

temperature sensor model 1600



Features

- high accuracy PT100 sensor
- fully calibrated
- fast response
- teflon™ materials optional
- easy to install and operate

Applications

For fast and easy stream temperature measurement, the model 1600 temperature sensor provides an accurate and low cost solution. Based on Platinum resistance technology the 1600 is comprised of a temperature sensor and 4-20mA output module.



Technical Description

PT100 sensor		4-20mA transmitter	
Accuracy	0.01% (DIN Class A) 0.02% (DIN Class B)	Type	3 wire PT100 to 2 wire loop current converter
Long term stability	0.05% At 650°C over 10000 hours	Operating temperature	-20 to +80°C continuous operation
Conformance	R100/Ro=1.3850 (DIN 43760, BS 1904)	Temperature drift	0.02°C/°C typical
Self heating	Negligible (less than 1mA current)	Accuracy	Greater of 0.15°C or 0.15% of span
Response time	T0.63 (1 second to full response) (2 second response within sheath)	Enclosure	Reinforced ABS plastic enclosure with gasket sealed lid.
Sheath	¼" diameter x 130mm long stainless steel Optional Teflon™ coated sheath.	IP Rating	Rated to IP67 when cables fitted to glands
Cable	15m PVC sheathed, 3 wire RTD cable 15m Tefzel (PTFE sheathed) 3 wire RTD cable. 15m is standard length. Other lengths are available upon request.	Size	80mm x 65mm x 55mm
Power Supply	10-32 Volts DC unregulated 2 wire loop	Weight	0.55 kg with probe (15m PVC cable)

Operating Principle

PT100 Temperature Probe	4-20mA Transmitter
<p>For mounting under water, the temperature probe used is made of a PT100 temperature sensor mounted within a ¼" stainless steel sheath. The sensor is thermally coupled to the sheath tip to ensure fast response to changes in temperature. A three-wire cable is hardwired to the probe sheath and sealed to IP68 standard. The third wire in the cable is used to eliminate cable resistance as is typical for resistance based temperature sensors.</p> <p>Two classes of PT100 sensors are available. Class A provides measurement accuracy of 0.10% while Class B provides measurement within 0.018% of measured value. Long term stability (over 10000 hours) is less than 0.05% (measured at 650°C). As the measurement range is typically 0-50°C, the long term stability is virtually negligible.</p> <p>The stainless steel sheath has a very thin end where the sensor is located within a thermally conductive gel. This provides a 2 second response time to changes in temperature. The 316L stainless steel sheath can be Teflon™ coated (optional) for corrosive environment applications.</p>	<p>The 4-20mA transmitter is a complete RTD to current converter module, calibrated to the desired temperature range. For typical applications it is calibrated to 0-50°C where 4mA represents 0°C and 20mA represents 50°C. Other calibrations (eg. -10 to +60°C) are available on request.</p> <p>The current transmitter module is housed in a small IP67 enclosure. A cable gland is provided to allow feed-through of the temperature sensor cable and screw terminals are provided for connection (3 wires). At the other end of the enclosure a 2 wire 4-20mA cable is provided with optional logger connector (eg. 3161 3 pin plug). The transmitter is powered by 12Vdc as is typical for all ES&S sensors. If desired, ES&S can fit other connectors or provide a length of un-terminated cable to suit your application.</p> <p>The model 1600 temperature sensor is suitable for air, soil and compatible liquid temperature measurement up to 80°C.</p>

Environmental Systems & Services Pty Ltd.

8 River Street, Richmond, VIC, 3121 Australia

PO Box 939, Hawthorn, VIC, 3122 Australia

Telephone: + 61 3 8420 8999

Facsimile: + 61 3 8420 8900

Email: environmental@esands.com

Web: www.esands.com