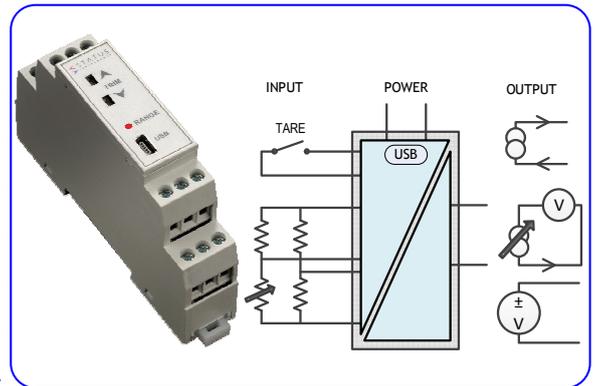


# SMART POWERED STRAIN BRIDGE/ LOAD CELL CONDITIONER

## SEM1600B

- SUITABLE FOR LOAD CELL / STRAIN GAUGE APPLICATIONS
- UNIVERSAL CURRENT, BIPOLAR VOLTAGE OUTPUTS
- INPUT RANGE (0.2 to 7.5) mV/V , 5 V EXCITATION
- POWERED (10 to 32) V AC or (10 to 48) V DC SUPPLY
- (2 to 6) POINT CALIBRATION WITH ACTIVE SET OPTION
- REMOTE TARE, FRONT PANEL PUSH BUTTON CONFIGURATION
- USB PROGRAMMABLE



## ➤ INTRODUCTION

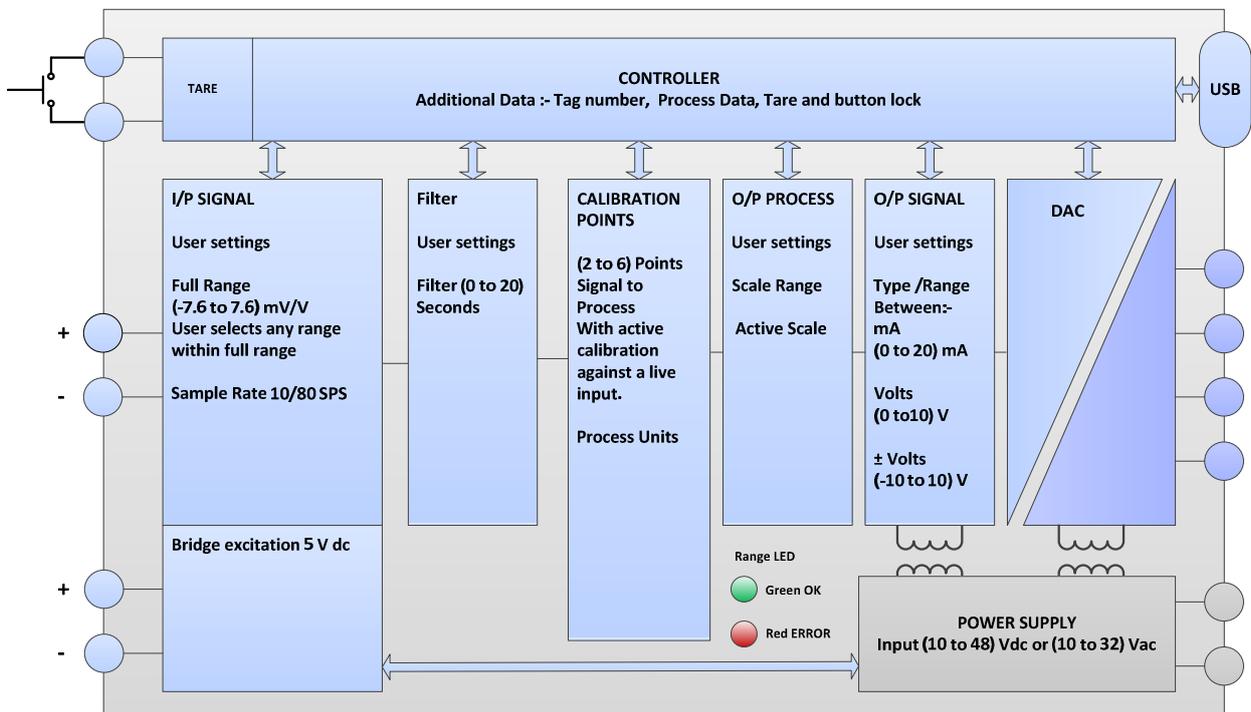
The SEM1600/B is a “smart” powered bridge amplifier for use with strain gauges or load cell signals. The product has a built in capability to scale the input signal to a process value while the output stage offers either voltage, bipolar voltage or active / passive current re-transmission signals.

