SEM710 UNIVERSAL TEMPERATURE TRANSMITTER WITH DISPLAY

- **ISOLATED PT100, mV AND THERMOCOUPLE INPUTS**
- **DISPLAYS TEMPERATURE IN °C/°F OR OUTPUT CURRRENT mA**
- **SIMPLE CONFIGURATION VIA USB PORT**
- **PUSH BUTTON USER TRIM**
- **(4 to 20) mA TWO WIRE OUTPUT**

INTRODUCTION

The SEM710 is a head mounted temperature transmitter with display feature, from Status Instruments. It has been designed to accept most common temperature sensor inputs and provide the user with a standard two wire (4 to 20) mA output signal. Isolation is provided between input and output and all temperature ranges are linear to temperature. The display provides the user with instant information of the loop condition at the point of measurement. It comes housed in our SCH4 ABS plastic connector head with stainless steel SCH15 options available.

Designed for ease of use, a USB interface is fitted for quick and easy configuration. Just connect a standard USB cable between the SEM710 and your PC, using our free USBSpeedLink configuration software.

FEATURE HIGHLIGHTS

DISPLAY OPTIONS
The SEM710 can be programmed to display in either °C or °F.
As a diagnostic function the SEM710 can also be set to display the mA retransmission current.

OUT OF RANGE WARNING
If the input temperature goes above the high range value, the output current will drive to its maximum capability, however the display will continue to show the correct input temperature and signal by flashing an over-range warning on the display. This works for an under-range input value reading as well.

TEMPERATURE TRANSMITTER COMPATIBLE
The SEM710 has space inside its housing to mount a standard 33 mm centre, head mount, (4 to 20) mA temperature transmitter.
Any of the Status Instruments range of temperature transmitters can be used with the SEM710 to give a second (4 to 20) mA output for duplex style probes.

STABILITY
The SEM710 head mount temperature transmitter with display incorporates the latest digital technology to ensure accurate, low drift performance.

STATUS INSTRUMENTS

INPUT **RTD (3 Wire)**		**SPECIFICATIONS @20°C**
Type	**Range**	**Accuracy / stability**
PT100	(-200 to 850) °C	±0.2°C ±0.05% of reading *1 (plus sensor error)
Sensor excitation		<450 uA
Lead resistance/ effect	20 Ω maximum	±0.015 °C / Ω
Thermal drift	0°C at 20°C	Typically, ±0.05°C/°C
*1 For ambient (-10 to 50) °C		

INPUT **Thermocouple**		**SPECIFICATIONS @20°C**
Type	**Range**	**Accuracy / stability**
K	(-200 to 1370) °C	±0.1% of full scale ±0.5°C ± CJ error (plus, sensor error) *1
J	(-100 to 1200) °C	
N	(-180 to 1300) °C	
E	(-100 to 1000) °C	
T	(-100 to 400) °C	
R	(0 to 1760) °C	±0.1% of full scale ±0.5°C ± CJ error (plus, sensor error) over range (800 to 1600) °C
S	(0 to 1760) °C	
Thermal drift	0°C at 20°C	Typically, ±0.01 % of full scale/°C
*1 For ambient (-10 to 50) °C		

COLD JUNCTION (CJ)		**SPECIFICATIONS @20°C**
Type	**Range**	**Accuracy/ stability**
Thermistor 10K Beta 3380	(-20 to 70) °C	±0.5°C
Thermal drift	0°C at 20°C	±0.05°C/°C

DISPLAY	
Type/ options/ function	**Description**
Display height	7.6 mm
LED	4 digits, high intensity, red
Range	
Resolution	0.1 °C, 0.1°F, 0.01 mA
Errors	Sensor error = Err Over or under range = alternating input value with ‘OVER’ or ‘UNDR’
Update rate	500 ms

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	>22.0 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 – 15)/20] KΩ	Example 450 Ω @ 24 Vdc
Loop supply	(15 to 30) Vdc	SELV
Protection	Maximum over voltage current 100 mA	Reverse connection
Thermal stability	0 mA at 20 °C	± 5 uA/ °C

USB CONFIGURATION USER INTERFACE		
Type / options / function	**Description**	**Notes**
Configuration hardware	USB Mini B port	Located inside housing
	USB cable	USB A to mini B (not included)
Configuration software	USBSpeedLink	Download www.status.co.uk
Operating system	Microsoft Windows	Win 7 or later
Sensor configuration	Select sensor type	TC options/ PT100
Display configuration	Set display units	°C, °F, or mA
Range	(4 to 20) mA	Input low/ high values
Burnout direction		Upscale/ downscale
Read live data		Input signal and output signal
Store and load configuration		To file on PC
Enable user trim buttons		On/ off

PUSH BUTTON USER INTERFACE		
Type/ options/ function	**Description**	**Notes**
User trim	Adjust at maximum and minimum input range value	Offset (4 mA) and span (20 mA) adjustment

