

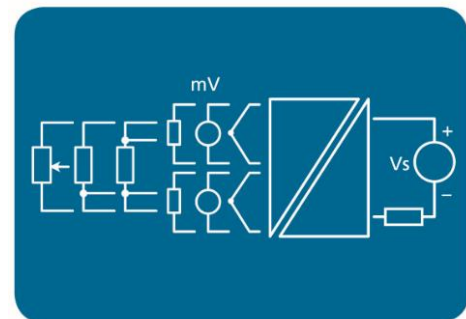
SEM1615 DIN RAIL UNIVERSAL TEMPERATURE TRANSMITTER

- **UNIVERSAL INPUT, DUAL CHANNEL*1**
- **DIN RAIL MOUNT (4 to 20) mA LOOP OUTPUT**
- **SIL HARDWARE SAFETY INTEGRITY**
- **SENSOR CHARACTERISTICS DOWNLOAD VIA USB PORT ALLOWS FOR CUSTOM TYPES**
- **FLASH TESTED TO 4 KV DC**

➤ INTRODUCTION

The SEM1615 is a DIN rail mounted 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.



➤ FEATURE HIGHLIGHTS

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.

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.

*1 Dual channel input not available on slide wire or multi wire RTD.

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SPECIFICATIONS

| ELECTRICAL INPUT | | SPECIFICATIONS @20°C |
|---|---|--|
| Range + Options | Accuracy | Stability |
| Resistance | | |
| (10 to 10000) Ω Excitation 200 μA 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 ±0.2 % 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) KΩ | ± 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 |

| RTD INPUT | | SPECIFICATIONS @20°C |
|---|------------------|--|
| RTD (2,3 or 4 wire 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 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 | |
| Library contains more standards/types Including silicon sensors | | |
| Temperature stability: - Refer to resistance stability values for thermal effect | | |

| THERMOCOUPLE INPUT | | SPECIFICATIONS @20°C |
|--|-------------------|---|
| Thermocouple (Single/Dual Channel; isolated tip only for Dual operation) | | |
| Type | Range | Accuracy/ Stability |
| K | (-150 to 1370) °C | ±0.1 % of full scale ± 0.5 °C (Plus sensor error) |
| J | (-200 to 1200) °C | |
| N | (-270 to 1300) °C | |
| E | (-260 to 1000) °C | |
| T | (-270 to 400) °C | |
| 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 | (-200 to 900) °C | ±0.1 % of full scale ± 0.5 °C (Plus sensor error) |
| U | (-200 to 600) °C | |
| B | (0 to 1820) °C | |
| C | (0 to 2300) °C | |
| D | (0 to 2300) °C | |
| G | (0 to 2300) °C | |
| Library contains more standards/ types | | |
| Temperature stability: - Refer to mV stability values for thermal effect | | |

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| 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 |

| COLD JUNCTION (Ambient sensor) | | SPECIFICATIONS @20°C |
|--------------------------------|----------------|----------------------------|
| Type/ Options | Range | Accuracy/ Stability/ Notes |
| Thermistor 10K Beta 3380 | (-30 to 70) °C | ±0.2 °C |
| Thermal drift | Zero at 20°C | ±0.05 °C/°C |

| OUTPUT | | SPECIFICATIONS @20°C |
|--------------------------|--------------------------|---|
| Type/ Options | Range | Accuracy/ Stability/ Notes |
| Two wire current | (4 to 20) mA | (mA Out/ 2000) or 5 uA whichever is the greater |
| Thermal drift | Zero at 20°C | ±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 | Any mA value within range |
| User pre-set current | (3.5 to 23.0) mA | For diagnostics |
| Loop effect | ± 0.2 uA/V | |
| Loop supply | (10 to 30) V DC, > 35 mA | SELV |
| 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 No. wires, resistance Input T/C Cold junction compensation | 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 Automatic or fixed |
| 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 Pre-set Loop current | Set in profiler out units (3.5 to 4.0) mA (20 to 23.0) mA (3.5 to 23.0) mA (3.5 to 23.0) mA |
| Damping | User set process variable (PV) damping | (1 to 32) seconds to reach 70% final value |

