

Input: 0-50 mVAC to 0-250 VAC, 0-5 mAAC to 0-200 mAAC
Output: 0-1 VDC to ±10 VDC, 0-2 mADC to 0-20 mADC

- One Minute Setup for Hundreds of I/O Ranges
- External Switches & Tables for Range Selection
- Non-Interactive Zero and Span Calibration
- Full 2000 V Input/Output/Power Isolation
- Input and Output LoopTracker® LEDs
- Output Test Button
- Built-In Loop Power Supply for mA Output

Applications

- Convert AC Signals to DC Process Signals
- Monitor Line Voltage or Current Levels
- Isolate and Convert AC Signals for Panel Meters, PLCs, Recorders, Data Acquisition, DCS, & SCADA Systems

AC Input Ranges

Field selectable ranges via switch settings
 System voltages must not exceed socket voltage rating
 Voltage: 0-50 mVAC to 0-250 VAC
 Current: 0-5 mAAC to 0-200 mAAC
 S option: True RMS input measurement

See **API 6380 G 5A** for current input ranges up to 0-5 AAC

Input Impedance

Voltage (0-4 VAC): 1 MΩ minimum
 Voltage (>4 VAC): 220 kΩ minimum
 Current: 10 Ω typical

Input Frequency

40 Hz to 1000 Hz sinusoidal

Input Protection, Common Mode

750 VDC or 750 VACp

LoopTracker

Variable brightness LEDs indicate I/O loop level and status

DC Output Ranges

Field selectable ranges via switch settings
 Voltage: 0-1 VDC to 0-10 VDC
 Bipolar Voltage: ±1 VDC to ±10 VDC
 Current: 0-2 mADC to 0-20 mADC
 20 V compliance, 1000 Ω at 20 mA

Output Logic

Normal acting, internal jumper for output reversal

Output Calibration

Multi-turn zero and span potentiometers for output
 ±15% of span adjustment range typical

Output Loop Power Supply

20 VDC nominal, regulated, 25 mADC, max. ripple <10 mVrms

Output Test

Front button sets output to test level when pressed
 Potentiometer adjustable 0-100% 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

200 milliseconds typical (0-90%)

Isolation

2000 VRMS minimum

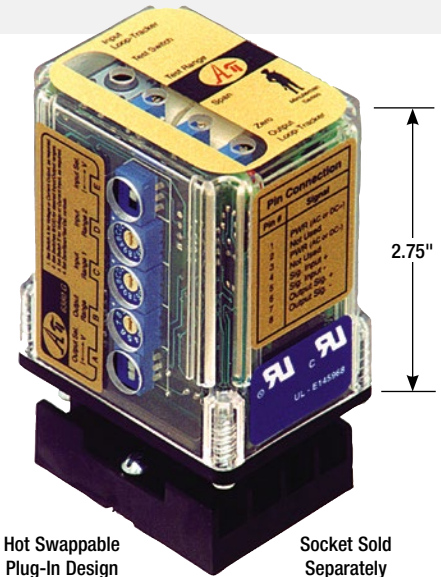
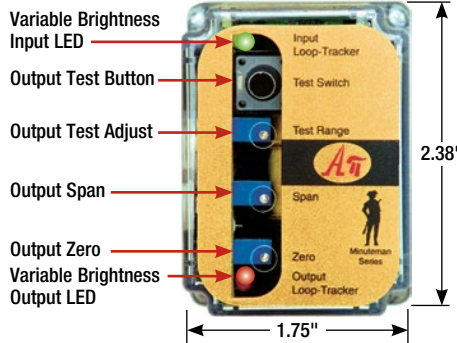
Full isolation: power to input, power to output, input to output

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



API 115 VAC, 230 VAC models with input up to 150 VAC
 E145968



Description

The API 6380 G accepts an AC voltage or current input and provides an optically isolated DC voltage or current output that is linearly related to the input. Accuracy is maintained over a wide frequency range for maximum flexibility. A true RMS model API 6380 G S is available for distorted AC inputs.

