

spirax/sarco®

Temperature Sensor/Transmitter Model S-TEM

Description

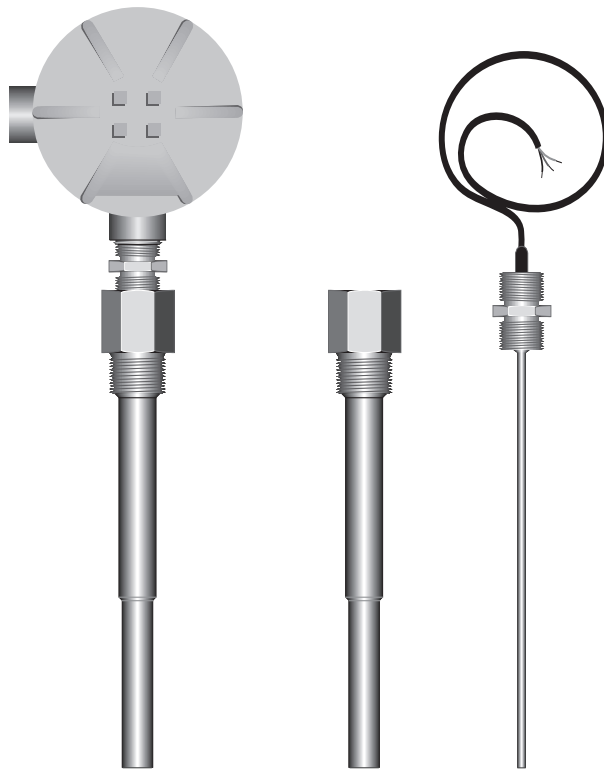
Spirax Sarco's S-TEM platinum resistance temperature sensors measure process fluid temperature for most applications. The S-TEM uses a resistance temperature device (RTD) to measure process temperature. RTDs operate on the principle that the resistance of the sensing device is proportional to the temperature, producing a highly repeatable and exceptionally stable resistance versus temperature relationship.

The S-TEM may be selected with either a direct RTD output or with an industry standard 4-20 mA current output. The current output includes a preamplifier that is factory scaled and calibrated to one of several standard temperature ranges in either degrees Fahrenheit or Celsius.

The S-TEM is thermowell mounted to allow installation and removal without process shutdown. Several immersion lengths are available to accommodate a wide range of pipe sizes.

Features

- RTD or 4–20 mA current output (linear)
- Factory calibrated over selected range
- Rugged design
- Thermowell included



Performance Specifications

RTD Sensor

Accuracy (Ice Point)
± 0.12% (1000 ± 1.2 Ω)

Interchangeability
Accuracy ± 0.9 °F or 0.8%

Stability
Better than ± 0.45 °F per year

Sensing Element Coefficient
0.00385 Ω/ Ω/°C

Preamplifier

Accuracy
± 0.1% of span

Ambient Temperature Effect
Zero 0.03 + 0.005% of span per °C
Span 0.02 + 0.003% of span per °C

Operating Specifications

Temperature Ranges

Output	Preamplifier Model Suffix Code	Temperature Range
RTD Sensor	RTD	-40 to 800 °F (-40 to 426 °C)
Transmitter (4 to 20 mA)	T09	32 to 68 °F
	T10	0 to 250 °F
	T11	-40 to 150 °F
	T12	212 to 400 °F
	T14	212 to 500 °F
	T13	212 to 800 °F
	T20	-17.7 to 121.1 °C
	T21	-40 to 65 °C
	T22	100 to 204 °C
	T24	100 to 260 °C
T23	100 to 426 °C	

Local regulations may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only. In the interests of development and improvement of the product, we reserve the right to change the specification.

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Operating Specifications continued

Temperature Ranges

Ambient Temperature Limit
-30 to 160 °F

Storage Temperature Limit
-60 to 185 °F

Ambient Humidity Limit
0 to 100% relative humidity

Thermowell Pressure Limit
3500 psig at 1140 °F

RTD Sensor

Output
3-wire RTD

Current
1 mA recommended, 2 mA maximum

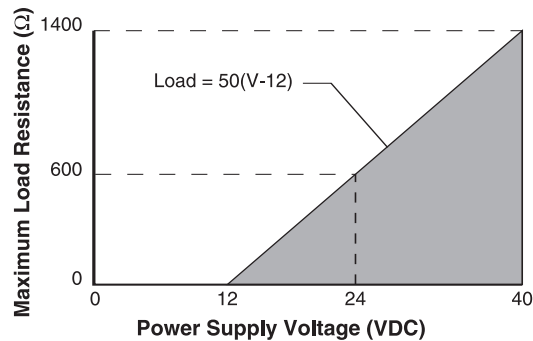
Insulation Resistance
100 mΩ minimum at 300 VDC at 75 °F

