OUTSIDE AIR
Weatherproof Outside Air Transmitters

O-BB

O-4X

O-EH

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 ½" NPT threaded hubs for use during installation. ACI recommends 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

The ACI Transmitter Outside Air Series 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.

PRODUCT SPECIFICATIONS

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**Transmitter 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
Maximum Load Resistance:	(Terminal Voltage - 8.5 V)	0.020 A
Transmitter Output Signals:	**Current:** 4-20 mA (2-Wire, Loop Powered)	**Voltage:** 1-5 VDC or 2-10 VDC (3-Wires)
**Calibrated Accuracy	Linearity[1]:**	**Temp. Spans < 500ºF (260ºC):** +/- 0.2%
Thermal Drift[2]:	**Temp. Spans < 100ºF (38ºC):** +/- 0.04%/ºF	Temp. Spans > 100ºF (38ºC): +/- 0.02%/ºF
TTM100/TTM1K Certification Points:	**3 Point NIST:** 20%, 50% & 80% of span	**5 Point NIST:** 20%, 35%, 50%, 65%, 80% of span
Min./Max. Calibrated Temperature Spans:	**Minimum Temp. Span:** 50ºF (28ºC)	**Maximum Temp. Span:** 300ºF (148ºC)
**Warm Up Time	Warm Up Drift:**	10 Minutes	+/- 0.1%
Transmitter Operating Temperature Range:	-40ºF to 185ºF (-40 to 85ºC)
**Connections	Wire Size:**	Screw Terminal Blocks (Polarity Sensitive)	16 AWG (1.31 mm²) to 26 AWG (0.129 mm²)
Terminal Block Torque Rating:	0.37 ft-lb (0.5 Nm) nominal
**Sensor Type	Sensor Curve	Sensing Points:**	Platinum RTD	PTC (Positive Temperature Coefficient)	One
**Sensor Resistance @ 0ºC (32ºF)	Lead Colors:**	**A/TT/TTM100 Series:** 100 Ohms (Brown/Brown)	**A/TT/TTM1K Series:** 1000 Ohms (Black/Black)
**RTD Tolerance Class	Sensor Accuracy:**	+/- 0.06% Class A	(**Class A Tolerance Formula:** +/- ºC = (0.15ºC + (0.002 * |t|))
	where |t| is the absolute value of Temperature above or below 0ºC in ºC)
**Sensor Din Standard	Temperature Coefficient:**	DIN EN 60751 (IEC 751)	3850 ppm / ºC
Conformal Coating Material:	UV Curable, Acrylated Polyurethane
Conformal Coating Approval Ratings:	MIL-I-46058C Qualified and IPC-CC 830	UL File Number E105698
Dielectric Withstand Voltage Rating:	> 1500 volts	MIL-I-46058C
Insulation Resistance:	8.0 x 1014 Ohms (800 Tera Ohms), per MIL-I-46058C
Moisture Insulation Resistance:	4.7 x 1010 Ohms (47 Giga Ohms), per MIL-I-46058C
**Operating	Storage Temperature Range:**	-40 to 71ºC (-40 to 160ºF)	-40 to 71ºC (-40 to 160ºF)
Operating Humidity Range:	0 to 100% RH
Enclosure Specifications (Temperature, Material, Flammability, NEMA/IP Ratings):	**"-EH" Enclosure:** PC/ASA Plastic w/ UV Protectant; -40 to 88ºC (-40 to 190ºF); UL94-V0
	"-4X" Enclosure: Polystyrene Plastic, -40 to 70ºC (-40 to 158ºF), UL94-V2, NEMA 4X (IP 66)
	"-BB" Enclosure: Aluminum, -40 to 121ºC (-40 to 250ºF), NEMA 3R
**Lead Length	Conductor Size:**	14" (35.6cm)	22 AWG (0.65mm)
**Lead Wire Insulation	Wire Rating:**	Etched (PTFE) Teflon Colored Leads	MIL-W-16878/4 (Type E)
Conductor Material:	Silver Plated Copper
**Cord Grip Fitting Material	Flammability Rating:**	Polyamide 6.6	UL94-V2 (Included with "-4X" enclosure option only)
**Cord Grip Seal Material	NEMA/IP Rating:**	Neoprene	IP68 (NEMA 4X)
Torque Recommendation Cord Grip:	1.83 ft-lbs (2.50 Nm)
Product Dimensions:	See Drawings on back of Data Sheet
Product Weight:	**A/TT/TTM-O-EH Series:** 0.49 lbs. (0.222 kg)	**A/TT/TTM-O-4X Series**: 0.41 lbs. (0.180 kg);
	A/TT/TTM-O-BB Series: 0.79 lbs. (0.358 kg)	**"-POT" Option:** +0.12 lbs. (0.055 kg) to other weights
Agency Approvals:	RoHS2, WEEE

