SEM1600B

USER INSTRUCTIONS

Important - Please read this document before installing.

Every effort has been taken to ensure the accuracy of this document; however, we do not accept responsibility for damage, injury, loss or expense resulting from errors and omissions, and we reserve the right of amendment without notice.

IMPORTANT – CE, UKCA & SAFETY REQUIREMENTS

Product must be DIN rail mounted, inside a suitable enclosure providing environmental protection to IP65 or greater.
To maintain CE UKCA requirements, input and supply 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.
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 (SELV)	± 50 Vdc Protected for over-voltage and reverse connection
Current with over-voltage	± 200 mA
Input voltage	± 10 VDC between any terminals
Input current	± 100 mA between any terminals
Environmental protection	IP65 or greater required
Ambient	Temperature (-30 to 75) °C RH (10 to 95)% non-condensing

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1~DESCRIPTION.

The SEM1600B is a powered bridge amplifier for use with strain gauges or load cell signals. The product has a built-in capability to scale the input signal to a process value while the output stage offers either voltage, bipolar voltage or active/passive current retransmission signals. The device uses ratio metric measurement to obtain high stability.
The product comes with an AC/DC power supply that will operate in the range (10 to 48) VDC and (10 to 32) VAC making the device ideal for battery operation. An additional volt-free contact input is available for tare setting using a remote switch. The high precision input stage of the device allows for a bridge excitation voltage of 5 VDC to be used, as opposed to the traditional 10 VDC. This reduces the power requirement for the bridge supply and up to four bridges (cells) may be connected to the input.
To configure: connect a standard USB cable between the SEM1600B and a PC. The free configuration software will guide you through any changes you wish to make. The SEM1600B does not need to be wired to a power supply for configuration.

2~RECEIVING AND UNPACKING.

Please inspect the packaging and instrument thoroughly for any signs of transit damage. If the instrument has been damaged, please notify your supplier immediately.

3~SPECIFICATION.

Refer to the datasheet for full specification. Download at www.status.co.uk

Factory defaults	Calibration factor 2 mV/V, Balance 0.0 Sample rate 10 per s, Filter Off Scale 2 points Tare Setpoint 0, Tare Offset 0 Process Output 0 to 100 = (4 to 20) mA Button locks Off

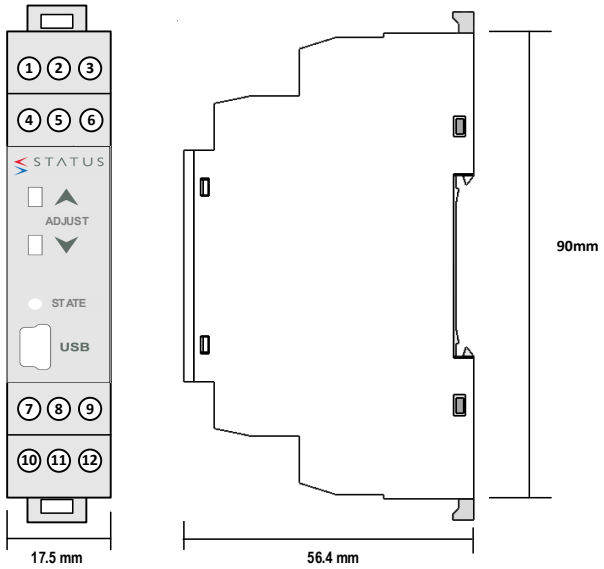
4~INSTALLATION AND WIRING.

Important safety requirements

This equipment is suitable for Environment Installation BS EN61010-1 Pollution Degree 2; Installation CAT II; CLASS I and is classed as "PERMANENTLY CONNECTED EQUIPMENT". The equipment is intended for industrial and commercial application only and is not suitable for domestic or medical use.
The equipment must be mounted inside an enclosure that provides protection >= IP65. In NORMAL USE, the equipment will only be accessed for maintenance by qualified personnel.
Please ensure the equipment is mounted vertically with terminals (10, 11 and 12) at the bottom. This will provide maximum ventilation.
This equipment may generate heat. Ensure the enclosure size is adequate to dissipate heat. Be sure to consider any other equipment inside the enclosure.
The equipment surfaces may be cleaned with a damp cloth. Use a mild detergent/water. Ensure the supply is off before cleaning and, on completion of cleaning, the equipment is completely dry before the supply is turned back ON.
This equipment 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.

4.1~MECHANICAL.

Dimensions in mm



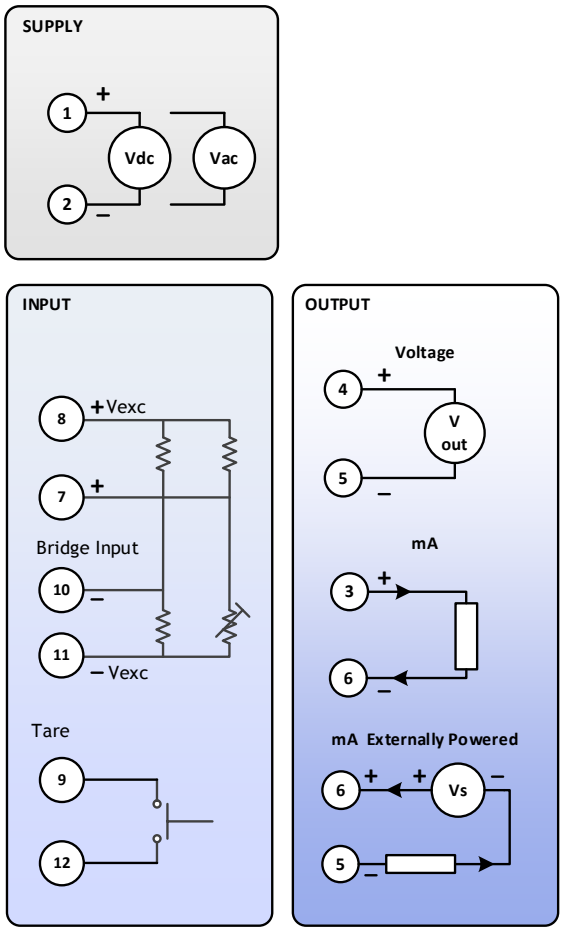
The equipment must be mounted on a DIN rail style DIN EN50022 inside a plastic or metal enclosure with a protection level >= IP65. All wiring must be secured. Maximum cable sizes 2.5 mm². Connection is via screw clamp terminals.

