

IMMERSION

High Temperature Immersion Sensors & Transmitters

The ACI High Temperature Immersion Series sensors and transmitters are a single point immersion sensor featuring a three wire RTD sensor assembly using Nickel Fiberglass Lead wires, a 316 Series stainless steel probe, and a Machined 304 SS Steel thermowell. The "INW" version of the product can be ordered without the thermowell for applications in which there is an existing thermowell, increased design parameters or other materials are required for higher corrosion resistance. 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 wire (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. 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 with a 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, which removes most of the sensor error over the calibrated temperature span of the transmitter.

Applications: Burners, Boilers, Stacks, Exhaust, Incinerators, Ovens, Plastics Processing, Process Heating, Process Control, Steam Lines

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 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-HT-D-xx" and A/1K-3W-HT-D-xx": Three (White / Two Red) Polarity Sensitive
Sensor Output @ 0°C (32°F):	A/100-3W-HT-D-xx": 100 Ohms nominal A/1K-3W-HT-D-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/°C (Still Air) 3 mA
Sensor Operating Temperature Range:	-40 to 395°C (-40 to 743°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) "-BB" Enclosure: -40 to 85°C (-40 to 185°F); Aluminum; NEMA 3R (IP 14)
Storage Temperature Range:	-40 to 85°C (-40 to 185°F)
Operating Humidity Range:	10 to 90% RH, non-condensing
Probe Material Probe Diameter:	316 Stainless Steel 0.250" (6.35mm)
Compression Fitting Material Thread Size:	316 Stainless Steel ½" NPT
Thermowell Material:	304 Series Stainless Steel
Thermowell Instrument Thread Process Thread:	½" NPS (National Pipe Straight – Female) ½" NPT (National Pipe Tapered – Male)
Lead Length Conductor Size:	8' (2.44 m) 24 AWG (0.20 mm ²)
Lead Wire Insulation Conductor Material:	Fiberglass Braided Insulation with Mica Tape 27% Nickel Plated Copper
Product Dimensions Product Weight:	See table on back of Product Data sheet
Agency Approvals:	RoHS2, WEEE

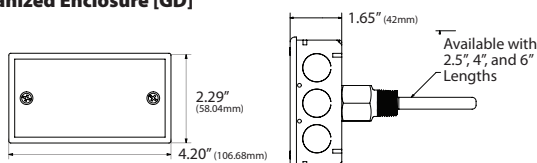
Note: Transmitter's calibrated at 71°F (22°C) nominal | **Note:** Where |t| is the absolute value of temperature above or below 0°C in Centigrade)





DIMENSIONAL DRAWING, WEIGHTS

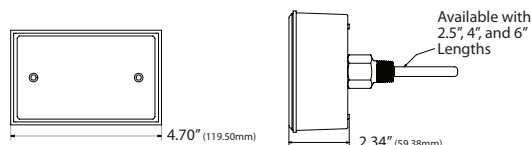
Galvanized Enclosure [GD]



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. (0.472 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

HIGH TEMPERATURE IMMERSION SENSORS

Model # Example:

A/ 1K 3W HT I 4" GD NIST

MODEL

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	HT = High Temp Series	HT
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

HIGH TEMPERATURE IMMERSION TRANSMITTERS

Model # Example:

A/ TT100 HT I 6" 2 GD

MODEL

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	HT = High Temp Series	HT
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 Select One (1)	Specify Span in °F or °C (Best Accuracy in 100°F Increments)	

