API 4001 G
API 4001 GL

RTD to DC Transmitters

API 4001 G: Non-Isolated
API 4001 GL: Isolated & Linearized

Input: Most 10 Ω to 2000 Ω RTDs
Output: 0-1 V to ±10 VDC or 0-1 mA to 4-20 mA

- ***Automatic Leadwire Compensation***
- ***Input and Output LoopTracker® LEDs***
- ***Functional Test Pushbutton***

Applications

- **Convert and Transmit RTD Signals**
- **Interface Standard & Special RTDs to PLCs**
- **Rescale Temperature Ranges to Full 4-20 mA**

Specifications

RTD Input Type

Factory Configured—Please specify input parameters
RTD type
Curve: 0.00385 DIN, 0.003916 American, etc.
Temperature range in °F or °C
100°F (55°C) is the recommended minimum span
Consult factory if a smaller span is required

10 Ω to 2000 Ω RTDs including 100 Ω DIN, 100 Ω American, 10 Ω Cu, 1000 Ω Ni-Fe, 120 Ω Ni or special

RTD Excitation Current

10 Ω	10 mA
100 Ω	5 mA
1000 Ω	0.5 mA
2000 Ω	0.2 mA

RTD Linearization

API 4001 G Non-linearized
API 4001 G L Linearized to better than ±0.1% of span

Leadwire Compensation

Less than ±0.05% of span per 1 Ω change in leadwire resistance

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 special ranges

Output Linearity

Better than ±0.1% of span

Functional Test Button

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

Response Time

70 milliseconds typical

Isolation

API 4001 G Non-isolated
API 4001 G L 2000 V_{RMS} minimum, full isolation; power to input, power to output, input to output

Ambient Temperature Range

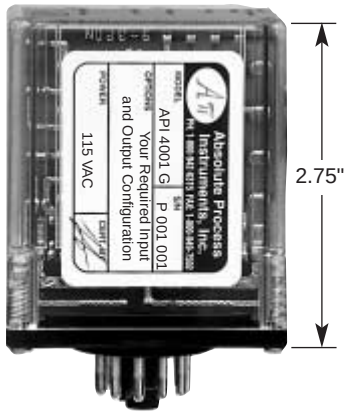
–10°C to +60°C operating

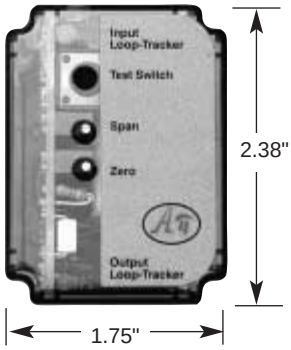
Temperature Stability

Better than ±0.04% of span per °C

Power

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





LIFETIME WARRANTY

Free Factory Input & Output Calibration!

Models & Options

Factory Configured—Please specify RTD type, temperature range, output range, and options

API 4001 G RTD transmitter, non-isolated, 115 VAC powered
API 4001 GL RTD transmitter, isolated, 115 VAC powered

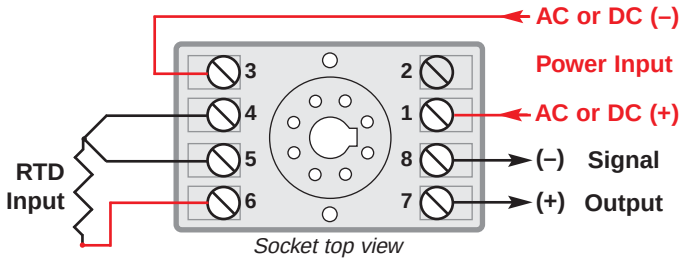
Options—Specify on Order

A230 Powered by 230 VAC, 50/60 Hz
D Powered by 9-30 VDC
EXTSUP Open collector output when a "sinking" output is required for an external loop supply
M01 Input/output reversal, such as 4-20 mA in to 20-4 mA out
U Conformal coating for moisture resistance

Accessories—See other side

Electrical Connections

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



Socket top view

For a 2-wire RTD install a jumper from terminal 4 to terminal 5

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API 4001 G and API 4001 G L RTD to DC Transmitters

FUNCTIONAL DESCRIPTION

The API 4001 G and API 4001 G L accept a RTD input and provide a DC voltage or current output. The API 4001 G is not isolated from the RTD input to the output nor linearized and is used primarily to convert and/or boost the RTD signal.