4.2~ELECTRICAL/CONNECTIONS

For wiring connections refer to the side label on the SEM1600B and this document.
Supply (10 to 48) Vdc, (10 to 32) Vac
To maintain CE EMC requirements, input and supply wires must be less than 30 metres.
Input cable lengths > 3 m it is recommended to use screened or twisted pair.
Maximum mA output cable run = 1000 metres. The output loop should be grounded at a single point.
Before installation, care must be taken to ensure enough voltage is available in any loop to drive the total loop load.

4.2~ELECTRICAL (continued)

SEM1600B Connections



5~FEATURES.

5.1~STATE LED

The State LED is GREEN under normal run conditions indicating an in-range input signal. If the input signal is out of range or is lost, the State LED will light RED.

5.2~TARE

If PINs 9 and 12 are shorted (momentarily) the input value will be overwritten by the TARE setpoint value (normally zero).

5.3~ACTIVE TRIM

Down Adjust button press: Configures the low scale output against the live input signal.
Up Adjust button press: Configures the high scale output against the live input signal.
Press and keep button pressed - the state light will go off for a few seconds then flash at a fast rate before returning to a steady state. Release button. Adjust operation complete. Output adjusts to levels pre-set in the software configuration.

6~USER CONFIGURATION.

The SEM1600B can be configured using a Windows PC.
Live input and output values can also be viewed on a PC or a suitable Android device.

6.1~PC CONFIGURATION USBSpeedLink Software

⚠ **During** configuration the equipment takes its power from the USB port, therefore no power connection is required. The equipment can be configured whilst powered but the computer used must be portable battery-powered or a USB isolator should be used to isolate the SEM1600B from the supply earth to avoid grounded earth loop effects.

Observe any warning information given in the software.

PC Configuration steps	
1	Download and install the USBSpeedLink software from www.status.co.uk
2	Run the software and open to the correct screen for the SEM1600B
3	Connect to the PC using an A to Mini B USB lead.*1
4	Read the SEM1600B configuration into the software.
5	Configure the device to the required settings for operation.
5.1	SEM1600B configuration options: **Model:** Free type field **Calibration factor**: From sensors/Load cell datasheet. **Balance:** From Load cell calibration certificate if available. **Tag:** Free type field **Sample rate:** Samples per second **Filter**: Rate in seconds **Scale points:** 2 up to 6 points **mV to Process value table:** mV input to process table **Units:** Free type field for Engineering unit **Tare Clear:** Removes Tare **Tare Setpoint:** Value the input is set to on Tare action **Tare Offset:** Difference between input and Tare setpoint on tare action **Output Signal:** mA, V, ±V **Output Range:** Any within limits **Button locks:** On, Off
6	**Read Data:** Live data can be displayed showing input and output values. This can only be done if the device is powered as well as connected to the software via the USB lead. *3
7	**Write/Save:** the configuration to the device. *2
*1 Once only, on the first time connecting to the SEM1600B, drivers will install to the PC, allow time for this before proceeding.	
*2 The configuration is not saved onto the device unless the configuration screen is sent.	
*3 The SEM1600B can be configured whilst connected and powered, but a portable battery powered computer or USB isolator must be used to avoid the effects of ground loops.	
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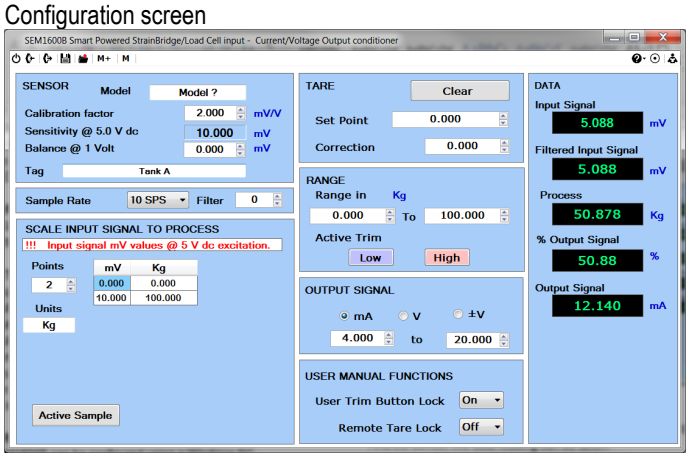
Configuration screen



6.2~ANDROID MONITORING USBView Software

Using a suitable OTG USB lead to connect the SEM1600B to an Android device, live data reading can be taken.
The USBView app. can display input temperature/value, output mA/V and the Tag information.

USB Software can be downloaded free of charge from www.status.co.uk

www.status.co.uk
This guide is also available online at www.status.co.uk
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