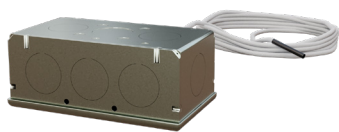




BULLET PROBE

Remote Probes with Transmitters



The ACI Transmitter Bullet Probe Series features a two-wire, 4 to 20 mA loop powered output signal with an optional 3-Wire voltage output signal available. All transmitters include Zero and Span adjustments for field calibration and are calibrated using NIST Certified Calibration equipment. We recommend the use of an 18 to 22 AWG shielded cable for all temperature transmitter installations to help eliminate the possibility of noise

being introduced onto the signal lines. The sensor assemblies are manufactured using a 2 conductor unshielded FEP/FEP Plenum rated, unshielded cable and ACI's proven double encapsulation process to eliminate the effects of moisture on the sensors as well as increased response times using our high quality, thermally conductive epoxy. The Bullet Probe remote sensors include an optional 10 or 20 Foot Plenum rated cable for use in remote sensor applications. All TT100 and TT1K Series Bullet Probe transmitter's sensor leads may be shortened in the field as needed but all Matched TTM100 and TTM1K Series transmitter's sensor leads should not be shortened due to the affect that it would have on the calibration accuracy of the sensor and transmitter. Optional NEMA/IP rated weather proof enclosures are available as specified on the back of the product data sheet. For best accuracy, ACI recommends the use of the A/TTM Series Matched transmitters with 3 or 5 Point NIST Calibration Certificate, since they include a second calibration step in which the RTD and transmitter are calibrated together as a system.

Applications: Chilled Water Systems, Hot Water Systems, Boilers, Pumps, Compressors, Chillers, Remote Sensing, Process Control

The ACI Transmitter Bullet Probe 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
Output Signals:	Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires)
Calibrated Accuracy Linearity¹:	Temp. Spans < 500°F (260°C): +/- 0.2%
Thermal Drift²:	Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02%
Min./Max. Calibrated Temperature Spans:	Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 400°F (204°C)
Matched Calibrated Temperature Spans (A/TTM models) Range:	-45 to 155°C (-49 to 311°F)
TTM100/TTM1K Certification Points:	3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span
Warm Up Time Warm Up Drift:	10 Minutes +/- 0.1%
Transmitter Operating Temperature Range:	-40 to 200°C (-40 to 392°F)
Transmitter Operating Humidity Range:	0 to 90%, non-condensing
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
Number Wires Wire Colors:	Two Red and Black (Non Polarity Sensitive)
Sensor Output @ 0°C (32°F):	A/TT100/TTM100 Series: 100 Ohms nominal A/TT1K/TTM1K Series: 1000 Ohms nominal
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)
Din Standard Temperature Coefficient:	DIN EN 60751 (IEC 751) 3850 ppm / °C
Sensor Stability:	+/- 0.03% after 1000 Hours @ 300°C (572°F)
Response Time (63% Step Change):	8 Seconds nominal
Sensor Operating Temperature Range:	-40 to 150°C (-40 to 302°F)
Enclosure Specifications (Operating Temperature, Material, Flammability, NEMA/IP Ratings):	"-GD" Enclosure: Galvanized Steel, -40 to 85°C (-40 to 185°F), NEMA 1 (IP10) "-PB" Enclosure: ABS Plastic, -30 to 85°C (-22 to 185°F), UL94-HB, Plenum Rated "-BB" Enclosure: Aluminum, -40 to 85°C (-40 to 185°F), NEMA 3R (IP 14) "-4X" Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66)
Storage Temperature Range:	-40 to 80°C (-40 to 176°F)
Operating Humidity Range:	5 to 95% RH, non-condensing
Probe Diameter Probe Material:	0.250" (6.35mm) 304 Stainless Steel
Cord Grip Fitting Material Flammability Rating:	Polyamide 6.6 UL94-V2
Cord Grip Seal Material NEMA/IP Rating:	Neoprene IP68 (NEMA 4X)
Torque Recommendation Cord Grip:	1.83 ft-lbs (2.50 Nm)



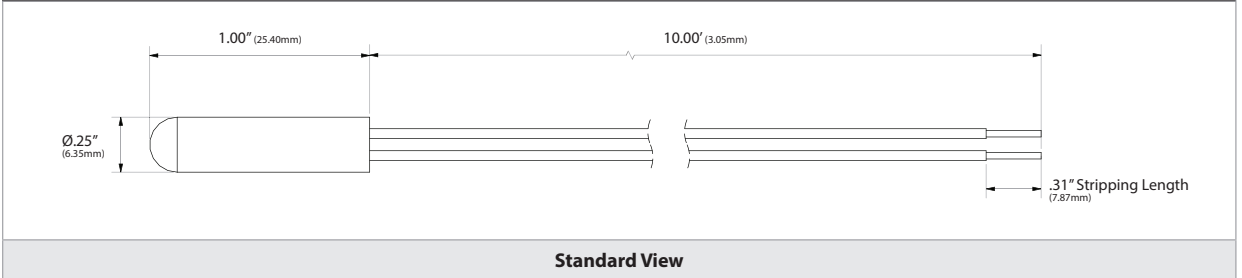


PRODUCT SPECIFICATIONS

Lead Length Cable Diameter Conductor Size:	10' (3.05 m) or 20' (6.1 m) 0.106" nominal (2.69 mm) 22 AWG (0.65mm)
Lead Wire Insulation Wire Rating:	FEP/FEP Teflon Unshielded Cable UL CL2P or CL3P; CMP C(UL) US 150°C, FT-6
Conductor Material:	Tin Plated Copper
Product Dimensions Product Weight:	See table on back of Product Data sheet
Agency Approvals:	RoHS2, WEEE

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

DIMENSIONAL DRAWING



OPTIONAL SENSOR ORDERING

		Model # Example:	MODEL #
		A/ TT100 BP 1 PB 10'CL2P 0 to 40°C	
		A. B. C. D. E. F. G.	
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	BP = 1" Stainless Steel Probe	→	BP
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)	GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X		
F. Lead Wire Type Select One (1)	---- = Standard 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable		
G. Calibration 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 | MOUNTING CLIPS

Model #	Item #	Description	Galvanized Metal	Plastic w/ Adhesive
A/MOUNTING CLIP-1/4"	143351	Hardware, 1/4" Mounting Clip	•	
A/MOUNTING U-CLIP-1/4"	143352	Hardware, 1/4" U-Mounting Clip Adhesive		•

ACCESSORIES ORDERING (NIST)

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

