

Specifications

Input/Output Ranges

See Table Below:

Input Impedance

200k ohm typical

Output Capability

(Voltage) +/- 10VDC, @ +/- 10mA

(Current) 20mADC, 20V compliance

Zero Offset

+/- 100% of Span in 15% increments.

Zero/Span Controls

Top-accessible, multiturn, non-interactive

Range: +/-15% of span typical

Excitation Voltage

Switch-selectable, 0 to 10VDC in 1V increments

Fine adjust, +/- 5% via multiturn potentiometer

Excitation Current Capability

120mADC @ 10VDC excitation;

drives up to four 350 ohm bridges @ 10VDC

Excitation Stability

+/- .01% per degree C

Sense Lead Compensation

Better than 0.01% per 1 ohm change in leadwire resistance

Leadwire Resistance

10 ohm max. for 10VDC excitation/350 ohm bridge

Response Time

70mS typical; faster response times are available

Common Mode Rejection

100dB minimum

Isolation

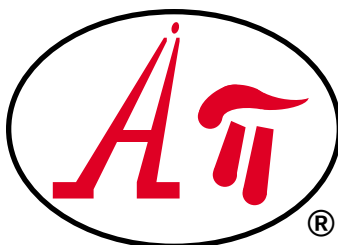
2000V RMS min.

Temperature Stability

Better than .02% of span per degree C

Linearity

Better than 0.1% of span

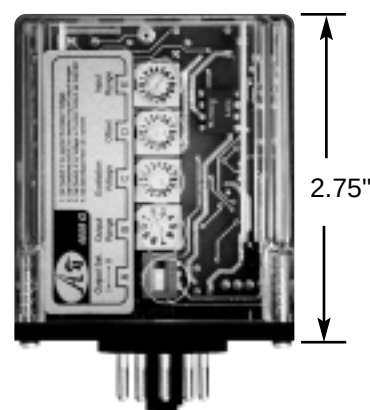
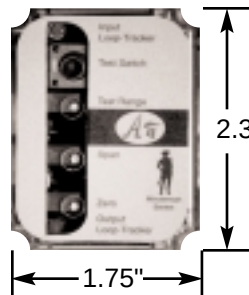


FIELD SELECTABLE ISOLATED Strain Gauge (Bridge) to DC Transmitter **API 4059 G**

FEATURES

- Easy to Cancel/Tare out Deadweights
- Non-Interactive Zero/Span Controls
- Wide Range of Input/Output Parameters
- Set-up via Rotary Switches and Easy-to-use Tables without Opening the Case
- Can Drive up to Four 350 Ohm Bridges
- Input/Output LoopTracker™ LED's
- LIFETIME WARRANTY

CASE DIMENSIONS



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Ambient Temperature Range

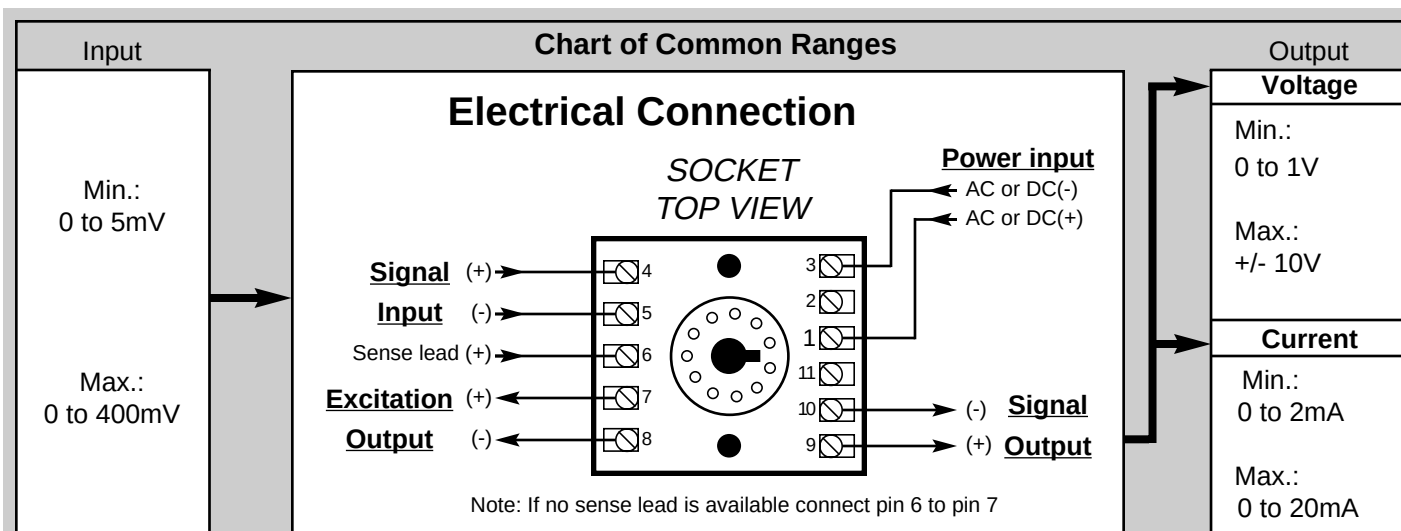
-10 to +60 degrees C (operating)

Power

(Standard) 115VAC +/-10% 50/60Hz 3.5W max.

