

8500 Spot Temperature Sensor

Temperature measurement for tanks and pipelines



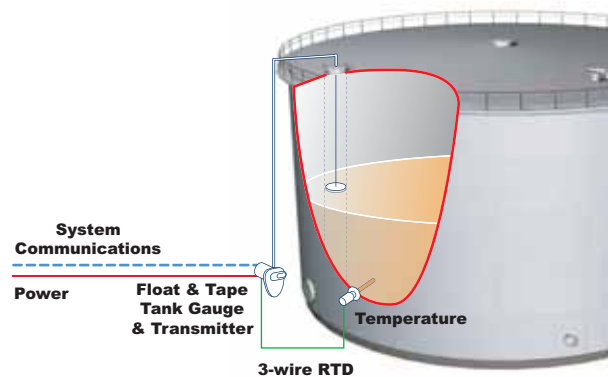
Benefits

- High accuracy, rugged construction
- 18" (46 cm), 36" (91 cm) and 48" (122 cm) nominal stem lengths available as standard with other custom sizes and configurations available
- ¾" NPT, 150# or 300# ANSI RF flanged sockets
- 100 Ohm copper or DIN platinum temperature element
- Type 304 stainless steel sockets
- 0.25" (6.4 mm) standard bulb diameter
- Explosion proof aluminum junction box with terminal strip

Application

The 8500 Spot Temperature Sensor (STS) contains a single, 3-wire element resistance bulb that is designed to measure the temperature of liquids at a single localized area, such as at or near the bottom of a storage vessel or in a pipeline.

Temperature data is digitized at the tank via the local tank gauge or tank gauge transmitter for transmission to a central location, such as the tank farm or refinery control room.



Function and System Design

Product temperature is used for volumetric calculation to a reference temperature and is of significant importance in the accurate calculation of liquid inventories in bulk storage tanks. The 8500 STS easily connects to Varec products, including float & tape

transmitters (4000 Advanced Technology Transmitter), servo tank gauges (6000 Servo Tank Gauge) and other instrumentation, to provide temperature data that is digitized at the tank for transmission to a central location, such as a refinery or tank farm control room.

Installation Guidelines

The 8500 STS may be used in a variety of storage tanks and is generally installed in the first course of the tank shell, about three feet (1 m) above the bottom of the tank. It may be used in fixed roof or floating roof tanks as long as it is below the pin height at which the floating roof rests.

High Pressure Applications

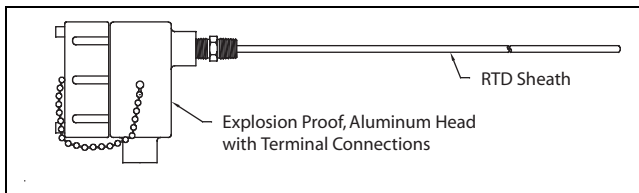
In high pressure applications, such as spheres, horizontal cylinders or bullets, flanged models for 150 psig (1 MPa) and 300 psig (2 MPa) service are available.

Construction

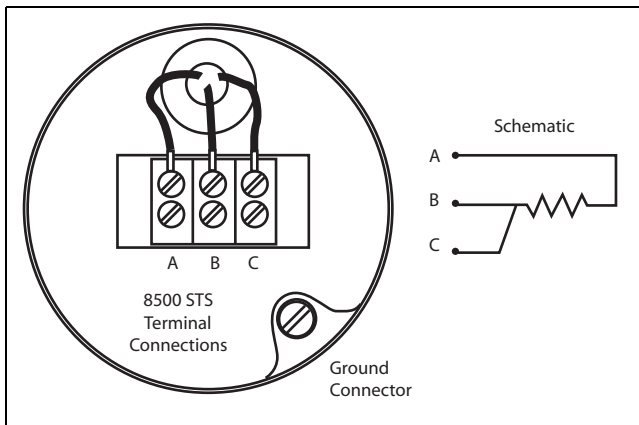
The 8500 STS is designed to meet the high quality and long life required by the storage tank industry. For resistance to corrosive attack in most hydrocarbon service applications, the socket is constructed of 304 stainless steel. 316 stainless steel is utilized in the construction of the sheath and hex nipple.

Configuration

The sensors are manufactured with three lead wires that can be terminated within the conduit box or explosion proof enclosures of a variety of instruments. Since significant errors can result from erroneous temperature data, all spot temperature elements are precisely calibrated at the factory prior to shipment.



8500 STS Assembly



8500 STS connection

Technical Specifications

Functional

Resistance bulb	Copper or platinum (DIN)
Resistance	Copper: 100 Ohms at 77 °F (25 °C) Platinum (DIN): 100 Ohms at 32 °F (0 °C)
RTD change/degree	Copper: 0.216 Ohms per °F (0.388 Ohms per °C) Platinum (DIN): 0.21 Ohms per °F (0.39 Ohms per °C)
Operating range	Copper: -100 °F to 212 °F (-75 °C to 100 °C) Platinum: -325 °F to 392 °F (-198 °C to 200 °C)

Physical

Enclosure	Explosion proof die-cast epoxy coated aluminum Rated IP65 (NEMA 4)
Socket material	Type 304 stainless steel
Bulb stem length	18", 36" and 48" (45.7 cm, 91.4 cm and 122 cm)
Bulb diameter	0.25" (6.4 mm) standard, optional 0.27" (6.9 mm)
Socket types	¾" NPT 1-½" - 150# ANSI R.F. 1-½" - 300# ANSI R.F.

Environmental

Operating temperature	-40 °F and +185 °F (-40 °C and +85 °C)
Operating humidity	0 to 95% relative humidity non-condensing

Performance

Accuracy	Copper: ±0.25 °F (± 0.15 °C) Platinum: Complies with DIN 43760 and BS1904:1984, (IEC 751:41983), Tolerance Class B
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Order Codes

8500 STS - Single Point Spot Bulb & Socket

10	Connection Type and Length	
0	3/4 NPT, 18in (45.7 cm) length	
1	3/4 B4426NPT, 36in (91.4 cm) length	
2	3/4 NPT, 48 in (122 cm) length	
3	ANSI 1-1/2 150lb RF, 18in (45.7 cm) length	
4	ANSI 1-1/2 150lb RF, 36in (91.4 cm) length	
5	ANSI 1-1/2 150lb RF, 48in (122 cm) length	
6	ANSI 1-1/2 300lb RF, 18in (45.7 cm) length	
7	ANSI 1-1/2 300lb RF, 36in (91.4 cm) length	
8	ANSI 1-1/2 300lb RF, 48in (122 cm) length	

20	Element Type	
0	100 Ohm Copper Element to 212 F	
1	100 Ohm Platinum (DIN) Element to 212 F	
2	100 Ohm Copper Element to 392 F	
3	100 Ohm Platinum (DIN) Element to 392 F	

N8500 -		Complete product designation
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8500 STS - Single Point Spot Bulbs Only

Part #	Description
06-08636-1	100 Ohm copper, 18" (45.7 cm) stem length
06-08636-2	100 Ohm copper, 36" (91.4 cm) stem length
06-08636-3	100 Ohm copper, 48" (122 cm) stem length
06-08636-4	DIN platinum, 18" (45.7 cm) stem length
06-08636-5	DIN platinum, 36" (91.4 cm) stem length
06-08636-6	DIN platinum, 48" (122 cm) stem length

Note! If installing in an existing socket, measure the socket's inside diameter.

www.varec.com

5834 Peachtree Corners East • Norcross, GA 30092
Tel: +1 (770) 447-9202 • Toll Free: +1 (866) 698-2732 • Fax: +1 (770) 662-8939



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