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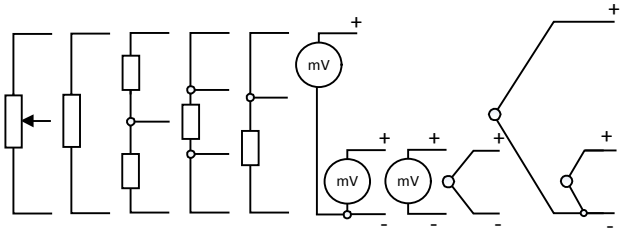
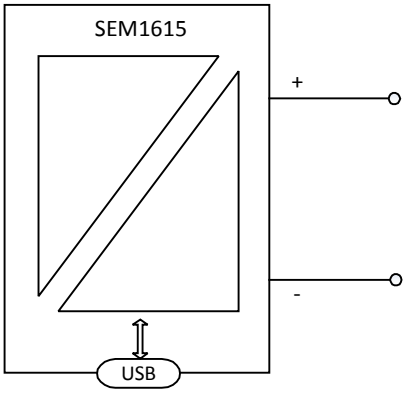
SEM1615 USER GUIDE

SMART RAIL MOUNTED UNIVERSAL TRANSMITTER
TWO WIRE (4 to 20) mA OUTPUT





Important - Please read this document before any installation.

IMPORTANT - CE & SAFETY REQUIREMENTS

Product must be mounted inside a suitable enclosure providing environmental protection to IP65 or greater.

To maintain CE EMC requirements, input wires must be less than 30 metres.

The product contains no serviceable parts, or internal adjustments. No attempt must be made to repair this product. Faulty units must be returned to supplier for repair.

This product must be installed by a qualified person. All electrical wiring must be carried out in accordance with the appropriate regulations for the place of installation.

Before attempting any electrical connection work, please ensure all supplies are switched off.

ABSOLUTE MAXIMUM CONDITIONS (To exceed may cause damage to the unit) :-

Supply Voltage	± 30 V dc (Protected for over voltage and reverse connection)
Current with over voltage	± 100 mA
Input Voltage	± 3 V between any terminals
Ambient Temperature	(-30 to 70) °C Humidity (10 to 95) % RH (Non condensing)

