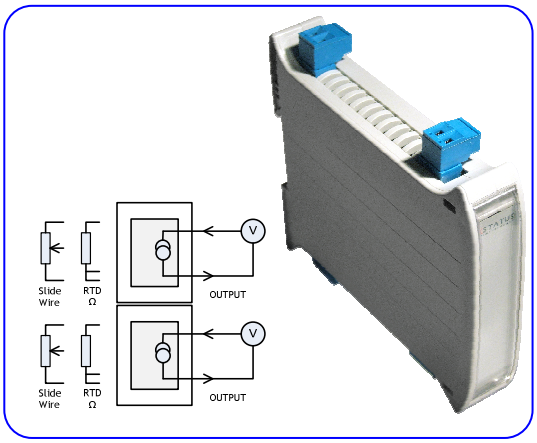
RAIL MOUNTED I.S. APPROVED RTD SLIDEWIRE TRANSMITTER

SEM1801XR, SEM1802XR

- INPUT: RTD, SLIDE WIRE, RESISTANCE INPUTS
- ATEX AND IECEx APPROVED
- 22 SEGMENT USER LINEARISATION FOR INPUT
- SINGLE OR DUAL CHANNEL
- SENSOR OFFSET AND OUTPUT ALIGNMENT
- ADJUSTABLE INPUT FILTER
- PROGRAMMABLE BURNOUT



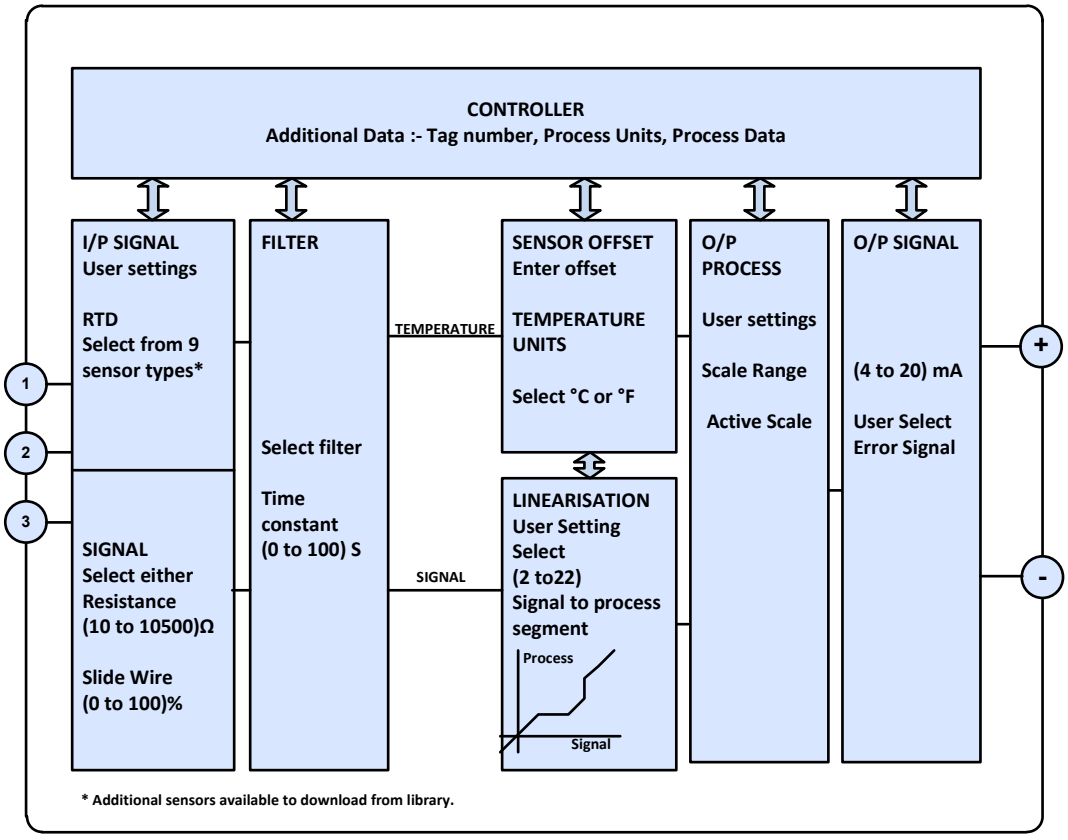
INTRODUCTION

The SEM1801/2XR 'smart' transmitter is designed for use with RTD or Slidewire sensors and converts the sensor signal into an industry standard (4 to 20) mA loop powered output.

