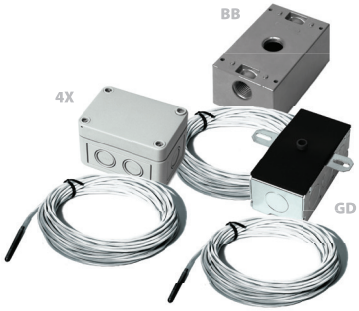


FREEZER

Remote Freezer Transmitters

The ACI RTD Freezer Series features a 3/16" diameter stainless steel probe with a 10 Foot or 30 Foot, 3 Conductor, 24 AWG Plenum rated jacketed Teflon cable. The sensor is designed to be used in Pharmaceutical, Liquid Nitrogen, Freezers, Refrigerators and Hydronic applications where a remote sensor is required. Optional "-GD" galvanized, "-BB" Aluminum, or "-4x" NEMA 4X weather proof plastic enclosures are available as well as NIST Certificates as referenced on the back of the product data sheet. A/TT Series transmitter accuracies must be calculated using both the calibration accuracy of the transmitter and the sensor accuracy over your applications operating temperature range. For higher accuracies, the A/TTM Series includes a secondary calibration process designed to eliminate most of the sensor error from the overall system accuracy. Any Freezer Transmitter can be used with the Single or Triple Point Glycol Kits when a Thermal Buffer (slower) response time is desired.

Applications: Pharmaceutical, Liquid Nitrogen, Refrigerators, Freezers, Hydronic Heating, Remote Sensor Applications, Hospital, Agricultural

The ACI Transmitter Freezer 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.

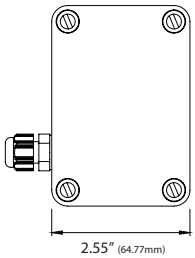
PRODUCT SPECIFICATIONS

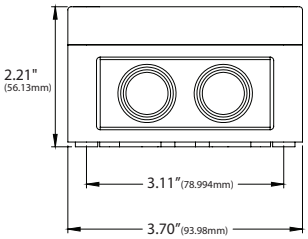
Transmitter Supply Voltage | Supply Current:	+13.5 to 32 VDC into 250 Ohm Load (Reverse Polarity Protected) | 25 mA minimum +18.5 to 32 VDC into 500 Ohm Load
Maximum Load Resistance:	Terminal Voltage - 8.5 V | 0.020 A | (775 Ohms @ 24 VDC)
Output Signals:	**Current:** 4-20 mA (2-Wire Loop Powered) **| Voltage:** 1-5 VDC or 2-10 VDC (3-Wires)
Calibrated Transmitter Accuracy | Linearity:	**Temp. Spans < 500ºF (260ºC):** +/- 0.2% **| Temp. Spans > 500ºF (260ºC):** +/- 0.5%
Temperature Drift:	**Temp. Spans < 100ºF (38ºC):** +/- 0.04%/ºF **| Temp. Spans > 100ºF (38ºC):** +/- 0.02%
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%
Operating | Storage Temperature Range:	-40ºF (-40ºC) to 185ºF (85ºC)
Operating Humidity Range:	0 to 95%, non-condensing
Calibrated Temperature Spans[1]:	**Minimum Temp. Span:** 50ºF (28ºC) **| Maximum Temp. Span:** 1000ºF (538ºC)
Matched Calibrated Temperature Spans (A/TTM models) Range:	-45 to 155ºC (-49 to 311ºF)
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:	0.5 Nm nominal
Sensor Type | Sensor Curve:	Platinum RTD | Linear, PTC (Positive Temperature Coefficient)
Number Wires:	Three Conductors (White and Two Red Wires); Polarity Sensitive (Red wires tied together)
Sensor Output @ 0ºC (32ºF):	**A/TT/TTM100-LTS Series:** 100 Ohms nominal **| A/TT/TTM1K-LTS Series:** 1000 Ohms nominal
RTD Tolerance Class[2] | Sensory Accuracy:	Class B **| Accuracy Formula:** +/- ºC = (+/- 0.30ºC + (0.005 x |t|)) **-200°C (-328°F):** +/- 1.30°C (+/- 2.43°F) **| 0°C (-32°F):** +/- 0.30°C (+/- 0.54°F)
Response Time (63% Step Change):	**A/TT/TTM100-LTS Series:** In still air: 3:40 (Min:Sec) In water: 19 (Sec) **|** **A/TT/TTM1K-LTS Series:** In still air: 3:50 (Min:Sec) In water: 22 (Sec)
Temperature Coefficient | Din Standard:	3850 ppm / ºC | DIN EN 60751 (IEC 751)
Stability:	< 0.04% @ 1000 hours @ 400ºC (752ºF)
Sensor Operating Temperature Range:	-198 to 150ºC (-324 to 302ºF)
Enclosure Specifications (Operating Temperature, Material, Flammability, NEMA/IP Ratings):	**"-GD" Enclosure:** -40 to 121ºC (-40 to 250ºF); Galvanized Steel; NEMA 1 (IP10) **"-BB" Enclosure:** Aluminum, -40 to 121ºC (-40 to 250ºF), Plenum Rated, NEMA 3R (IP 14) **"-4X" Enclosure:** -40 to 70ºC (-40 to 158ºF); Polystyrene Plastic; UL94-V2; NEMA 4X (IP 66)
Storage Temperature Range:	-40 to 80ºC (-40 to 176ºF)
Cable Gland (Fitting) Size | Hole Size | Material:	PG7 | 15 mm (0.591") | Polyamide 6
Cable Gland Sleeve Material | Wire Clamping Size:	Neoprene | 0.098" (2.5 mm) to 0.256" (6.5 mm)
Cable Gland IP Rating | Torque Rating:	IP 68 (NEMA 6P) | 2.5 Nm (22.127 lb. inch)
Probe Material | Length | Diameter:	316 Stainless Steel | 2" (50.8 mm) | 0.1875" (4.76 mm) nominal
Lead Length | Cable Diameter:	10' (3.05 m) or 30' (9.15 m) | 0.106" nominal (2.69 mm)
Conductor Size | Conductor Material:	24 AWG (0.51 mm) | Silver Plated Copper
Lead Wire Insulation | Jacket Color:	FEP/FEP (Teflon) Jacketed Cable | White
Product Weights:	**A/TT/TTMxxx-LTS-BB-10':** 0.84 lbs (0.39 kg) **A/TT/TTMxxx-LTS-BB-30':** 1.04 lbs (0.48 kg) **A/TT/TTMxxx-LTS-4X-10':** 0.42 lbs (0.19 kg) **A/TT/TTMxxx-LTS-4X-30':** 0.62 lbs (0.29 kg) **A/TT/TTMxxx-LTS-GD-10':** 0.73 lbs (0.32 kg) **A/TT/TTMxxx-LTS-GD-30':** 0.93 lbs (0.43 kg)
Agency Approvals:	WEEE, RoHS

