

# Immersion Temperature Sensors

## Corrosion Resistant Stainless Steel Probe

### APPLICATIONS

- Tanks
- Pipes
- Chillers

### FEATURES

- Cost-effective high accuracy thermistors/RTDs
- Corrosion resistant stainless steel probe design
- 1/2" NPT threads standard
- Variety of enclosures include duct mount, service entry body, threaded, and water resistant
- Thermowells available



### DESCRIPTION

These immersion probe type temperature sensors are both highly accurate and cost effective. Installation could not be easier. The sensor is encased in a corrosion-resistant stainless steel probe for durability, with a choice of service entry body, indoor junction box, or threaded enclosures. A variety of RTD or thermistor sensor options and probe lengths are available for maximum application versatility.

To compute Linetemp Temperature:

- 2-Wire version (1μA/°C)  
μA reading - 273.15 = Temperature in °C
- 3-Wire version (10mV/°C)  
mV reading/10 - 273.15 = Temperature in °C

Class	Pt RTD		THERMISTOR									
Type	100 Ohm	1000 Ohm	2.2k	3k	10k Type 2	10k Type 3	10k Dale	10k 3A221	10k "G" US	20k	20k "D"	100k
Accuracy	±0.3°C	±0.3°C	±0.2°C	±0.2°C	±1.0°C	±0.2°C	±0.2°C	±1.1°C	±0.2°C	Consult	Consult	Consult
Temp. Response*	0.0385 curve	0.0385 curve	0/70°C	0/70°C	-50/150°C	0/70°C	0/70°C	0/70°C	0/70°C	Factory	Factory	Factory
	PTC	PTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC

\*PTC: Positive Temperature Coefficient  
\*NTC: Negative Temperature Coefficient

### STANDARD RTD AND THERMISTOR VALUES (Ohms Ω)

°C	°F	100 Ohm	1000 Ohm	2.2k	3k	10k Type 2	10k Type 3	10k Dale	10k 3A221	10k "G" US	20k	20k "D"	100k
-50	-58	80.306	803.06	154,464	205,800	692,700	454,910	672,300	-	441,200	1,267,600	-	-
-40	-40	84.271	842.71	77,081	102,690	344,700	245,089	337,200	333,562	239,700	643,800	803,200	3,366,000
-30	-22	88.222	882.22	40,330	53,730	180,100	137,307	177,200	176,081	135,300	342,000	412,800	1,770,000
-20	-4	92.160	921.60	22,032	29,346	98,320	79,729	97,130	96,807	78,910	189,080	220,600	971,200
-10	14	96.086	960.86	12,519	16,674	55,790	47,843	55,340	55,252	47,540	108,380	122,400	553,400
0	32	100.000	1000.00	7,373	9,822	32,770	29,588	32,660	32,639	29,490	64,160	70,200	326,600
10	50	103.903	1039.03	4,487	5,976	19,930	18,813	19,900	19,901	18,780	39,440	41,600	199,000
20	68	107.794	1077.94	2,814	3,750	12,500	12,272	12,490	12,493	12,260	24,920	25,340	124,900
25	77	109.735	1097.35	2,252	3,000	10,000	10,000	10,000	10,000	10,000	20,000	20,000	100,000
30	86	111.673	1116.73	1,814	2,417	8,055	8,195	8,056	8,055	8,194	16,144	15,884	80,580
40	104	115.541	1155.41	1,199	1,598	5,323	5,593	5,326	5,324	5,592	10,696	10,210	53,260
50	122	119.397	1193.97	811.5	1,081	3,599	3,894	3,602	3,600	3,893	7,234	6,718	36,020
60	140	123.242	1232.42	561.0	747	2,486	2,763	2,489	2,486	2,760	4,992	4,518	24,880
70	158	127.075	1270.75	395.5	527	1,753	1,994	1,753	1,751	1,990	3,512	3,100	17,510
80	176	130.897	1308.97	284.0	378	1,258	1,462	1,258	1,255	1,458	2,516	2,168	12,560
90	194	134.707	1347.07	207.4	-	919	1,088	917	915	1,084	1,833	1,542	9,164
100	212	138.506	1385.06	153.8	-	682	821	679	678	816.8	1,356	1,134	6,792
110	230	142.293	1422.93	115.8	-	513	628	511	509	623.6	1,016	816	5,108
120	248	146.068	1460.68	88.3	-	392	486	389	388	481.8	770	606	3,894
130	266	149.832	1498.32	68.3	-	303	380	301	299	376.4	591	456	3,006

