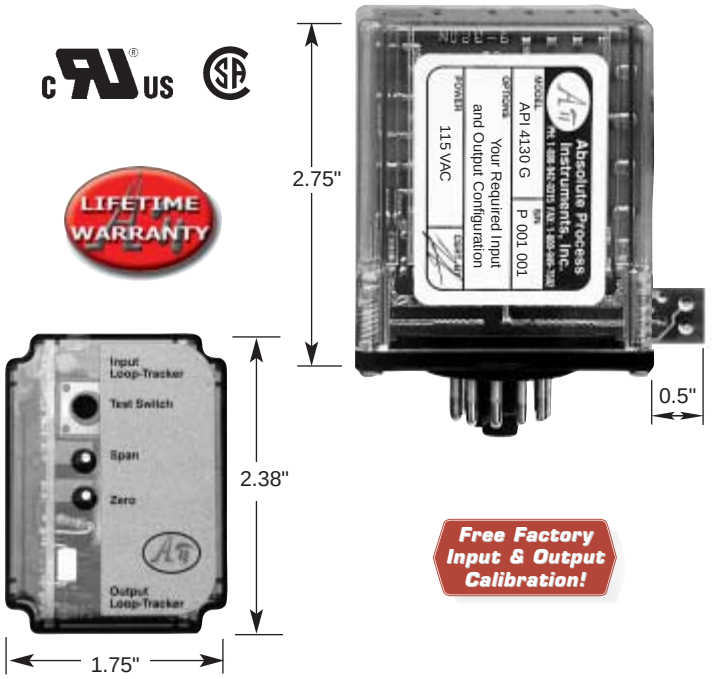
API 4100 G
API 4130 GL

Thermocouple to DC Transmitters

API 4100 G: Non-Isolated
API 4130 GL: Isolated, Linearized

Input: J, K, T, E, R or S Thermocouples
Output: 0-1 V to ±10 VDC or 0-1 mA to 4-20 mA

- ***Wide Range of Thermocouple Types***
- ***Automatic Cold Junction Compensation***
- ***Voltage or Current Output***
- ***Input and Output LoopTracker® LEDs***
- ***Functional Test Pushbutton***



Applications

- **Isolate and Transmit T/C Signals**
- **Rescale T/C Temperature Range to Full 4-20 mA**

Specifications

Thermocouple Types
Factory Configured—Please specify thermocouple type
J, K, T, E, R, or S *and temperature range in °F or °C*
Minimum recommended span is 5 mV

Cold-Junction Compensation
Automatic for specified thermocouple

T/C Burn-out Protection
Upscale burnout standard
Downscale burnout optional, specify option **B** on order

T/C Current
Less than 1.0 µA including burnout sense

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 ±0.5% of span

Output Zero and Span
Multiturn potentiometers to compensate for load and lead variations
±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

Isolation
API 4130 G Non-isolated
API 4130 GL 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

Models & Options

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

API 4100 G Thermocouple transmitter, 115 VAC powered
API 4130 GL Isolated thermocouple transmitter, 115 VAC powered

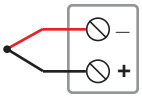
Options—Specify on Order

A230 Powered by 230 VAC, 50/60 Hz
D Powered by 9-30 VDC
B Downscale T/C burnout protection instead of upscale
EXTSUP Open collector output when a "sinking" output is required
U Conformal coating for moisture resistance

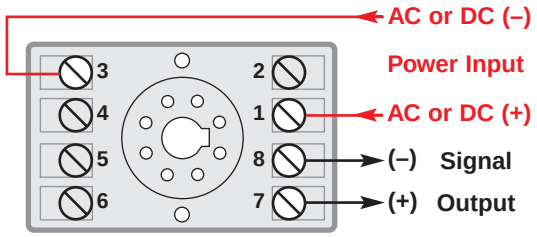
Accessories—See other side

Electrical Connections

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



T/C Connection Block on Module



Socket top view

ABSOLUTE PROCESS INSTRUMENTS, Inc.
Mod-tronic Instruments Limited
Tel: 905 457-6322 **Fax: 905 457-4716**
Toll Free: 800 794-5883
www.mod-tronic.com

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API 4100 G & 4130 GL Thermocouple to DC Transmitter

FUNCTIONAL DESCRIPTION

The API 4100 G and API 4130 G L accept a thermocouple input and provide a DC voltage or current output. The non-isolated non-linearized API 4100 G is used primarily to convert and/or boost the T/C signal. The isolated and linearized API 4130 G L 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 pickup reduction.

