



API 4310 G

Narrow Input Span
Full Isolation

DC to DC Transmitter

Input: 0-10 mV to 0-100 mV, 0-100 μ A to 1 mA

Output: 0-1 V to $\pm$ 10 V or 0-1 mA to 4-20 mA

- Low Drift Input Amplifier
- Full 2000 V Input/Output/Power Isolation
- Input and Output LoopTracker® LEDs
- Functional Test Pushbutton

Applications

- Isolate, Convert, Boost, Rescale Process Signals
- Interface Process Signals with Panel Meters, Recorders, Data Acquisition Cards, PLCs, DCS Systems, SCADA Systems

Specifications

Input Range

Factory Configured—Please specify input range
Consult factory for special ranges.

	Minimum	Maximum
Current:	0 to 100 μ ADC	0 to 1 mADC
Voltage:	0 to 10 mVDC	0 to 100 mVDC

System voltages must not exceed socket voltage rating

Input Impedance (Voltage)

200 k Ω minimum

Input Voltage Burden (Current)

1.25 VDC maximum

Input Loop Power Supply

18 VDC nom., unregulated, 25 mADC, max. ripple, less than 1.5 V_{p-p}

LoopTracker®

Variable brightness LEDs indicate input/output loop level and status

Output Range

Factory Configured—Please specify output range

	Minimum	Maximum
Voltage ($\pm$ 10 mA max.):	0-1 VDC	$\pm$ 10 VDC
Current (20 V compliance):	0-1 mADC	0-20 mADC

Consult factory for special ranges

Output Zero and Span

Multiturn potentiometers to compensate for load and lead variations
 $\pm$ 15% of span adjustment range typical

Output Linearity

Better than $\pm$ 0.1% of span

Output Ripple and Noise

Less than 10 mV_{RMS}

Functional Test Button

Sets output to test level when pressed
Potentiometer factory set to approximately 50% of span
Adjustable 0-100% of span

Response Time

70 milliseconds typical

Isolation

2000 V_{RMS} minimum
Full isolation: power to input, power to output, input to output

Common Mode Rejection

120 dB minimum

Ambient Temperature Range

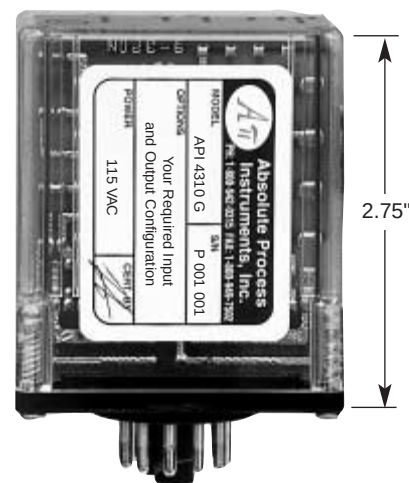
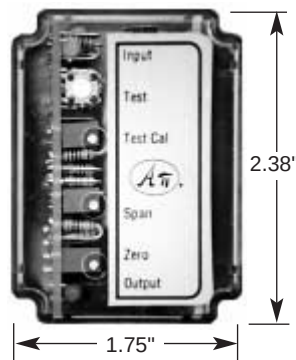
-10°C to +60°C operating

Temperature Stability

Better than $\pm$ 0.04% of span per °C

Power

Standard:	115 VAC $\pm$ 10%, 50/60 Hz, 2.5 W max.
A230 option:	230 VAC $\pm$ 10%, 50/60 Hz, 2.5 W max.
D option:	9-30 VDC, 2.5 W typical



**Free Factory
Input & Output
Calibration!**

Models and Options

Factory Configured—Please specify input/output ranges and options

API 4310 G DC to DC transmitter, isolated, narrow input span, with loop power supply, 115 VAC

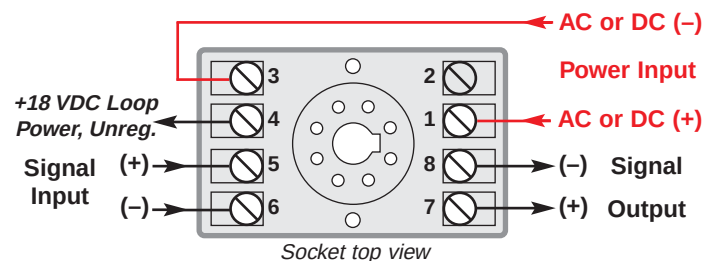
Options—Specify on Order

A230	Powered by 230 VAC, 50/60 Hz
D	Powered by 9-30 VDC
BP	$\pm$ 1 mA output current
DF	Fast response, 1 millisecond nominal response time
HC	High current output, >20 mA to 50 mADC
M01	Input/output reversal, such as 4-20 mA in to 20-4 mA out
EXTSUP	Open collector output when a "sinking" output is required
U	Conformal coating for moisture resistance

Accessories—See other side

Electrical Connections

Order **API 008** or **API 008 FS** socket separately



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API 4310 G DC to DC Transmitter

FUNCTIONAL DESCRIPTION

The API 4310 G accepts a DC voltage or current input and provides an optically isolated DC voltage or current output that is linearly related to the input. The API 4310 G utilizes an ultra-stable input amplifier for reliable operation with input signals as low as 10 mVDC. Typical applications include signal isolation, signal conversion, signal boosting or a combination of the three.

