

# TEMPERATURE

## IMMERSION THERMISTOR SENSOR

### MODEL ST-W◇



#### DESCRIPTION

The PreCon **Model ST-W◇ Immersion Thermistor Sensor** provides precision remote temperature sensing for building automation systems and mechanical equipment room instrumentation. The active sensing element is a highly stable precision thermistor material accurate to within  $\pm 0.36^{\circ}\text{F}$  ( $\pm 0.2^{\circ}\text{C}$ ).

The sensing element is sealed with a temperature conductive compound in a 4-7/8" (12.4 cm) stainless steel tube and brass fitting. A brass thermowell is the standard well provided with each sensor. A Greenfield connector is factory installed for flexible connection. The sensor probe assembly is removable from the thermowell for replacement without draining the system.

#### FEATURES

- **Five-year warranty**
- **$\pm 0.36^{\circ}\text{F}$  ( $\pm 0.2^{\circ}\text{C}$ ) accuracy**
- **Wide selection of thermistor curves**
- **Brass thermowell for quick temperature response**
- **Adaptable with many options**
- **Easy to mount and remove from thermowell**
- **Waterproof stainless steel probe**

#### APPLICATION

The **Immersion Sensor** is a waterproof sensor featuring a 304 stainless steel probe and brass fitting. The fitting has a 1/2" NPT female threads to accept the standard Greenfield fitting. It has 1/8" NPT male threads for installing into a furnished **WEL-B** thermowell.



The thermowells are designed with close tolerances, eliminating the need for thermal grease under normal conditions. Each well is designed so that the sensor assembly can be easily removed after installation. The well screws into a 1/2" NPT saddle (or Thredolet® fitting) furnished by the installing contractor.

#### OPTIONS

- **304 stainless steel well**  
**max temp 900°F (482°C)**  
**max pressure 3000 psig (20,685 kPa)**
- **Handibox enclosure**
- **Custom lengths (wells available)**
- **1/2" LB conduit fitting**
- **Liquid-tight fitting**
- **Weatherproof box**
- **Matched pairs used for BTU measurement**
- **NIST traceable**

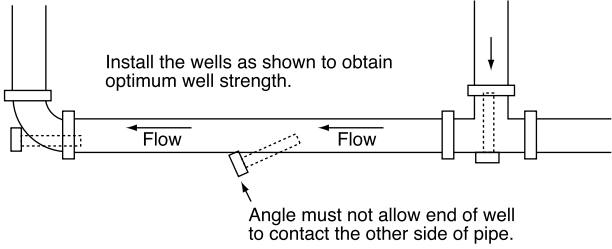
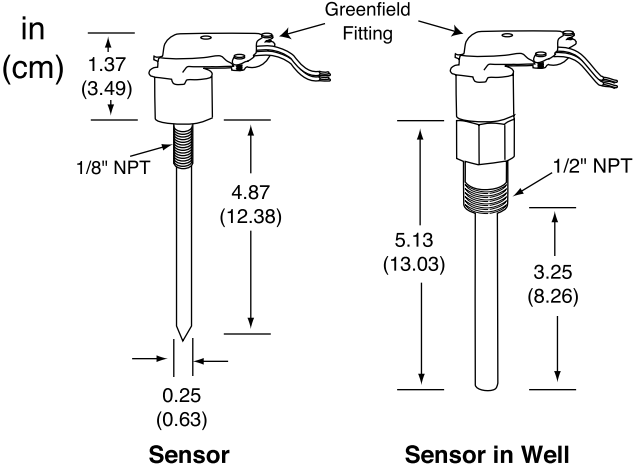
SPECIFICATIONS			
<b>Sensing element</b>	Thermistor (thermal resistor)	<b>Heat dissipation constant</b>	2.7 mW/°C (power needed to raise the temperature by 1°C)
<b>Accuracy</b>	$\pm 0.36^{\circ}\text{F}$ (0.2°C) (NIST traceable optional)	<b>Supplied well (WEL-B)</b>	Brass well-max temp 450°F (232°C) max pressure 1000 psig (6895 kPa) 1/2" NPT
<b>Sensor types available</b> (ref. in ohms @ 77°F/25°C)	2.252K, 3K, 10K, 20K, 100K	<b>Connection</b>	8' (2.4m) of 24 AWG pigtails prestripped
<b>Temp range</b>	10° to 230°F (-12° to 110°C)	<b>Mounting</b>	Directly to pipe in supplied brass well, no adapters needed for standard boxes, customer-supplied 1/2" Thredolet® required in pipe
<b>Temp response</b>	Negative temperature coefficient		
<b>Sensitivity</b>	See <i>Sensor Resistance Charts</i> in the Technical Reference section		
<b>Stability</b>	0.24°F (0.13°C) over five years		

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MOUNTING/WIRING	DIMENSIONS
<p><b>Mounting:</b> Install well into customer-supplied 1/2" NPT saddle (or Thredolet®). Screw sensor into the well via the 1/8" NPT brass fitting.</p> <p><b>Wiring:</b> Terminate with butt splice or soldering. Wire nuts are not recommended. Use full 8' (2.44m) lead length provided to avoid moisture migration up the wire.</p> 	

### ORDERING INFORMATION

MODEL	DESCRIPTION
ST-W3	10,000Ω Immersion Thermistor @ 77°F (25°C) Type III Material (gray leads)
ST-W21	2252Ω Immersion Thermistor @ 77°F (25°C) Type II Material (green leads)
ST-W22	3000Ω Immersion Thermistor @ 77°F (25°C) Type II Material (blue leads)
ST-W24	10,000Ω Immersion Thermistor @ 77°F (25°C) Type II Material (yellow leads)
ST-W27	100,000Ω Immersion Thermistor @ 77°F (25°C) Type II Material (gray leads)
ST-W42	20,000Ω Immersion Thermistor @ 77°F (25°C) Type IV Material (green leads)
<b>WELL DESIGNATION</b>	
-	Sensor with standard brass well
E	Sensor without well
S	Sensor with stainless steel well 900°F (482°C) max temp, 3000 psig (20.7 kPa) max pressure
<b>OPTIONS</b> (see page 45 for option details)	
X25	25' (7.6m) lead length
XCO	1/2" LB conduit fitting
XD	Dual sensors in one probe
NG	No greenfield fitting (1/2" NPTSM threads)
XH	Handibox housing (factory installed)
XHP	Non-metallic handibox housing (factory installed)
XL	Custom length insertion probe, available 2" to 60" (specify E without well)
XLT	Liquid-tight fitting
XN1	NIST certificate, 1 reference point 32°F (0°C)
XN2	NIST certificate, 2 reference points 32°F/160°F (0°/77°C)
XP	Matched sensor pair, matched to ±0.1°F, 0.05°C (must order two sensors)
XW	Weatherproof housing

ST-W3 - S - XP **Example:** ST-W3-S-XP 10 kΩ Type III immersion sensor with a matched 10,000Ω Type III immersion sensor and stainless steel well

#### Related Products

UR Moisture resistant three-wire butt splice  
 TCC-12 Single application thermal compound  
 TCC-111 Thermal conductive compound 111 ml tub