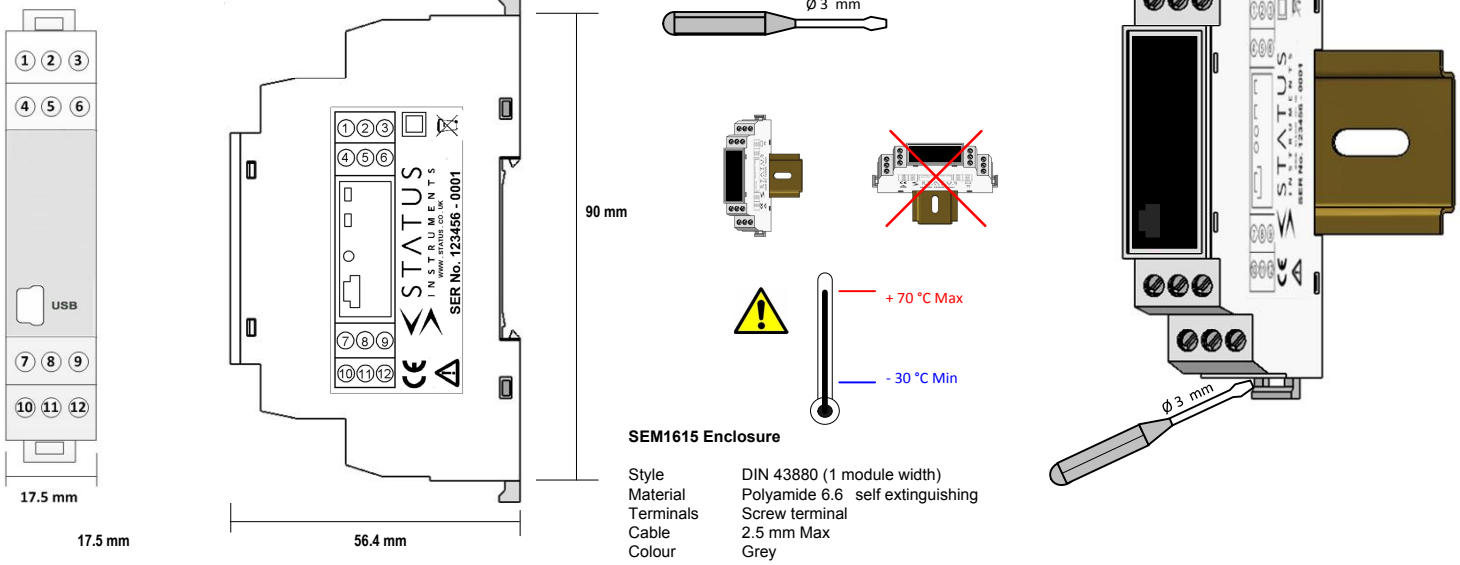
Conditions for use

The SEM1615 temperature transmitter should be mounted in an enclosure with a minimum IP rating of IP65. The enclosure should be specified to operate in the ambient temperature range of (-30 to 70) °C.

Maintenance

The SEM1615 apparatus contains no user serviceable, adjustable or replaceable parts. No attempt should be made to repair a SEM1615 device, all units must be returned to the manufacturer for repair or replacement. Attempted service or replacement of parts may invalidate the warranty of the SEM1615.

Mechanical Detail



SEM1615 Enclosure

Style	DIN 43880 (1 module width)
Material	Polyamide 6.6 self extinguishing
Terminals	Screw terminal
Cable	2.5 mm Max
Colour	Grey

Installation

For SEM1615 specification please refer to product data sheet. Installation is normally performed in the following order. The user may wish to reconfigure the transmitter in the field, in this instance the SEM1615 configuration can be changed by following step 1.

1. Configuration
2. Mount Transmitter
3. Wire Sensor
4. Wire (4 to 20) mA Loop

1. Configuration

Note: - The SEM1615 can be configured whilst connected and powered, but a portable battery powered computer must be used to avoid the effects of ground loops if the (4 to 20) mA loop is grounded. This may damage the SEM1615.

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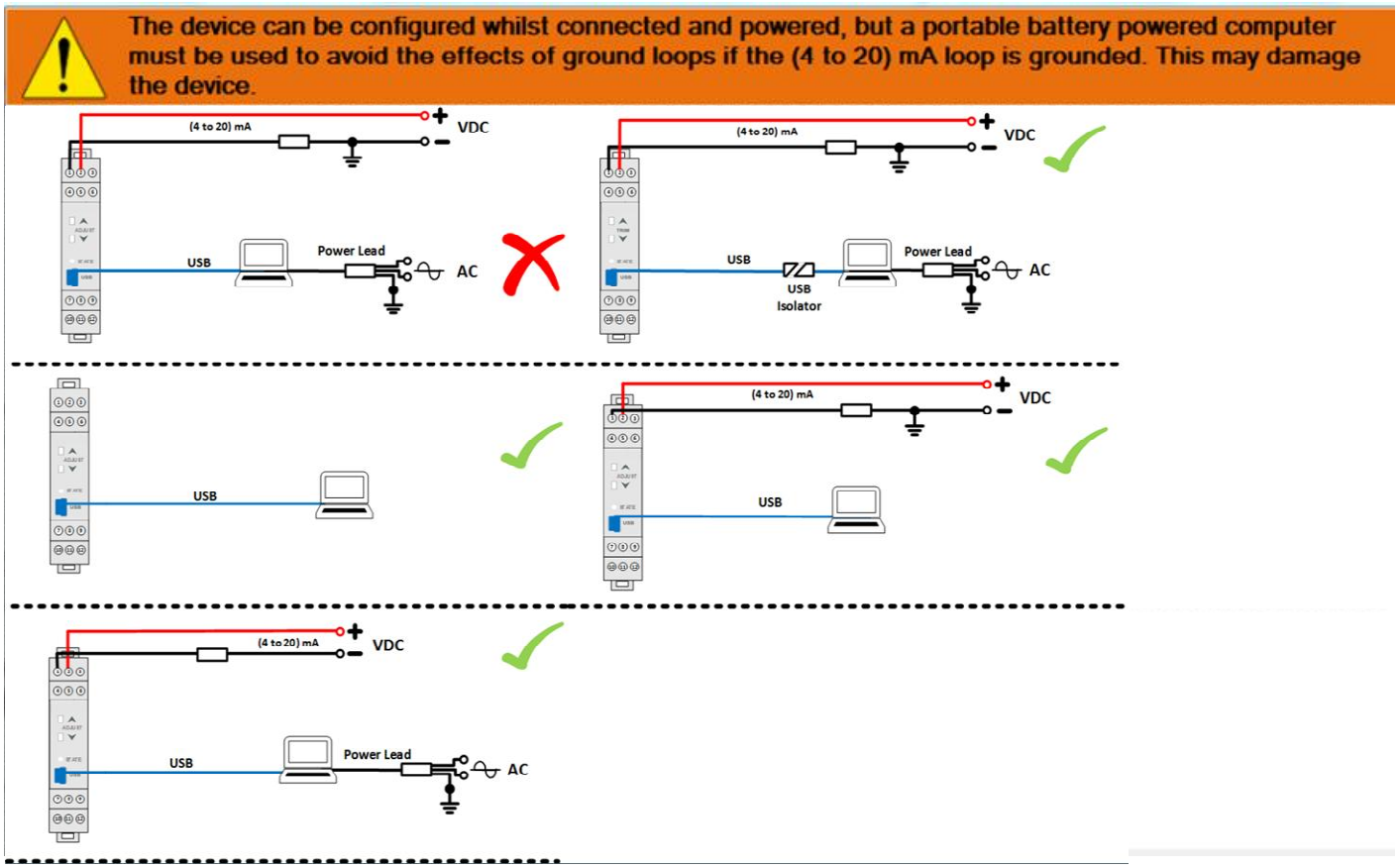
Once software is installed, plug in USB Lead to device ports and connect PC using USB cable.

