

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 Ripple and Noise

Less than 10 mVRMS

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

Accuracy

±0.1% of span (includes adjustment resolution and linearity)
 Better than 0.04% of span per °C temperature stability

Response Time

200 milliseconds typical (0-90%)

Isolation

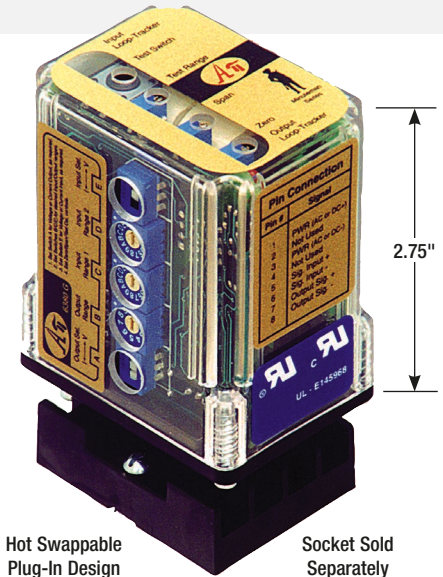
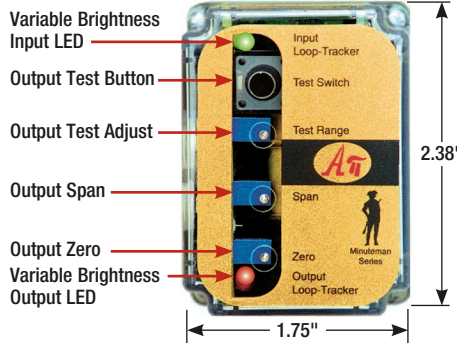
2000 VRMS minimum
 Full isolation: power to input, power to output, input to output

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
 -10°C to +60°C operating ambient

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



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	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	9-30 VDC
API 6380 G S			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.

Socket and Mounting

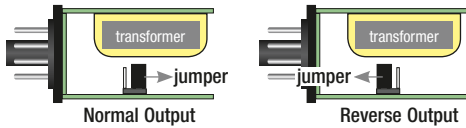
The module installation requires a protective panel or enclosure. Use API 008 or finger-safe API 008 FS socket.

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.

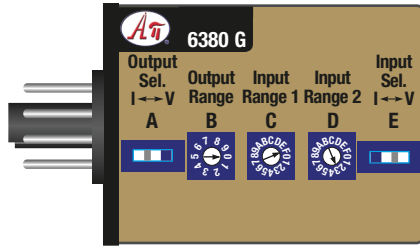
1. Unplug the module from the socket.
2. Remove the 4 screws from the module bottom and remove the plastic case.
3. Note location of circuit board jumper. See diagram below.
4. Place jumper as indicated for desired output operation.
5. Replace cover and screws.



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. The module side label lists common ranges or see table below to select I/O ranges for your application.

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



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

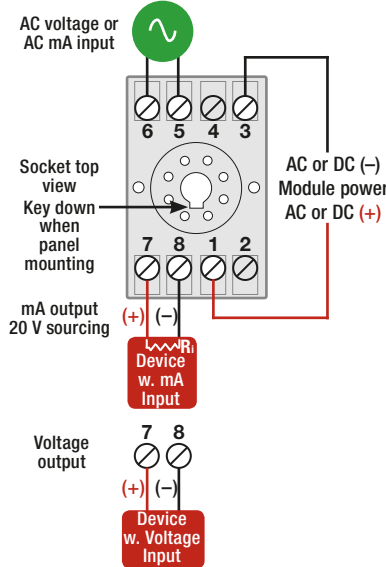
Check model/serial number label for module operating voltage to make sure it matches available power.

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.

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.
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.

API maintains a constant effort to upgrade and improve its products. Specifications are subject to change without notice. Consult factory for your specific requirements.

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