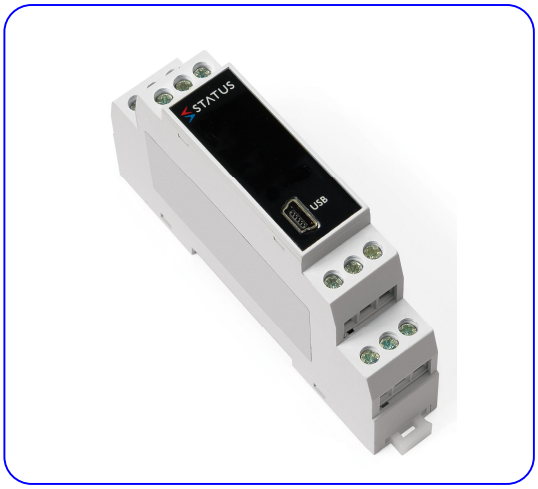
DIN RAIL UNIVERSAL TEMPERATURE TRANSMITTER

SEM1615

- UNIVERSAL INPUT, DUAL CHANNEL
- DIN RAIL MOUNT
- MATHS FUNCTIONS
- SENSOR CHARACTERISTICS DOWNLOAD VIA USB PORT ALLOWS FOR CUSTOM TYPES
- FLASH TESTED TO 4 KV DC



INTRODUCTION

The SEM1615 is a universal transmitter that accepts RTD, Thermocouple, Potentiometer or millivolt input signals and converts them to the industry standard (4 to 20) mA transmission signal.

The SEM1615 is programmed using a standard USB lead and our free configuration software USBSpeedlink downloaded from our web site.

ENHANCED FEATURES

Some of the enhanced SEM1615 features are as follows;

SENSOR REFERENCING
The SEM1615 sensor referencing via the Windows based USBSpeedlink software allows for close matching to a known reference sensor eliminating possible sensor errors.

USER CALIBRATION
In addition to sensor referencing, user offset and current output trimming is possible via the USB.

CUSTOM LINEARISATION
The SEM1615 can be programmed with a custom linearization to suit nonstandard sensors or sensors with unusual or unique characteristics. Consult the sales office for details.

SENSOR BURN OUT DETECTION
If a sensor wire is broken or becomes disconnected the SEM1615 output will automatically go to its user defined level (upscale or downscale) or a pre-set value.

OUTPUT CURRENT PRESET
For ease of system calibration and commissioning the output can be set to a pre-defined level anywhere within the (4 to 20) mA range.

SPECIFICATIONS @20°C

STATUS INSTRUMENTS

ELECTRICAL INPUT

Range + Options	Accuracy	Stability
Resistance		
(10 to 10000) Ω Excitation 200 uA Lead resistance (0 to 20) Ω (2,3 or 4 Wire connection)	(10 to 500) Ω ± 0.055 Ω, (500 to 2500) Ω ± 0.5 Ω, (2500 to 10500) Ω ±0.15 % of reading (+ Lead error on 2 wire)	(0 to 500) Ω 0.013 Ω/°C, (500 to 2500) Ω 0.063 Ω/°C, (2500 to 10500) Ω 0.27 Ω/°C
Slide Wire		
(0 to 100) % Travel Wire resistance (1 to 100) K**Ω**	± 0.1 %	±0.001%/°C
mV		
(-205 to 205) mV DC (-1000 to 1000) mV DC	±0.02 mV ±10.0 mV	±0.005 mV/°C ±0.02 mV/°C

SENSOR INPUT

RTD (Single/ 2 wire Dual Channel; isolated tip only for Dual operation)

Type	Range	Accuracy/Stability
Pt100 (IEC)	(-200 to 850) °C	0.2°C ± (°0.05% of reading) (Plus sensor error)
Pt500 (IEC)	(-200 to 750) °C	
Pt1000 (IEC)	(-200 to 600) °C	
Ni100	(-60 to 180) °C	
Ni120	(-80 to 260) °C	
Ni1000	(-60 to 180) °C	
Cu53	(-50 to 180) °C	
Cu100	(-80 to 260) °C	
Cu1000	(-80 to 260) °C	
Library contains more (standards/types) Including silicon sensors		

Thermocouple (Single/Dual Channel; isolated tip only for Dual operation)