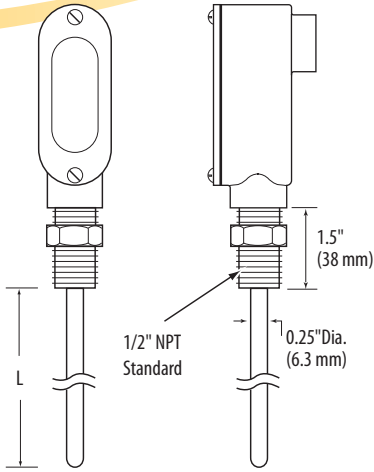
### SPECIFICATIONS

<b>Wiring</b>	22AWG; 2-wire:RTD Thermistor, 4-20mA; 3-wire: Voltage output models
<b>Probe</b>	Stainless Steel
<b>Test Pressure</b>	200psi
<b>Linetemp:</b>	
<b>Input Power</b>	5 to 30VDC
<b>Output</b>	1μA/°C or 10mV/°C
<b>Operating Temperature</b>	-25° to 105°C (-13° to 221°F)
<b>Accuracy</b>	Calibration Error: 1.5°C (35°F) typical; 2.5°C (37°F) max. at 25°C (77°F)* Error over Temperature: 1.8°C typical (35°F); 3.0°C (34°F) max. over 0° to 70°C (32° to 158°F) range 2.0°C (35°F) typical, 3.5°C (38°F) max. over -25° to 105°C (-13° to 221°F) range

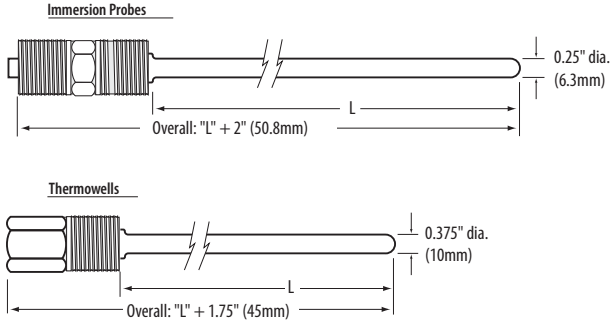
\*Room temperature error documented on each unit.