The Api 4001 G L is isolated and linearized and provides a DC voltage or current output that is optically isolated from input to output and linear to the process temperature making it the preferred choice in applications requiring ground loop elimination, common mode signal rejection or noise pick-up reduction.

Both the API 4001 G and API 4001 G L require factory configuration to a specific RTD type, measured temperature span (°C or °F), and corresponding DC voltage or current output. Automatic leadwire compensation is standard. Inputs from most RTD types are accepted and minimum and maximum temperature spans are dependent upon the RTD type being used. All parameters must be specified when ordering. Consult the factory to confirm your specific range requirements.

The module power supply in both models is isolated from the input and the output. Standard power is 115 VAC. Options include 230 VAC or 9-30 VDC.

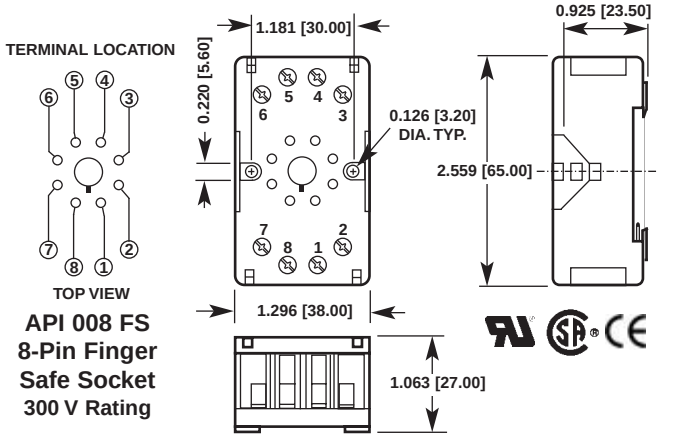
The API 4001 G and API 4001 G L plug into an industry standard 8-pin octal socket sold separately. Sockets API 008 and finger-safe API 008 FS allow either DIN rail or panel mounting.

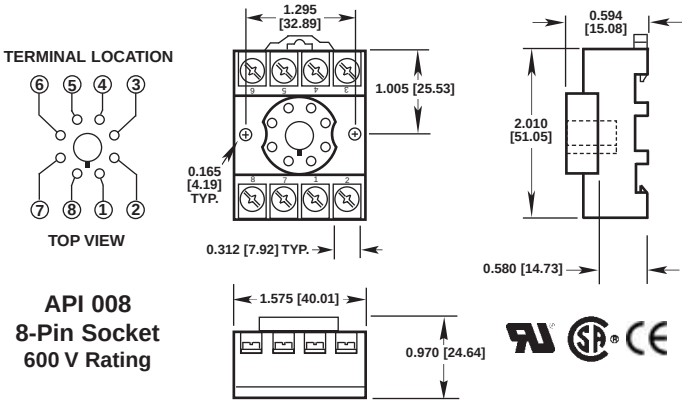
UNIQUE FEATURES

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 temperature 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.





OPERATION

The API 4001 G and API 4001 G L are factory configured to your exact input and output requirements. The input circuitry in both models provides a constant-current excitation source to the RTD and automatically cancels leadwire effects.

In the API 4001 G, the input from the RTD is amplified, then passed directly to the output stage and scaled to the desired output range.

In the API 4001 G L, the amplified RTD signal first passes through an optical isolator, then is passed to the output stage where it is corrected for the inherent non-linearity of the specified RTD type and scaled to the desired output range.

CALIBRATION

The API 4001 G and API 4001 G L come from the factory calibrated to your specifications. Field calibration is NOT recommended and may void the warranty.

RELATED PRODUCTS

The following products are also available. Refer to the appropriate data sheets for details.

API 4000 G
T/C or RTD input to DC voltage or current output. Field rangeable for sensor type, low & high temperature ranges, °C or °F, DC voltage or DC current outputs.

Api 4130 G L
Factory configured T/C to DC isolating transmitter. Used in applications requiring special ranges.

API 1200 G
T/C input, single setpoint alarm

API 1400 G
RTD input, single setpoint alarm

API 1220 G
T/C input, dual setpoint alarm

API 1420 G
RTD input, dual setpoint alarm

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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