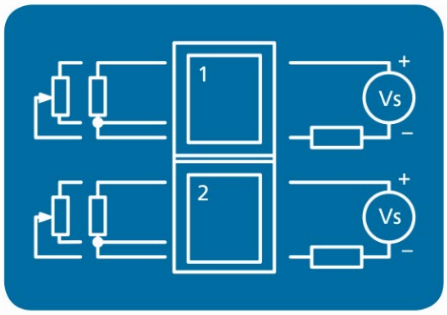
SEM1801XR, SEM1802XR I.S. RTD/SLIDEWIRE TRANSMITTER

- **ATEX, UKEX AND IECEx APPROVED**
- **MULTIPLE RTD INPUT TYPES**
- **SINGLE AND DUAL CHANNEL VERSIONS**
- **RAIL MOUNT (4 to 20) mA TRANSMITTER**
- **SENSOR OFFSET, ADJUSTABLE INPUT FILTER**





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.
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, 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.

FEATURE HIGHLIGHTS

SENSOR REFERENCING (Temperature mode)
The SEM1801/2XR sensor referencing via the Windows based USBSpeedlink software allows for close matching to a known reference sensor eliminating possible sensor errors.

CUSTOM LINEARISATION
As standard the SEM1801/2XR has all common RTD sensors available from its software library.
Additionally, the SEM1801/2XR can be programmed with up to 22-point custom linearization for ohms and slidewire inputs.

SENSOR BURN OUT DETECTION (Temperature mode)
If a sensor wire is broken or becomes disconnected the SEM1801/2XR output will automatically go to its user defined level (upscale or downscale) or a pre-set value.

STABILITY
The SEM1801/2XR rail mount transmitter incorporates the latest digital technology to ensure accurate, low drift performance.

STATUS INSTRUMENTS

ELECTRICAL INPUT SPECIFICATIONS @20°C **SEM1801XR single input, SEM1802XR dual independent inputs**		
Type	**Range**	**Accuracy/ Stability**
Slide Wire		
(0 to 100) % Travel	Wire resistance (1 to 100) KΩ	± 0.1 %
Resistance		
Ohms	(10 to 500) Ω (500 to 2500) Ω (2500 to 10500) Ω	± 0.055 Ω ± 0.5 Ω ±10.0 Ω
Thermal drift	(10 to 500) Ω (500 to 2500) Ω (2500 to 10500) Ω	Ω 0.013 Ω/°C Ω 0.063 Ω/°C Ω 0.27 Ω/°C
Excitation current		< 200 uA

SENSOR INPUT SPECIFICATIONS @20°C **RTD SEM1801XR single input, SEM1802XR dual independent inputs**		
Type	**Range**	**Accuracy/ Stability**
Pt100 (IEC)	(-200 to 850) °C	± 0.2°C ± (0.05% of reading) (Plus sensor error)
Pt500 (IEC)	(-200 to 850) °C	
Pt1000 (IEC)	(-200 to 600) °C	
Ni100	(-60 to 180) °C	
Ni120	(-70 to 180) °C	
Ni1000	(-40 to 150) °C	
Cu53	(-40 to 180) °C	
Cu100	(-80 to 260) °C	
Cu1000	(-80 to 260) °C	
Lead effect	Max lead resistance 20 Ω per leg	0.002 °C / Ω
Library contains more (standards/types) Including silicon sensors		
Temperature stability: - Refer to resistance stability values for thermal effect		

OUTPUT SPECIFICATIONS @20°C **mA: SEM1801XR single output, SEM1802XR dual independent outputs**		
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	21.5 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 – 10)/20] KΩ	700 Ω @ 24 V DC
Loop supply	(10 to 30) V DC	SELV
Power	< 1 W full power	

USB USER INTERFACE **For SEM1802XR each channel programmed independently**		
Type/ Function	**Range/ Description**	**Notes**
Configuration hardware	USB configuration module	USB-CONFIG-MKII
Configuration software	USBSpeedLink	Download www.status.co.uk
Temperature mode configuration	Sensor type	RTD list
	Temperature range for (4 to 20) mA retransmission	°C or °F
	Sensor offset	°C or °F
	Burnout current	Upscale, downscale or user set

STATUS INSTRUMENTS

USB USER INTERFACE continued **For SEM1802XR each channel programmed independently**		
Type/ Function	**Range/ Description**	**Notes**
Process mode configuration	Input type	Ohms or slide wire
	Process range for (4 to 20) mA retransmission	User engineering units, 4 characters
	User linearisation	(2 to 22) segments
Tag number		20 characters
Filter	(0 to 100) s time constant	Adjustable
Read live data	Temperature / process output	˚C or ˚F or user units for process mA
Save/ open configuration	From file	

