STRAP ON

Non-Intrusive Pipe Mount, Transmitter

The ACI Transmitter Strap-On Series features a standard two-wire, 4 to 20 mA loop powered output signal with optional 3-Wire voltage output signals available. The Strap-On transmitter should be used in retrofit applications where an immersionstyle sensor can't be inserted into the pipe or in applications where high accuracy is not required. For best results, ACI recommends cleaning the pipes with a brush or small piece of sand paper before applying thermal grease to the top of the copper plate and securing to the pipe. Be sure not to over tighten before insulating the transmitter from the effects of the ambient air. For best results the sensor should be mounted on the top or sides of the pipe such that moisture and condensation will not cause the transmitter to fail prematurely. All transmitters must be ordered with the temperature span that you require, since the boards are tuned to give you the best performance characteristics for the temperature span specified. Zero and Span adjustments are available for recalibration in the field when using NIST Certified equipment. ACI recommends the use of an 18 to 22 AWG shielded cable for all temperature transmitter installations to protect against the introduction of noise onto the signal lines.

Applications: Hot Water Systems, Chilled Water Systems, Hydronic Systems, Chillers, Boilers

The ACI Transmitter Strap-On 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 web site, workaci.com.

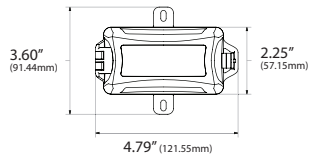
PRODUCT SPECIFICATIONS

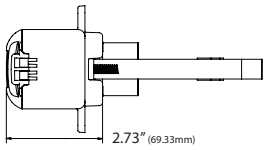
Transmitter Supply Voltage | Supply Current:	+8.5 to 32 VDC (Reverse Polarity Protected) | 25 mA minimum **250 Ohm Load:** +13.5 to 32 VDC | **500 Ohm Load:** +18.5 to 32 VDC
Maximum Load Resistance:	Terminal Voltage - 8.5 V) | 0.020 A
Transmitter Output Signals:	**Current:** 4-20 mA (2-Wire, Loop Powered) | **Voltage:** 1-5 VDC or 2-10 VDC (3-Wires)
Calibrated Accuracy | Linearity[1]:	**Temp. Spans < 500°F (260°C):** +/- 0.2% | **Temp. Spans > 500°F (260°C):** +/- 0.5%
Temperature Drift[2]:	**Temp. Spans < 100°F (38°C):** +/- 0.04%/°F | **Temp. Spans > 100°F (38°C):** +/- 0.02%
TTM100/TTM1K NIST Certification Points:	**3 Point NIST:** 20%, 50% & 80% of span | **5 Point NIST:** 20%, 35%, 50%, 65%, 80% of span
Calibrated Temperature Spans:	**Minimum Temp. Span:** 50°F (28°C) | **Maximum Temp. Span:** 300°F (148°C)
Transmitter Warm Up Time | Warm Up Drift:	10 Minutes | +/- 0.1%
Transmitter Operating Temperature Range:	-40°F to 185°F (-40 to 85°C)
Transmitter Operating Humidity Range:	0 to 90%, non condensing
Connections | Wire Size:	Screw Terminal Blocks (Polarity Sensitive) | 16 AWG (1.31 mm^2) to 26 AWG (0.129 mm^2)
Terminal Block Torque Rating:	0.37 ft-lb (0.5 Nm) nominal
Sensor Type | Sensor Curve:	Platinum RTD | PTC (Positive Temperature Coefficient)
Nominal Sensor Resistance @ 32°F (0°C):	**A/TT/TTM100 Series:** 100 Ohms | **A/TT/TTM1K Series:** 1000 Ohms
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)
Sensor Din Standard | Temperature Coefficient:	DIN EN 60751 (IEC 751) | 3850 ppm / °C
Enclosure Specifications (Operating Temp. Range, Flammability, NEMA/IP Ratings):	**A/XX-S-GD:** Galvanized Steel, -40 to 93°C (-40 to 200°F), NEMA 1 (IP 10) **A/XX-S-PB:** ABS Plastic, -30 to 85°C (-22 to 185°F), UL94-HB, Plenum Rated **A/XX-S-4X:** Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66)
Storage Temperature Range:	-40 to 75°C (-40 to 167°F)
Operating Humidity Range:	10 to 90% RH, non-condensing
Sensing Plate Material:	Copper
Fits Pipe Sizes:	1 1/4" (32 mm) to 4" (100 mm)
Foam Material | Flammability Rating:	Neoprene/EPDM/SBR Polymer | UL94-HF1; MIL-R-6130C; FMVSS-302
Lead Length | Conductor Size:	14" (35.6 cm) | 22 AWG (0.65 mm)
Lead Wire Insulation | Wire Rating:	Etched Teflon (PTFE) Colored Leads | MIL-W-16878/4 (Type E)
Conductor Material:	Silver Plated Copper
Product Weight:	**A/XX-S-GD:** 0.83 lbs. (0.38kg) | **A/XX-S-PB:** 0.43 lbs. (0.20kg) | **A/XX-S-4X:** 0.58 lbs. (0.27kg)
Agency Approvals:	RoHS2, WEEE

