



# TEMPERATURE

## SURFACE-MOUNT ROOM THERMISTOR AND RTD SENSORS ST-S\*P SERIES



ST-S\*P



### DESCRIPTION

The Precon Model ST-S\* P Surface-Mount Room Thermistor and RTD Sensor provides precision room temperature sensing for building automation systems. The active sensing element is made of a highly stable, precision thermistor material or platinum RTD.

### FEATURES

- Lifetime warranty
- $\pm 0.36^{\circ}\text{F}$  ( $0.2^{\circ}\text{C}$ ) thermistor accuracy
- $\pm 0.27^{\circ}\text{F}$  ( $0.15^{\circ}\text{C}$ ) or  $0.54^{\circ}\text{F}$  ( $0.30^{\circ}\text{C}$ ) RTD accuracy
- Wide selection of thermistor and RTD curves
- Vented housing for quick temperature response
- Adaptable with many options
- Traditional tan cover with brushed aluminum faceplate
- Durable plastic housing and base plate
- Easy to mount to wall or back box

### APPLICATION

The wall-mounted enclosure is designed to be mounted indoors vertically or horizontally. The separate base plate may be mounted directly to the drywall or a standard electrical outlet box with adapters. The cover is secured with tamper resistant hex screws. Where moisture is a concern, the moisture-proofing **R** or **R#** option is required.

### OPTIONS

- Setpoint adjustment
- Moistureproof with 18" (0.45m) leads
- Momentary switch override

### SPECIFICATIONS

<b>Accuracy</b>		<b>Temperature Coefficient</b>	
Thermistor	$\pm 0.36^{\circ}\text{F}$ ( $0.2^{\circ}\text{C}$ )	Thermistor	Negative temperature coefficient
RTD		RTD	Positive temperature coefficient
Type 63	$\pm 0.72^{\circ}\text{F}$ ( $0.40^{\circ}\text{C}$ )	<b>Temperature Stability</b>	
Type 71	$\pm 0.0774^{\circ}\text{F}$ ( $0.043^{\circ}\text{C}$ )	Thermistor	$0.24^{\circ}\text{F}$ ( $0.13^{\circ}\text{C}$ ) over five years
Type 81, 85	$\pm 0.27^{\circ}\text{F}$ ( $0.15^{\circ}\text{C}$ )	RTD	Max 0.04% after 1k hours @ $500^{\circ}\text{C}$
Type 91	$\pm 0.54^{\circ}\text{F}$ ( $0.30^{\circ}\text{C}$ )	<b>Heat Dissipation</b>	$2.7\text{ mW}/^{\circ}\text{C}$ (power needed to raise the temperature by $1^{\circ}\text{C}$ )
<b>Sensor Type</b>		<b>Enclosure Rating</b>	NEMA 1, Beige plastic with aluminum plate
Thermistor	2.252 k $\Omega$ , 3 k $\Omega$ , 10 k $\Omega$ Type II, III & III /11K shunt, 20 k $\Omega$ , 100 k $\Omega$	<b>Mounting</b>	Directly to wall or BKT-1 bracket to mount to single gang box
<b>RTD</b>		<b>Wiring Terminations</b>	8' (2.4m) of 24 AWG pigtailed pre-stripped, Type 71 & 81 sensors have 18" leads
Type 63	1000 $\Omega$ Nickel	<b>Weight</b>	0.1 lb (0.05 Kg)
Type 71, 81	100 $\Omega$ Pt 385 Curve	<b>Approvals</b>	CE
Type 85	1000 $\Omega$ Pt 385 Curve	<b>Warranty</b>	Lifetime
Type 91	1000 $\Omega$ Pt 375 Curve		
<b>Temperature Range</b>			
Thermistor/RTD	$-40^{\circ}$ to $221^{\circ}\text{F}$ ( $-40^{\circ}$ to $105^{\circ}\text{C}$ )		

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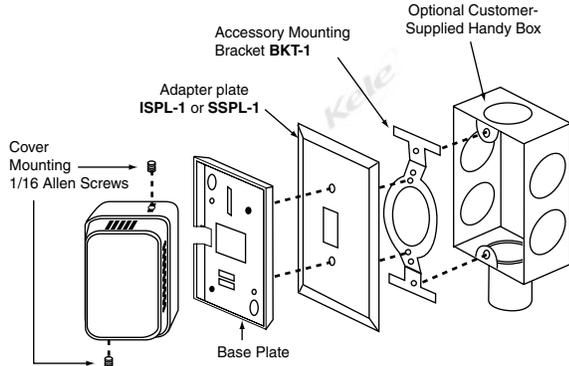


### MOUNTING

Toggle bolts or other direct wall-mount screws can be used where conduit is not required. Adapters are required when mounting directly to electrical outlet boxes.

