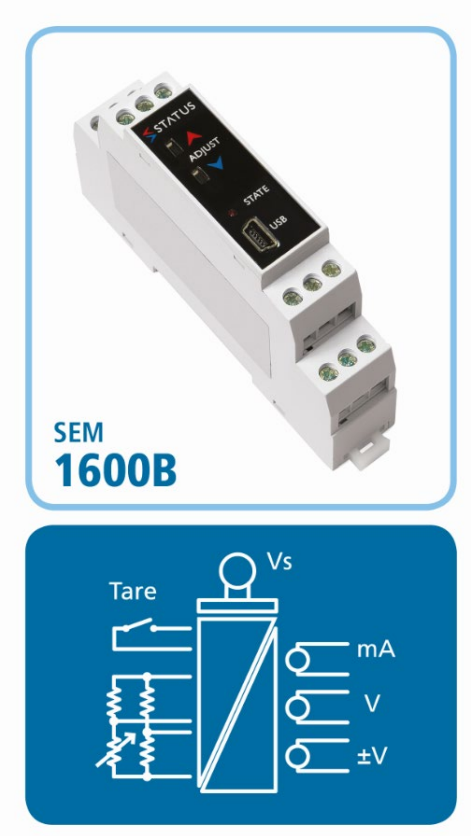
SEM1600B STRAIN BRIDGE/LOAD CELL SIGNAL CONDITIONER

- **LOAD CELL/STRAIN GAUGE BRIDGE INPUTS**
- **(-7.5 to 7.50) mV/ V RANGE, 5 V EXCITATION**
- **2 to 6 POINT CALIBRATION, REMOTE TARE**
- **RATIO METRIC MEASUREMENT**
- **USB PC CONFIGURATION, ANDROID VIEW**



INTRODUCTION

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 re-transmission 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.

FEATURE HIGHLIGHTS

MULTIPLE INPUT SENSORS Load cells can be connected in parallel to give an averaging input circuit for weighing applications.

FRONT PANEL PUSH BUTTON CONFIGURATION The device is provided with two front panel push buttons that can be configured to perform one of two functions or be disabled. Set as function 1, the buttons allow the user to push button configure the output range at high and low scale against a live input signal, set as function 2, the buttons allow the operator to trim the output at high and low scale (see product user-guide for full details).

USB CONFIGURATION The product uses a USB port for configuration, together with a simple to use menu-driven software configuration tool, allowing the user to take advantage of the product's comprehensive specification. Additionally, the user may read live process data when connected to the PC, allowing for offset and span calibration.

REMOTE TARE A closed contact input can be used to set the input value to zero or a pre-defined process value.

SIGNAL RETRANSMISSION SCALING The input signal range for retransmission can be selected from any part of the maximum input capability. The output signal range can be selected from any part of the total output capability, for example (0 to 12000) kg input to (1 to 5) mA output.

USB PC CONFIGURATION The SEM1600B is quick and easy to configure using a standard-type USB lead and the free-of-charge USBSpeedLink Windows software.

USB ANDROID VIEW The SEM1600B can be connected to an android phone or tablet using an OTG USB adaptor. Running a free App the Android device can then be used to view live data from the SEM1600B

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ELECTRICAL INPUT		**SPECIFICATIONS @20°C**
Type	**Range**	**Accuracy/ Stability/ Notes *1**
Bridge input	(-7.6 to 7.6) mV/ V	@ 5 V excitation
Type	Ratio metric	Four wire
Drift		< ± 0.05 %
Linearity		± 0.01 %
Voltage	5 Vdc	± 0.1 Vdc @ 59 mA
Bridge impedance	Total (85 to 10000) Ω *1	
Tare input	Volt free contact	Up to 10 m distance
*1 Operates with up to four 350 Ω cell in parallel		

OUTPUT **ANALOGUE mA CURRENT**		**SPECIFICATIONS @20°C**
Type/ Function	**Range/ Description**	**Accuracy/ Stability/ Notes**
Two wire current	(0 to 20) mA (4 to 20) mA	(mA output /2000) or 5 uA (Whichever is the greater)
Current source	(0 to 20) mA	Maximum load 750 **Ω**
Current sink	Supply voltage (10 to 30) VDC	SELV
Loop voltage effect		0.2 uA/ V (sink mode)
Maximum output		21.5 mA
Thermal stability	Zero at 20 °C	1 uA/ °C
The mA output range can be set to anywhere within the maximum capability		

OUTPUT **ANALOGUE VOLTAGE**		**SPECIFICATIONS @20°C**
Type/ Function	**Range/ Description**	**Accuracy/ Stability/ Notes**
Two wire voltage	(0 to 10) VDC (-10 to 10) VDC	± 5 mV
Maximum output		10.5 VDC, -10.5 VDC
Thermal stability	Zero at 20 °C	± 10 uV/°C
The voltage output range can be set to anywhere within the maximum capability		

