

SEM104P ANALOGUE IN HEAD TEMPERATURE TRANSMITTER

SEM104P

- **Pt100 INPUT**
- **(4 to 20) mA OUTPUT**
- **ANALOGUE TECHNOLOGY**
- **HIGH STABILITY + FAST RESPONSE TIME**
- **USER RE-RANGEABLE WITH LINKS**

➤ INTRODUCTION

The SEM104 is a (4 to 20) mA temperature sensor transmitter which can be housed in a head mount DIN standard enclosure.

The SEM104P is for Pt100 inputs and is field rangeable if necessary, using links on the printed circuit board and the use of on-board SPAN and ZERO potentiometers. A wide selection of compatible probe assemblies are available with various immersion lengths and process connections.

The same two wires that power the transmitter also carry the transmission current such that only two connections are required. This reduces installation and wiring costs whilst the nature of current transmission provides superb noise immunity and ensures that line impedances, thermoelectric effects etc. do not introduce errors.

➤ FEATURE HIGHLIGHTS

LOOP POWERED

The instrument is powered by the loop current; no additional power supply is required.

ANALOGUE PERFORMANCE

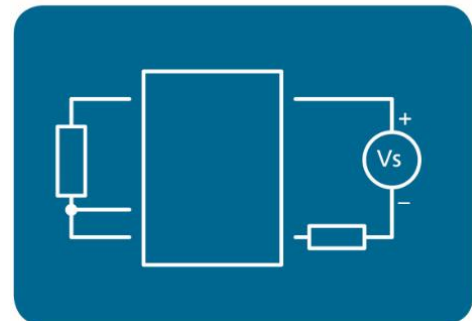
The SEM104P uses a proven and reliable analogue design on the input and output sections of its circuits. This leads to a very fast and smooth response time as there is no analogue-to-digital and digital-to-analogue conversions to be carried out during input monitoring through to retransmission of the signal.

As no microcontrollers or digital ICs are used on the SEM104P, it makes it suitable for applications where digital components are to be avoided.

The SEM104P uses resistor pots to allow the user to “trim” the 4 mA and 20 mA range points for maximum accuracy.

HIGH STABILITY

The SEM104P uses high precision and thermally stable components throughout, giving it very stable performance over its operating range.



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INPUT		SPECIFICATIONS @20°C
Type/Function	Range/Description	Accuracy/Stability
Pt100, 3 wire	BS EN 60751 DIN43760	$\pm 0.2\text{ }^{\circ}\text{C} \pm 0.2\text{ \%}$ of reading
Maximum range	(-100 to 600) $^{\circ}\text{C}$	
Maximum span	500 $^{\circ}\text{C}$	
Minimum span	25 $^{\circ}\text{C}$	
Thermal drift	Zero at 20 $^{\circ}\text{C}$	$\pm 0.01\text{ }^{\circ}\text{C}/^{\circ}\text{C}$

OUTPUT		SPECIFICATIONS @20°C
Type/ Function	Range/Description	Accuracy/Stability/Notes
Two wire current	(4 to 20) mA	(mA output /2000) or 5 μA (Whichever is the greater)
Loop supply	(10 to 30) VDC	SELV
Protection	Reverse connection protected	
Sensitivity		10 $\mu\text{A}/\text{V}$
Loop voltage effect		0.2 $\mu\text{A} / \text{V}$
Maximum output load	$[(\text{V supply} - 10)/20]\text{ K}\Omega$	700 Ω @ 24 V DC
Maximum output		< 30 mA
Thermal drift	Zero drift, 0 % at 20 $^{\circ}\text{C}$ Span drift, 0 % at 20 $^{\circ}\text{C}$	$\pm 0.02\text{ \%}/^{\circ}\text{C}$ $\pm 0.005\text{ \%}/^{\circ}\text{C}$
At > 24 V supply use with a minimum 250 Ω load		

GENERAL		SPECIFICATIONS @20°C
Function	Description	
Response time	< 60 ms to reach 70 % of final value	
Start-up time	< 4 s	
Warm-up time	180 s to full accuracy	
Default configuration	Un-ranged (no links set)	
Add required range to be pre-set to order number		

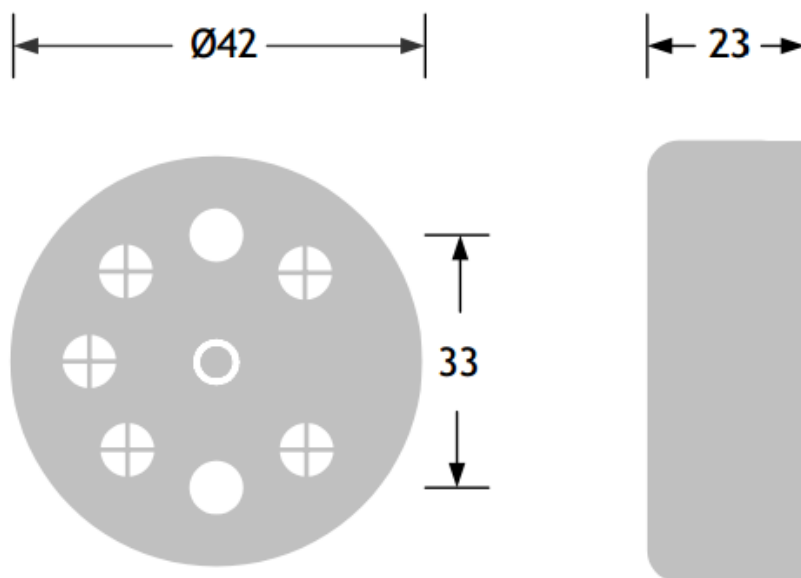
ENVIRONMENTAL	
Function	Description
Ambient temperature	Operating: (0 to 70) $^{\circ}\text{C}$ Storage: (-40 to 90) $^{\circ}\text{C}$
Ambient Humidity	Operating/Storage (0 to 90) %RH non-condensing
Protection requirement	$\geq$ IP65 recommended

MECHANICAL	
Function	Description
Dimensions	42 mm diameter; 23 mm height
Fixing centres	2 x 5.5 mm holes on 33 mm centres
Weight	25 g approximately

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APPROVALS	
EMC	BS EN 61326: Note - Sensor input wires to be less than 3 m to comply
Ingress protection	BS EN 60529
RoHS	Directive 2011/65/EU Incorporation RoHS 3 amendment directive EU2015/863

MECHANICAL



Dimensions in mm.

Fixing holes 2 x Ø5.5 mm, on 33 mm centres

ORDER CODE	SEM104P
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ACCESSORIES	
Head options	Please refer to www.status.co.uk
Probe options	Please refer to www.status.co.uk
RMK/3-T	"Top hat" DIN rail profile mounting clip

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To maintain full accuracy, annual calibration is recommended. Contact support@status.co.uk for details.