

HIGH PERFORMANCE TEMPERATURE TRANSMITTER

SEM110 SERIES

- (4 TO 20) mA TRANSMISSION
- DIN HEAD MOUNTING
- SPECIAL SPANS AVAILABLE
- ATEX APPROVED
- 5 YEAR WARRANTY



INTRODUCTION

The SEM110 is a high performance temperature transmitter. It provides the industry standard (4 to 20) mA transmission signal and yet is small enough to simply replace a connecting block 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 or thermocouple sensor K, T, J, R or S and converts the sensor temperature to a current varying between 4 and 20 mA. Versions are also available for slide wire (W), variable resistor (Z) or differential temperature (D). 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 a superb noise immunity and ensures that line impedances, thermoelectric effects etc. do not introduce errors.

SPECIFICATIONS @20 °C

Output	(4 to 20) mA (max current 30 mA)
Supply	(10 to 45) VDC. reverse polarity protected 30 V max. IS versions
Ripple	50 μ A/V (measured at 1 V ripple 100 HZ)
Sensitivity	1 μ A/VDC.
Ambient	(0 to 70) °C operating, (-40 to 100) °C storage (0 to 95) % humidity
Zero Drift	$\pm 2 \mu$ A/°C
Span Drift	± 0.01 %/°C
Max Loop Resistance	700 R @ 24 V

APPROVALS	
EMC	BS EN61326
ATEX	II 1G EEx ia IIC T5

SEM110X/P
SEM110/TC
SEM110/W

SEM110P	Pt100 VERSION
Input	Platinum Resistor to BS 1904/ DIN 43760
Accuracy	± 0.1 °C ± 0.1 % rdg
Range	(-200 to 850) °C
Min. Span	10 °C

SEM110	T/C VERSION K, T, J, R, S
Input	Thermocouple isolated probe only
Cold Junction	± 0.01 % of Span/°C
Accuracy Range	(-100 to 1600) °C
Min Span	4 mV
Accuracy	Thermocouples are cold junction compensated but unlinearised
Open Circuit	Upscale (Downscale to special order)

NOTE: When measuring very low or very high temperatures, ensure that the transmitters ambient temperature is not exceeded by using stand offs or remote mounting.

SEM110D	DIFFERENTIAL TEMPERATURE
Input	Differential Pt100
Range	(0 to 50) °C
Accuracy	± 0.2 °C
Differential	Minimum 10 °C
Span	Maximum 50 °C
Options	T1=T2= 4 mA/T1=T2= 12 mA

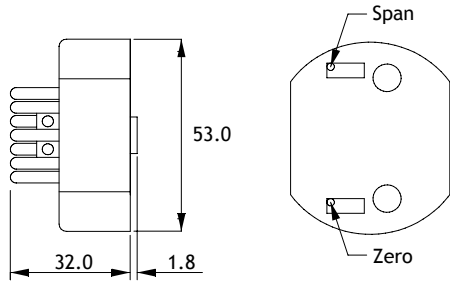
SEM110W,
W = Slidewire
Z = Variable Resistor

SEM110Z
(0 to 10) K
(0 to 10) K

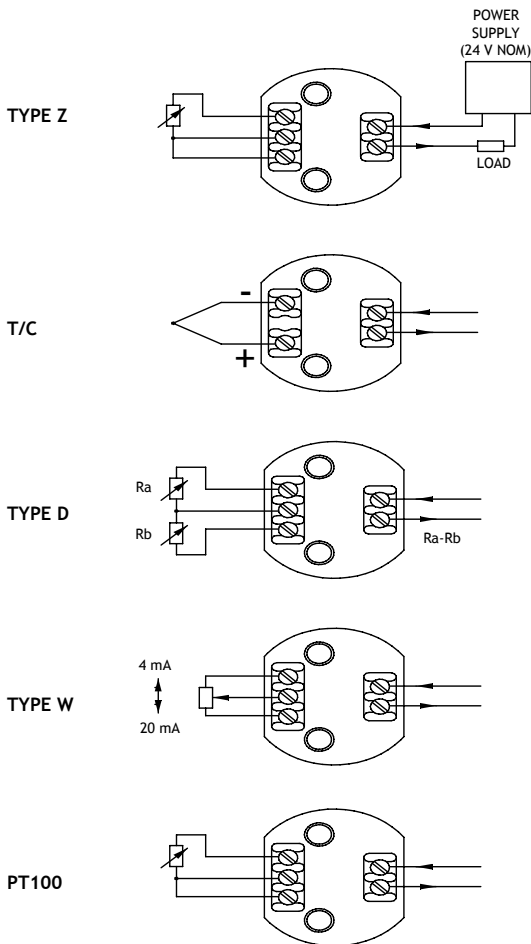
HIGH PERFORMANCE TEMPERATURE TRANSMITTER

MECHANICAL DETAILS

(All dimensions in mm)



CONNECTION INFORMATION

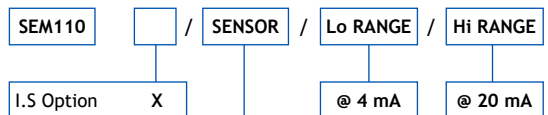


RANGE °C		SENSOR									
LO	HI	P	K	T	J	R	S	D	W	Z	
-100	+100	•		•							
-100	0	•		•							
-50	0	•		•							
-50	+50	•		•							
-30	+35	•		•							
0	50	•		•	•						
0	100	•	•	•	•						
0	150	•	•	•	•						
0	200	•	•	•	•						
0	250	•	•	•	•						
0	300	•	•	•	•						
0	400	•	•	•	•						
0	500	•	•	•	•						
0	600	•	•	•	•						
0	800	0	•	•	•						
0	1000		•	•	•						
0	1200		•	•	•						
0	1600		•	•	•		•	•			
50	150	•	0								
800	1600					•	•				
0	10							•			
0	20							•			
0	30							•			
0	40							•			
0	50							•			
0	2K								•	•	
0	5K								•	•	
0	10K								•	•	

• = Indicates available ranges
0 = Indicates available but not recommended

NOTE: Ranges other than those specified are available to special order. Please consult Sales Office for further details.

ORDER CODE



Platinum Resistor	P
Thermocouple	K, T, J, R, S
Difference Temperature	D
Slide Wire	W
Variable Resistor	Z

EXAMPLE:

SEM110 with P sensor and range (-100 to 100) °C would be:
SEM110P-100/+100

SEM110, 110D, 110W and 110Z are all available with intrinsic safety.

SEM110D, specify ranges and options SEM110W or SEM110Z specify resistance i.e SEM110W2K