USB CONFIGURATION USER INTERFACE		
Type / options / function	**Description**	**Notes**
Configuration hardware	USB mini B port	Cable not included
Configuration software	USBSpeedLink	Download www.status.co.uk
Operating system	Microsoft Windows	Windows 7 or later
Sensor configuration Model Calibration factor Balance Sample rate Filter Scale/ calibration points Input to output units range Active sample Units (engineering)	 (2 to 6) point user calibration @ 1 V Samples per second (sps) *1 (0 to 20) s *1 At each scale point Automatic read/ adjustment	 16 Characters (-7.6 to 7.6) mV/V (-7.6 to 7.6) mV/V (10 or 80) s Seconds to reach 70 % of final value 2 to 6 mV to engineering units mV to engineering units 4 Characters
Tare configuration Set point Correction Clear	 Value to tare to Read/ wright Remove tare value	 Value in engineering units Set point- process value, in eng. units Correction to zero
Analogue output configuration Input signal range Output signal type Output signal range	 In engineering units mA, V, bipolar V High, low	 Any value within range for input mA, V, ± V Any value within range for output type

USB CONFIGURATION USER INTERFACE Continued		
Type / options / function	**Description**	**Notes**
Live data	Input signal Filtered input signal Process % Output signal Output signal Record live data Store configuration to PC	mV mV In engineering units % of total output signal In mA or V Save data to CSV file Save data to file
User manual interface User trim button lock Remote tare lock		 On, off On, off
Other device options	Tag	20 Characters
*1 see response time in GENERAL specification		

ANDROID USER INTERFACE		
Type/Function	**Range/Description**	**Accuracy/Stability/Notes**
Hardware	USB Lead	OTG plus A to Mini B
Software	USBVeiw	Download from www.status.co.uk
Read live data	Signal Process value Output	mV Process units mA or V

GENERAL	
Function	**Description**
Response time	< 200 ms @ 10 sps, < 50 ms @ 80 sps
Start-up time	5 s (output condition lags)
Warm-up time	60 s until full accuracy
Galvanic isolation	Three way (input, output, supply) 500 VDC
Default configuration	
State LED	Green when output = (-0.1 to 100.1) % else red Red = input/ output error
Supply range Power Protection	(10 to 32) VAC rms, (10 to 48) VDC SELV < 1 W @ full output current Internal resettable fuse (0.5 A) + over-voltage protection

MECHANICAL	
Function	**Description**
Dimensions	17.5 mm width, 56.4 mm depth from rail, 90 mm height
Enclosure	DIN rail mount
Material	Polymide 6.6 self-extinguishing: Grey
Connections	Screw terminals 2.5 mm wire maximum
Weight	60 g approximate

ENVIRONMENTAL	
Function	**Description**
Ambient temperature	Operating/Storage (-30 to 70) °C
Ambient Humidity	Operating/Storage (10 to 90) %RH non-condensing
Protection requirement	Device must be installed in an enclosure offering >IP65 Protection
USB configuration ambient	(10 to 30) °C

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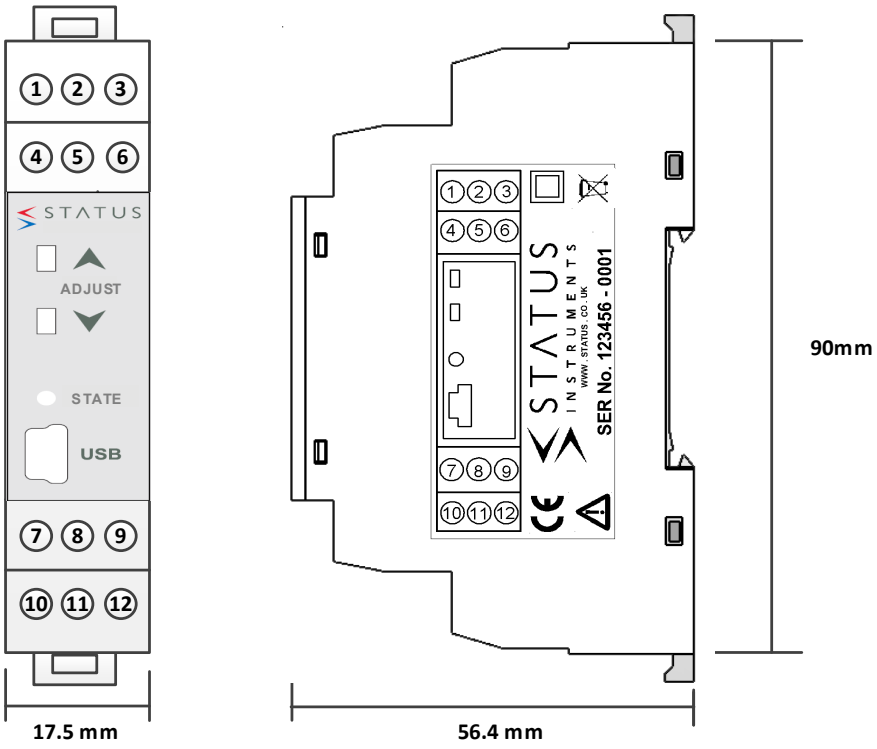
APPROVALS	
EMC	BS EN 61326: Note - Sensor input wires to be less than 30 m to comply
Ingress protection	BS EN 60529
RoHS	Directive 2011/65/EU

MECHANICAL



ORDER CODE	SEM1600B

ACCESSORIES	
USB configuration software	USBSpeedLink free of charge from www.status.co.uk
Android live data view	USBView free of charge from www.status.co.uk
Loop powered display	Refer to www.status.co.uk
USB Leads	Contact sales@status.co.uk

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