ENCAPSULATED THERMISTOR AND RTD SENSORS

ST-R, ST-R*R SERIES*

DESCRIPTION

The **PreCon ST-R*, ST-R*R Thermistor and RTD encapsulated Sensor**s 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 sensor is encapsulated with a low mass, high conductivity compound for good heat transfer characteristics. It is enclosed in a tough, miniature cylinder, 0.17" in (0.43 cm) diameter, which is small enough to be installed in most HVAC thermostat enclosures.

ST-R*

ST-R*R

FEATURES

- ***Lifetime warranty***
- ***Wide selection of thermistor and RTD curves***
- ***Adaptable miniature sensor***
- ***High heat dissipation constant***
- ***Easy to mount with clips***
- ***Pre-aged, highly stable thermistor material***

OPTIONS

- ***25' (7.6m) of 24 AWG zipcord***
- ***Matched sensor pairs***
- ***Rugged sensor coating***

APPLICATION

ST-R*

The Model **ST-R*** Encapsulated Thermistor Sensor (white) is intended for indoor use only, in areas not subject to moisture or condensation. The sensor may be installed under the cover of an existing pneumatic thermostat. Caution should be exercised when applying the sensor to existing electric thermostats. Heat is often generated by anticipators or other electronics that will affect the sensor reading. The sensor operating range is 35° to 140°F (2° to 60°C). Do not use in conditions below 35°F (2°C) or where condensation could occur.

ST-R*R

The Model **ST-R*R** Ruggedized Encapsulated Thermistor Sensor (red) is suitable for temperature extremes and is immune to the effects of moisture and condensation. **PreCon** uses a three-stage, ruggedized coating process to moisture proof any sensor which is to be used below ambient dewpoint. The sensor operating range is -30° to 230°F (-34° to 110°C).

SPECIFICATIONS

Accuracy	
Thermistor	±0.36°F (0.28°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	2.252 kΩ, 3 kΩ, 10 kΩ Type II, III & III w/11K shunt, 20 kΩ, 100 kΩ
RTD	
Type 63	1000Ω @ 70°F (21°C)
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	100% (no drift platinum)
Heat Dissipation	2.7 mW/°C (power needed to raise the temperature 1°C)
Mounting	Directly to wall or customer supplied enclosure using customer-supplied clips
Wiring Terminations	8', 24 AWG wire leads, type 71 & 81 sensors have 18" leads
Weight	
ST-R*	0.01 lb (0.005 Kg)
ST-R*R	0.05 lb (0.02 Kg)
Approvals	CE
Warranty	Lifetime

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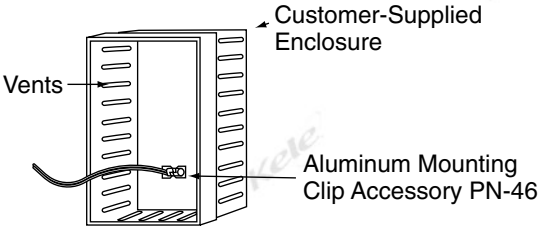
MOUNTING

Mounting

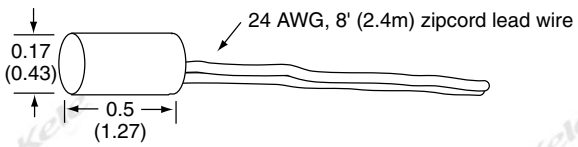
Secure to enclosure or wall using cable ties, clips, or brackets. To obtain optimum performance, the sensor enclosure/assembly must be highly conductive. Any sensor element surrounded by insulating media will not perform properly at all temperatures or with the proper temperature response times. An accurate room sensor must have good ventilation and a high thermal-conducting metal which is in direct contact with the sensor. The enclosure must be insulated from the building mounting surface to limit wall temperature influence on the sensor.



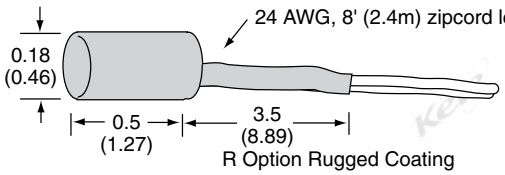
Rear View

DIMENSIONS

in (cm)



ST-R*



ST-R*R

ORDERING INFORMATION

MODEL	DESCRIPTION
ST-R3	10,000Ω encapsulated thermistor @ 77°F (25°C), Type III (gray leads)
ST-R11K	10,000Ω encapsulated thermistor @ 77°F (25°C), Type III with 11K shunt (gray leads)
ST-R21	2252Ω encapsulated thermistor @ 77°F (25°C), Type II (green leads)
ST-R22	3000Ω encapsulated thermistor @ 77°F (25°C), Type II (blue leads)
ST-R24	10,000Ω encapsulated thermistor @ 77°F (25°C), Type II (yellow leads)
ST-R27	100,000Ω encapsulated thermistor @ 77°F (25°C), Type II (gray leads)
ST-R42	20,000Ω encapsulated thermistor @ 77°F (25°C), Type IV (green leads)
ST-R63	1000Ω nickel encapsulated RTD @ 70°F (21°C), (yellow leads)
ST-R71	100Ω ultra high accurate encapsulated RTD @ 32°F (0°C), 385 platinum curve (blue leads)
ST-R81	100Ω encapsulated RTD @ 32°F (0°C), 385 platinum curve (yellow leads)
ST-R85	1000Ω encapsulated RTD @ 32°F (0°C), 385 platinum curve (blue leads)
ST-R91	1000Ω encapsulated RTD @ 32°F (0°C), 375 platinum curve (green leads)
	OPTIONS
R	Rugged (3.5" moistureproof coating; adding a **#** following the **R** extends the coating in feet)
QD¼	Nylon insulated quick disconnect ¼"
X25	25' (7.6m) lead length 24 AWG
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)

ST-R3 – **R** – **X25**

Example: **ST-R3R-X25** 10,000Ω Type III thermistor with 3.5" rugged coating and 25' (7.6m) cable length

RELATED PRODUCTS

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