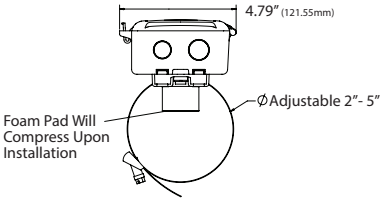
Note[1]: Transmitter's calibrated at 71°F (22°C) nominal | **Note[2]:** Temperature Drift is referenced to 71°F nominal calibration temperature

DIMENSIONAL DRAWING

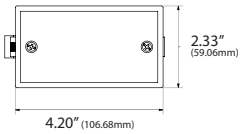
Plastic Box Enclosure [PB]

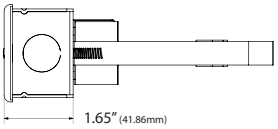


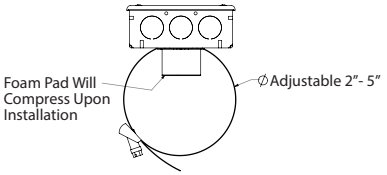




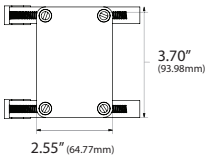
Galvanized Enclosure [GD]

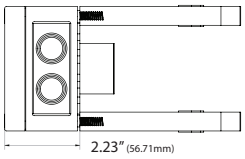


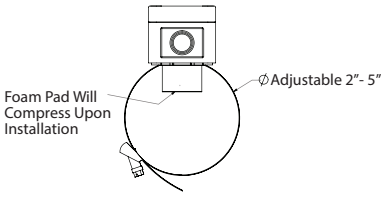




NEMA 4X Enclosure [4X]







Front View	Side View	Back View

CUSTOM ORDERING

Model # Example: A/ (A.) | TT100 (B.) | S (C.) | 2 (D.) | GD (E.) | 10 to 110°F (F.)

		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*	**S** = Strap-On (1.25" to 4" Pipe Size) →	**S**
D. Analog Output *Select One (1)*	**1** = 1 to 5 VDC | **2** = 2 to 10 VDC | **4** = 4 to 20 mA	
E. Enclosure *Select One (1)*	**GD** = Galvanized | **PB** = Plastic | **4X** = NEMA 4X Weather Proof	
F. Calibrated Span	**Specify Span in °F or °C (Best Accuracy in 100°F Increments)**	

Note*: For TTM100 or TTM1k part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

ACCESSORIES ORDERING

Model #	Item #	Description
A/HOSE CLAMP-2-5"	142630	Hardware, 2-5" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel
A/HOSE CLAMP-2-12"	142631	Hardware, 2-12" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel
NSG HEAT TRANSFER PASTE 2OZ	102595	Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C)
NSG HEAT TRANSFER PASTE 16OZ	140574	Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C)

ACCESSORIES ORDERING (NIST)

Model #	Description
-5PTNIST	5 Point Calibration & Certificate for TTM parts