Type	Range	Accuracy/Stability
K	(-200 to 1370) °C	±0.1 % of full scale ± 0.5 °C (Plus sensor error)
J	(-100 to 1200) °C	
N	(-200 to 1300) °C	
E	(-200 to 1000) °C	
T	(-200 to 400) °C	±0.2 % of full scale ± 0.5 °C (Plus sensor error)
R	(0 to 1760) °C	±0.1 % of full scale ± 0.5 °C over range (800 to 1760) °C (Plus sensor error)
S	(0 to 1760) °C	
L	(-100 to 600) °C	±0.1 % of full scale ± 0.5 °C (Plus sensor error)
U	(0 to 600) °C	
B	(-200 to 1300) °C	
C	(0 to 2300) °C	
D	(0 to 2300) °C	
G	(0 to 2300) °C	
Library contains more (standards/types)		

DUAL CHANNEL OPERATION

Thermocouples A & B	Functions; Average, Redundancy, A + B, A - B, Highest, Lowest
mV A & B	Functions; Average, A + B, A - B, Highest, Lowest
RTD A & B	Two wire connection. Functions; Average, A + B, A - B, Highest, Lowest

AMBIENT SENSOR (Cold Junction)

Type	Range	Accuracy/Stability
Thermistor 10K Beta 3380	(-30 to 70) °C	±0.2 °C ±0.05 °C/°C

OUTPUT

Type Options	Range	Accuracy/Stability/Notes
Two wire current	(4 to 20) mA	(mA Out/ 2000) or 5 uA whichever is the greater, drift 1 uA/°C
User set minimum current	(3.5 to 4.0) mA 3.8 mA default	
User set maximum current	(20 to 23.0) mA 20.5 mA default	
User set error current	(3.5 to 23.0) mA	
User pre-set current	(20 to 23.0) mA	For diagnostics
Current loop off	3.5 mA	
Loop effect	± 0.2 uA/V	
Loop supply	10 to 30 V DC	SLEV
Max load	[(V supply – 10)/20) KΩ	700 Ω @ 24 V DC
Protection	Reverse and over voltage	

USB USER INTERFACE

Type Options Function	Description	Notes
USB 2.0	Mini B USB	USB powers device for config Only. Power loop for live data.
Baud Rate	38,400	
Sensor Configuration	Sensor type Sensor offset Sensor fail high or low Pre-set sensor value Set damping Set No. wires, resistance Input Set fixed or auto cold junction	TC/mV/RTD/Ohms/Slide wire Dual TC/mV/RTD Dual sensors use separate offsets Dual sensors share sensor fail For diagnostics 2, 3 or 4 wire
Profiler configuration	Set profiler input range Set profiler segments Enter profile X~Y values Set profiler output units Set the output process range TC & RTD input only set units	In sensor units (4 to 22) segments Profiler set up
Output signal	Select the process range for re-transmission Set minimum current Set maximum current Set the error current Trim 4.0 mA signal Trim 20 mA signal Pre-set Loop current Turn loop current off	 Set in profiler out units (3.5 to 4.0) mA (20 to 23.0) mA (3.5 to 23.0) mA (3.8 to 4.5) mA (19.5 to 20.5) mA 3.5 mA
Damping	User set PV damping	1 to 32 seconds to reach 70% final value

USB USER INTERFACE Continued

HART UNIVERSAL TEMPERATURE TRANSMITTER

Type Options Function	Description	Notes
Diagnostics	Read (PV, mA, Ambient °C, Error & Power off) logs points back from device Set the log period Clear log and start new log Export log data Detect open circuit sensor wire Cal date, certificate number, calibrated by	Up to 150 points Log Rate (1 to 60) readings per hour
Live Data	Read sensor signal Read profiler input signal Read profiler output signal Read Ambient temperature Read % output Read mA output	

GENERAL

Function	Description
Isolation	Flash tested 5 seconds at 4 KV DC, working voltage 50 V AC
Reading update	200 ms
Response time	500 ms to reach 70% final value
Warm up	2 minutes
Start-up time	5 seconds

AMBIENT CONDITIONS

Temperature	Operating/storage (-30 to 70) °C
Humidity	Operating/storage (10 to 95) % Non-condensing
Installation enclosure	DIN rail enclosure offering protection >= IP65
Configuration ambient	(10 to 30) °C

CONNECTIONS

Output	Screw terminals 2.5 mm maximum Pins (1,2)
Input	Screw terminals 2.5 mm maximum Pins (7,8,9,12)
USB	Mini B USB

APPROVALS

EMC	BS EN 61326 Industrial

MECHANICAL

Enclosure	DIN 43880
Material	Polyimide 6.6
Dimensions	(17.5 x 90 x 56.5) mm
Weight	Approximately 70 g
Colour	Grey

ORDER CODE: SEM1615