GENERAL	
Function	**Description**
Response time	<500 ms to reach 95% of final value
Start-up time	< 3 s
Isolation	Input to output tested to 500 Vdc
Default configuration	Display °C, PT100 (0 to 100) °C upscale burnout, button trim on

ENVIRONMENTAL	
Function	**Description**
Ambient temperature	(-40 to 85) °C
Ambient humidity	(10 to 90) %RH non-condensing
Protection	IP67, suitable entries must be used to maintain IP67

CONNECTIONS	
Function	**Description**
Input sensor/ output loop	Two-part connectors
Maximum wire size	2.5 mm^2

MECHANICAL	
Function	**Description**
Enclosure	ABS, grey base, grey clamp ring
Display cover	Polycarbonate, clear
Case entries	Base and side entry options see ORDER CODES below
Weight (approximate)	150 g (without probe)

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

STATUS INSTRUMENTS

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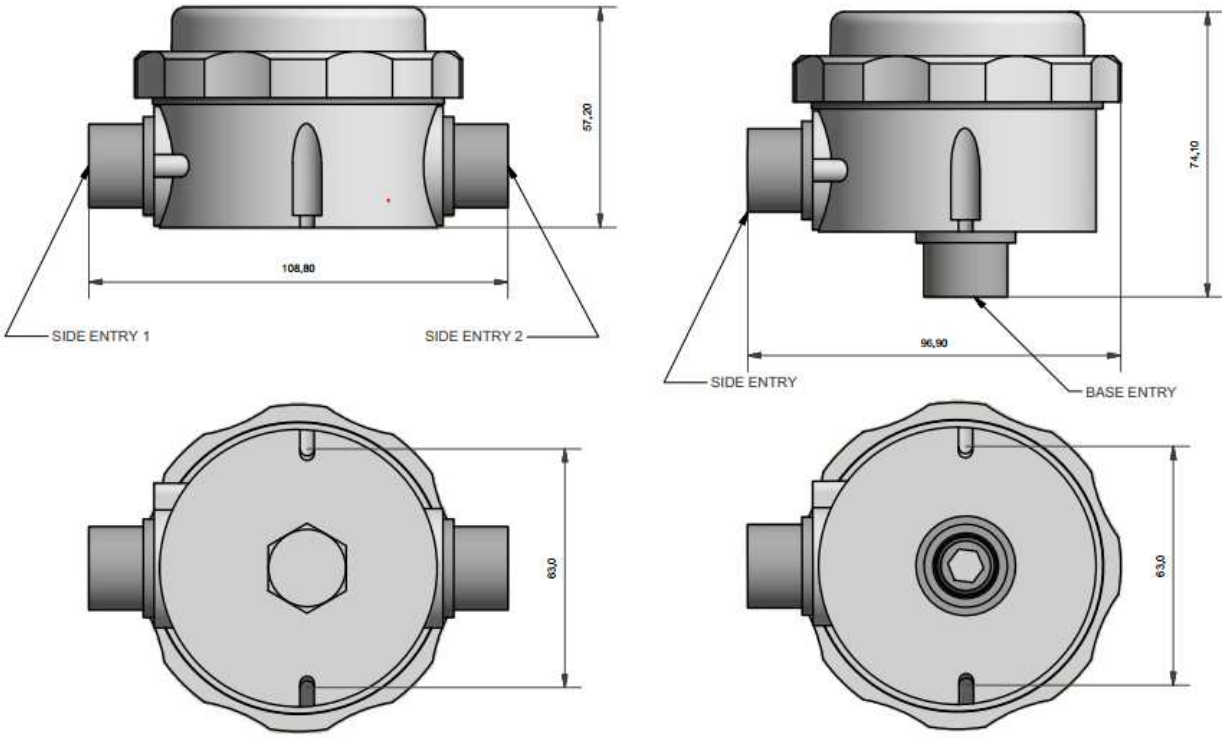
MECHANICAL **2 x side entry B type body** **1 x side entry 1 x base entry C type body**



SEM710 ORDER CODE

	Case type				Entry options
		Base entry	Side 1	Side 2	
SEM710	**B**	00	Entry option	Entry option	20 = M20 24 = M24 BP = ½" BSP NT = ½" NPT 00 = no entry
SEM710	**C**	Entry option	Entry option	00	
	B = 2 x side entry **C = 1 x side entry + 1 x base entry**				

Example 2 side entries 1 x M24 1 x M20

SEM710 /B /00 /24 /20

For further options please contact sales@status.co.uk

ACCESSORIES	
Configuration software	USBSpeedLink free of charge from www.status.co.uk
USB programming lead	USB programming lead part number 42-200-0001-01
Calibration certificate	Contact sales@status.co.uk
Probe options	Refer to www.status.co.uk

To maintain full accuracy annual calibration is required contact support@status.co.uk for details

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