



# OUTSIDE AIR

## Weatherproof Outside Air Transmitters

The ACI Transmitter Outside Air Series features a two-wire, 4 to 20 mA loop powered output with optional 3-Wire voltage output signals available. These units are designed to be mounted out of direct sunlight on the North side of a building or under an eave or intake hood. The Ruggedized epoxy coated transmitters “-POT” option should be used in extreme environments or in applications where you are looking for improved accuracy and reduced thermal drift due to the thermally conductive epoxy and more consistent board temperatures. Zero and Span adjustments are available for recalibration in the field when using NIST Certified equipment. All units include a Weather Proof or NEMA/IP rated enclosure and 1/2” knockouts or 1/2” NPT threaded hubs for use during installation. We recommend the use of 18 to 22 AWG shielded cable for all temperature transmitter installations to protect against the introduction of noise

onto the signal lines. ACI does offer recalibration services for any transmitters sent back to us for a nominal fee.

**Applications:** Outside Air Temperature Sensing, Economizer Control, Cold Storage Facilities or Warehouses, High Moisture Environments

### PRODUCT SPECIFICATIONS

<b>Transmitter Supply Voltage   Supply Current:</b>	+8.5 to 32 VDC (Reverse Polarity Protected)   25 mA minimum
<b>Maximum Load Resistance:</b>	<b>250 Ohm Load:</b> +13.5 to 32 VDC   <b>500 Ohm Load:</b> +18.5 to 32 VDC (Terminal Voltage - 8.5 V)   0.020 A
<b>Transmitter Output Signals:</b>	<b>Current:</b> 4-20 mA (2-Wire, Loop Powered)   <b>Voltage:</b> 1-5 VDC or 2-10 VDC (3-Wires)
<b>Calibrated Accuracy   Linearity<sup>1</sup>:</b>	<b>Temp. Spans &lt; 500°F (260°C):</b> +/- 0.2%
<b>Thermal Drift<sup>2</sup>:</b>	<b>Temp. Spans &lt; 100°F (38°C):</b> +/- 0.04%/°F   <b>Temp. Spans &gt; 100°F (38°C):</b> +/- 0.02%/°F
<b>Min./Max. Calibrated Temperature Spans:</b>	<b>Minimum Temp. Span:</b> 50°F (28°C)   <b>Maximum Temp. Span:</b> 300°F (148°C)
<b>Warm Up Time   Warm Up Drift:</b>	10 Minutes   +/- 0.1%
<b>Transmitter Operating Temperature Range:</b>	-40°F to 185°F (-40 to 85°C)
<b>Connections   Wire Size:</b>	Screw Terminal Blocks   16 AWG (1.31 mm <sup>2</sup> ) to 26 AWG (0.129 mm <sup>2</sup> )
<b>Terminal Block Torque Rating:</b>	0.37 ft-lb (0.5 Nm) nominal
<b>Sensor Type   Sensor Curve   Sensing Points:</b>	Platinum RTD   PTC (Positive Temperature Coefficient)   One
<b>Sensor Resistance @ 0°C (32°F)   Lead Colors:</b>	<b>A/TT/TTM100 Series:</b> 100 Ohms (Brown/Brown)   <b>A/TT/TTM1K Series:</b> 1000 Ohms (Black/Black)
<b>RTD Tolerance Class   Sensor Accuracy:</b>	+/- 0.06% Class A   ( <b>Class A Tolerance Formula:</b> +/- °C = (0.15°C + (0.002 *  t ))) where  t  is the absolute value of Temperature above or below 0°C in °C)
<b>Sensor Din Standard   Temperature Coefficient:</b>	DIN EN 60751 (IEC 751)   3850 ppm / °C
<b>Conformal Coating Material:</b>	UV Curable, Acrylated Polyurethane
<b>Conformal Coating Approval Ratings:</b>	MIL-I-46058C Qualified and IPC-CC 830   UL File Number E105698
<b>Dielectric Withstand Voltage Rating:</b>	> 1500 volts   MIL-I-46058C
<b>Insulation Resistance:</b>	8.0 x 10 <sup>14</sup> Ohms (800 Tera Ohms), per MIL-I-46058C
<b>Moisture Insulation Resistance:</b>	4.7 x 10 <sup>10</sup> Ohms (47 Giga Ohms), per MIL-I-46058C
<b>Conformal Coating Flammability Rating:</b>	UL94-V0
<b>Conformal Coating Temperature Rating:</b>	-65 to 125°C (-85 to 257°F)
<b>Resistance to Chemicals   Fungus Resistant:</b>	Excellent   Pass per ASTM G21
<b>Operating   Storage Temperature Range:</b>	-40 to 71°C (-40 to 160°F)   -40 to 71°C (-40 to 160°F)
<b>Operating Humidity Range:</b>	0 to 100% RH
<b>Enclosure Specifications (Temperature, Material, Flammability, NEMA/IP Ratings):</b>	<b>“-EH” enclosure:</b> PC/ASA Plastic w/ UV Protectant; -40 to 88°C (-40 to 190°F); UL94-V0 <b>“-4X” Enclosure:</b> Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) <b>“-BB” Enclosure:</b> Aluminum, -40 to 85°C (-40 to 185°F), NEMA 3R (IP 14)
<b>Lead Length   Conductor Size:</b>	14" (35.6cm)   22 AWG (0.65mm)
<b>Lead Wire Insulation   Wire Rating:</b>	Etched (PTFE) Teflon Colored Leads   MIL-W-16878/4 (Type E)
<b>Conductor Material:</b>	Silver Plated Copper
<b>Cord Grip Fitting Material   Flammability Rating:</b>	Polyamide 6.6   UL94-V2 (Included with “-4X” enclosure option only)
<b>Cord Grip Seal Material   NEMA/IP Rating:</b>	Neoprene   IP68 (NEMA 4X)
<b>Torque Recommendation Cord Grip:</b>	1.83 ft-lbs (2.50 Nm)
<b>Product Dimensions:</b>	See Drawings on back of Data Sheet
<b>Product Weight:</b>	<b>A/TT/TTM-O-EH Series:</b> 0.49 lbs. (0.222 kg)   <b>A/TT/TTM-O-4X Series:</b> 0.41 lbs. (0.180 kg); <b>A/TT/TTM-O-BB Series:</b> 0.79 lbs. (0.358 kg)   <b>“-POT” Option:</b> +0.12 lbs. (0.055 kg) to other weights
<b>Agency Approvals:</b>	RoHS2, WEEE

