



API 7010 G

Full Isolation

Frequency to DC Transmitter

Input: 0-25 Hz to 0-20 kHz

Output: 0-1 V to ± 10 VDC or 0-1 mA to 4-20 mA

- Precision Frequency to DC Converter
- Input and Output LoopTracker® LEDs
- Full 2000 VRMS Input/Output/Power Isolation
- Functional Test Pushbutton

Applications

- Monitor and Control Motor or Line Speed
- Convert a Square Wave Output to 4-20 mA
- Simplify Interfacing of Frequency Type Devices

Specifications

Input Range

Factory Configured—Please specify input range

	Minimum	Maximum
Frequency:	25 Hz	20 kHz
Voltage:	100 mV _{RMS}	150 V _{RMS}

Input Impedance

100 k Ω minimum

Input Protection

Normal mode: 200% of input rating
 Common mode: 600 VDC or 600 VAC_p input to ground
 System voltages must not exceed socket voltage rating

Input Loop Power Supply

18 VDC nominal, unregulated, 25 mADC
 Maximum 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 (± 10 mA max.):	0-1 VDC	± 10 VDC
Current (12 V compliance):	0-1 mADC	0-20 mADC

Consult factory for other ranges

Output Linearity

Better than $\pm 0.1\%$ of span

Response Time

70 milliseconds typical

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

Isolation

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

Ambient Temperature Range

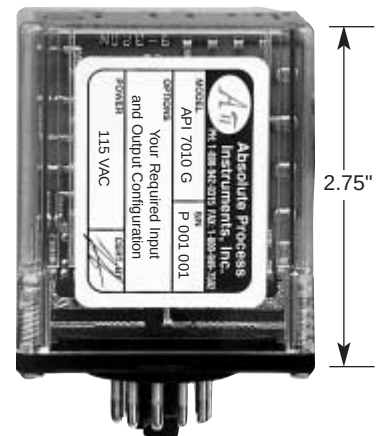
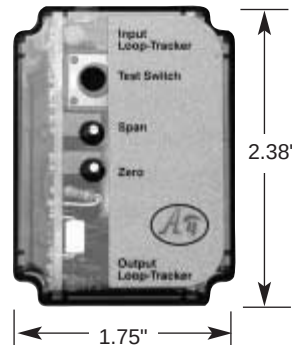
-10°C to $+60^{\circ}\text{C}$ operating

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 and output ranges
API 7010 G Frequency to DC transmitter, isolated, with loop power supply, 115 VAC

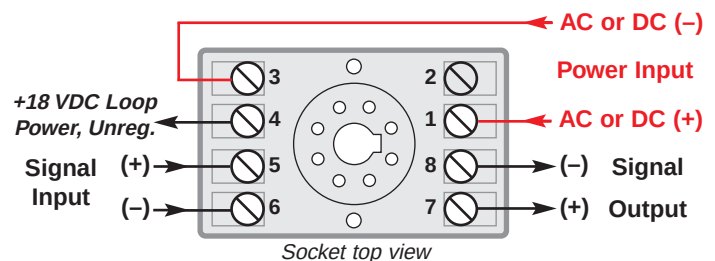
Options—Specify on Order

A230	Powered by 230 VAC, 50/60 Hz
D	Powered by 9-30 VDC
M09	High voltage output to 25 VDC
HC	High current output, >20 mA to 50 mADC
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 7010 G Frequency to DC Transmitter

FUNCTIONAL DESCRIPTION

The API 7010 G accepts a frequency input and provides an optically isolated DC voltage or current analog output that is linearly proportional to the input.

Common applications include frequency to DC conversions from frequency output type devices such as rotary encoders, magnetic pick-ups, variable speed drives and flow meters. For PLCs that do not have analog outputs available often the pulse rate of a discreet output can be programmed to vary. By connecting the API 7010 G to this discreet output, a proportional analog signal can be generated.

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 7010 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 7010 G plugs into an industry standard 8-pin socket sold separately. Sockets API 008 and finger-safe API 008 FS allow either DIN rail or panel mounting.

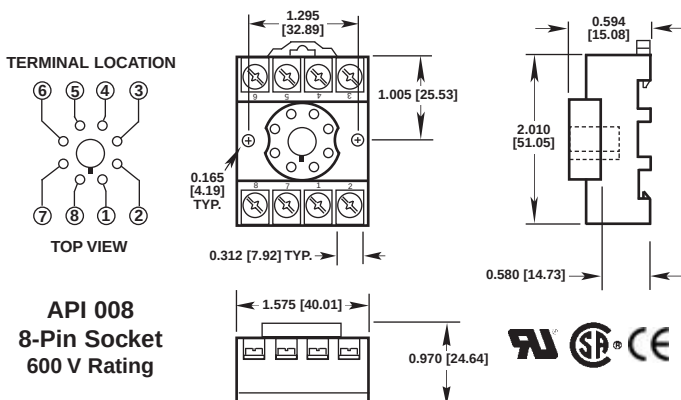
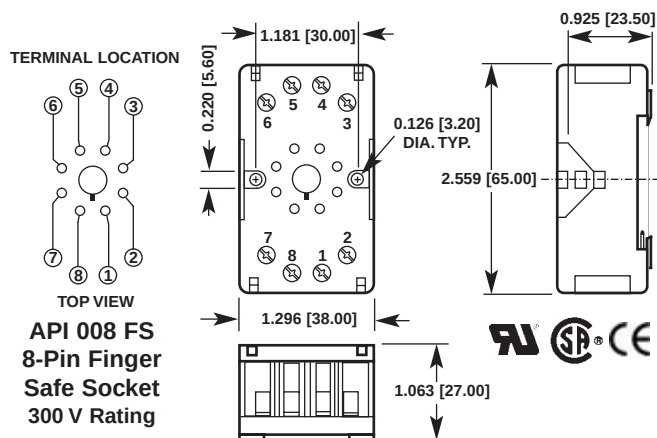
UNIQUE FEATURES

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 frequency input 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 multiturn 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.

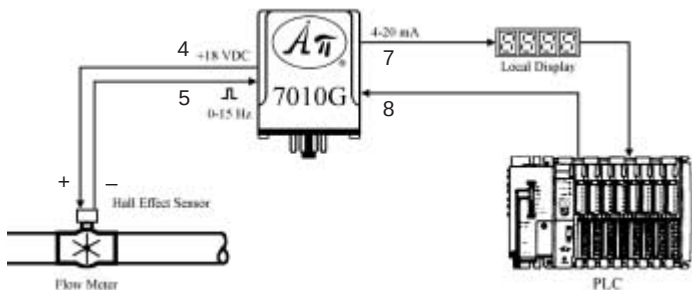


OPERATION

The frequency input to the API 7010 G is filtered to remove unwanted noise, converted to a DC voltage, then passed through an opto-coupler to the output stage.

The frequency input can be virtually any type of signal (sine wave, sawtooth, square wave, etc.) as long as there is a sufficient change in amplitude (greater than 100mV).

WIRING EXAMPLE



CALIBRATION

The API 7010 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 used 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 frequency generator, provide an input to the module equal to the lowest input desired.
3. Increase the frequency generator to the maximum desired input level and adjust the Span potentiometer until the output equals the 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. Refer to the appropriate data sheets for details.

API 7580 G

Same as API 7010 G, but field selectable ranges.

API 1700 G

Frequency input, single setpoint alarm

API 1720 G

Frequency input, dual setpoint alarm

API 7500 G

DC to frequency isolating transmitter, field selectable ranges

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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