The flexible design allows the use of any suitable resistive sensor within the range of (10 to 10500) Ω. Pt100, 500, 1000, Ni or Cu sensors. Slide wire sensors up to 100 KΩ can also be accommodated. Other sensor characteristics or your own 22 point linearisation characteristic (for slidewire or linear resistance) can be downloaded into the product enabling you to adapt it exactly to your application. The SEM1801/2XR is approved to ATEX and IECEx standards allowing for use in hazardous area applications.

PC configuration (in the safe area) allows the user to select Sensor type, Range, Filter, Tag, Units and error signal without requiring calibration equipment. Additionally, the user may read live process data when connected to the PC, this allows for sensor offset, and output alignment calibration, where the user can enter values to match the actual process and therefore reducing system errors.

If required, the desired range can be specified at the time of order, removing the need for user configuration. If the range is not specified then the transmitter will be shipped with the default range of Pt100 (0 to 100) °C, burnout high and filter off.



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SPECIFICATION @20 °C

RESISTANCE RTD INPUT

Standard RTD	PT100,PT500,PT1000, Cu100, Cu1000, Ni100, Ni120, Ni1000, Cu53, library
Slide wire	Pot range (1 to 100) KΩ, Signal (0 to 100) %, accuracy 0.1 %
Resistance	(10 to 500) Ω ± 0.055 Ω, (500 to 2500) Ω ± 0.5 Ω, (2500 to 10500) Ω ±10.0 Ω.
Thermal Drift	(0 to 500) Ω 0.013 Ω/˚C, (500 to 2500) Ω 0.063 Ω/˚C, (2500 to 10500) Ω 0.27 Ω/˚C
Excitation current	< 200 uA
Lead effect	Max lead resistance 20 Ω per leg, Effect 0.002 ˚C / Ω

OUTPUT

Type	Two wire (4 to 20) mA current Loop
Range	(4 to 20) mA; Upscale burnout 21.5 mA ; Downscale Burnout 3.8 mA
Accuracy	(mA Out/ 2000) or 5 uA which ever is the greater, Drift 1 uA/˚C
Loop Effect	± 0.2 uA/ V
Max output load	[(Vsupply-10)/20] K Ohms / per channel (Example 700 Ohms @ 24 V)

SUPPLY

Loop Supply	(10 to 30) VDC per channel
Power	< 1W Full Power per channel

GENERAL

Accuracy	0.2˚C + (˚0.05% of reading) + (sensor)
Response time	Start up 5 seconds, Update 160 mS, Response 500 mS
Warm up	2 minutes.
Connections	Screw terminals 2.5 mm Maximum

USER INTERFACE

Type	USB 2.0
Baud rate	1200 baud
Equipment	PC running windows XP or later, USB configurator.

USER INTERFACE FUNCTIONS

Scaling	User signal to process value scaling, for simplified setup.
Filter	Adjustable time constant (0 to 100) Seconds.
User Linearisation or Profile	(2 to 22) segments mV to process.
Process Units	4 Characters (signal input only)
Temperature units	˚C or ˚F
Tag Number	20 Characters
Process Output	Range in process units
User offset	Enter sensor offset (Temperature mode only).
Active scaling	Set output process range against active sensor input

ENVIRONMENT

Operating Ambient	(-40 to 70) ˚C ; (10 to 90) %RH (non condensing)
Storage Ambient	(-50 to 70) ˚C; (10 to 90) %RH (non condensing)
Configuration Ambient	(10 to 30) ˚C
Installation Enclosure	>= IP65.