In USBSpeedLink software, select Model type from "Panel/Din Rail Products" – "2 Wire Loop Powered" menu.
For further information on configuration please open the help menu on the product configuration screen.
On completion of configuration remove USB cable.

A to mini B USB

Factory default setting Sensor PT100 range (0 to 100) °C,

1. Configuration continued



The main configuration is performed using the USB interface. The following parameters may be configured using the powerful USBSpeed link software tool, which also provide operator diagnostics.
The following functions apply :-

SENSOR

Sensor type	mV, Dual mV, ohms, slide wire, thermocouple, dual thermocouple, RTD, dual RTD (2 wire).
Sensor wire	(ohms and RTD ranges only) 2, 3, or 4 wire.
Thermocouple type	Download from USBspeedlink expanding library, common type K,J,T,E,R,S,N,B,U,G,C,D.
Thermocouple CJ	Automatic or fixed.
RTD type	Download from USBspeedlink expanding library, common type PT100, PT1000, PT500, Ni, CU, KTY series.
Sensor(s) fail	Value on sensor A, (sensor B) fail.
Sensor pre-set	Override sensor signal with pre-set value, primary function diagnostics.

PROCESS

Scaling	Scale sensor signal to process variable (PV), options - Off, two point scaling or (4 to 22) step profile.
Units	Set process variable (PV) units

mA Output

Damping	Profile out damping (0 to 32) seconds.
Range	Range process variable (PV) units for (4 to 20) mA output.
Fix loop current	Fix loop current to pre-set value (Note resets on power up) . Primary use diagnostics.
Set max mA	Set the maximum output current (20 to 23)mA.
Set min mA	Set minimum output current (3.5 to 4.0) mA.

DIAGNOSTICS

Min max PV	Minimum and maximum process variable value during operation with reset.
Operating times	From manufacture and calibration. Calibration time is resettable.
Calibration	Store Date, operator and certificate number.
Save data	Save transducer data to text file.

DIAGNOSTCS LOG

Type	150 point non volatile process variable (PV) log, with power off indication and sensor fail (not time stamped).
Rates	User set log periods seconds 5, 15, 30 minutes 1, 2, 5, 10, 20, 30, or 60.
Backup	Save log to PC in CSV style format (using semi colon delimiter) for easy export to text editor or spreadsheet.

