



IMMERSION

Low Temperature Immersion Sensors & Transmitters

The ACI Low Temperature Immersion Series sensors and transmitters are a single point immersion sensor featuring a three wire RTD sensor assembly using Teflon insulated lead wires and a 316 Series stainless steel probe. The three wire sensors can be used with a two wire transmitter by connecting the two (Red) colored wires to one of the RTD Terminal blocks with the 3rd (White) wire going to the second RTD Terminal block. The purpose of the 3rd wire is to compensate for external lead wire resistance that will affect the accuracy of your sensor output when using with a three wire temperature transmitter or sensor configuration on your Building Management System or PLC (Programmable Logic Controller. ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD. The operating specifications are for both the sensor and transmitter as designated in the specification table. The overall accuracy of the temperature transmitter must be calculated using the transmitter calibrated accuracy plus that of the sensor error over temperature unless

ordering as a TTM matched transmitter. Standard enclosure options include the "GD" Galvanized or "BB" Aluminum weather proof enclosure. NIST Certificates are available for all of the configurations listed in the ordering grid on the back of the product data sheet. For best accuracy, ACI recommends the use of the TTM100 or TTM1K Series Matched transmitters since they include a second calibration step in which the RTD and transmitter are calibrated together as a system, in order to remove most of the sensor error over the calibrated temperature span of the transmitter.

Applications: Chillers, Pharmaceutical, Refrigeration, Process Cooling, Industrial Process Control

PRODUCT SPECIFICATIONS

Transmitter Supply Voltage Supply Current:	+8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum
Maximum Load Resistance:	250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC (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 Transmitter Accuracy Linearity:	Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5%
Temperature Drift:	Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02%
Warm Up Time Warm Up Drift:	10 Minutes +/- 0.1%
Operating Storage Temperature Range:	-40°F (-40°C) to 185°F (85°C)
Operating Humidity Range:	0 to 90%, non-condensing
Calibrated Temperature Spans*:	Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 800°F (426°C)
Connections Wire Size:	Screw Terminal Blocks (Non-Polarity Sensitive) 16 AWG (1.31mm ²) to 26 AWG (0.129mm ²)
Terminal Block Torque Rating:	0.5 Nm nominal
Sensor Type Sensor Curve Sensing Points:	Platinum RTD PTC (Positive Temperature Coefficient) One
Number Wires:	A/100-3W-LT-I-XX" and A/1K-3W-LT-I-xx" : Three (White / Two Red) Polarity Sensitive
Sensor Output @ 0°C (32°F):	A/100-3W-LT-I-xx" : 100 Ohms nominal A/1K-3W-LT-I-xx" : 1000 Ohms nominal
Sensor Tolerance Accuracy*:	+/- 0.12% Class B Class B Tolerance Formula: +/- °C = (0.30°C + (0.005 * t))
Din Standard Temperature Coefficient:	DIN EN 60751 (IEC 751) 3850 ppm °C
Sensor Stability:	< 0.04 % at 1000 hours at 400°C
Response Time (63% Step Change):	15 Seconds nominal
Self-Heating Maximum Operating Current:	100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4 mW/vC (Still Air) 3 mA
Sensor Operating Temperature Range:	-198 to 200°C (-324 to 392°F)
Enclosure Specifications (Operating Temperature Range, Material, Flammability, NEMA/IP Ratings):	"-GD" Enclosure: -40 to 199°C (-40 to 390°F); Galvanized Steel; NEMA 1 (IP10)
Storage Temperature Range:	"-BB" Enclosure: -50 to 115°C (-58 to 239°F); Aluminum; NEMA 3R (IP 14)
Operating Humidity Range:	-40 to 85°C (-40 to 185°F)
Probe Material Probe Diameter:	10 to 95% RH, non-condensing
Compression Fitting Material:	316 Stainless Steel 0.250" (6.35mm)
Lead Length Conductor Size:	316 Stainless Steel
Lead Wire Insulation Conductor Material:	8' (2.44 m) 22 AWG (0.25 mm ²)
Product Dimensions Product Weight:	Etched Teflon (PTFE) Silver Plated Copper
Agency Approvals:	See table on back of Product Data sheet
	RoHS2, WEEE

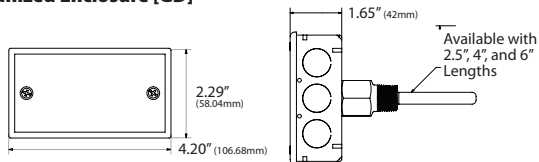
Note: Transmitter's calibrated at 71°F (22°C) nominal | **Note:** Where |t| is the absolute value of temperature above or below 0°C in Centigrade





