



# TEMPERATURE

## STAINLESS STEEL SHEATH THERMISTOR AND RTD SENSORS ST-R\*S, ST-R\*SC SERIES

### DESCRIPTION

The **PreCon Stainless Steel Sheath Thermistor and RTD Sensors** provide 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 ruggedized and sealed with a thermally conductive compound in a versatile 3" (7.6 cm) long stainless steel tube. The probe is waterproof, and the sensor is ideal for use in refrigeration cases, or as a strap-on sensor for pipes.

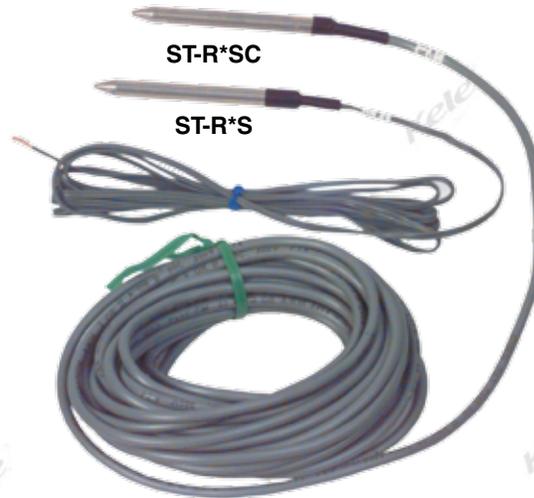
### ST-R\*S

The **Model ST-R\*S Stainless Sheath Sensor** is suitable for direct application to pipe surfaces for chilled or hot water measurement. It is also used for freezer cases where moisture protection is important. This rugged strap-on sensor comes with an 8-ft (2.4m), 24-gauge zipcord lead.

### ST-R\*SC

The **Model ST-R\*SC Stainless Steel Sheath Sensor** comes with a rugged 25-ft (7.6m) cable when ordered with the "C" option. The 25-ft (7.6m) cable allows for termination away from areas of condensation. It is an ideal choice for freezer case applications.

**Precon**



### FEATURES

- **Lifetime warranty**
- **Wide selection of thermistor and RTD curves**
- **Tip sensitive for precise temperature response**
- **Durable 304 stainless steel casing**
- **Easy to mount to wall, box, or pipe**
- **Waterproof probe**

### APPLICATION

**Strap-on Applications:** Where it is not practical to install immersion wells, the Stainless Sheath Thermistor Sensor may be strapped to the pipe. The "C" option provides a 25' (7.6m) rugged cable that may be strapped on the outside of the pipe insulation. Pipe strap accessory (**APB-28**) provides a bracket to hold the sensor securely in place.

### SPECIFICATIONS

#### Accuracy

Thermistor	±0.36°F (0.2°C)
RTD	
Type 63	±0.72°F (0.40°C)
Type 71	±0.054°F (0.03°C)
Type 81, 85	±0.27°F (0.15°C)
Type 91	±0.54°F (0.30°C)

#### Sensor Type

**Thermistor** 2.252 kΩ, 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  
**Heat Dissipation** 2.7 mW/°C (power needed to raise the temperature by 1°C)

#### Mounting

Directly to wall or pipe using standard clips and brackets  
**Wiring Terminations** 8' (2.4m) of 24 AWG pigtails with prestripped ends, Type 71 & 81 sensors have 18" leads

#### Weight

<b>ST-R*S</b>	0.15 lb (0.07 Kg) with no options
<b>ST-R*SC</b>	0.45 lb (0.2 Kg) with no options

#### Approvals

**Warranty** CE

Lifetime

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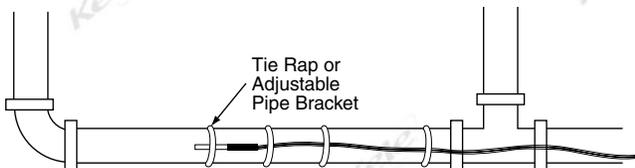
### MOUNTING

#### Mounting

Secure to wall or pipe using cable ties, clips, or brackets.