(Optional) 230VAC +/-10% 50/60Hz 2.5W max.

(Optional) 9-30VDC @ 3W with 4 load cells.



FUNCTIONAL DESCRIPTION

The API 4059 G accepts a Strain Gauge (Bridge) Input (or a "Summed" Input from up to four(4) sensors) and provides an isolated DC Voltage or Current Output. The API 4059 G provides a stable source of excitation voltage to bridge type sensors such as load cells, pressure transducers and strain gauges, then amplifies, isolates and converts the resulting millivolt signal into the selected output. It includes filtering and processing to allow effective use of low-level transducers in the noisy environments common in industrial applications.

The API 4059 G is compatible with most common 350 Ohm bridges and distinguishes itself from other similar products in that its Input, Output, Excitation and Zero Offset are field-configurable (without requiring the case to be opened) via external rotary & slide switches. All instructions and most common ranges are available from easy to use tables on the module labels. Once configured, fine-tuning is greatly simplified due to the user-accessible, NON-interactive Zero and Span Adjustments. The DC Excitation is field-rangeable from 0 to 10VDC and will drive from one(1) to four(4) 350 ohm (or greater) bridges. In addition, the excitation source includes "sense" lead circuitry to cancel the effects of lead-wire resistance, if required. DC Voltage or Current Outputs are selectable from 0-1VDC to +/-10VDC and 0-2mADC to 4-20mADC. Offsets of up to +/-100% of span may be selected for applications requiring cancellation of sensor offsets or non-zero deadweights (taring).

The Optical Isolation between Input and Output makes this module useful for Ground Loop Elimination, Common Mode Signal Rejection or Noise Pickup Reduction. The API 4059 G uses the latest technology in linear optical isolation for optimum noise immunity and complete freedom from AC artifacts in the Output. In addition, the module Power Supply is isolated, resulting in full 3-way (Input, Output, Power) Isolation. Standard module power is 115VAC; options include 230VAC or 9-30VDC.

The API 4059 G plugs into an industry standard 11-Pin socket (sold separately). The socket provided by API (part #API-011) allows for either DIN rail or panel mounting.

UNIQUE FEATURES

API Exclusive Features include two **LoopTracker™ LEDs** and a **Functional Test Pushbutton**. The LoopTracker™ LEDs (Green for Input; Red for Output) vary in intensity with changes in the Input (process) signal. Monitoring the state of these LEDs can provide a quick visual picture of your process loop at all times. The Functional Test Pushbutton provides a fixed output (independent of the input) when held depressed. The Test Output level can be field-adjusted via a top-accessible multiturn pot to any value from 0 to 100% of the calibrated range. Both the **LoopTracker™ LEDs** and **Functional Test Pushbutton** greatly aid in the reduction of time during initial startup and/or troubleshooting.

OPERATION

Strain Gauges and Load Cells are normally passive devices that are commonly referred to as "bridges" due to the four-resistor Wheatstone bridge configuration used in their design. These sensors require a precise excitation source to produce an output that is directly proportional to the load, pressure, etc. that is applied to the sensor. The exact output (measured in millivolts) is determined by the sensitivity of the sensor (mV/V) and the excitation voltage applied. For example, a load cell rated for 3mV/V sensitivity and 10VDC excitation will produce an output of 0 to 30mV for load variations from 0 to 100%.

The API 4059 G consists of four(4) rotary switches and one(1) slide switch which must be configured to match the specifications of the input sensor(s) and the output requirements. The API 4059 G provides a stable excitation voltage to the sensor(s) and receives the resulting millivolt signal in return. An additional input ("sense" lead) monitors the voltage drop in the sensor leads and automatically compensates the excitation voltage at the module in order to maintain a constant excitation voltage at the sensor. The millivolt input signal to the module is filtered and amplified, then offset, if required, and passed through an optical isolation circuit to the output stage. Depending on the output configuration selected, a DC Voltage or Current Output is generated.

RELATED PRODUCTS

The following products are also available for use with a Strain Gauge (Bridge) Input. Refer to the appropriate data sheets in this section for details.

API SUM

"SUMMING" Board which accepts one API 4059 G and up to four(4) bridge inputs. Greatly simplifies wiring and installation in multi-sensor applications.

API 1500 G

Single Setpoint Alarm

API 1520 G

Dual Setpoint Alarm

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