

SEM110P ANALOGUE IN HEAD TEMPERATURE TRANSMITTER

SEM110P, SEM110XP

- > **Pt100 INPUT**
- > **(4 to 20) mA OUTPUT**
- > **ANALOGUE TECHNOLOGY**
- > **HIGH STABILITY + FAST RESPONSE TIME**
- > **ATEX APPROVED VERSION**

> **INTRODUCTION**

The SEM110P is a high-performance temperature transmitter. It provides the industry standard (4 to 20) mA transmission signal and can be mounted in the majority of DIN standard connecting heads. Alternative mountings are available to enable the transmitter to be mounted on a DIN rail or inside an enclosure.

The SEM110P accepts Pt100 platinum resistance temperature sensor to BS 1904 or DIN 43760 standards, and converts the sensor temperature to a current varying between (4 and 20) mA.

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

> **FEATURE HIGHLIGHTS**

ATEX

Approved for use in hazardous areas (SEM110XP version)

LOOP POWERED

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

ANALOGUE PERFORMANCE

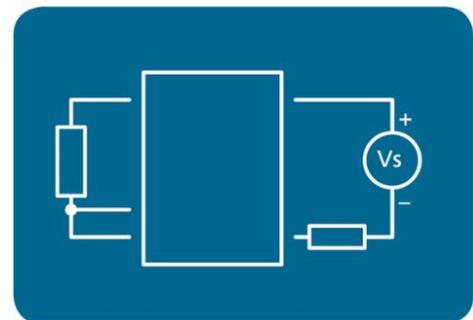
The SEM110P uses a proven and reliable analogue design on the input and output sections of its circuits. This leads to a very fast and smooth response time as there is no analogue-to-digital and digital-to-analogue conversions to be carried out during input monitoring through to retransmission of the signal.

As no microcontrollers or digital ICs are used on the SEM110P, it makes it suitable for applications where digital components are to be avoided.

The SEM110P uses resistor pots to allow the user to “trim” the 4 mA and 20 mA range points for maximum accuracy.

HIGH STABILITY

The SEM110P 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	(0 to 100) °C Full scale	± 0.1 °C ± 0.1 % of reading ± 0.2 °C ± 0.1 % of reading
Maximum range	(-100 to 600) °C	See range options
Minimum span	10 °C	
Thermal drift	Zero at 20 °C	± 0.01 °C/°C

Range °C	Range °C
-100 to 100	0 to 200
-100 to 0	0 to 250
-50 to 50	0 to 300
-50 to 50	0 to 400
-30 to 35	0 to 500
0 to 50	0 to 600
0 to 100	50 to 150
0 to 150	

Note: Ranges other than those specified are available on special order. Contact sales@status.co.uk

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)
Loop supply	(10 to 45) V DC (10 to 30) V DC	SELV ATEX Version
Ripple	Measured at 1 V ripple 100 Hz	50 uA/V
Sensitivity		1 uA/V
Loop voltage effect		0.2 uA / V
Maximum output load	[(V supply – 10)/20] KΩ	700 Ω @ 24 V DC
Maximum output		< 30 mA
Thermal drift	Zero drift, 0 uA at 20°C Span drift, 0 uA at 20°C	± 2 uA /°C ± 0.01 uA /°C

GENERAL		SPECIFICATIONS @20°C
Function	Description	
Response time	< 50 ms to 70 % of final value	
Start-up time	< 4 s	
Warm-up time	180 s to full accuracy	
Default configuration	PT100 (0 to 100) °C, upscale burnout	

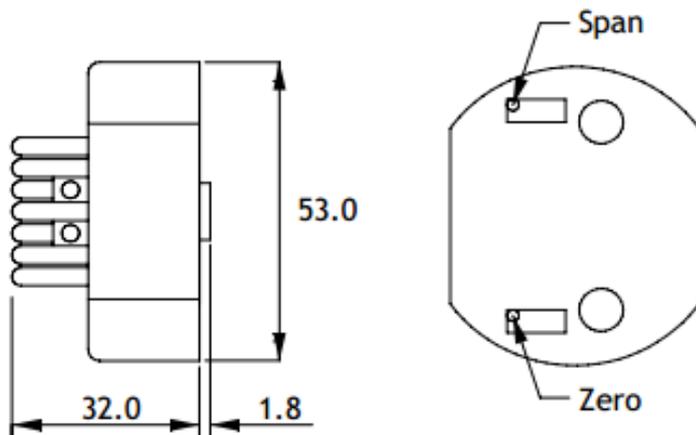
ENVIRONMENTAL	
Function	Description
Ambient temperature	Operating: (0 to 70) °C Storage: (-40 to 90) °C
Ambient Humidity	Operating/Storage (0 to 90) %RH non-condensing
Protection requirement	>= IP65 recommended

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MECHANICAL	
Function	Description
Dimensions	53 mm diameter; 32 mm height
Fixing centres	2 x 5 mm holes on 33 mm centres
Weight	70 g approximately (encapsulated)

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
ATEX	II 1G EEx ia IIC T5

MECHANICAL



Dimensions in mm.

Fixing holes 2 x Ø5.0 mm, on 33 mm centres

ORDER CODE	SEM110P
ATEX version	SEM110XP

ACCESSORIES	
Head options	Please refer to www.status.co.uk
Probe options	Please refer to www.status.co.uk

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