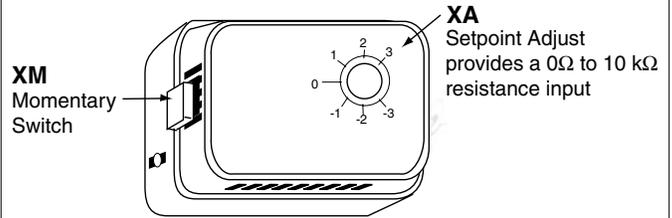
Basic model comes with base plate, cover, brushed aluminum faceplate, 18" (45.7 cm) of 24 AWG wire, and two #6 x 1 screws for direct wall mounting. Cover screws are #6-32 with a 1/16" allen key head.

Terminate with butt splices or soldering. Twist on wire connectors are not recommended.

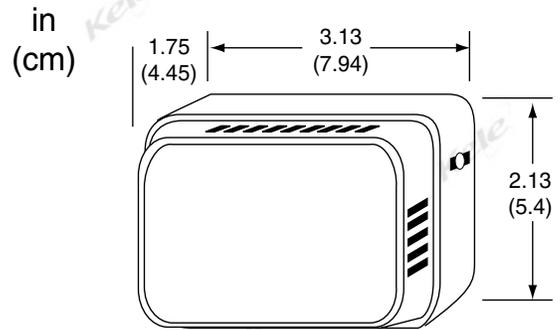


The sensor should be mounted approximately five feet above the floor, on an interior wall, away from any heating or cooling generating devices.

### TYPICAL COVER WITH MULTIPLE OPTIONS



### DIMENSIONS



### ORDERING INFORMATION

MODEL	DESCRIPTION
ST-S3P	10,000Ω surface-mount thermistor @ 77°F (25°C), Type III (gray leads)
ST-S11KP	10,000Ω surface-mount thermistor @ 77°F (25°C), Type III with 11K shunt (gray leads)
ST-S21P	2252Ω surface-mount thermistor @ 77°F (25°C), Type II (green leads)
ST-S22P	3000Ω surface-mount thermistor @ 77°F (25°C), Type II (blue leads)
ST-S24P	10,000Ω surface-mount thermistor @ 77°F (25°C), Type II (yellow leads)
ST-S27P	100,000Ω surface-mount thermistor @ 77°F (25°C), Type II (gray leads)
ST-S42P	20,000Ω surface-mount thermistor @ 77°F (25°C), Type IV (green leads)
ST-S63P	1,000Ω nickel surface-mount RTD @ 32°F (0°C), (yellow leads)
ST-S71P	100Ω ultra high accurate surface-mount RTD @ 32°F (0°C), 385 platinum curve (blue leads)
ST-S81P	100Ω surface-mount RTD @ 32°F (0°C), 385 platinum curve (yellow leads)
ST-S85P	1000Ω surface-mount RTD @ 32°F (0°C), 385 platinum curve (blue leads)
ST-S91P	1000Ω surface-mount RTD @ 32°F (0°C), 375 platinum curve (green leads)
<b>OPTIONS</b>	
XA *	Setpoint adjustment (0Ω to 10,000Ω, resistance input)
XA1K *	Setpoint adjustment (0Ω to 1,000Ω, resistance input)
XA1500	Setpoint adjustment (0Ω to 1,500Ω, resistance input)
XD	Dual sensors with no probe
XK	Custom Logo
XM	Momentary switch wired N.O. to terminal block
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-S27P XM** Example: ST-S27P-XB 100,000Ω Type II surface-mount zone sensor thermistor with momentary override option  
\*Circuit board option

### RELATED PRODUCTS

- BKT-1** Handy-box mounting bracket for wall sensor
- ISPL-1** Plastic ivory switch plate cover for handy-box mounting
- KT1** Mounting screwdriver 1/16" allen key
- SSPL-1** Stainless steel switch plate cover for handy-box mounting
- 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