



TEMPERATURE

100 & 1000 OHM 385 PLATINUM RTD PROBE SENSORS TYPES 81, 85



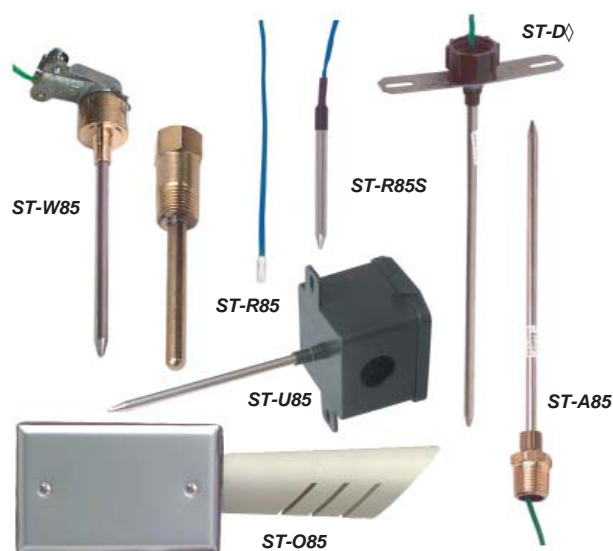
DESCRIPTION

The **Type 81 and 85 Platinum RTD Probe Sensors** utilize a 385 curve, thin film platinum resistance element. Using standard 304 stainless steel probes, these sensors provide stable, accurate measurement for temperature control and building automation systems.

All of these sensors are available with an optional 4-20 mA transmitter output. See the T81U and T85U transmitters in the Temperature section.

FEATURES

- **High accuracy**
- **No-drift platinum**
- **Interchangeability**
- **Low cost**
- **NIST option**



TEMPERATURE

PROBE VARIATIONS	
<p>The ST-A All-Purpose Sensor can be used in a variety of applications. The male 1/2" NPT fitting is for mounting in a conduit or handibox. The probe is tip-sensitive at the end of a 9" (22.9 cm) stainless steel probe.</p> <p>The ST-D Duct Sensor has mounting tabs for direct mounting on a duct or installation in a handibox. A nylon 1/2" FNPT fitting is used for open wire or conduit fittings. The probe is tip-sensitive on a 9" (22.9 cm) stainless steel probe.</p> <p>The ST-O Outdoor Sensor is equipped with a weather shield and weatherproof box. The box has two 1/2" FNPT openings for conduit.</p> <p>The ST-R Raw Sensor is for special applications when size or weight is a consideration. It can be mounted with an optional accessory PN-46 mounting clip or with ties.</p>	<p>The ST-R Strap-On Sensor is suitable for direct application to pipe surfaces for chilled and hot water applications. It is installed with an optional APB-28 accessory or ties. Insulation around the sensor 2' (61 cm) wrapped on each side) is critical for a good reading. The stainless steel probe is tip-sensitive and 3" (7.6 cm) long.</p> <p>The ST-U Universal-Mount Sensor provides precision remote temperature sensing in multiple applications such as Duct, OSA, and Immersion installations for building automation systems. The sensing element is sealed with a thermally conductive compound in a 4-7/8" (12.4 cm) long stainless steel probe and is attached to a 2.5" (6.4 cm) square enclosure.</p> <p>The ST-W Immersion Sensor comes standard with a brass or optional stainless steel thermowell and a greenfield fitting for a flex connection or open wire installation. The well insertion is 3.25" (8.3 cm) and screws into a 1/2" saddle (Thredolet®).</p>