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 4310 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 power is 115 VAC. Options include 230 VAC or 9-30 VDC.

The API 4310 G plugs into an industry standard 8-pin octal socket sold separately. Sockets API 008 and finger-safe API 008 FS allow 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 process input and output signals. Monitoring the state of these LEDs can provide a quick visual picture of your process loop at all times.

The functional test pushbutton which provides a fixed output (independent of the input) when held depressed. It is factory set to approximately 50% of the calibrated output span, but can be field-adjusted via a multturn potentiometer.

Both the LoopTracker LEDs and functional test pushbutton greatly aid in saving time during initial startup and/or troubleshooting.

An 18 VDC unregulated loop excitation power supply is standard and can be used to power passive input devices.

OPERATION

The API 4310 G is factory configured to your exact input and output requirements. The input is filtered, either amplified or attenuated as required, then passed through an opto-coupler to the output stage. The 18 VDC loop excitation supply of the **API 4310 G** may be used in place of an additional external power source to power passive input devices.

CALIBRATION

The API 4310 G is pre-configured at the factory to the input and output ranges specified when purchased. Top-mounted, multi-turn Zero and Span potentiometers can be used should fine-tuning be necessary; however, major range changes will require factory modification.

If fine-tuning is necessary, apply the appropriate power to the module and allow a minimum 20 minute warm up time.

Using an accurate calibration source, provide an input to the module equal to the minimum required for the application.

Using an accurate measurement device for the output, adjust the Zero potentiometer for the exact minimum output desired.

Next, set the input at maximum, then adjust the Span pot for the exact maximum output desired.

Repeat adjustments for maximum accuracy.

Finally, the Test Pushbutton range may be set to provide the desired output when depressed.

RELATED PRODUCTS

The following products are also available for use with a DC voltage or current input. Refer to the appropriate data sheets in this section for details.

API 4300 G Same as API 4310 G, but wider input spans

API 4380 G Same as API 4300 G, but field selectable inputs and outputs

API 4380 DIN Same as API 4380 G, but DIN style case, universal power 48-300 VDC or 80-265 VAC

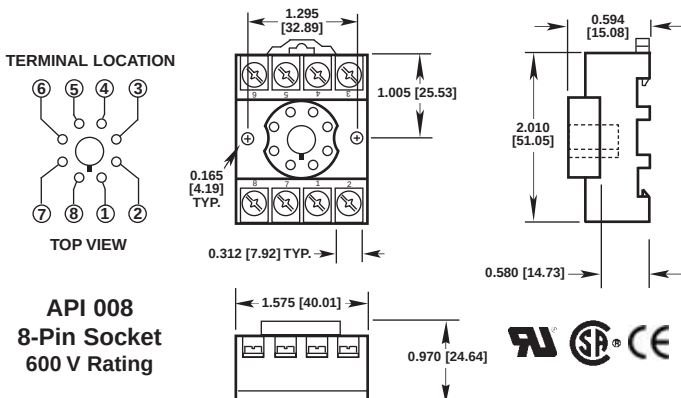
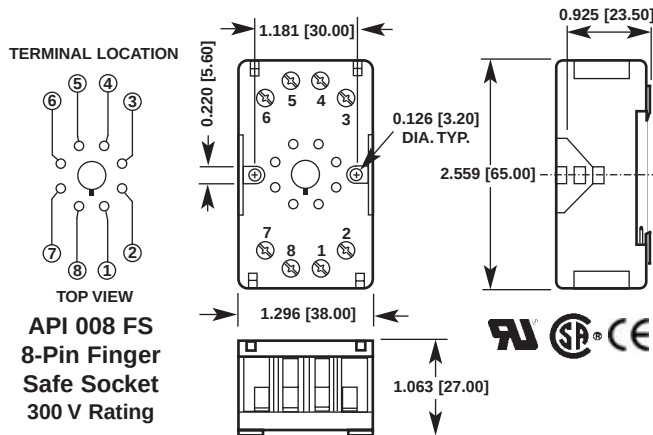
API 4380 DD Same as API 4380 DIN, but 9-30 VDC power

ACCESSORIES

API 008 8-pin socket

API 008 FS 8-pin finger safe socket

API TK36 DIN rail, 35 mm W x 39" L, aluminum



API maintains a constant effort to upgrade and improve its products. Specifications are subject to change without notice. Consult factory for your specific requirements.

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