DIMENSIONAL DRAWING. WEIGHTS

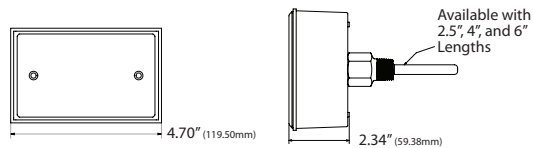
Galvanized Enclosure [GD]



Galvanized Enclosure [GD] Weights

ACI Model #	2.5" (Insertion Length)	4" (Insertion Length)	6" (Insertion Length)
A/xx-INW-yy-GD	0.66 lbs. (0.299 kg)	0.70 lbs. (0.318 kg)	0.74 lbs. (0.336 kg)
A/xx-I-yy-GD	0.88 lbs. (0.399 kg)	1.00 lbs. (0.454 kg)	1.04 lbs. (0.472 kg)
A/xx-IM-yy-GD	1.00 lbs. (0.454 kg)	1.16 lbs. (0.526 kg)	1.32 lbs. (0.599 kg)

Bell Box Enclosure [BB]



Bell Box Enclosure [BB] Weights

ACI Model #	2.5" (Insertion Length)	4" (Insertion Length)	6" (Insertion Length)
A/xx-INW-yy-BB	0.68 lbs. (0.308 kg)	0.72 lbs. (0.326 kg)	0.76 lbs. (0.345 kg)
A/xx-I-yy-BB	1.02 lbs. (0.463 kg)	1.04 lbs. (0.427 kg)	1.08 lbs. (0.490 kg)
A/xx-IM-yy-BB	1.02 lbs. (0.463 kg)	1.20 lbs. (0.544 kg)	1.36 lbs. (0.617 kg)

Standard Views

Product Weights

CUSTOM ORDERING LOW TEMPERATURE IMMERSION SENSORS		Model # Example:	A/	1K	3W	LT	I	4"	GD	NIST	MODEL #
			A.	B.	C.	D.	E.	F.	G.	H.	
A. Sensor Series No Selection Required	A/										A/
B. Model Series Select One (1)	100 = 100 Ohm Platinum RTD only 1K = 1K Ohm Platinum RTD only										
C. Number of Wires No Selection Required	3W = Three Wires (Specify for 100 and 1K RTD Sensors only)										3W
D. High Temperature No Selection Required	LT = Low Temperature Series										LT
E. Configuration Select One (1)	I = Immersion with Thermowell INW = Immersion without Thermowell										
F. Thermowell Insertion Length Select One (1)	2.5" = 2.5" Probe 4" = 4" Probe 6" = 6" Probe										
G. Enclosure Select One (1)	GD = Galvanized Enclosure BB = Cast Aluminum Weather Proof Enclosure										
H. NIST Select One (1)	---- = No NIST Certificate NIST = NIST Certificate (Must Specify 1, 3 or 5 Points)										

CUSTOM ORDERING LOW TEMPERATURE IMMERSION TRANSMITTERS		Model # Example:	A/	TT100	LT	I	6"	2	GD	MODEL #	
			A.	B.	C.	D.	E.	F.	G.	H.	
A. Sensor Series No Selection Required	A/										A/
B. Model Series Select One (1)	TT100 = Unmatched Temperature Transmitter & 100 Ohm RTD TT1K = Unmatched Temperature Transmitter & 1K RTD TTM100 = Matched 100 Ohm Temperature Transmitter/Sensor TTM1K = Matched 1K Ohm Temperature Transmitter/Sensor (Must specify 3 or 5 Point NIST Certificates for all TTM100 and TTM1K Transmitters)										
C. High Temperature No Selection Required	LT = Low Temperature Series										LT
D. Configuration Select One (1)	I = Immersion with Thermowell INW = Immersion without Thermowell										
E. Thermowell Insertion Length Select One (1)	2.5" = 2.5" Probe 4" = 4" Probe 6" = 6" Probe										
F. Analog Output Select One (1)	1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA										
G. Enclosure Select One (1)	GD = Galvanized Enclosure BB = Cast Aluminum Weather Proof Enclosure										
H. Calibrated Span	Specify Span in °F or °C (Best Accuracy in 100°F Increments)										