**DIMENSIONAL DRAWINGS**

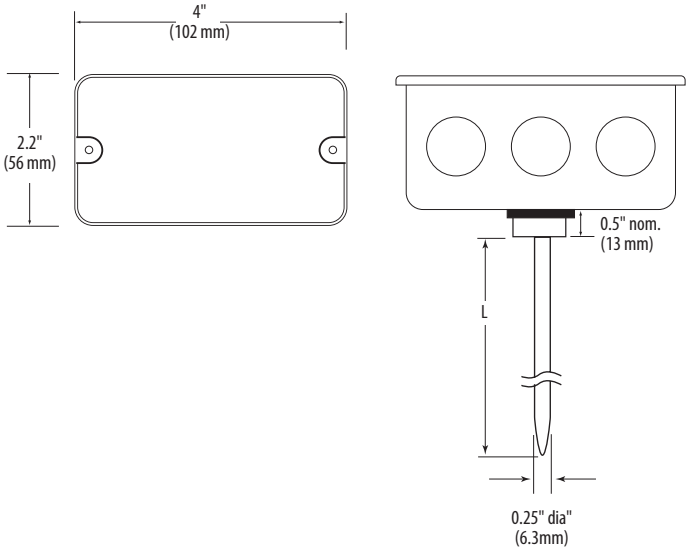
*TIG Model*



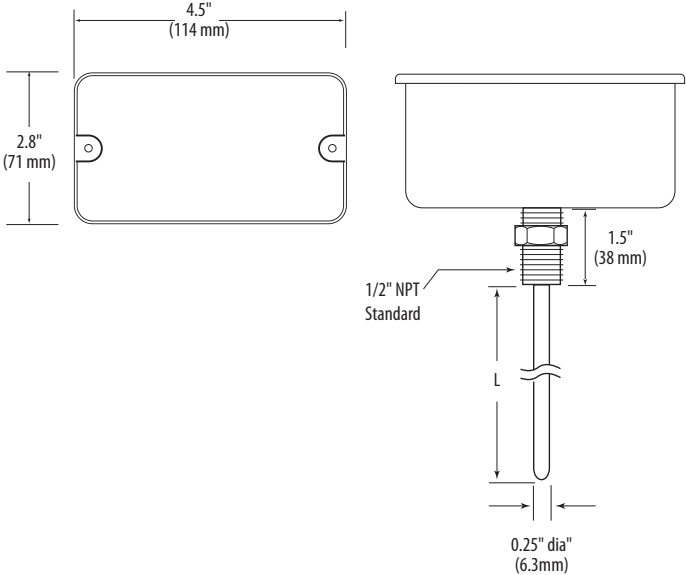
*TIH Model*



*TID Model*



*TIW Model*



TEMPERATURE

**ORDERING INFORMATION**

<p><b>TI</b> <input type="checkbox"/></p> <p><b>D</b> = Duct <b>G</b> = Service Entry Body <b>H</b> = Threaded NPT Only <b>W</b> = Water resistant housing</p>	<p><b>Immersion Probe Length "L"</b></p> <p><input type="checkbox"/> <b>A</b> = 2 1/2" (64mm) <input type="checkbox"/> <b>B</b> = 4" (102mm) <input type="checkbox"/> <b>C</b> = 6" (152mm) <input type="checkbox"/> <b>D</b> = 8" (203mm) <input type="checkbox"/> <b>E</b> = 12" (305mm)</p>	<p><b>Thermowell</b></p> <p><input type="checkbox"/> <b>0</b> = None <input type="checkbox"/> <b>1</b> = Add Thermowell</p>	<p><b>Sensor Type</b></p> <p><input type="checkbox"/> <b>B</b> = 100R Platinum, RTD <input type="checkbox"/> <b>C</b> = 1k Platinum, RTD <input type="checkbox"/> <b>D</b> = 10k T2, Thermistor <input type="checkbox"/> <b>E</b> = 2.2k, Thermistor <input type="checkbox"/> <b>F</b> = 3k, Thermistor <input type="checkbox"/> <b>G</b> = 10k CPC, Thermistor <input type="checkbox"/> <b>H</b> = 10k, T3, Thermistor <input type="checkbox"/> <b>J</b> = 10k Dale, Thermistor <input type="checkbox"/> <b>K</b> = 10k w/11k shunt, Thermistor <input type="checkbox"/> <b>M</b> = 20k NTC, Thermistor <input type="checkbox"/> <b>N</b> = 1800 ohm, Thermistor <input type="checkbox"/> <b>P</b> = 10mV/°C, Linitemp <input type="checkbox"/> <b>R</b> = 10k US, Thermistor <input type="checkbox"/> <b>S</b> = 10k 3A221, Thermistor <input type="checkbox"/> <b>T</b> = 100k, Thermistor <input type="checkbox"/> <b>U</b> = 20k "D", Thermistor</p>	<p><b>OPTIONS</b></p>	
				<p><b>Cal Certificate</b></p> <p><input type="checkbox"/> <b>0</b> = None <input type="checkbox"/> <b>1</b> = 1 point Cal validation <input type="checkbox"/> <b>2</b> = 2 point Cal validation</p>	<p><b>Threads</b></p> <p><input type="checkbox"/> <b>Blank</b> = NPT <input type="checkbox"/> <b>A</b> = BSPT <input type="checkbox"/> <b>B</b> = DIN 2999</p>

**Thermowell Sizing**

Probe Length	Thermowell Length
A (2 1/2") (64mm)	1 1/2" (38mm)
B (4") (102mm)	3" (76mm)
C (6") (152mm)	5" (127mm)
D (8") (203mm)	7" (178mm)
E (12") (305mm)	11" (279mm)

**Example:**

TI  **D**  **B**  **1**  **D**  **2**  **A**

**NOTE:**  
For 4-20mA transmitter output, order any TI with the 100Ω platinum RTD and accessory AA10xx

**ACCESSORIES**

Thermowells (AA22, AA24, AA25, AA33)