



# API 4010 G

Non-Isolated

## DC to DC Transmitter

Input: 0-100 mV to 0-500 VDC, 0-1 mA to 0-1 ADC

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

- Factory Set Input and Output Ranges
- Custom Inputs and Outputs Available
- Input and Output LoopTracker® LEDs
- Functional Test Pushbutton
- Built-In Loop Power Supply

### Applications

- Convert, Boost, or 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. See table on other side for common ranges or consult factory for special ranges.

|          | Minimum    | Maximum                            |
|----------|------------|------------------------------------|
| Voltage: | 0-100 mVDC | 0-500 VDC with API 008 socket only |
| Current: | 0-1 mADC   | 0-900 mADC                         |

System voltages must not exceed socket voltage rating

#### Input Impedance (Voltage)

200 k $\Omega$  minimum

#### Input Voltage Burden (Current)

1.25 VDC maximum

#### Input Protection, Common Mode

750 VDC or 750 VAC<sub>p</sub>

#### Input Loop Power Supply

18 VDC nominal, unregulated, 25 mADC  
Maximum ripple, less than 1.5 V<sub>p-p</sub>

#### 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 Linearity

Better than  $\pm 0.1\%$  of span

#### Output Zero and Span

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

#### Functional Test Button

Sets output to test level when pressed  
Factory set to approximately 50% of span

#### Response Time

70 milliseconds typical

#### Ambient Temperature Range

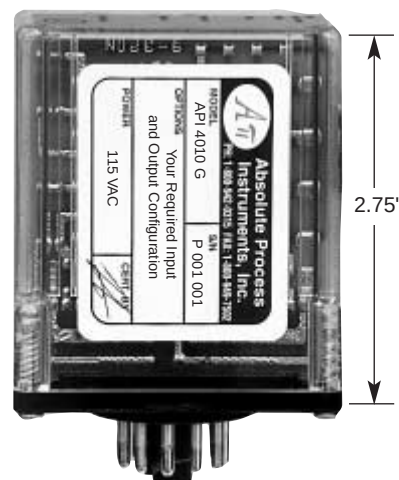
$-10^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  operating

#### Temperature Stability

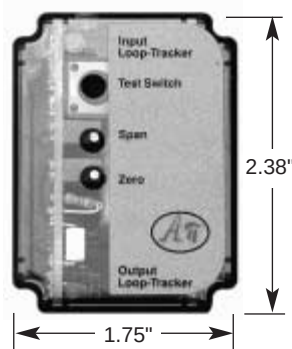
Better than  $\pm 0.02\%$  of span per  $^{\circ}\text{C}$

#### 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 & Options

Factory Configured—Please specify input/output ranges and options  
**API 4010 G** DC to DC transmitter, non-isolated, with loop power supply, 115 VAC

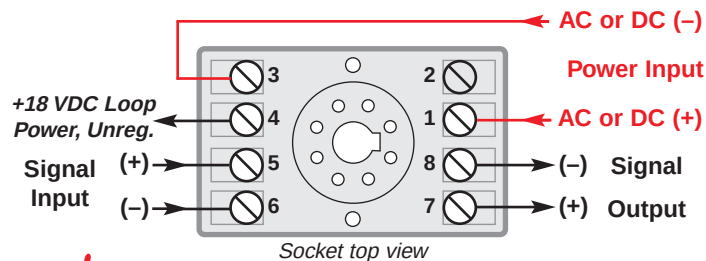
Options—Specify on Order

|               |                                                           |
|---------------|-----------------------------------------------------------|
| <b>A230</b>   | Powered by 230 VAC, 50/60 Hz                              |
| <b>D</b>      | Powered by 9-30 VDC                                       |
| <b>M09</b>    | High voltage output to 25 VDC                             |
| <b>HC</b>     | High current output, $>20$ mA to 100 mADC                 |
| <b>EXTSUP</b> | Open collector output when a "sinking" output is required |
| <b>U</b>      | Conformal coating for moisture resistance                 |

Accessories—See other side

### Electrical Connections

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



**ABSOLUTE PROCESS INSTRUMENTS, Inc.**  
 1220 American Way  
 Libertyville, IL 60048  
 USA  
[www.api-usa.com](http://www.api-usa.com)

Phone: **800-942-0315**  
**847-918-3510**  
 Fax: **800-949-7502**  
**847-968-4891**

# API 4010 G DC to DC Transmitter

## FUNCTIONAL DESCRIPTION

The API 4010 G accepts a DC voltage or current input and provides a non-isolated DC voltage or current output that is linearly related to the input.

Typical applications include signal scaling, signal conversion, signal boosting or a combination of the three. The module power supply is transformer isolated from the input and output. Standard power is 115 VAC. Options include 230 VAC or 9-30 VDC.

The API 4010 G plugs into an industry standard 8-pin octal socket available separately. Sockets API 008 and finger-safe API 008 FS allow either DIN rail or panel mounting.

## UNIQUE FEATURES

API exclusive features include a **LoopTracker® LED**, 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.

