# TEMPERATURE

## ALL-PURPOSE THERMISTOR AND RTD SENSORS
### ST-A* SERIES

### DESCRIPTION

The **Precon ST-A\* Series All-Purpose Thermistor and RTD Sensors** provide precision remote temperature sensing for building automation systems and mechanical equipment room instrumentation. The active sensing element is made of a highly stable precision thermistor material or platinum RTDs.

The **ST-A\* Series** sensors are rugged, point-sensitive waterproof sensors featuring a 9" (22.8 cm) 304 stainless steel probe and brass fitting. The brass fitting has a 1/2" NPT male thread. The sensors are supplied with two 1/2" locknuts for easy installation in handy boxes (or other enclosures with 1/2" knockouts).

**ST-A\***

### FEATURES

- *Lifetime warranty*
- *Wide selection of thermistor and RTD curves*
- *Tip sensitive for precise temperature response*
- *Adaptable with many options*
- *All metal construction with 304 stainless steel probe*
- *Easy to mount to duct, wall, or back box*
- *Waterproof probe*

### APPLICATION

The **ST-A\* Series** Sensors are waterproof and can be used where it is possible for the sensed temperature to fall below the ambient dew point, causing condensation to occur on the sensor. However, it is important that the field connection be made as far as possible from the sensed media. The sensing element is sealed with a thermally conductive compound in a versatile 9" long stainless steel tube with a brass electrical fitting. The all-purpose probe is suitable for plenum mounting, duct mounting, immersion wells, or outside air.
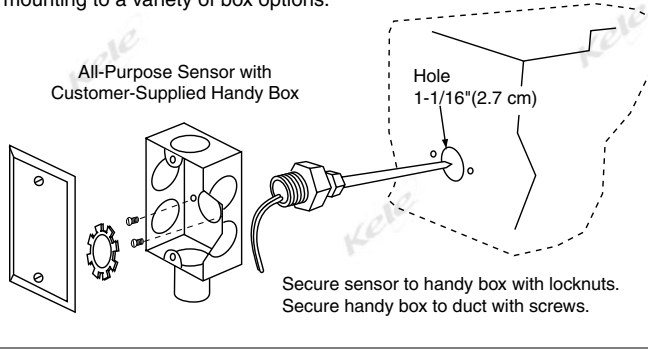
### SPECIFICATIONS

| 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 | 2.252 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) |

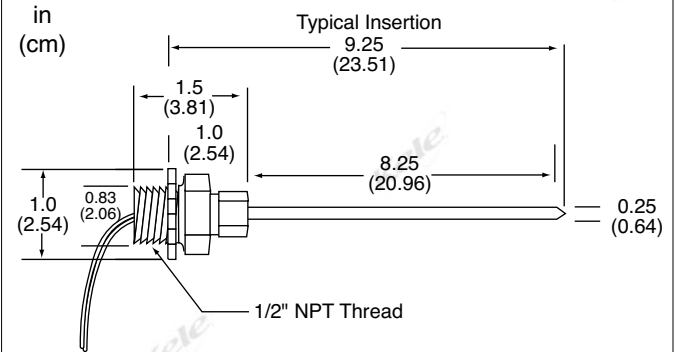| Temperature Coefficient | |
|---|---|
| Thermistor | Negative temperature coefficient |
| RTD | Positive temperature coefficient |
| Temperature Stability | |
| Thermistor | 0.24°F (0.13°C) over five years |
| Heat Dissipation | 2.7 mW/°C (power needed to raise the temperature by 1°C) |
| Mounting | Directly to duct, wall, or customersupplied back box, no adapters needed for standard boxes |
| Wiring Terminations | 8' (2.4m) of 24 AWG pigtails with prestripped ends, type 71 & 81 have 18" leads |
| Weight | 0.2 lb (0.09 Kg) w/o options |
| Approvals | CE |
| Warranty | Lifetime |

## MOUNTING

Locknuts provide direct mounting and can be used where conduit is not required. Mount directly to electrical outlet boxes as shown below.

Basic model comes with 8' (2.4 m) of 24 AWG wire and two locknuts for mounting to a variety of box options.

All-Purpose Sensor with Customer-Supplied Handy Box

Hole 1-1/16"(2.7 cm)

Secure sensor to handy box with locknuts.
Secure handy box to duct with screws.

## DIMENSIONS

in (cm)

Typical Insertion 9.25 (23.51)

1.5 (3.81)

1.0 (2.54)

1.0 (2.54)

0.83 (2.06)

8.25 (20.96)

0.25 (0.64)

1/2" NPT Thread

## ORDERING INFORMATION

| MODEL | DESCRIPTION |
|---|---|
| ST-A3 | 10,000Ω all-purpose thermistor @ 77°F (25°C), Type III (gray leads) |
| ST-A11K | 10,000Ω all-purpose thermistor @ 77°F (25°C), Type III with 11K shunt (gray leads) |
| ST-A21 | 2252Ω all-purpose thermistor @ 77°F (25°C), Type II (green leads) |
| ST-A22 | 3000Ω all-purpose thermistor @ 77°F (25°C), Type II (blue leads) |
| ST-A24 | 10,000Ω all-purpose thermistor @ 77°F (25°C), Type II (yellow leads) |
| ST-A27 | 100,000Ω all-purpose thermistor @ 77°F (25°C), Type II (gray leads) |
| ST-A42 | 20,000Ω all-purpose thermistor @ 77°F (25°C), Type IV (green leads) |
| ST-A63 | 1000Ω nickel all purpose RTD @ 70°F (21°C), (yellow leads) |
| ST-A71 | 100Ω ultra high accurate all purpose RTD @ 32°F (0°C), 385 platinum curve (blue leads) |
| ST-A81 | 100Ω all-purpose RTD @ 32°F (0°C), 385 platinum curve (yellow leads) |
| ST-A85 | 1000Ω all-purpose RTD @ 32°F (0°C), 385 platinum curve (blue leads) |
| ST-A91 | 1000Ω all-purpose RTD @ 32°F (0°C), 375 platinum curve (green leads) |

| | OPTIONS | |
|---|---|---|
| | QD¼ | Nylon insulated Quick Disconnect ¼" |
| | X25 | 25' (7.6) lead length 24 AWG |
| | XC25 | 25' (7.6m) lead length jacketed cable |
| | XCO | ½" LB condulet 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" |
| | XL2 | Custom length insertion probe, 4-7/8"(12.38 cm) |
| | XL2 in | Custom length insertion probe, 2"(5.08 cm) |
| | 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) |
| | XW | Weather resistant housing (factory installed) |
| | XZ | Three wire RTD connections (optional only on Type 81, standard on Type 71, not available with XC25 and XCP25) |

ST-A24 — XP  **Example: ST-A24-XP** 10,000Ω Type II all-purpose temperature sensor with matched sensor

### 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 |
| UR | Moisture-resistant three-wire butt splice |