Non-Interactive Zero & Span
One Model Covers Multiple Applications
Full 2000 V Input/Output/Power Isolation
Input and Output LoopTracker LEDs
Output Test Button
Built-In Loop Power Supplies for Input and Output

DC Input Ranges
See table on other side for field selectable ranges. Consult factory for special ranges. System voltages must not exceed socket voltage rating.
Voltage: -50-0 mVDC to 20-40 VDC
Bipolar voltage: ±50 mVDC to ±10 VDC
Current: 0-200 µA to 10-50 mA
Offset: ±100% max., ±75% max. for 40 mA input

Input Impedance
Voltage: 1 MΩ minimum
Current: 50 Ω typical
Input voltage burden (current) 1 VDC at 20 mA

Common Mode Rejection
120 dB minimum

Input Loop Power Supply
18 VDC nom., unregulated, 25 mA, max. ripple, <1.5 Vp-p
May be selectively wired for sinking or sourcing mA input

LoopTracker
Variable brightness LEDs indicate I/O loop level and status

DC Output Ranges
See table on other side for field selectable ranges. Consult factory for special ranges. Internal jumper for output reversal.
Voltage, 10 mA max.: 0-1 VDC to 0-10 VDC
Bipolar voltage: ±1 VDC to ±10 VDC
Current: 0-2 mA to 0-20 mA
20 V compliance, 1000 Ω at 20 mA

Output Calibration
Non-interactive multi-turn zero and span potentiometers ±15% of span adjustment range typical

Output Loop Power Supply
20 VDC nominal, regulated, 25 mA, max. ripple <10 mVrms

Output Test
Sets output to test level when pressed. Adjustable 0-100% of span. Potentiometer factory set to approx. 50% of span.

Output Ripple and Noise
Less than 10 mVrms

Linearity
Better than ±0.1% of span

Ambient Temperature Range and Stability
-10°C to +60°C operating ambient
Better than ±0.02% of span per °C stability

Response Time
70 milliseconds typical
DF option: 5 millisecond typical response time

Isolation
2000 Vrms minimum
Full isolation: power to input, power to output, input to output

Installation Environment
IP 40, requires installation in panel or enclosure
Use with API 008 or API 008 FS socket
Socket mounts to 35 mm DIN rail or can be surface mounted
UL 508C pollution degree 2 environments or better

Power
Standard: 115 VAC ±10%, 50/60 Hz, 2.5 W max.
P option: 85-265 VAC 50/60 Hz, 60-300 VDC, 2.5 W
A230 option: 230 VAC ±10%, 50/60 Hz, 2.5 W max.
D option: 9-30 VDC, 2.5 W typical

Description
The API 4385 G accepts a DC voltage or current input and provides an optically isolated DC voltage or current output that is linearly related to the input. Typical applications include signal isolation, signal conversion, signal boosting or a combination of the three.
The optical isolation between input and output makes this module useful for ground loop elimination, common mode signal rejection or noise pickup reduction. The module power supply is isolated, resulting in full 3-way (input, output, power) isolation.
The API 4385 G input, output and zero offset can be field-configured via external rotary and slide switches. Zero offset is adjustable in 15% increments to a maximum of ±100% of span. Common range settings are on the module label. Non-interactive zero and span adjustments simplifies calibration. Output reversal (4-20 mA input to 20-4 mA output) can be changed via an internal jumper.
The built-in 10 VDC unregulated loop excitation power supply can be used to power passive input devices.

Free Factory Setup
Specify I/O ranges if factory is to set switches

LoopTracker
API exclusive features include two LoopTracker LEDs (green for input, red for output) that vary in intensity with changes in the process input and output signals. These provide a quick visual picture of your process loop at all times and can greatly aid in saving time during initial startup and/or troubleshooting.

Output Test
An API exclusive feature includes the Functional Test Button to provide a fixed output (independent of the input) when held depressed. The test output level can be set via a potentiometer from 0 to 100% of the output span.
The functional test button greatly aids in saving time during initial startup and/or troubleshooting.

Installation
The API 4385 G 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.
The plug-in design, 3-way isolation, and robust electronics allows the module to be quickly hot-swapped without removing the power or I/O signals.

Model | Input | Output | Power
------|-------|-------|-------
API 4385 G | Field configurable if factory is to set switches | Field configurable if factory is to set switches | 115 VAC
API 4385 G A230 | Specify input range if factory is to set switches | Specified output range if factory is to set switches | 230 VAC
API 4385 G P | | 85-265 VAC or 60-300 VDC
API 4385 G D | | 9-30 VDC

Free Factory Setup
Specify I/O ranges if factory is to set switches

Options—add to end of model number
M01 I/O reversal, such as 4-20 mA in to 20-4 mA out
DF 5 millisecond response time, or consult factory
DF option will cause output noise levels greater than standard specifications.
U Conformal coating for moisture resistance

Accessories—order as separate line item
API 008 8-pin socket
API 008 FS 8-pin finger-safe socket
API CLP1 Module hold-down spring for high vibration or mobile applications

API 008 FS 300 V Rating
API 008 600 V Rating
API CLP1
## Signal Input

Polarity must be observed when connecting the signal input. If your transmitter has an output current and provides power to the current loop, wire the device to terminals 6 and 5. Use a multi-meter to confirm voltage at the transmitter output terminals. Typical voltage output may vary over the range of 9 to 24 VDC.

A passive input device can be powered by the 18 volt DC power supply at terminal 4. See wiring diagram for example.

## Signal Output

Polarity must be observed for output wiring connections. If the output does not function, check wiring and polarity.

When set up for current output (switch A to 8), the output current loop will be powered by the API module.

## Module Power

AC power is connected to terminals 1 and 3. DC powered modules (option) polarity must be observed. Positive (+) is wired to terminal 1 and negative (-) is wired to terminal 3.

## Calibration

Input and output ranges, if specified on your order, are factory pre-configured (at 24°C ±1°C). Top-mounted Zero and Span potentiometers calibrate the output.

Next, perform the following calibration procedure any time switch settings are changed.

1. Apply power to the module and allow a minimum 20 minute warm up time.
2. Using an accurate calibration source, provide the input to the module equal to the minimum input required for the application.
3. Using an accurate measurement device for the output, adjust the Zero potentiometer for the exact minimum output desired. The Zero control should only be adjusted when the input signal is at its minimum. This will produce the corresponding minimum output signal. For example: 4 mA for a 4-20 mA output or –10 V for a ±10 V output.
4. Next, set the input at maximum, then adjust the Span pot for the exact maximum output desired. The Span control should only be adjusted when the input signal is at its maximum. This will produce the corresponding maximum output signal. Example: 20 mA for a 4-20 mA output.

## Operation

The API 4385 G input is filtered, either amplified or attenuated as required, then passed through an optical isolation circuit to the input module.

The green LoopTracker® input LED provides a visual indication that a signal is being sensed by the input circuitry of the module. It also indicates the input signal strength by changing in intensity as the process changes from minimum to maximum.

If the LED fails to illuminate, or fails to change in intensity as the process changes, check the module power or signal input wiring. Note that it may be difficult to see the LEDs under bright lighting conditions.

The red LoopTracker output LED provides a visual indication that the output signal is functioning. It becomes brighter as the input and the corresponding output change from minimum to maximum. For a current output, the red LED will only light if the output loop current path is complete. For either current or voltage outputs, failure to illuminate or a failure to change in intensity as the process changes may indicate a problem with the module power or signal output wiring.