



DUCT

Low Temperature Duct Sensors and Transmitters

The ACI Low Temperature Duct Series sensors and transmitters are a single point duct sensor featuring a three wire RTD sensor assembly using Teflon 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 third wire (White) wire going to the second RTD Terminal block. The purpose of the third 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 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: Pharmaceutical, Liquid Nitrogen, Refrigerators, Freezers, Hydronic Heating, Remote Sensor Applications

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 Spans¹:	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-D-xx² and A/1K-3W-LT-D-xx² : Three (White / Two Red) Polarity Sensitive
Sensor Output @ 0°C (32°F):	A/100-3W-LT-D-xx² : 100 Ohms nominal A/1K-3W-LT-D-xx² : 1000 Ohms nominal
Sensor Tolerance Accuracy²:	+/- 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	“-GD” Enclosure: -40 to 199°C (-40 to 390°F); Galvanized Steel; NEMA 1 (IP10)
Range, Material, Flammability, NEMA/IP Ratings):	“-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:	316 Stainless Steel
Lead Length Conductor Size:	8' (2.44 m) 22 AWG (0.25 mm)
Lead Wire Insulation Conductor Material:	Etched Teflon (PTFE) Silver Plated Copper
Product Dimensions Product Weight:	See table on back of Product Data sheet
Agency Approvals:	RoHS2, WEEE

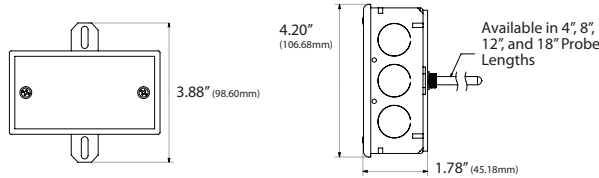
Note¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note²:** Where |t| is the absolute value of temperature above or below 0°C in Centigrade





DIMENSIONAL DRAWING, WEIGHTS

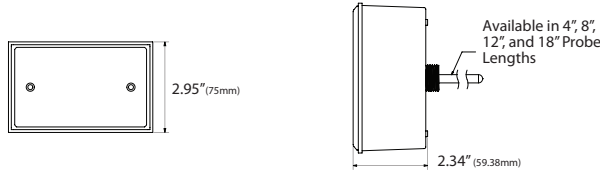
Galvanized Enclosure [GD]



Galvanized Enclosure [GD] Weights

ACI Model #	4" (Probe Length)	8" (Insertion Length)
A/xx-D-yy-GD	0.66 lbs. (0.299 kg)	0.68 lbs. (0.308 kg)
ACI Model #	12" (Probe Length)	18" (Probe Length)
A/xx-D-yy-GD	0.70 lbs. (0.317 kg)	0.74 lbs. (0.336 kg)

Bell Box Enclosure [BB]



Bell Box Enclosure [BB] Weights

ACI Model #	4" (Probe Length)	8" (Insertion Length)
A/xx-D-yy-BB	0.70 lbs. (0.317 kg)	0.72 lbs. (0.326 kg)
ACI Model #	12" (Probe Length)	18" (Probe Length)
A/xx-D-yy-BB	0.74 lbs. (0.336 kg)	0.78 lbs. (0.354 kg)

Front View

Top View

CUSTOM ORDERING

LOW TEMPERATURE DUCT SENSORS

Model # Example: A/ 1K 3W LT D 4" GD NIST

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. Low Temperature No Selection Required	LT = Low Temperature Series	LT
E. Configuration No Selection Required	D = Duct	D
F. Duct Insertion Length Select One (1)	4" = 4" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" 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)	

MODEL #

CUSTOM ORDERING

LOW TEMPERATURE DUCT TRANSMITTERS

Model # Example: A/ TT100 LT D 8" 2 GD

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. Low Temperature No Selection Required	LT = Low Temperature Series	LT
D. Configuration No Selection Required	D = Duct	D
E. Duct Insertion Length Select One (1)	4" = 4" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" 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)	

MODEL #