APPROVALS

CE	BS EN 61326

MECHANICAL

Dimensions	120 mm deep; 107 mm height; 22.5 mm wide
Weight	110 g - SEM1801XR 141 g - SEM1802XR

SENSORS RTD

Platinum IEC	Pt100 (-200 to 850), Pt500 (-200 to 750), Pt1000 (-200 to 600)
Platinum IPTS-68	Pt100 (0.00391) + Pt100 (0.00392) (-200 to 630)
Ni100 DIN 0.00618	(-60 to 180)
Ni120 0.00672	(-80 to 260)
Ni 1000	(-60 to 180)
Ni1000 Tk5000	(-50 to 150)
Ni 507.5	(-80 to 360)
Ni 604	(-200 to 200)
Cu 53	(-50 to 180)
Cu100 0.00427	(-80 to 260)
Cu1000	(-80 to 260)
Silicon	KTY81-110 -120-121-122-150-210-220-221-222-250 (-55 to 175) KTY82-110 -120-121-122-150-210-220-221-222-250 (-55 to 175) KTY81-151,KTY82-151, KTY83-210-220-250-121-122 (-55 to 175) KTY84-130-150 (-40 to 300)

SEM1801XR, SEM1802XR ATEX / IECEx special conditions for safe use.

1 **For gas applications, the SEM1801XR & SEM1801XR temperature transmitters must be mounted in a metallic enclosure rated for IP54 and located in area where the enclosure will not be subject to impact of friction.**

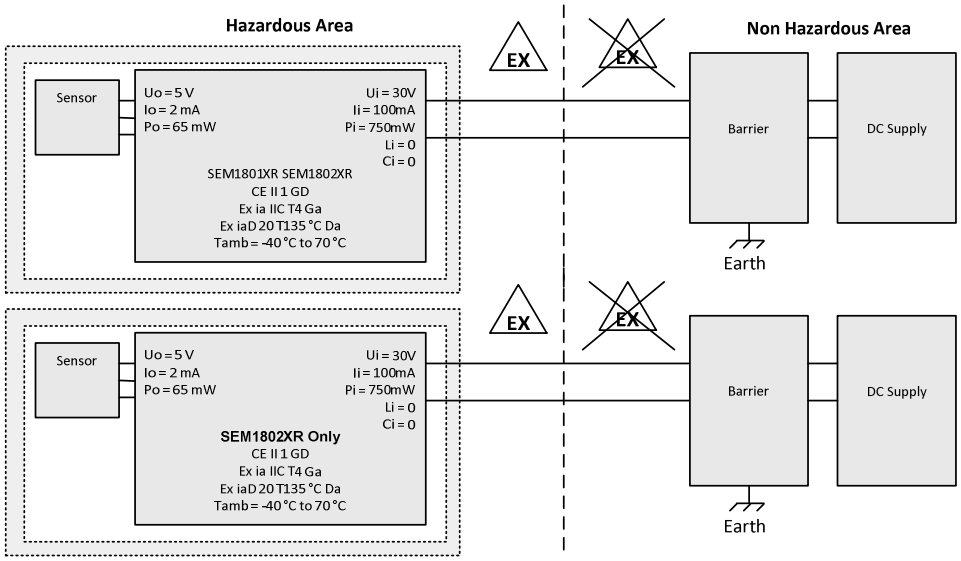
2 **For dust applications, the SEM1801XR & SEM1801XR temperature transmitters must be mounted in a suitably ATEX or IECEx certified enclosure appropriate for the zone of end use .**

3 **The equipment shall only be configured by means of the USB connection outside the hazardous area.**

4 **If the equipment is mounted in an enclosure with separate IS circuits, appropriate segregation shall be provided in accordance with IEC 60079-11 Clause 6.2.1.**

5 **SEM1801XR & SEM1801XR - Only suitable for connection to RTD temperature sensors or slide wire resistance devices. They shall conform to the requirements for simple apparatus as defined in EN 60079-0 clause 5.7 and shall pass a dielectric strength test IAW 60079-11 Clause 6.3.12.**

6 **The ambient temperature range of the enclosure will limit the permitted ambient range of the overall equipment. Refer to enclosure certification.**



Order code:

SEM1801XR	Single Channel
SEM1802XR	Dual Channel