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| | | |
|------------|---|--|
| Diagnosics | Read (PV, mA, CJ °C, error & power off) log points back from device Set the log period Clear log and start new log Export log data Detect open circuit sensor wire Calibration date, certificate number, calibrated by | Up to 150 points Log rate (1 to 60) readings per hour |
| Live data | Read process variable (PV) Read profiler input signal Read profiler output signal Read cold junction 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 | |
|------------------------|--|
| Temperature | Operating/storage (-30 to 70) °C |
| Humidity | Operating/storage (10 to 95) % Non-condensing |
| Installation enclosure | EN50022 DIN rail enclosure offering protection >= IP65 |
| Configuration ambient | (10 to 30) °C |
| Temperature | Operating/storage (-30 to 70) °C |

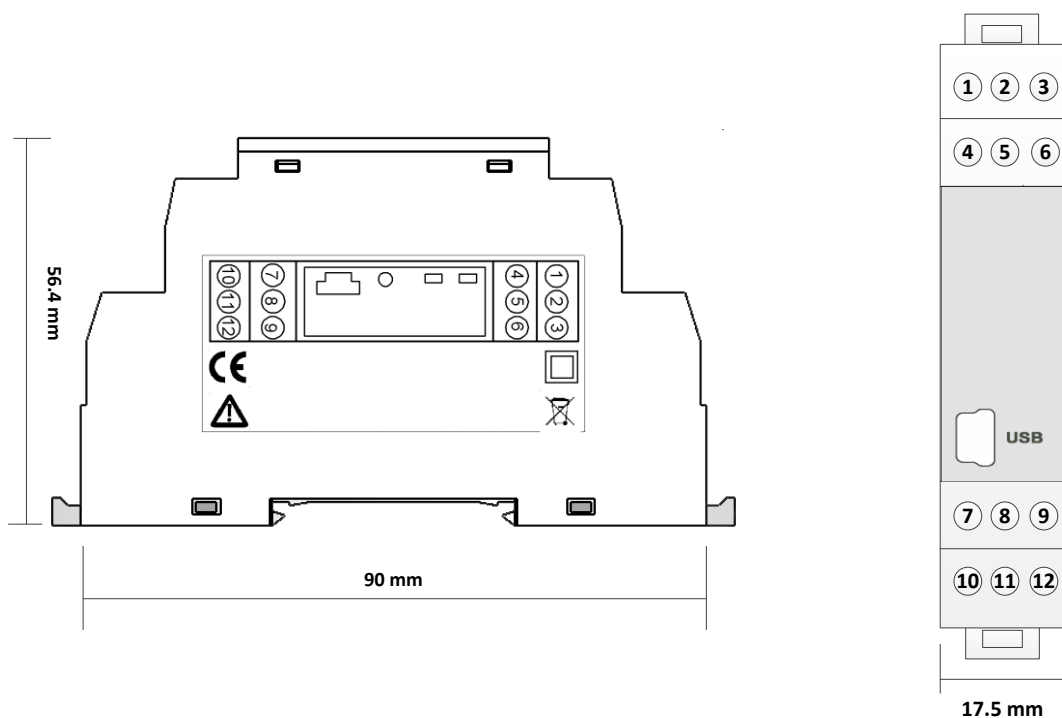
| MECHANICAL | |
|------------|-----------------------|
| Enclosure | DIN 43880 |
| Material | Polyimide 6.6 |
| Dimensions | (17.5 x 90 x 56.4) mm |
| Weight | Approximately 70 g |
| Colour | Grey |

| CONNECTIONS | |
|-------------|--|
| Output | Screw terminals 2.5 mm maximum Pins (4,5) |
| Input | Screw terminals 2.5 mm maximum Pins (7,8,9,12) |
| USB | Mini B USB |
| Output | Screw terminals 2.5 mm maximum Pins (4,5) |

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| APPROVALS | |
|--------------------|---|
| EMC | BS EN 61326 Industrial |
| Ingress protection | BS EN 60529 |
| RoHS | Directive 2011/65/EO |
| SIL Accreditation | IEC 61508-2: 2010 clauses 7.4.4 and 7.4.5 |

| ORDER CODE | SEM1615 |
|------------|---------|
|------------|---------|



| ACCESSORIES | |
|--------------------------|---|
| Configuration software | USBSpeedLink free of charge from www.status.co.uk |
| USB programming lead | USB A to mini B programming lead part number 42-200-0001-01 |
| Calibration certificates | Refer to sales@status.co.uk |

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