When held depressed, the functional test pushbutton will provide a fixed output (independent of the input) factory set to approximately 50% of the calibrated output range.

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

Also standard on the API 4010 G is an 18 VDC unregulated loop excitation supply. This supply can be used to power passive input devices, often eliminating the need for an additional external power supply.

## POPULAR RANGES

Listed below are commonly ordered input and output ranges. Consult factory for other available ranges.

| Common Voltage Inputs |            |
|-----------------------|------------|
| 0 to 100 mV           | 0 to 50 V  |
| 0 to 200 mV           | 0 to 100 V |
| 0 to 500 mV           | ±100 mV    |
| 0 to 1 V              | ±200 mV    |
| 0 to 2 V              | ±500 mV    |
| 0 to 5 V              | ±1 V       |
| 1 to 5 V              | ±2 V       |
| 0 to 10 V             | ±5 V       |
| 0 to 20 V             | ±10 V      |

| Common Current Inputs |             |
|-----------------------|-------------|
| 0 to 1 mA             | 0 to 100 mA |
| 0 to 10 mA            | 0 to 200 mA |
| 0 to 20 mA            | 0 to 500 mA |
| 4 to 20 mA            |             |
| 10 to 50 mA           |             |

| Common Voltage Outputs |
|------------------------|
| 0 to 1 V               |
| 0 to 5 V               |
| 1 to 5 V               |
| 0 to 10 V              |
| ±5 V                   |
| ±10 V                  |

| Common Current Outputs |
|------------------------|
| 0 to 20 mA             |
| 4 to 20 mA             |

## OPERATION

The API 4010 G is factory configured to your exact input and output requirements. The input is filtered, either amplified or attenuated as required, then passed through to the output stage.

The +18 VDC loop excitation supply of the API 4010 G may be used in place of an additional external power source to power passive input devices.

## CALIBRATION

The API 4010 G is pre-configured at the factory to the input and output ranges specified when purchased. Top-mounted, multi-turn zero and span potentiometers are standard should fine-tuning be necessary. Major range changes will require factory modification.

1. If fine-tuning is necessary, apply the appropriate power to the module and allow a minimum 20 minute warm up time.
2. Using an accurate calibration source, provide an input to the module equal to the minimum required for the application.
3. Using an accurate measurement device for the output, adjust the zero potentiometer for the exact minimum output desired.
4. Next, set the Input at maximum, then adjust the span pot for the exact maximum output desired.
5. Repeat adjustments for maximum accuracy.
6. Finally, the test pushbutton range may be set to provide the desired output when depressed.

## RELATED PRODUCTS

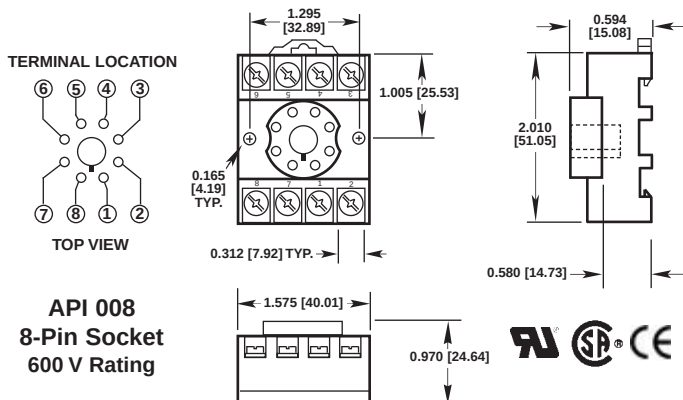
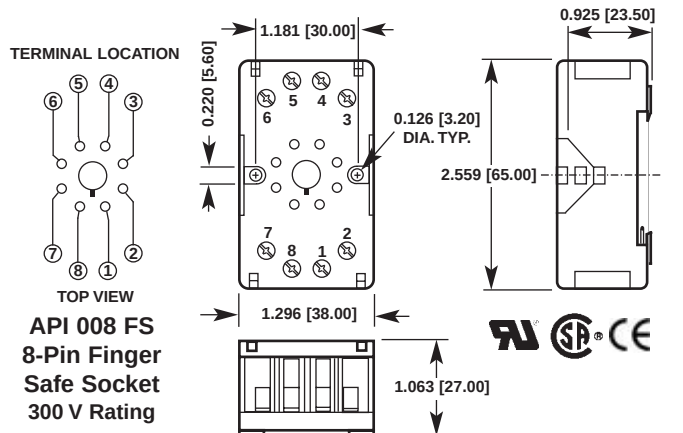
The following products are also available for use with a DC voltage or current input. Refer to the appropriate data sheets for details.

- API 4050 G** Like API 4010 G, but narrow input spans  
**API 4300 G** Like API 4010 G, but isolated input to output  
**API 4380 G** Like API 4300 G, but field selectable inputs & outputs  
**API 4380 DIN** Like API 4380 G, but DIN case, universal power  
**API 4380 DD** Like 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.



**ABSOLUTE PROCESS INSTRUMENTS, Inc.**

Phone: 800-942-0315

Fax: 800-949-7502

www.api-usa.com