FIELD SELECTABLE ISOLATED Temperature to DC Transmitter

API 4000 G

Specifications

Thermocouple/RTD Types
J, K, T, E, R, S, Platinel II & Custom
100-Din, 100-Amer., 10cu, 1000Ni-Fe, 120 Ni

Cold Junction Compensation
Automatic for selected T/C

T/C Burnout Protection
Upscale standard (Downscale available via internal jumper)

T/C Current
Less than 1.0uA

RTD Resistance
10 ohm to 1000 ohm

Leadwire Compensation
Less than .05% of Span per 1 ohm change in leadwire resistance

RTD Excitation Current
1.25mA (10 ohm-120 ohm)
0.1mA (1000 ohm)

Output Capability
(Voltage) +/- 10VDC, +/- 10mA maximum
(Current) 25mA, 20V compliance min. @20mA

Zero/Span Control Range
+/- 12% nominal

Isolation
2000V RMS

Linearity Correction
12-segment (T/C), 8-segment (RTD) Digital linearization

Accuracy
Better than +/-0.33% of span overall (includes effects of temperature, linearity, hysteresis, adjustability)

Functional Test Pushbutton
Adjustable from 0 to 100% Span

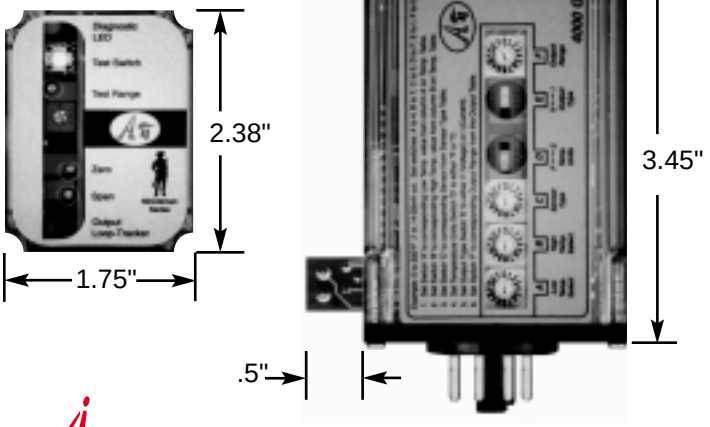
Ambient Temperature Range
-10 to +60 Deg. C (Operating)

Power
Standard: 115VAC +/-10%, 50/60Hz, 2.5W max.
Optional: 230VAC +/-10%, 50/60Hz, 2.5W max.

FEATURES

- 8 Popular T/C Sensor Types
- 5 Popular RTD Sensor Types
- 16 DC Output Ranges (10 Voltage & 6 Current)
- Automatic Cold Junction Compensation
- Microprocessor Based - No Computers or Special Programming Devices Required.
- Internal Self Diagnostics
- 2000VRMS Isolation Input/Output/Power
- Diagnostic & LoopTracker™ LED's
- Functional Test Pushbutton
- LIFETIME WARRANTY

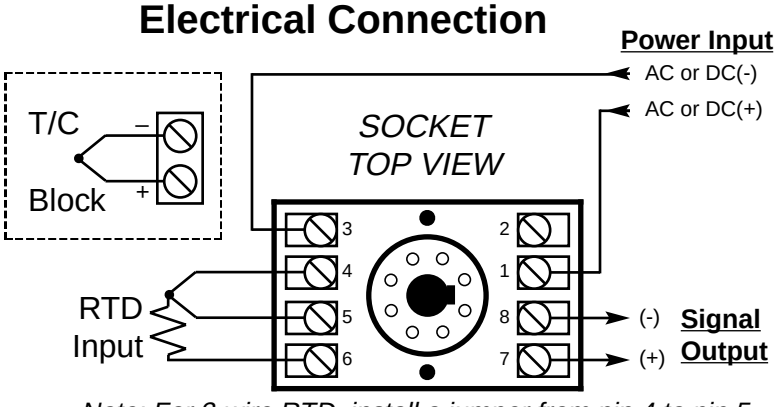
CASE DIMENSIONS



ABSOLUTE PROCESS INSTRUMENTS, Inc.

Chart of Common Ranges

Electrical Connection



Note: For 2-wire RTD, install a jumper from pin 4 to pin 5

Output

Voltage
Min.:
0 to 1V

Max.:
+/- 10V

Current
Min.:
0 to 2mA

Max.:
0 to 20mA

FUNCTIONAL DESCRIPTION

The Api 4000 G is a microprocessor based instrument which accepts either a Thermocouple or RTD input and provides a linearized and isolated DC Voltage or Current Analog Output.

The Api 4000 G distinguishes itself from other similar products in that it can be field-configured for one of eight(8) Thermocouple or five(5) RTD Input types, hundreds of temperature ranges in both degrees F and degrees C and one of sixteen(16) Output types (10 DC Voltages or 6 DC Currents). The sensor type, temperature range, output type and output range are all field-configurable (without requiring the case to be opened) via external rotary & slide switches. No computer or special programming device is required. In addition, all set-up information is available from tables on the module labels.

The Api 4000 G uses true 12-bit A/D and D/A conversion, 8-segment linearity correction and digital isolation to achieve an overall accuracy of -/+0.33% to meet the demands of high-accuracy systems. The microprocessor is used to provide the most user-friendly interface possible and does not add complexity in configuration and use. The input to output isolation makes this module useful for Ground Loop Elimination, Common Mode Signal Rejection or Noise Pickup Reduction. The Api 4000 G uses the latest technology 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 115VAC; options include 12/24VAC or 230VAC.

The Api 4000 G plugs into an industry standard octal (8-Pin) socket (sold separately). The socket provided by API (part #Api 008) allows for either DIN rail or panel mounting.

OPERATION

The Api 4000 G microprocessor reads the configuration settings for the sensor and temperature range and electronically switches to the RTD amplifier, which includes leadwire compensation circuitry, or the Thermocouple amplifier accordingly. The resulting signal is applied to a 12-bit analog-to-digital (A/D) converter. In the case of a Thermocouple, the microprocessor periodically reads the temperature of the sensor coupled to the T/C connector block and uses this digital result to compensate for the T/C's cold junction. Based on the temperature range selected, the microprocessor converts the actual process temperature into a digital value representing percent of span (0 to 100%). This scaled value is sent digitally across an optical isolation barrier to the output circuitry which utilizes a 12-bit digital-to-analog (D/A) converter that provides a DC output level representing 0 to 100% of span. The output range and output type selector switches determine the actual output generated. Zero and span controls are available to trim the output stage.

UNIQUE FEATURES

API Exclusive Features include a ***LoopTracker™ LED***, a ***Functional Test Pushbutton*** and a ***Diagnostic LED***. The LoopTracker™ LEDs (Green for Input; Red for Output) vary in intensity with changes in the Input (process) signal. Monitoring the state of these LEDs can provide a quick visual picture of your process loop at all times. The Functional Test Pushbutton performs an internal test and provides a fixed output (independent of the input) when held depressed. The Test Output level can be field-adjusted via a top-accessible multiturn pot to any value from 0 to 100% of the calibrated range. The Green LoopTracker™ LED also functions as a ***Diagnostic LED*** which will "Flash" an Error Code if there is an operation or configuration error. All three Unique Features greatly aid in the reduction of time during initial startup and/or troubleshooting.

RELATED PRODUCTS

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

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

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

API maintains a constant effort to upgrade and improve its products; therefore, specifications are subject to change without notice.

Consult factory for your specific Range needs.

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