**Note<sup>1</sup>:** Transmitter's calibrated at 71°F (22°C) nominal | **Note<sup>2</sup>:** Temperature Drift is referenced to 71°F nominal calibration temperature





### DIMENSIONAL DRAWING, WEIGHTS

xx = Sensor Type

Bell Box Enclosure [BB]			<b>Bell Box Enclosure [BB] Weight</b>				
			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">ACI Model #</th> <th style="text-align: left;">Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-BB</td> <td>0.76 lbs. (0.172 kg)</td> </tr> </tbody> </table>	ACI Model #	Weight	A/xx-O-BB	0.76 lbs. (0.172 kg)
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NEMA 4X Enclosure [4X]			<b>NEMA 4X Enclosure [4X] Weight</b>				
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Front View	Right View	Top View	Product Weight				

### STANDARD ORDERING

Model # Example: A/TT100-O-1-EH -OR- 142557

Model #	Item #	Description
A/TT100-O-1-EH	142557	TT100 Outside Air; Euro Enclosure; 1-5 VDC Output   (Specify Temperature Span)
A/TT100-O-2-BB	129841	TT100 Outside Air; Aluminum NEMA 3R Enclosure; 2-10 VDC Output   (Specify Temperature Span)
A/TT100-O-4-4X	136427	TT100 Outside Air; Plastic NEMA 4X Enclosure; 4-20 mA Output   (Specify Temperature Span)
A/TTM100-O-1-EH*	142558	TT100 Outside Air; Euro Enclosure; 1-5 VDC Output   (Specify Temperature Span)
A/TTM100-O-2-BB*	130413	TT100 Outside Air; Aluminum NEMA 3R Enclosure; 2-10 VDC Output   (Specify Temperature Span)
A/TTM100-O-4-4X*	118433	TT100 Outside Air; Plastic NEMA 4X Enclosure; 4-20 mA Output   (Specify Temperature Span)
A/TT1K-O-1-EH	135856	TT1K Outside Air; Euro Enclosure; 1-5 VDC Output   (Specify Temperature Span)
A/TT1K-O-2-BB	126251	TT1K Outside Air; Aluminum NEMA 3R Enclosure; 2-10 VDC Output   (Specify Temperature Span)
A/TT1K-O-4-4X	118434	TT1K Outside Air; Plastic NEMA 4X Enclosure; 4-20 mA Output   (Specify Temperature Span)
A/TTM1K-O-1-EH*	138239	TT1K Outside Air; Euro Enclosure; 1-5 VDC Output   (Specify Temperature Span)
A/TTM1K-O-2-BB*	129898	TT1K Outside Air; Aluminum NEMA 3R Enclosure; 2-10 VDC Output   (Specify Temperature Span)
A/TTM1K-O-4-4X*	136993	TT1K Outside Air; Plastic NEMA 4X Enclosure; 4-20 mA Output   (Specify Temperature Span)

**Note\*:** Must specify a 3 or 5 point NIST Certificate with the TTM100 or TTM1K Transmitters above

### CUSTOM ORDERING

Model # Example: A/ TT100 O 2 EH 0 to 70°C

CUSTOM ORDERING	MODEL #
<b>A. Sensor Series</b> No Selection Required A/	A/
<b>B. Model Series</b> Select One (1) TT100 = 100Ω   TTM100 = Matched 100Ω   TT1K = 1KΩ   TTM1K = Matched 100Ω	
<b>C. Configuration</b> No Selection Required O = Outside Air	O
<b>D. Output Signal</b> Select One (1) 1 = 1 to 5 VDC   2 = 2 to 10 VDC   4 = 4 to 20 mA	
<b>E. Enclosure</b> Select One (1) EH = Euro Enclosure   BB = Aluminum NEMA 3R   4X = Plastic NEMA 4X Enclosure	
<b>F. Potted Transmitter</b> Select One (1) ---- = Standard   POT = Epoxy Potted Transmitter, Plastic Cup*	
<b>G. Calibrated Span</b> Specify Span in °F or °C (Best Accuracy in 100°F Increments)	

**Note\*:** Not available in "EH" style enclosure option