The full 3-way (input, output, power) isolation makes this module useful for ground loop elimination, common mode signal rejection or noise pickup reduction.

20 input and 16 output ranges can be field-configured via external rotary and slide switches. Popular ranges are listed on the module label. Consult the factory for assistance with special ranges.

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 test button to provide a fixed output (independent of the input) when held depressed. The test output level is potentiometer adjustable from 0 to 100% of output span.

The output test button greatly aids in saving time during initial startup and/or troubleshooting.

| Model | Input | Output | Module Power |
|-------------------|--|---|--------------------------|
| API 6380 G | Field configurable 0-50 mVAC to 0-250 VAC 0-5 mAAC to 0-200 mAAC | Field configurable 0-1 VDC to 0-10 VDC ±1 VDC to ±10 VDC 0-2 mADC to 0-20 mADC | 115 VAC |
| API 6380 G A230 | | | 230 VAC |
| API 6380 G P | | | 85-265 VAC or 60-300 VDC |
| API 6380 G D | | | 9-30 VDC |
| API 6380 G S | Field configurable True RMS input measurement 0-50 mVAC to 0-250 VAC 0-5 mAAC to 0-200 mAAC | Field configurable 0-1 VDC to 0-10 VDC ±1 VDC to ±10 VDC 0-2 mADC to 0-20 mADC | 115 VAC |
| API 6380 G A230 S | | | 230 VAC |
| API 6380 G P S | | | 85-265 VAC or 60-300 VDC |
| API 6380 G D S | | | 9-30 VDC |

Free Factory Setup

Specify I/O ranges if factory is to set switches

Option—add to end of model number

U Conformal coating for moisture resistance

Accessories—order as a separate line item

- API 008** 8-pin socket, DIN rail or surface mount
- API 008 FS** 8-pin finger safe socket, DIN rail or surface mount
- 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

Precautions

WARNING! All wiring must be performed by a qualified electrician or instrumentation engineer. See diagram for terminal designations and wiring examples. Consult factory for assistance.

WARNING! Avoid shock hazards! Turn signal input, output, and power off before connecting or disconnecting wiring, or removing or installing module.

Précautions

ATTENTION! Tout le câblage doit être effectué par un électricien ou ingénieur en instrumentation qualifié. Voir le diagramme pour désignations des bornes et des exemples de câblage. Consulter l'usine pour assistance.

ATTENTION! Éviter les risques de choc! Fermez le signal d'entrée, le signal de sortie et l'alimentation électrique avant de connecter ou de déconnecter le câblage, ou de retirer ou d'installer le module. API maintains a constant effort to upgrade and improve its products. Specifications are subject to change without notice. See api-usa.com for latest product information. Consult factory for your specific requirements.

WARNING: This product can expose you to chemicals including lead and nickel, which are known to the State of California to cause cancer or birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Socket and Mounting

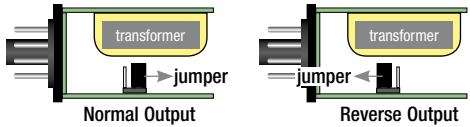
The module installation requires a protective panel or enclosure. Use API 008 or finger-safe API 008 FS socket.

The socket clips to a standard 35 mm DIN rail or can be attached to a flat surface using the two mounting holes.

Output Reversal Configuration

The default configuration is normal acting output. The output can be reversed by moving an internal jumper.

1. Unplug the module from the socket.
2. Remove 4 screws from the module bottom and lift off plastic case.
3. Note location of circuit board jumper. See diagram below.
4. Place jumper as indicated for desired output operation.
5. Replace cover and screws.



Range Selection

Set I/O ranges before plugging the module in. See the model/serial number label for options or if a custom range was specified. See module label for common ranges or table below to select I/O ranges.