PROCESS DATA

Data	Live data for sensor (TV) ,pre-scaling, post scaling (PV), Untrimmed mA output, Actual mA output, % output signal and device ambient temperature (SV) (cold junction).
Diagnostics	Sensor wire error detect (not supported in mV mode), Loop power detect.

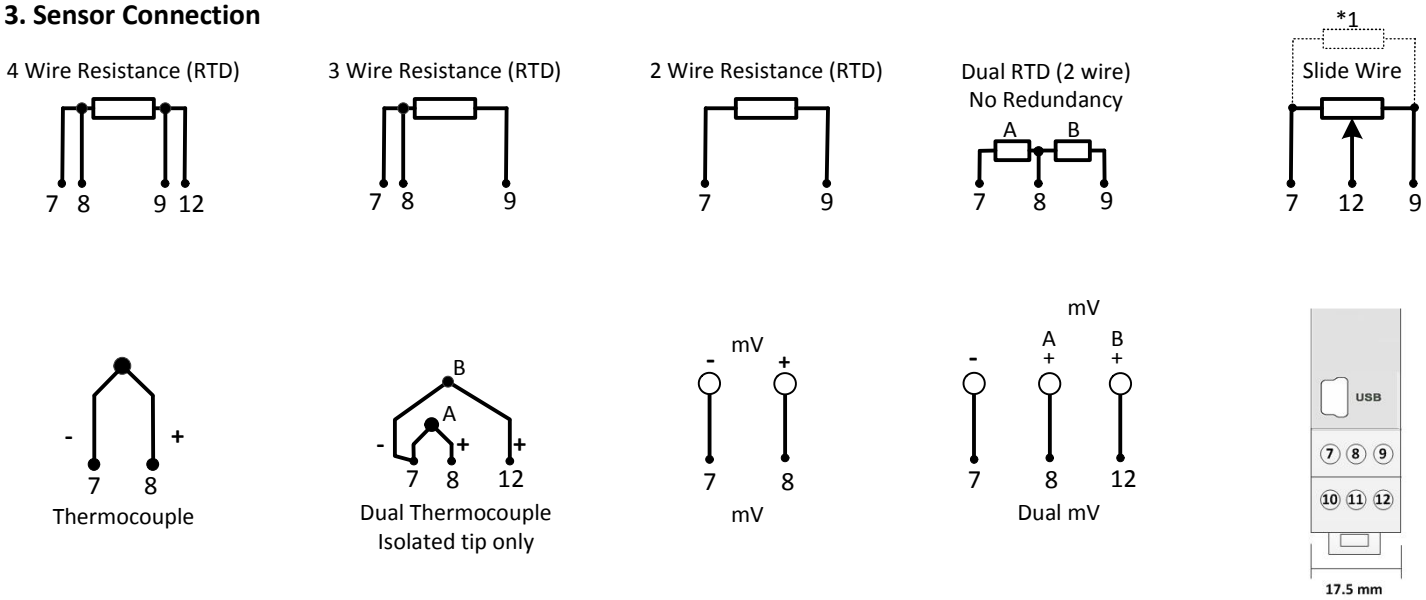
2. Mount Transmitter

The SEM1615 is mounted using EN50022 DIN rail. The SEM1615 must be installed with adequate protection from moisture and corrosive atmospheres. Refer to conditions for use section of this user guide for information on enclosure IP rating. Care must be taken to ensure the SEM1615 is located to ensure the ambient temperature does not exceed the specified operating temperature

INPUT CONNECTION
RTD wire must be equal length and gauge .
Thermocouple inputs must use correct compensating cable.
To maintain CE compliance input cable length must be less than 30 Metres.

OUTPUT CONNECTION
Use twisted pair or screened cables for cable lengths greater than 30 Metres. Max cable length 1000 Metres. Ensure loop is grounded at one point.

3. Sensor Connection



*1 No wiper wire break detect for values above 2 k ohms. If required, shunt slidewire with 1 k ohm resistor.
Burn out limited to (4 to 20) mA range.

4. Wire (4 to 20) mA Loop

Ensure all other aspects of the installation comply with the requirements of this document. The (4 to 20) mA loop is connected as follows:-