

SEM203P IN HEAD PT100 TEMPERATURE TRANSMITTER

- **SUITABLE FOR PT100 TEMPERATURE SENSORS**

- **(4 to 20) mA OUTPUT**

- **PUSH BUTTON PROGRAMMABLE**

- **HIGH STABILITY**

- **OUTPUT CURRENT TRIM**

➤ **INTRODUCTION**

The SEM203P is a push button configurable in-head transmitter that accepts PT100 temperature sensors and converts sensor output over a configured range to a standard industrial (4 to 20) mA transmission signal.

A simple push button operation allows the user to not only select the desired range and burnout direction but also perform user trim at both (4 and 20) mA points.

If required, the desired range can be specified at the time of order, removing the need for user configuration. If the range is not specified, then the transmitter will be shipped with the default range of (0 to 100) °C.

➤ **FEATURE HIGHLIGHTS**

PUSH BUTTON CONFIGURATION

The SEM203P can be ranged against a probe held at high and low range values or by using a resistive representation of the required temperature using a simple “teach” method. Burnout direction can also be set using the same push button.

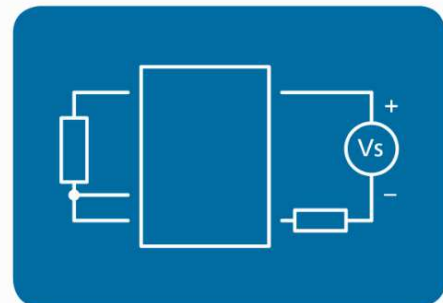
A zero and span trim function is also incorporated into the SEM203P to give maximum flexibility.

SENSOR BURN OUT DETECTION

If a sensor wire is broken or becomes disconnected the SEM203P output will automatically go to its user defined level upscale or downscale and the LED illuminates.

STABILITY

The SEM203P in head transmitter incorporates the latest digital technology to ensure accurate, low drift performance.



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INPUT		SPECIFICATIONS @20 °C
Type / Function	Range / Description	Accuracy/ Stability
PT100 2 or 3 wire	(-200 to 850) °C	± 0.2 °C ± 0.05 % of reading *2
Thermal drift	Zero at 20 °C	±0.02 °C/ °C
Minimum span	25 °C *1	
Linearization	BS EN 60751(IEC 751) standard / JISC 1604	
Excitation current	Approximately	1 mA
Lead resistance effect	0.002 °C / Ohms	
Maximum lead resistance	20 Ohms per leg	
*1 Any span may be used; full accuracy is only guaranteed for spans greater than the minimum recommended		
*2 Basic measurement accuracy includes the effects of calibration, linearization and repeatability		

OUTPUT		SPECIFICATIONS @20 °C
Type / Function	Range / Description	Accuracy/ Stability/ Notes
Two wire current	(4 to 20) mA	(mA output /2000) or 5 uA (Whichever is the greater)
Thermal drift	Zero at 20 °C	2 uA / °C
Maximum output current	21.5 mA	In high burnout condition
Minimum output current	< 3.9 mA	In low burnout condition
Loop voltage effect	0.2 uA / V	
Maximum output load	[(V supply - 10)/20] KΩ	700 Ω @ 24 V DC
Loop supply	(10 to 30) V DC	SELV

PUSH BUTTON USER INTERFACE		
Type/ Function	Range/ Description	Notes
Sensor configuration	Temperature range for (4 to 20) mA retransmission Burnout current Trim output current	°C or °F against probe or resistance Upscale or downscale At 4.0 mA and 20.0 mA

GENERAL	
Function	Description
Update time	500 ms
Response time	1 s
Start-up time	4 s (mA out < 4 mA during start up)
Warm up time	60 s to full accuracy
Default configuration	PT100 (0 to 100) °C upscale burnout

ENVIRONMENTAL	
Function	Description
Ambient temperature	Operating/ Storage (-40 to 85) °C Full accuracy only between (-30 to 75)°C
Ambient Humidity	Operating/Storage (10 to 90) %RH non-condensing
Protection requirement	>= IP65 recommended
Configuration ambient	20 °C to maintain specification

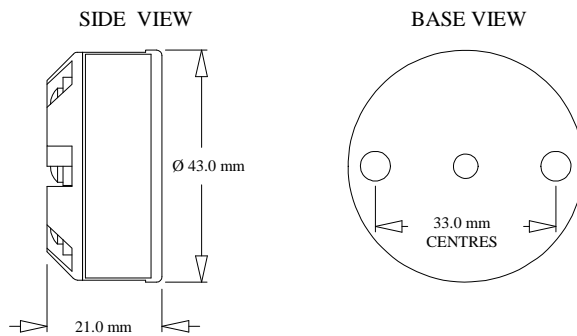
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MECHANICAL	
Function	Description
Dimensions	43 mm diameter; 21 mm height
Fixing centres	2 x 5 mm holes on 33 mm centres
Centre hole	4.5 mm hole for wiring aid
Weight	31 g (encapsulated)

APPROVALS	
EMC	BS EN 61326: Note - Sensor input wires to be less than 3.0 m to comply
Ingress protection	BS EN 60529
RoHS	Directive 2011/65/EU

ORDER CODE	SEM203P
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MECHANICAL



Fixing holes 2 x Ø5.5 mm, Centre hole Ø4.5 mm