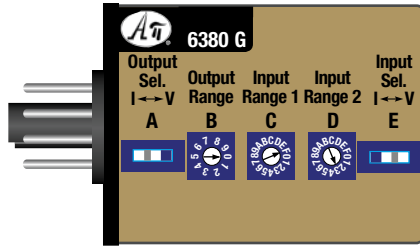
Switch A: Set to "V" for voltage input or "I" for current input. Switch A determines the input impedance for the module, typically 10 Ω for current inputs and 220 kΩ or 1 MΩ for voltage inputs.

Switch B: Output range

Switch C: Input range

Switch D: Input range

Switch E: Set to "V" for voltage output or "I" for current output



Signal Output

Polarity must be observed when connecting the signal output to the load. The module provides 20 VDC power to the output loop when current output is selected.

Signal Input

For safety, input must be off while connecting wiring. Input voltages must not exceed socket voltage rating. Connect the AC signal input to terminals 5 and 6.

Module Power

Check model/serial number label for module operating voltage to make sure it matches available power.

AC power is connected to terminals 1 and 3.

For DC powered modules, polarity MUST be observed.

Positive (+) is wired to terminal 1

Negative (-) is wired to terminal 3

Calibration

The Zero and Span potentiometers can be used fine-tune the output range. Note: Perform the following calibration procedure any time switch settings are changed.

1. Power the module and allow a minimum 20 minute warm up time.
2. Using an accurate calibration source, provide an 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 ±10V output.
4. Set the input at maximum, and adjust the Span pot for the exact maximum output desired. The Span pot should only be adjusted when the input signal is at its maximum. This will produce the corresponding maximum output signal.
5. Repeat adjustments for maximum accuracy.

Test Range Adjust – Turn the multi-turn Test Range potentiometer while holding the Test button depressed until the desired output test level is reached. It can be adjusted to vary the output signal from 0 to 100% of the output range.

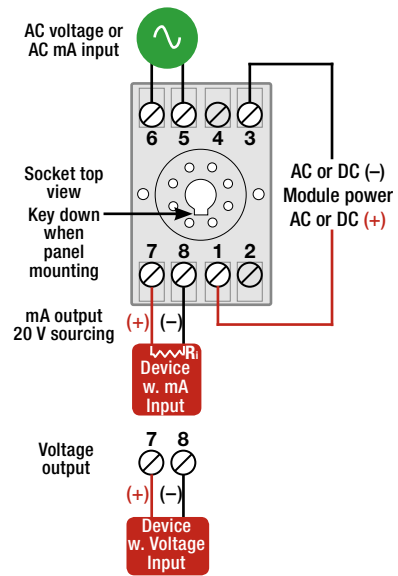
Operation

Depending on the rotary switch settings, the input is either amplified or attenuated, then filtered and processed by a precision full-wave rectification circuit. The result is passed thru a low pass active filter that provides a DC voltage representing the average value of the input. This DC voltage is passed through an optical isolation circuit to the output stage.

Test Button – Drives a device on the output side of the loop (a panel meter, chart recorder, etc.) with a known good signal that can be used as a system diagnostic aid during initial start-up or during troubleshooting. When released, the output will return to normal.

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, this may indicate a problem with module power or signal input wiring.

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 current outputs, the 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.