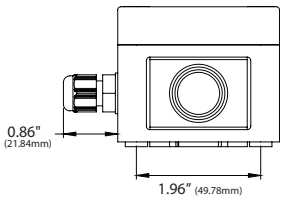
Note[1]: Transmitter's calibrated at 71ºF (22ºC) nominal | Note[2]: Where t is the Absolute Value of temperature in Centigrade above or below 0ºC

DIMENSIONAL DRAWING

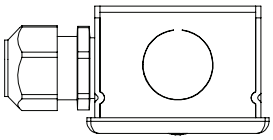
NEMA 4X Enclosure [4X]

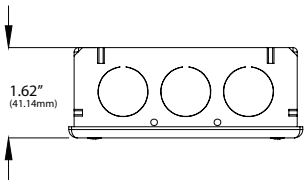


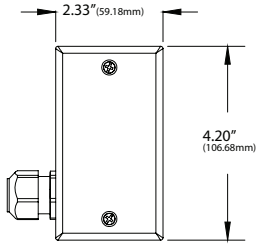




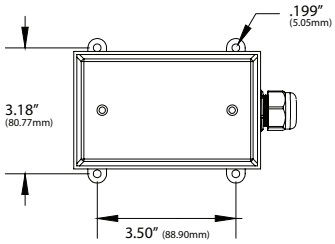
Galvanized Enclosure [GD]

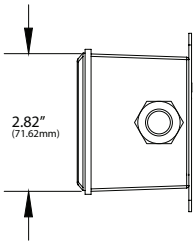


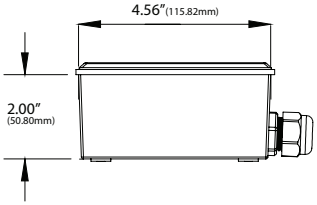




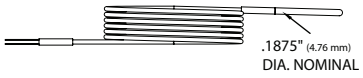
Bell Box Enclosure [BB]

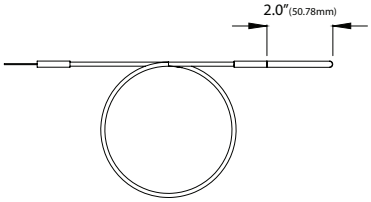






Sensor Probe





Front View	Side View	Top View

OPTIONAL SENSOR ORDERING — Model # Example: A/ (A.) - TT100 (B.) - LTS (C.) - 1 (D.) - GD (E.) - 10' (F.) - (G.)		MODEL #
A. Sensor Series *No Selection Required*	**A/** ⟶	**A/**
B. Model Series *Select One (1)*	**TT100 =** 100Ω RTD **| TTM100 =** Matched 100Ω RTD (Specify 3 or 5 Point NIST)* **TT1K =** 1KΩ RTD **| TTM1K =** Matched 1KΩ RTD (Specify 3 or 5 Point NIST)*	
C. Configuration *No Selection Required*	**LTS =** Freezer Sensor ⟶	**LTS**
D. Output Signal *Select One (1)*	**1** = 1 to 5 VDC (3-Wire) **| 2** = 2 to 10 VDC (3-Wire) **| 4** = 4 to 20 mA (2-Wire Loop Powered)	
E. Enclosure *Select One (1)*	**GD =** Galvanized Enclosure **| BB =** NEMA 3R Enclosure **| 4X =** NEMA 4X Enclosure	
F. Lead Length *Select One (1)*	**10' =** 10 Feet Leads (3.05 m) **| 30' =** 30 Feet (9.15m)	
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 (NIST)

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