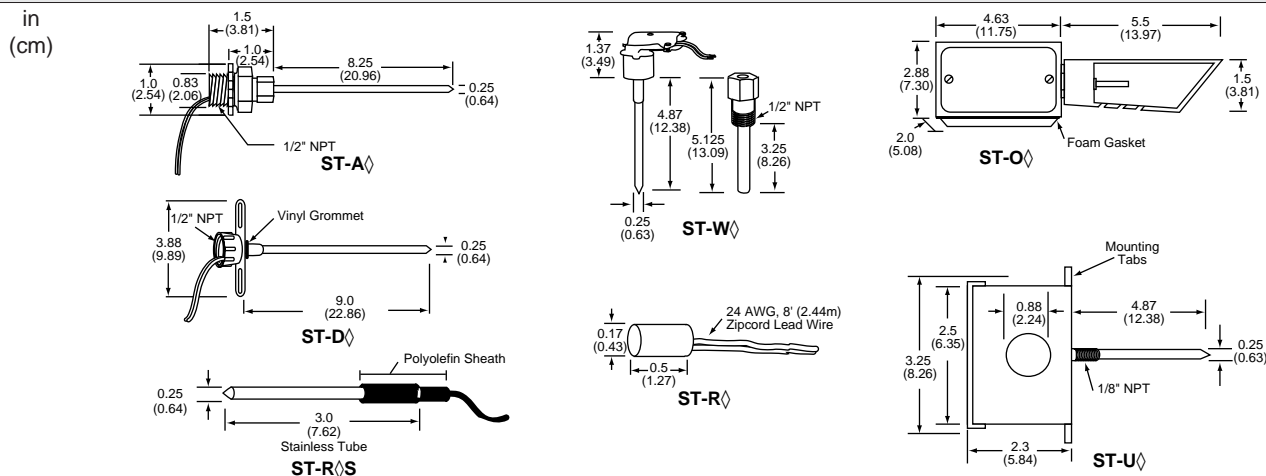
SPECIFICATIONS			
Sensing element	TCR 0.00385 $\Omega/\Omega/^{\circ}\text{C}$	Wiring	8' (2.4m) of 24 AWG zipcord
Type 81	100 Ω thin film platinum	Type 81	Two yellow wires
Type 85	1000 Ω thin film platinum	Type 85	Two blue wires
Interchangeability	$\pm 0.1\%$ @ 32°F (0°C)	Recommended current	1 mA max in still air for <0.5°F (0.3°C) self-heating
Temp range	-67° to 240°F (-55° to 115°C)	Long term stability	<0.09°F (0.2 Ω) per five years
Approx sensitivity		Response resistance	See <i>Sensor Resistance Charts</i> in Technical Reference section
Type 81	0.217 $\Omega/^{\circ}\text{F}$ @ 32°F (0°)		
Type 85	2.17 $\Omega/^{\circ}\text{F}$ @ 32°F (0°)		

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DIMENSIONS



ORDERING INFORMATION

MODEL	DESCRIPTION
ST-A	All-Purpose Sensor
ST-D	Duct Sensor
ST-O	Outdoor Air Sensor
ST-R	Raw Sensor
ST-RS	Strap-On Sensor
ST-U	Universal Mount Sensor (Duct, Immersion, OSA)
ST-W	Immersion Sensor with Brass Thermowell
RTD SENSOR TYPE	
81	100Ω, 385 Platinum sensor
85	1000Ω, 385 Platinum sensor
B	Kit with WEL-B brass well for immersion mounting (ST-U only)
E	ST-W Sensor without well
O	Kit with OSAB weather shield, gasket, and bracket for wall mount (ST-U only)
S	ST-W or ST-U Sensor with stainless steel well WEL-S
—	Sensor without kit
OPTIONS (see page 45 for option details)	
XD	Dual sensor in one probe
XH	Metal handibox housing (ST-A, -D, -W only)
XW	Weatherproof housing (ST-A, -D, -W only)
XL	Custom length, 2" to 60" (5 to 152 cm) (ST-A, -D, -U, -W only)
XLT	Liquid tight fitting (ST-W only)
XN1	NIST certificate, 1 reference point 32°F (0°C)
XN2	NIST certificates, 2 reference points 32°/160°F (0°/77°C)
XP	Matched sensor pairs matched to ±0.1°F, 0.55°C (must order two sensors)
XG	Greenfield fitting (ST-D only)
X25	25' (7.62m) 24 AWG twin lead
XC25	25' (7.62m) jacketed cable
XZ	Three-wire option for Model 81 sensors

ST-W — 81 — [] — XW

Example: ST-W81-XW Immersion sensor with brass well and weatherproof housing option

T81U
T85U
TT-801
TCC-12/TCC-111
WEL-B

Related Products
4-20 mA temperature transmitters for type 81 sensors
4-20 mA temperature transmitters for type 85 sensors
4-20 mA temperature transmitters for type 81 sensors and XZ options
Thermal conductive compound
Brass well for ST-W and ST-U

Universal Mount Sensor Accessories

WEL-B	Brass well	OSAB	OSA weather shield, gasket, and bracket
WEL-S	304 stainless steel well	TCC-111	Thermal conductive compound 111 ml tub
F-1000-331	Nylon bushing for open wiring		