| Output | 0-1 V | 0-2 V | 0-4 V | 1-5 V | 0-5 V | 0-8 V | 2-10 V | 0-10 V | ±5 V | ±10 V | 0-2 mA | 2-10 mA | 0-10 mA | 0-16 mA | 4-20 mA | 0-20 mA |
|----------|-------|-------|-------|-------|-------|-------|--------|--------|-------|-------|--------|---------|---------|---------|---------|---------|
| Switches | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE |
| Input | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE | ABCDE |
| 0-5 mA | V0A2I | V8A2 | V1A2 | V6A2I | V9A2I | V2A2I | V7A2I | V3A2I | V4A2I | V5A2I | I0A2I | I6A2I | I9A2I | I2A2I | I7A2I | I3A2I |
| 0-10 mA | V022I | V822 | V122 | V622I | V922I | V222I | V722I | V322I | V422I | V522I | I022I | I622I | I922I | I222I | I722I | I322I |
| 0-50 mA | V002I | V802 | V102 | V602I | V902I | V202I | V702I | V302I | V402I | V502I | I002I | I602I | I902I | I202I | I702I | I302I |
| 0-100 mA | V092I | V892 | V192 | V692I | V992I | V292I | V792I | V392I | V492I | V592I | I092I | I692I | I992I | I292I | I792I | I392I |
| 0-200 mA | V012I | V812 | V112 | V612I | V912I | V212I | V712I | V312I | V412I | V512I | I012I | I612I | I912I | I212I | I712I | I312I |
| 0-50 mV | V0A2V | V8A2 | V1A2V | V6A2V | V9A2V | V2A2V | V7A2V | V3A2V | V4A2V | V5A2V | I0A2V | I6A2V | I9A2V | I2A2V | I7A2V | I3A2V |
| 0-100 mV | V022V | V822 | V122V | V622V | V922V | V222V | V722V | V322V | V422V | V522V | I022V | I622V | I922V | I222V | I722V | I322V |
| 0-200 mV | V0B2V | V8B2 | V1B2V | V6B2V | V9B2V | V2B2V | V7B2V | V3B2V | V4B2V | V5B2V | I0B2V | I6B2V | I9B2V | I2B2V | I7B2V | I3B2V |
| 0-500 mV | V002V | V802 | V102V | V602V | V902V | V202V | V702V | V302V | V402V | V502V | I002V | I602V | I902V | I202V | I702V | I302V |
| 0-1 V | V092V | V892 | V192V | V692V | V992V | V292V | V792V | V392V | V492V | V592V | I092V | I692V | I992V | I292V | I792V | I392V |
| 0-2 V | V012V | V812 | V112V | V612V | V912V | V212V | V712V | V312V | V412V | V512V | I012V | I612V | I912V | I212V | I712V | I312V |
| 0-5 V | V000V | V800 | V100V | V600V | V900V | V200V | V700V | V300V | V400V | V500V | I000V | I600V | I900V | I200V | I700V | I300V |
| 0-10 V | V062V | V862 | V162V | V662V | V962V | V262V | V762V | V362V | V462V | V562V | I062V | I662V | I962V | I262V | I762V | I362V |
| 0-20 V | V0F2V | V8F2 | V1F2V | V6F2V | V9F2V | V2F2V | V7F2V | V3F2V | V4F2V | V5F2V | I0F2V | I6F2V | I9F2V | I2F2V | I7F2V | I3F2V |
| 0-50 V | V042V | V842 | V142V | V642V | V942V | V242V | V742V | V342V | V442V | V542V | I042V | I642V | I942V | I242V | I742V | I342V |
| 0-100 V | V0D2V | V8D2 | V1D2V | V6D2V | V9D2V | V2D2V | V7D2V | V3D2V | V4D2V | V5D2V | I0D2V | I6D2V | I9D2V | I2D2V | I7D2V | I3D2V |
| 0-125 V | V049V | V849 | V149V | V649V | V949V | V249V | V749V | V349V | V449V | V549V | I049V | I649V | I949V | I249V | I749V | I349V |
| 0-175 V | V054V | V854 | V154V | V654V | V954V | V254V | V754V | V354V | V454V | V554V | I054V | I654V | I954V | I254V | I754V | I354V |
| 0-200 V | V052V | V852 | V152V | V652V | V952V | V252V | V752V | V352V | V452V | V552V | I052V | I652V | I952V | I252V | I752V | I352V |
| 0-250 V | V0D9V | V8D9 | V1D9V | V6D9V | V9D9V | V2D9V | V7D9V | V3D9V | V4D9V | V5D9V | I0D9V | I6D9V | I9D9V | I2D9V | I7D9V | I3D9V |