	Temperature Spans < 100°F (38°C): +/- 0.04%/°F Temperature Spans > 100°F (38°C): +/- 0.02%/°F
Platinum RTD Sensor Output @ 32°F (0°C):	3 Point NIST: 20%, 50%, 80% of span 5 Point NIST: 10%, 20%, 50%, 80%, 90% of span
Platinum RTD Tolerance Class Accuracy:	10 Minutes +/- 0.1%
Platinum RTD Sensor Stability:	Operating TT RH Range: 0 to 90% RH, non-condensing
Platinum RTD Response Time (63% Step Change):	Two A/TT100/TTM100 Series: Brown/Brown A/TT1K/TTM1K Series: Black/Black
Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating):	A/TT100/TTM100 Series: 100 Ohms Nominal A/TT1K/TTM1K Series: 1000 Ohms Nominal
Sensing Tube Dimensions Tube Material:	+/- 0.06% Class A Tolerance Formula: +/- °C = (0.15°C + (0.002 * t))
Product Dimensions (L x W x D):	where t is the absolute value of Temperature above or below 0°C in °C
Product Weight:	+/-0.03% after 1000 Hours @ 572°F (300°C)
Agency Approvals:	8 Seconds nominal
	Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66)
	Temperature, NEMA/IP Rating:
	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: RoHS2, WEEE

Note 1: A Transmitter is calibrated at 71°F (22°C) Nominal | **Note 2:** Temperature Drift is referenced to 71°F nominal calibration temperature



CUSTOM ORDERING		Model # Example: A/ RH2 TT100 O-4X 1 20-120°F	MODEL #
		A. B. C. D. E. F.	
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% RH5 = +/-5%		
C. Model Series <i>Select One (1)</i>	TT100 = 100 Ohms TTM100 = Matched 100 Ohms (Specify 3 or 5 Point NIST) TT1K = 1K Ohms TTM1K = Matched 1K Ohms (Specify 3 or 5 Point NIST)		
D. Configuration <i>No Selection Required</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	
---- (Default)	TTM Calibration Certificate (3 Point NIST = 20, 50 & 80% of Span)	
NIST TTM CERT - 5PT.	TTM Calibration Certificate (5 Point NIST = 0, 20, 50, 80 & 100% of Span)	
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-TTMxx-O Model Number