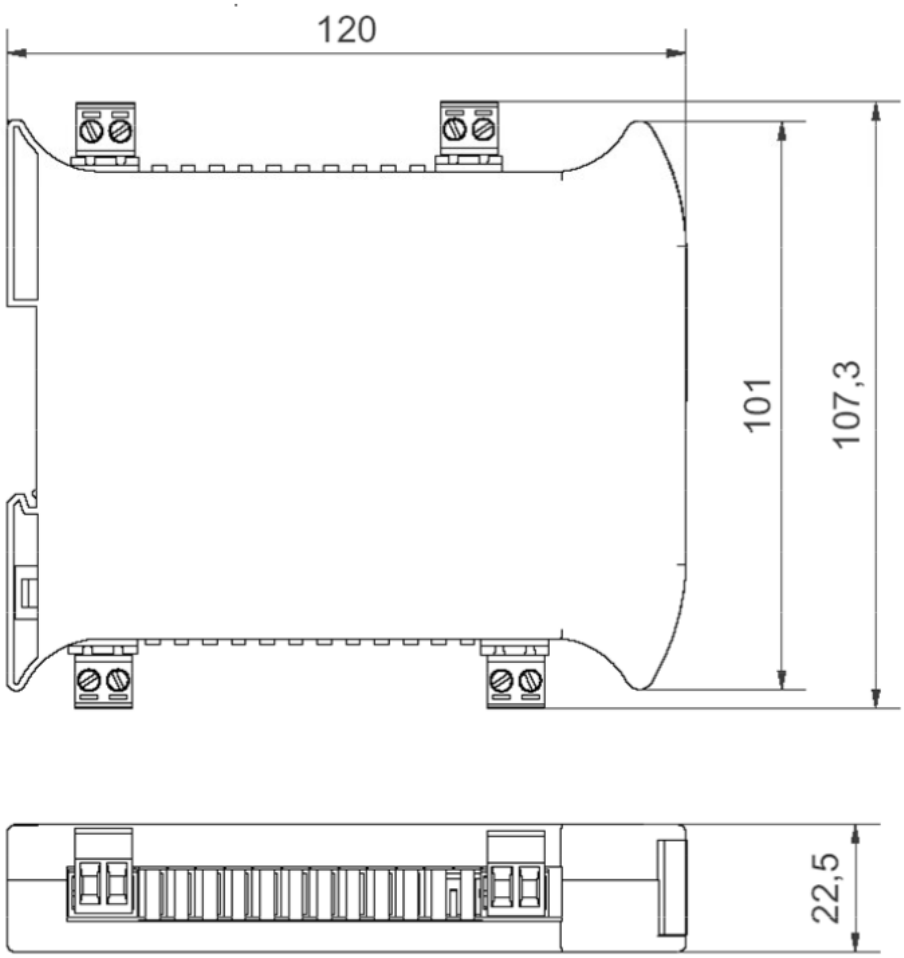
GENERAL	
Function	**Description**
Update time	160 ms
Response time	0.5 s
Start-up time	5 s
Warm-up time	120 s to full accuracy
Default configuration	PT100 (0 to 100) ˚C, upscale burnout, no filter

ENVIRONMENTAL	
Function	**Description**
Ambient temperature	Operating/Storage (-40 to 70) ˚C Full accuracy only above -30 ˚C
Ambient Humidity	Operating/Storage (10 to 90) %RH non-condensing
Protection requirement	>= IP64 recommended
USB configuration ambient	(10 to 30) ˚C

MECHANICAL	
Function	**Description**
Dimensions	120 mm deep, 107.3 mm height, 22.5 mm wide
Mounting	35 mm “top hat” rail EN 50022
Protection requirement	>= IP64 recommended
Connections	Screw terminals 2.5 mm wire maximum
Weight	110 g SEM1801XR 141 g SEM1802XR

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 Incorporating Amendment Directive EU2015/863 and UK designated standard.
ATEX / UKEX TTR200X	Ex ia IIC T4 Ga Ex ia IIIC T135 Da
IECEx TTR200X	Ex ia T4 Ga Ex ia IIIC T135 Da

Mechanical
Dimmensions in mm



ORDER CODE	
Single channel	SEM1801XR
Dual channel	SEM1802XR

ACCESSORIES	
Approved USB programming kit	USBTTX
USB configuration software	USBSpeedLink free of charge from www.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
The data in this document is subject to change. Status Instruments assumes no responsibility for errors

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