The API 4100 G and API 4130 G L are factory configured for thermocouple type, measured temperature span (°C or °F), and corresponding DC voltage or current output. Automatic cold-junction compensation and upscale burnout protection are standard, downscale burnout protection is available as an option. Most thermocouple types are accepted. Minimum and maximum temperature spans are dependent upon the T/C type. All parameters must be specified when ordering. Consult the factory to confirm your specific range requirements.

The API 4100 G and API 4130 G L are distinguished from other similar products in that the thermocouple is wired directly to a terminal block on the side of the module rather than the mounting base. Temperature compensation circuitry at the T/C termination point virtually eliminates cold junction errors commonly found when wiring through the mounting base.

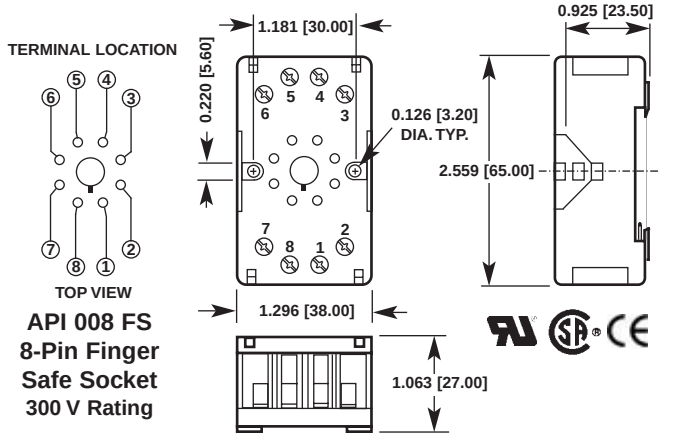
The module power supply in both models is isolated from the input and the output. Standard power is 115 VAC. Options include 230 VAC or 9-30 VDC.

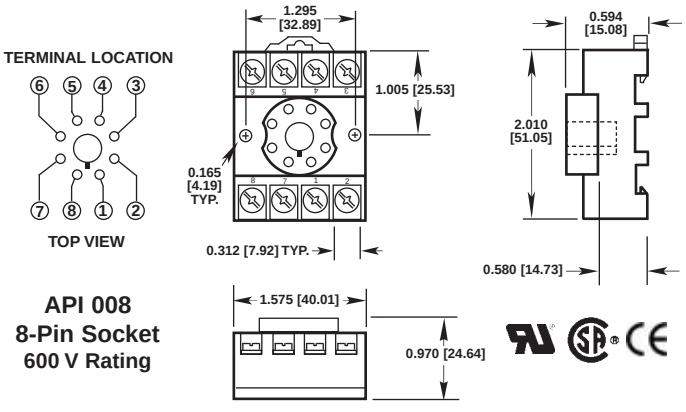
The API 4100 G and API 4130 G L plug into an industry standard 8-pin octal socket sold separately. Sockets API 008 and finger-safe API 008 FS allow either DIN rail or panel mounting.

UNIQUE FEATURES

API exclusive features include an input ***LoopTracker***® LED and a **Functional Test Pushbutton**. The LoopTracker LED varies in intensity with changes in the temperature input signal to give 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 LED and functional test pushbutton greatly aid in saving time during initial startup and/or troubleshooting.





OPERATION

The API 4100 G and API 4130 G L are factory configured to your exact input and output requirements. The input circuitry in both models filters the T/C input, applies the cold-junction compensation, and amplifies the low-level T/C signal.

In the API 4100 G, this amplified signal is passed directly to the output stage and scaled to the desired output range.

In the API 4130 G L, the amplified 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 T/C type and scaled to the desired output range.

CALIBRATION

The API 4100 G and API 4130 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 4001 G L
Factory configured RTD 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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