

# UNIVERSAL INDICATING TEMPERATURE TRANSMITTER



## SEM710

- SIMPLE CONFIGURATION VIA USB PORT
- INPUT/OUTPUT ISOLATION
- DISPLAY TEMPERATURE in °C / °F or OUTPUT DRIVE in mA
- UNIVERSAL RTD – PT100 and THERMOCOUPLE INPUT
- 4 to 20 mA TWO WIRE OUTPUT
- PUSH BUTTON USER TRIM
- 10 YEAR WARRANTY

## INTRODUCTION

The SEM710 is the first of a new generation of head mounted temperature transmitters with a display 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 addition of a display provides the user with instant information of the loop condition at the point of measurement.

Designed for ease of use, our latest USB interface is fitted for quick and easy configuration. Just connect a standard USB cable between the SEM710 and your PC. Using our free configuration software, your PC will automatically upload the existing configuration data and guide you through any changes you wish to make. To further help save time, the SEM710 does not need to be wired to a power supply during the configuration process, it is powered via the USB interface from your PC. The following parameters are configurable:

INPUT TYPE	LOW RANGE	HIGH RANGE	UNITS	BURNOUT	USER TRIM	DISPLAY
RTD: Pt100 Or T/C: K, J, E, N, T, R, S	Input @ 4 mA	Input @ 20 mA	°F, °C	Up/Scale Down/Scale	On, Off	°F, °C, mA

The SEM710 is also provided with user push button trim allowing trim adjustments at both 4 mA and 20 mA. The user trim function can be locked during configuration if not required. The display will show an error message for sensor failure. Also the display will flash under or over range alternatively with actual input reading when the temperature exceeds the set range.

## INPUTS

INPUT	RANGE	ACCURACY (Note 1)	STABILITY	O/C	CJ (Note 3)	SENSOR EXCITATION (Note 4)	IMPEDANCE
Pt100	-328 to 1562°F	±0.18°F/±0.05% of Rdg	±0.005% of FSR	N/A	N/A	<450µA	N/A
K	-328 to 2498°F	±0.1% of FSR ±0.9°F	±0.01% of FSR	Yes	Yes	N/A	1 MΩ (Note 5)
J	-148 to 2192°F						
E	-148 to 1832°F						
N	-292 to 2372°F						
T	-148 to 752°F	±0.2% of FSR ±0.9°F	±0.01% of FSR	Yes	Yes	N/A	1 MΩ (Note 5)
R	14 to 3200°F	±0.9°F ±0.1% of FSR (Note 2)					
S	14 to 3200°F	±0.9°F ±1% of FSR (Note 2)					

Key: Rdg = Reading; FSR = Full Scale Range; O/C = Programmable Open Circuit Sensor Detect; CJ = Cold Junction Error

- Notes:
1. Accuracy for Pt100 and T/C do not include sensor and cold junction errors.
  2. Only over the range 1472 to 2912°F.
  3. Cold junction range: -4 to 158°F, Accuracy: ±0.9°F, Tracking: ±0.09°F.
  4. Pt100 Input Maximum lead resistance: 20R, Lead effect: 0.027°F/Ω
  5. Impedance – not including 0.2µA open circuit detect bias current effect.

