

# SMART POWERED STRAIN BRIDGE / LOAD CELL CONDITIONER



## SEM1600B

- SUITABLE FOR STRAIN GAUGE/LOAD CELL APPLICATIONS
- UNIVERSAL CURRENT OR BIPOLAR VOLTAGE OUTPUT
- INPUT RANGE 0.2 TO 7.5mV/V, 5VDC EXCITATION
- POWERED BY 10 TO 32VAC OR 10 TO 48VDC SUPPLY
- 2 TO 6 POINT CALIBRATION WITH ACTIVE SET OPTION
- REMOTE TARE, FRONT PANEL PUSH BUTTON CONFIGURATION
- SIMPLE CONFIGURATION VIA USB PORT
- DIN RAIL MOUNT



## INTRODUCTION

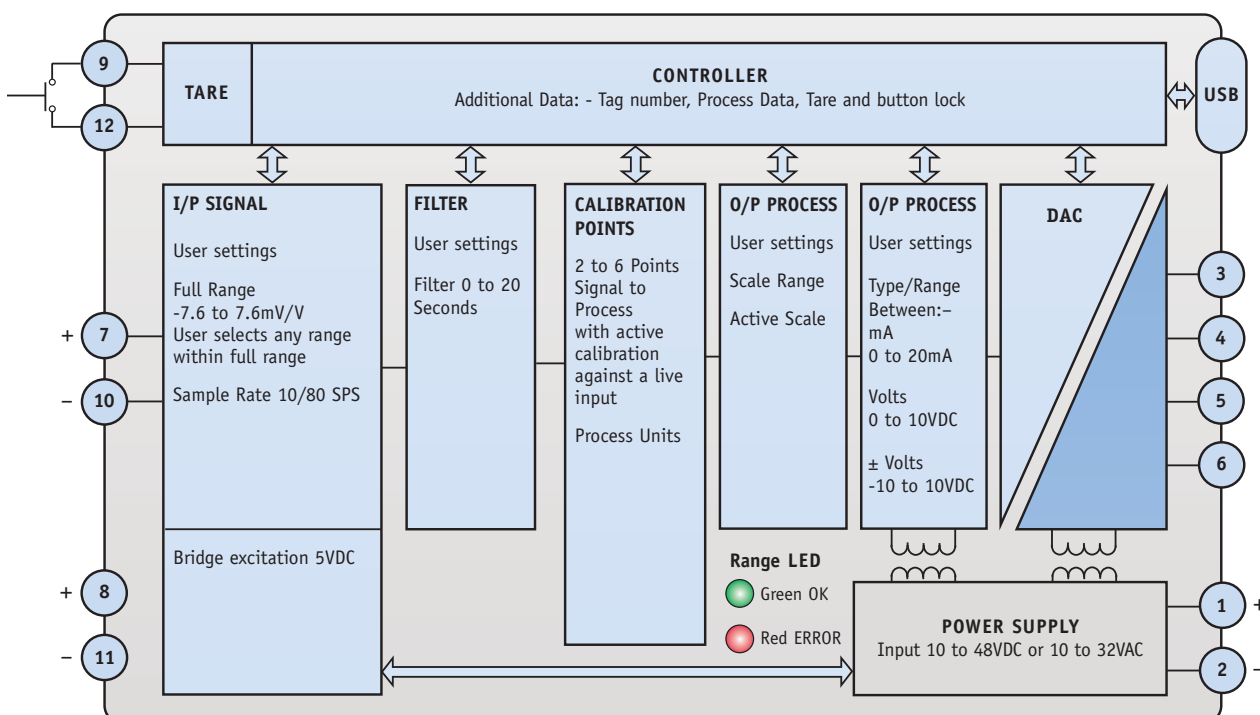
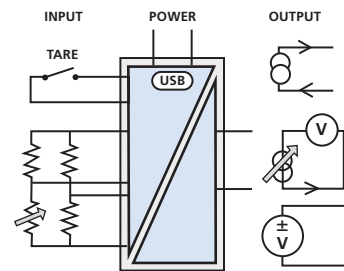
The SEM1600B is a “smart” powered bridge amplifier for use with strain gauges or load cell signals. The product has a built-in capability to scale the input signal to a process value while the output stage offers voltage, bipolar voltage or active / passive current re-transmission signals.

The product comes with an AC/DC power supply that will operate in the range 10 to 48VDC and 10 to 32VAC 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 5VDC to be used as opposed to the traditional 10VDC. This reduces the power requirement for the bridge supply and up to four bridges may be connected to the input.

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. The device uses ratiometric measurement to obtain high stability.

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.

If configuration is not specified at the time of order, the product will be shipped with the default range 2mV/V input 4 to 20mA output.



## SPECIFICATIONS @ 68°F

### BRIDGE INPUT

Full Range	-7.6 to 7.6mV/V -38 to 38mV @ 5V excitation
Type	Four Wire Ratiometric
Drift	< ± 0.05 %
Linearity	± 0.01 %
Update	Selectable, 10 or 80 SPS (samples per second)

### BRIDGE EXCITATION

Voltage	5 Volts DC ± 0.1V @ 59mA
Bridge Impedance	Total 85 to 10,000Ω (operates with four 350Ω bridges in parallel)

### TARE INPUT

Type	Remote volt free contact, up to 10 meters distance
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### OUTPUT CURRENT

Current Source	Range 0 to 21.5mA, Max Load 750Ω
Current Sink	Range 0 to 21.5mA, Supply 10 to 30VDC, Voltage effect 0.2uA/V
Accuracy	(mA Out/2000) or 5 uA whichever is the greater, Drift 1uA/°C

### OUTPUT VOLTAGE

Range	0 to 10.1VDC or -10.1 to 10.1VDC,
Accuracy	± 5mV
Current Drive	± 2 mA, Min load 5,000Ω @ 10V.