Note[1]: Transmitter's calibrated at 71ºF (22ºC) nominal | **Note[2]:** Temperature Drift is referenced to 71ºF nominal calibration temperature
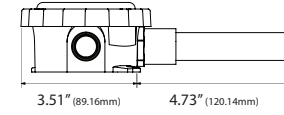
DIMENSIONAL DRAWING, WEIGHTS
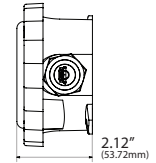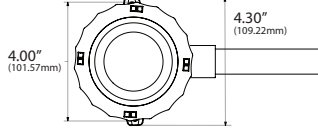
Bell Box Enclosure [BB]

2.95"
(75mm)

2.34"
(59.38mm)

4.70" (119.50mm)   4.73" (120.14mm)
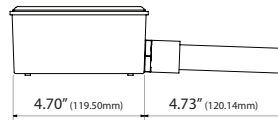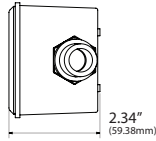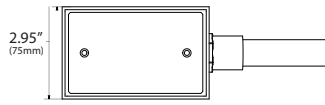
xx = Sensor Type

Bell Box Enclosure [BB] Weight

ACI Model #	Weight
A/xx-O-BB	0.76 lbs. (0.172 kg)

Euro Enclosure [EH]

4.00"
(101.57mm)

4.30"
(109.22mm)

2.12"
(53.72mm)

3.51" (89.16mm)   4.73" (120.14mm)

Euro Enclosure [EH] Weight

ACI Model #	Weight
A/xx-O-EH	0.46 lbs. (0.345 kg)

NEMA 4X Enclosure [4X]

2.55"
(64.77mm)

2.23"
(56.71mm)

3.70" (93.98mm)   4.73" (120.14mm)
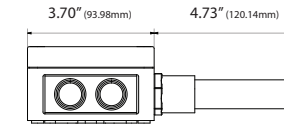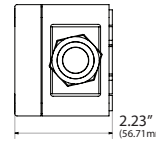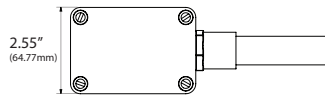
NEMA 4X Enclosure [4X] Weight

ACI Model #	Weight
A/xx-O-4X	0.38 lbs. (0.209 kg)

Front & Right Views	**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	130413	TT100 Outside Air; Aluminum NEMA 3R Enclosure; 2-10 VDC Output	(Specify Temperature Span)
A/TT100-O-4-4X	118434	TT100 Outside Air; Plastic NEMA 4X Enclosure; 4-20 mA Output	(Specify Temperature Span)
A/TT100-O-2-EH*	142558	TT100 Outside Air; Euro Enclosure; 2-10 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*	131180	TT100 Outside Air; Plastic NEMA 4X Enclosure; 4-20 mA Output	(Specify Temperature Span)
A/TT1K-O-1-EH	138289	TT1K Outside Air; Euro Enclosure; 1-5 VDC Output	(Specify Temperature Span)
A/TT1K-O-2-BB	118636	TT1K Outside Air; Aluminum NEMA 3R Enclosure; 2-10 VDC Output	(Specify Temperature Span)
A/TT1K-O-4-4X	118640	TT1K Outside Air; Plastic NEMA 4X Enclosure; 4-20 mA Output	(Specify Temperature Span)
A/TTM1K-O-4*	118972	TT1K Outside Air; Euro Enclosure; 4-20 mA Output	(Specify Temperature Span)
A/TTM1K-O-4-BB*	133615	TT1K Outside Air; Aluminum NEMA 3R Enclosure; 4-20 mA Output	(Specify Temperature Span)
A/TTM1K-O-4-4X*	118969	TT1K Outside Air; Plastic NEMA 4X Enclosure; 4-20 mA Output	(Specify Temperature Span)

CUSTOM ORDERING

Model # Example: A/ TT100 O 2 EH 0 to 70ºC
A. B. C. D. E. F. G.

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

Note*: For TTM100 or TTM1k part numbers, the default NIST is 3 points | 5 points may be requested by adding the part number listed below (NIST TTM CERT - 5PT.) There is a surcharge of $25 to upgrade to 5 point calibration

ACCESSORIES ORDERING

Model # Example: NIST TTM CERT-5PT. -OR- 129743

Model #	Item #	Description
NIST TTM CERT-5PT.	129743	5 Point Calibration & Certificate