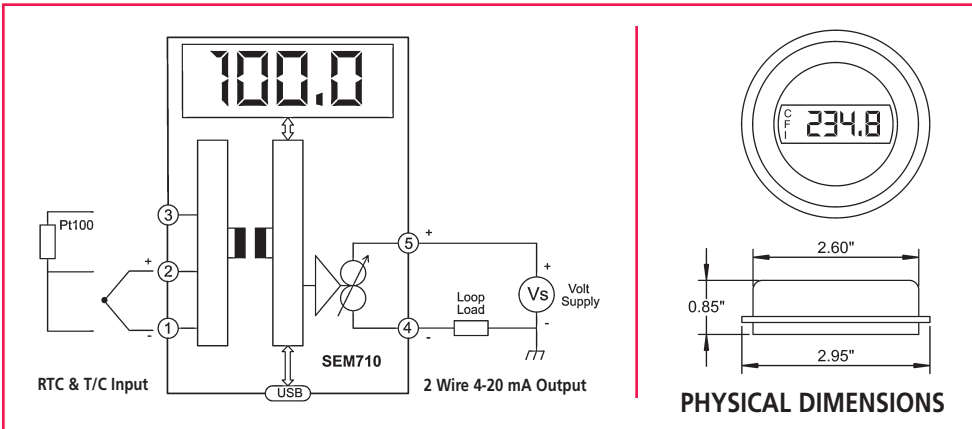


## GENERAL

Isolation	Input to output tested at 500VDC
Ambient	Operating: -4 to 158°F, 10 to 95% RH non condensing. Storage: -40 to 185°F
Approvals	CE tested to BS EN 61326
Protection	IP67 when used with SCH4 housing
Display	4 digit seven segment red LED 7.33 high
Display Resolution	Raise and lower buttons, active for offset when output is between 3.8 to 6 mA, Span between 18 to 22 mA

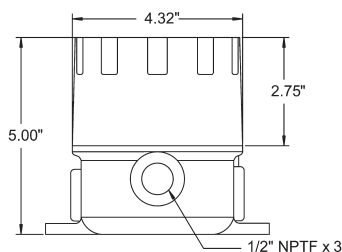
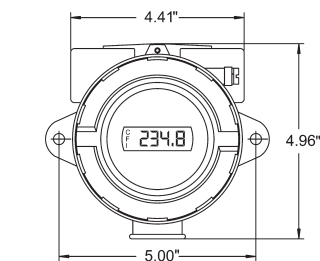
## MECHANICAL

Terminals	Screw terminals
Cable	2.5 mm maximum
Material	ABS



## SEM710 OUTPUT

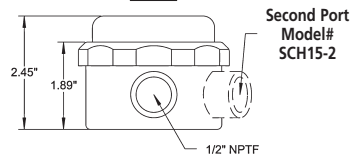
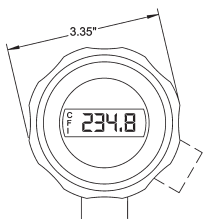
Type	Two wire current sink; signal range 4 to 20mA; full range 3.8 to 24mA
Supply	11 to 30VDC, 24V nominal giving Max loop load of 600R @ 24V
Response Time	<500ms to reach 95% of final value; Start up time: 3s
Calibration Accuracy	±5µA
Effect	Loop ripple: 0.03% of FSR; Supply sensitivity: 0.05µA/°C; supply ripple rejection: < ±5µA error @ 1V rms 50 Hz ripple.
Protection	Reverse connection and over-voltage protection. Max over voltage current: 100mA
User Trim	Raise and lower buttons are active for offset when output is between 3.8 to 6 mA, span between 18 to 22 mA. Trim lock option.



**SCH18**

## ALUMINUM EXPLOSION PROOF HOUSING

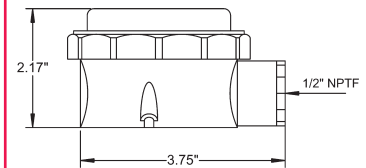
## Local Representation



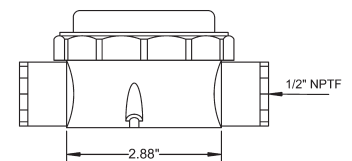
**SCH15**

## STAINLESS STEEL HOUSING

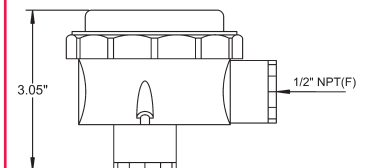
## ABS NEMA 4X HOUSINGS



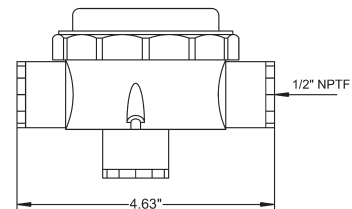
**SCH4/A**



**SCH4/B**



**SCH4/C**



**SCH4/D**

## ORDER CODES:

**SEM710** UNIVERSAL INDICATING TEMPERATURE TRANSMITTER

### Housings

SCH4 NEMA 4X POLYCARBONATE (STANDARD)  
SCH15-2 STAINLESS STEEL  
SCH18 EXPLOSION PROOF

### Accessories

USB CABLE USB CABLE A/M TO MINI B/M  
M-CONFIG SOFTWARE (FREE FROM INTERNET SITE)



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