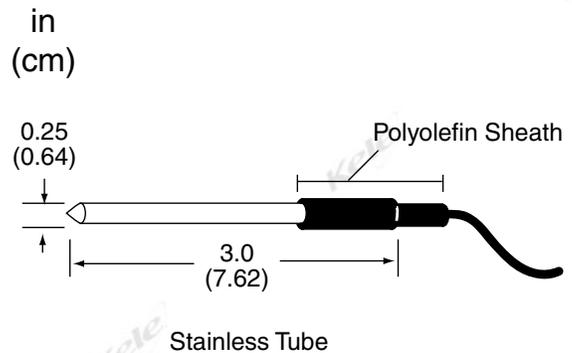
#### Wiring

Terminate with butt splices or solder connections. Twist or wire connectors are not recommended.



When used as a strap-on sensor, best results are obtained when conductive compound (TCC-12) is applied between the sensor and the pipe. In addition, the sensor should be inserted under insulation with at least 2' (0.61m) on each side of the sensor. Adjustable pipe bracket APB-28 is available for use with this sensor.

### DIMENSIONS



### ORDERING INFORMATION

MODEL	DESCRIPTION
ST-R3S	10,000Ω stainless steel thermistor @ 77°F (25°C), Type III (gray leads)
ST-R11KS	10,000Ω stainless steel thermistor @ 77°F (25°C), Type III with 11K shunt (gray leads)
ST-R21S	2252Ω stainless steel thermistor @ 77°F (25°C), Type II (green leads)
ST-R22S	3000Ω stainless steel thermistor @ 77°F (25°C), Type II (blue leads)
ST-R24S	10,000Ω stainless steel thermistor @ 77°F (25°C), Type II (yellow leads)
ST-R27S	100,000Ω stainless steel thermistor @ 77°F (25°C), Type II (gray leads)
ST-R42S	20,000Ω stainless steel thermistor @ 77°F (25°C), Type IV (green leads)
ST-R63S	1000Ω nickel stainless steel RTD @ 32°F (0°C), (yellow leads)
ST-R71S	100Ω ultra high accurate stainless steel RTD @ 32°F (0°C), 385 platinum curve (blue leads)
ST-R81S	100Ω stainless steel RTD @ 32°F (0°C), 385 platinum curve (yellow leads)
ST-R85S	1000Ω stainless steel RTD @ 32°F (0°C), 385 platinum curve (blue leads)
ST-R91S	1000Ω stainless steel RTD @ 32°F (0°C), 375 platinum curve (green leads)
OPTIONS	
C	25' (7.6m) 22 AWG cable non-plenum (not available with XZ option)
QD¼	Nylon insulated quick disconnect ¼"
X25	25' (7.6m) lead length 24 AWG
XCP25	25' (7.6m) Non-shielded 22AWG plenum cable (not with "c" models)
XD	Dual sensors in one probe (not with "c" models)
XL	Custom length insertion probes 1" to 60"
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)
XP	Matched sensor pair, matched to ±0.1°F, 0.05°C (must order two sensors)
XPA	Ultra high accuracy, thermistors only, ±0.135°F (0.075°C)
XZ	Three wire RTD connections (optional only on Type 81, standard on Type 71, not available with XC25 and XCP25)

ST-R3S - C Example: ST-R3S-C 10,000Ω stainless steel sheath thermistor with 25' (7.6m) cable

### RELATED PRODUCTS

- #20 Self-vulcanizing stretch tape, 6' (1.83m) roll, 1" (2.54 cm) wide
- APB-28 Adjustable pipe bracket 2"-8" diameter
- PN-46 Aluminum sensor holder with adhesive backing
- T81U-XR 100 ohm, Type 81 4-20 mA temperature transmitter, custom rangeable
- T85U-XR 1000 ohm, Type 85 4-20 mA temperature transmitter, custom rangeable
- T91U-XR 1000 ohm, Type 91 4-20 mA temperature transmitter, custom rangeable
- TCC-111 Thermal conductive compound 111 ml tub
- TCC-12 Thermal conductive compound tube, 12 ml
- UR Moisture-resistant three-wire butt splice