Optional Preamplifier

Output
4 to 20 mA, 2-wire

Power Supply
24 VDC nominal, operable from 12 to 40 VDC

Load Resistance
600 at 24 VDC; depends upon power supply voltage



Physical Specifications

Materials

Sensing Element
1000 Ω thin film platinum

RTD Sheath
316 stainless steel

Junction Box

Aluminum

Thermowell

316 stainless steel

Process Connection (Thermowell)

1/2" NP

Electrical Connection

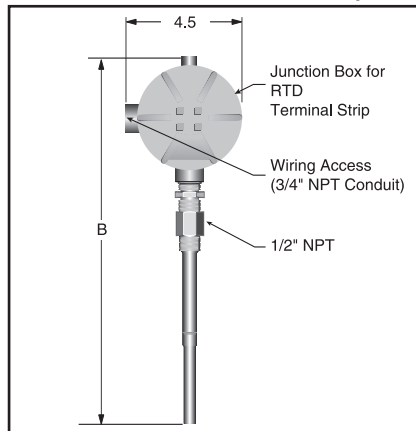
Junction box with terminal block for external wiring.
3/4" NPT female connection for conduit.

Weight (with 6" Thermowell)

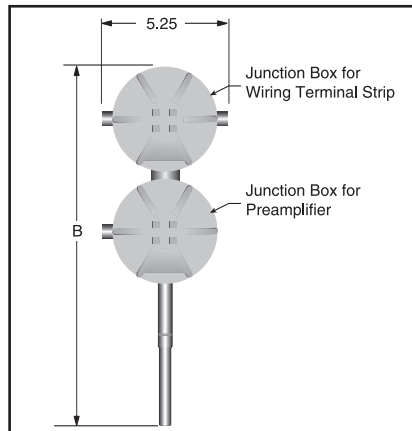
3 lb

Dimensions (in inches)

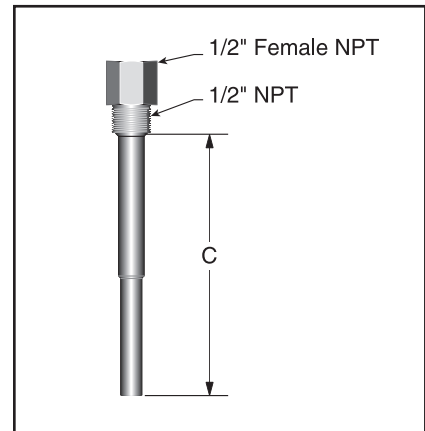
S-TEM Probe without Preamp



S-TEM Probe with Preamp



Thermowell



Dimensions Table

Thermowell Length Model Suffix Code	B w/o Preamp in.	B w/ preamp in.	C in.
2"	10.5	15	2
3"	11.5	16	3
4"	12.5	17	4
6"	14.5	19	6

Thermowell Length Model Suffix Code	B w/o Preamp in.	B w/ preamp in.	C in.
8"	16.5	21	8
10"	18.5	23	10
12"	20.5	25	12

TI-8-605-US 10.05

Temperature Sensor/Transmitter Model S-TEM

Model and Suffix Codes

Category	Description	Suffix Codes			
Model	Precision RTD with thermowell	S-TEM-30	...	...	...
Preamplifier (Temperature Range)	None (RTD output only)	...	RTD	...	...
	Preamplifier scaled from: 32 to 68°F (liquid or gas)	...	T09	...	...
	Preamplifier scaled from: 0 to 250°F (liquid or gas)	...	T10	...	...
	Preamplifier scaled from: -40 to 150°F (liquid or gas)	...	T11	...	...
	Preamplifier scaled from: 212 to 400°F (liquid or gas)	...	T12	...	...
	Preamplifier scaled from: 212 to 500°F (steam)	...	T14	...	...
	Preamplifier scaled from: 212 to 800°F (steam)	...	T13	...	...
	Preamplifier scaled from: -17.7 to 121.1°C (liquid or gas)	...	T20	...	...
	Preamplifier scaled from: -40 to 65°C (liquid or gas)	...	T21	...	...
	Preamplifier scaled from: 100 to 204°C (steam)	...	T22	...	...
	Preamplifier scaled from: 100 to 260°C (liquid or gas)	...	T24	...	...
	Preamplifier scaled from: 100 to 426°C	...	T23	...	...
	Transmitters can be scaled to accommodate special requests and bar scaling	...	TXX	...	...
	Thermowell Length	2" thermowell length	2
3" thermowell length		...	...	3	...
4" thermowell length		...	...	4	...
6" thermowell length		...	...	6	...
8" thermowell length		...	...	8	...
10" thermowell length		...	...	10	...
12" thermowell length		...	...	12	...
RTD wires (internal)	Teflon, -4 to 400°F	...	...	...	T
	Fiberglass, 150-800°F	...	...	...	F

Example


S-TEM-30-T13-6-F