The product comes with an AC/DC power supply that will operate in the range (10 to 48) V DC and (10 to 32) V AC 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 5V DC to be used as opposed to the traditional 10V DC. This reduces the power requirement for the bridge supply and up to four bridges (cells) 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 ratio metric 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 2 mV/V input (4 to 20) mA output.



# SMART POWERED STRAIN BRIDGE/ LOAD CELL CONDITIONER

## ➤ SPECIFICATION @20 °C

### BRIDGE INPUT

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

### BRIDGE EXCITATION

Voltage 5 Volts DC  $\pm 0.1$  V @ 59 mA  
 Bridge Impedance Total (85 to 10000)  $\Omega$  (operates with four 350  $\Omega$  cell in parallel)

### TARE INPUT

Type Remote volt free contact, up to 10 metres distance

### OUTPUT CURRENT

Current Source Range (0 to 21.5) mA , Max Load 750  $\Omega$   
 Current Sink Range (0 to 21.5) mA , Supply (10 to 30) V dc, Voltage effect 0.2  $\mu$ A/V  
 Accuracy (mA Out/ 2000) or 5  $\mu$ A which ever is the greater, Drift 1  $\mu$ A/ °C

### OUTPUT VOLTAGE

Range (0 to 10.1) V or (-10.1 to 10.1) V, Accuracy  $\pm 5$  mV  
 Current Drive  $\pm 2$  mA, Min load 5000  $\Omega$  @ 10 V

### PUSH BUTTON CONFIGURATION

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

### SUPPLY

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

### GENERAL

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

### USER INTERFACE

Type USB 2.0, USB\_SpeedLink  
 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

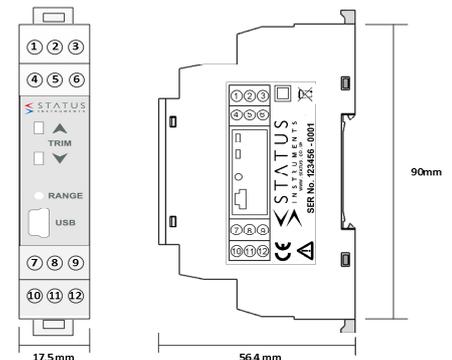
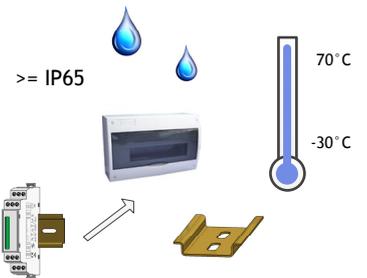
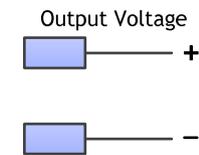
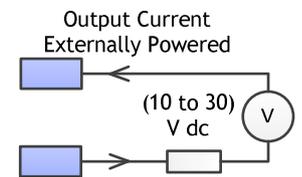
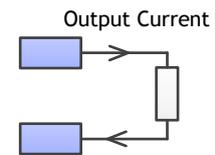
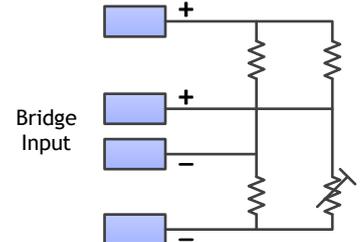
Operating Ambient (-30 to 70) °C ; (10 to 90) %RH (non condensing)  
 Storage Ambient (-30 to 70) °C ; (10 to 90) %RH (non condensing)  
 Configuration Ambient (10 to 30) °C  
 Installation Enclosure DIN Rail enclosure offering Protection  $\geq$  IP65.

### APPROVALS

CE BS EN 61326

### MECHANICAL

Style DIN 43880, Colour grey, material Polyimide 6.6, weight  $< 70$  grams  
 Terminals 2.5 mm Maximum



Order code: SEM1600B