

TEMPERATURE

IMMERSION THERMISTOR AND RTD SENSORS ST-W* SERIES



PreCon™



DESCRIPTION

The **PreCon Model ST-W* Immersion Thermistor and RTD 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 or platinum RTD.

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

- **Lifetime warranty**
- **±0.36°F (±0.2°C) thermistor accuracy**
- **±1°F (0.53°C) RTD accuracy**
- **Wide selection of thermistor and RTD curves**
- **Brass thermowell for quick temperature response**
- **Adaptable with many options**
- **Easy to mount and remove from thermowell**
- **Waterproof stainless steel probe**

APPLICATION

The **Model ST-W*** 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.



WEL-B

ST-W24



OPTIONS

- **304 stainless steel well, maximum temperature 900°F (482°C), maximum pressure 3000 psig (20,685 kPa)**
- **Handy-box enclosure**
- **Custom lengths (wells available)**
- **1/2" LB conduit fitting**
- **Liquid-tight fitting**
- **Weather resistant box**
- **Matched pairs used for BTU measurement**
- **NIST Traceable**

SPECIFICATIONS	
Accuracy	
Thermistor	±0.36°F (0.2°C)
RTD	
Type 63	±0.72°F (0.40°C)
Type 71	+/-0.0774°F (0.043°C)
Type 81,85	±0.27°F (0.15°C)
Type 91	±0.54°F (0.30°C)
Sensor Type	
Thermistor	2.252k Ω, 3 kΩ, 10 kΩ Type II, III & III w/11K shunt, 20 kΩ, 100 kΩ
RTD	
Type 63	1000Ω Nickel
Type 71,81	100Ω Pt 385 Curve
Type 85	1000Ω Pt 385 Curve
Type 91	1000Ω Pt 375 Curve
Temperature Range	
Thermistor/RTD	-40° to 221°F (-40° to 105°C)
Temperature Coefficient	
Thermistor	Negative temperature coefficient
RTD	Positive temperature coefficient
Temperature Stability	
Thermistor	0.24°F (0.13°C) over five years
RTD	Max 0.04% after 1k hours @ 500°C
Heat Dissipation	2.7 mW/°C (power needed to raise the temperature by 1°C)
Enclosure Rating	Depends on model
Mounting	Directly to pipe in supplied brass well, no adapters needed for standard boxes, customer-supplied 1/2" Thredolet® required in pipe
Wiring Terminations	8' (2.44 m) of 24 AWG pigtails with prestripped ends, type 71 & 81 have 18" leads
Weight	0.65 lb (0.3 Kg) w/o well
Approvals	CE
Warranty	Lifetime



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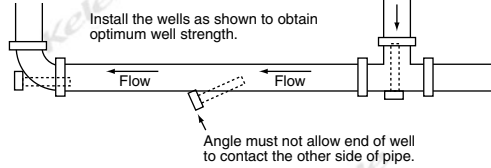
MOUNTING

Mounting

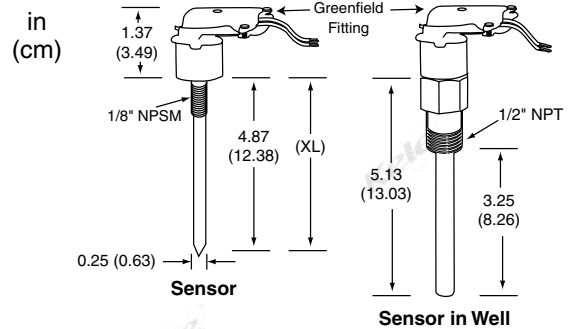
Install well into customer-supplied 1/2" FNPT saddle (or Thredolet®). Screw sensor into the well via the 1/8" NPSM brass fitting.

Wiring

Terminate with butt splice or soldering. Twist on wire connectors are not recommended. Basic model comes with 8' (2.4 m) of 24 AWG wire.



DIMENSIONS



ORDERING INFORMATION

MODEL	DESCRIPTION
ST-W3	10,000Ω immersion thermistor @ 77°F (25°C), Type III (gray leads)
ST-W11K	10,000Ω immersion thermistor @ 77°F (25°C), Type III with 11K shunt (gray leads)
ST-W21	2252Ω immersion thermistor @ 77°F (25°C), Type II (green leads)
ST-W22	3000Ω immersion thermistor @ 77°F (25°C), Type II (blue leads)
ST-W24	10,000Ω immersion thermistor @ 77°F (25°C), Type II (yellow leads)
ST-W27	100,000Ω immersion thermistor @ 77°F (25°C), Type II (gray leads)
ST-W42	20,000Ω immersion thermistor @ 77°F (25°C), Type IV (green leads)
ST-W63	1000Ω nickel immersion RTD @ 70°F (21°C), (yellow leads)
ST-W71	100Ω ultra high accurate immersion RTD @ 32°F (0°C), 385 platinum curve (blue leads)
ST-W81	100Ω immersion RTD @ 32°F (0°C), 385 platinum curve (yellow leads)
ST-W85	1000Ω immersion RTD @ 32°F (0°C), 385 platinum curve (blue leads)
ST-W91	1000Ω immersion RTD @ 32°F (0°C), 375 platinum curve (green leads)
WELL DESIGNATION	
-	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
OPTIONS	
QD¼	Nylon insulated quick disconnect ¼"
X25	25' (7.6m) lead length 24 AWG
XC25	25' (7.6m) lead length jacketed cable
XCO	½" LB conduit fitting
XCP25	25' non-shielded plenum cable
XD	Dual sensors in one probe
XH	Handy box housing (factory installed)
XHP	Non-metallic handy box housing (factory installed)
XL	Custom length insertion probes 1" to 108"(Specify E without well)
XL2 in	Custom length insertion probe, 2"(5.08 cm)(Specify E without well)
XL9	Custom length insertion probe, 9"(22.86 cm)(Specify E without well)
XLT	Liquid-tight fitting (factory installed)
XN	Certificate of conformance
XN1	NIST certificate, one reference point 32°F(0°C)
XN2	NIST certificate, two reference points 32°F/158°F(0°C/70°C)
XN3	NIST certificate, three reference points 32°F/77°F/158°F(0°C/25°C/70°C)
XNB	½" MNPT brass close nipple
XNG	No Greenfield fitting(½" NPSM threads)
XNP	½" MNPT plastic close nipple
XP	Matched sensor pair, matched to ±0.1°F, 0.05°C (must order two sensors)
XPA	Ultra high accuracy, all thermistors, ±0.135°F (0.075°C)
XW	Weather resistant housing
XWB	Weather resistant housing with probe mounted in the back
XZ	Three wire RTD connections (Optional only on Type 81, standard on Type 71, not available for use with XC25 & XCP25 options)

ST-W3 - S - XP

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

RELATED PRODUCTS

TCC-111	Thermal conductive compound 111 ml tub
TCC-12	Thermal conductive compound tube, 12 ml
UR	Moisture-resistant three-wire butt splice