### PUSH BUTTON CONFIGURATION

Type	Independent "Low" "High" front panel push buttons allow user to manually set low and high output points.
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### SUPPLY

Range	10 to 48VDC, 10 to 32VAC Protected by internal 500mA resettable fuse
Power	< 1W Full Power

### GENERAL

Response Time	< 200mS @ 10SPS, < 50mS @ 80SPS
Isolation	Supply to input to output 500VDC.
Indication	LED, Green when output - 0.1 to 100.1 %, else red

### USER INTERFACE

Type	USB 2.0, USB_Speed_Link
Baud Rate	19,200 baud
Equipment	PC running windows XP or later, USB cable (A to mini B).

### USER INTERFACE FUNCTIONS

Calibration Scaling	2 to 6 points signal against process
Filter	1 to 20 Seconds to reach 70% of final value
Tare	Remote set tare offset with programmable user set point.
Active Calibration	Active Calibration against live load cell
Process Units	4 Characters
Tag Number	20 Characters
Process Output	Process Output Range
Signal Output	Select type, signal range
Active Scaling Output	Set output process range against active sensor input
Sensor Information	Model, sensitivity and balance

### ENVIRONMENT

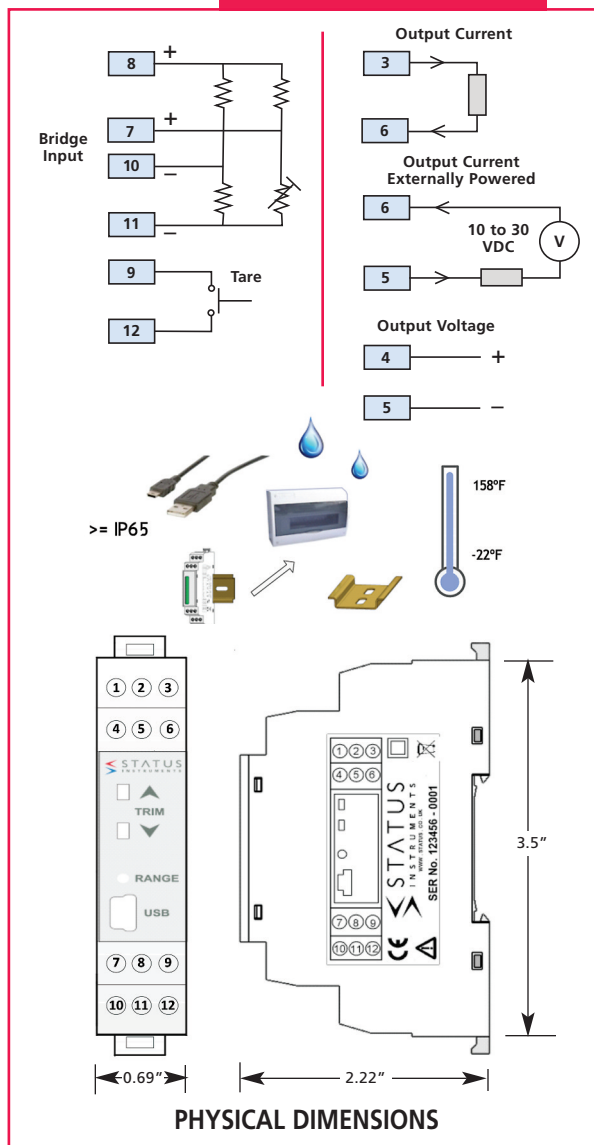
Operating Ambient	-22 to 158°F; 10 to 90 %RH (non-condensing)
Storage Ambient	-22 to 158°F; 10 to 90 %RH (non-condensing)
Configuration Ambient	50 to 86°F
Installation Enclosure	DIN Rail enclosure offering Protection >= IP65.

### APPROVALS

CE	BS EN 61326
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### MECHANICAL

Style	DIN 43880, Color Gray, Material Polyimide 6.6, Weight < 70 grams
Terminals	2.5mm Maximum



### ORDER CODES:

<b>SEM1600B</b>	STRAIN BRIDGE or LOAD CELL INPUT / CURRENT or VOLTAGE OUTPUT
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<b>Accessories</b>	
USB KIT	USB CONFIGURATION KIT
USB SPEED LINK	SOFTWARE (FREE FROM INTERNET SITE)

### Associated Products

SEM1600VI	CURRENT or VOLTAGE INPUT / CURRENT or VOLTAGE OUTPUT
SEM1600T	RESISTANCE or THERMOCOUPLE INPUT / CURRENT or VOLTAGE OUTPUT
SEM1603P	RTD INPUT / CURRENT OUTPUT
SEM1603TC	THERMOCOUPLE INPUT / CURRENT OUTPUT
SEM1610	UNIVERSAL INPUT / CURRENT OUTPUT
SEM1620	UNIVERSAL INPUT / VOLTAGE OUTPUT
SEM1630	UNIVERSAL INPUT / DUAL TRIP ALARM
SEM1633	RTD - RESISTANCE - SLIDE WIRE INPUT / DUAL SPDT RELAYS OUTPUT
SEM1636	LOOP POWERED INPUT / DUAL TRIP ALARM

## Local Representation



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