**DC Input Ranges**

<table>
<thead>
<tr>
<th>Input</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-50 mV to ±10 VDC, 0-1 mA to 0-20 mAADC</td>
<td>One Minute Field Setup for Hundreds of I/O Ranges</td>
</tr>
<tr>
<td>0-1 V to ±10 VDC or 0-2 mA to 4-20 mAADC</td>
<td>External Switches &amp; Tables for Range Selection</td>
</tr>
</tbody>
</table>

**Applications**

- Convert, Boost, Rescale Process Signals
- One Model Covers Multiple Applications
- Interface Process Signals with Panel Meters, PLCs, Recorders, Data Acquisition, DCS, and SCADA Systems

**Output**

- Interface Process Signals with Panel Meters, PLCs, Process Instruments, and LED Displays

**Input Loop Power Supply**

- 18 VDC nominal, unregulated, 25 mAADC, 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**

<table>
<thead>
<tr>
<th>Output</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10 VAC</td>
<td>One Minute Field Setup!</td>
</tr>
<tr>
<td>0-10 mA</td>
<td>Wide Ranging I/O</td>
</tr>
</tbody>
</table>

**Common Mode Rejection**

- Better than ±0.1% of span

**Output Loop Power Supply**

- 20 VDC nominal, regulated, 25 mAADC, max. ripple <0.1 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**

- 100 milliseconds typical
- DF option: 1 millisecond typical, or consult factory

**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

**Power**

- UL 508C pollution degree 2 environments or better

**Model** | Input | Output |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>API 4380 G</td>
<td>Field configurable to set switches</td>
<td></td>
</tr>
<tr>
<td>API 4380 G A230</td>
<td>Specify input range if factory is</td>
<td></td>
</tr>
<tr>
<td>API 4380 G P</td>
<td>Set switches</td>
<td></td>
</tr>
<tr>
<td>API 4380 G D</td>
<td>Specify output range if factory is</td>
<td></td>
</tr>
<tr>
<td></td>
<td>to set switches</td>
<td></td>
</tr>
</tbody>
</table>

**Free Factory Setup**

- Specify I/O ranges if factory is to set switches

**Options**

- **Add to end of model number**
  - DF: 1 millisecond response time, or consult factory
  - DF option will cause output noise levels greater than standard specifications.

**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
- 60 V Rating

**Contact**

- Phone: 800-942-0315
- Fax: 800-940-7502

**Website**

- api-usa.com
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.

Précations

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. Consultez l’usine pour assistance.

ATTENTION! Eviter 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

Install module in a protective panel or enclosure. Allow space around module for air flow. Use API 006 or API 008 FS socket. See specifications for maximum allowable socket voltages. The socket clips to a standard 35 mm DIN rail or can be mounted to a flat surface.

Range Selection

Three rotary switches and two slide switches located on the side of the module are used to select input and output ranges. Popular ranges are listed on the module label or see table below.

1. Unplug the module from its socket. Do not change ranges while the module is powered.
2. Set the Input select switch to current (I) or voltage (V) depending on input type. This sets the input impedance, typically 50 Ω for current inputs and 1 MΩ or greater for voltage inputs.
3. Set the Output select switch to current (I) or voltage (V) depending on output type.
4. From the table, find the rotary switch combination that matches your input and output ranges.
5. Set the three rotary switches A, B, and C to the values found in the table.

### Table: Input and Output Ranges

<table>
<thead>
<tr>
<th>Input</th>
<th>0-1 V</th>
<th>0-2 V</th>
<th>0-4 V</th>
<th>1-5 V</th>
<th>0-5 V</th>
<th>0-8 V</th>
<th>2-10 V</th>
<th>2-10 mA</th>
<th>±5 V</th>
<th>±10 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-mA</td>
<td>ABC</td>
<td>ABC</td>
<td>ABC</td>
<td>ABC</td>
<td>ABC</td>
<td>ABC</td>
<td>ABC</td>
<td>ABC</td>
<td>ABC</td>
<td>ABC</td>
</tr>
<tr>
<td>2-50 mA</td>
<td>001</td>
<td>1C1</td>
<td>2C1</td>
<td>2C3</td>
<td>3C1</td>
<td>5C1</td>
<td>5C3</td>
<td>6C1</td>
<td>8C1</td>
<td>9C1</td>
</tr>
<tr>
<td>0-200 mA</td>
<td>001</td>
<td>101</td>
<td>201</td>
<td>203</td>
<td>301</td>
<td>501</td>
<td>503</td>
<td>601</td>
<td>801</td>
<td>901</td>
</tr>
<tr>
<td>0-16 mA</td>
<td>011</td>
<td>111</td>
<td>211</td>
<td>213</td>
<td>311</td>
<td>511</td>
<td>513</td>
<td>611</td>
<td>811</td>
<td>911</td>
</tr>
<tr>
<td>0-10 mA</td>
<td>021</td>
<td>121</td>
<td>221</td>
<td>223</td>
<td>321</td>
<td>521</td>
<td>523</td>
<td>621</td>
<td>821</td>
<td>921</td>
</tr>
<tr>
<td>0-5 mA</td>
<td>041</td>
<td>141</td>
<td>241</td>
<td>243</td>
<td>341</td>
<td>541</td>
<td>543</td>
<td>641</td>
<td>841</td>
<td>941</td>
</tr>
<tr>
<td>0-2.5 mA</td>
<td>061</td>
<td>161</td>
<td>261</td>
<td>263</td>
<td>361</td>
<td>561</td>
<td>563</td>
<td>661</td>
<td>861</td>
<td>961</td>
</tr>
<tr>
<td>0-1 mA</td>
<td>081</td>
<td>181</td>
<td>281</td>
<td>283</td>
<td>381</td>
<td>581</td>
<td>583</td>
<td>681</td>
<td>881</td>
<td>981</td>
</tr>
</tbody>
</table>

### Calibration

#### Sourcing mA Input

| Terminal 4 and 5 provide 18 V loop power for a passive device |
|---|---|
| Voltage or sinking mA Input |

#### Voltage output

<table>
<thead>
<tr>
<th>Terminal 5 and 6 are used for a powered mA input device</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ * Do not make connections to unused terminals!</td>
</tr>
</tbody>
</table>

#### Input and Output Ranges

- ±0.1 V
- ±0.2 V
- ±0.5 V
- ±1.0 V
- ±2.0 V
- ±5.0 V
- ±10.0 V

### Signal Input

**Polarity** must be observed when connecting the input signal to the module. If the input signal is at its minimum, this will produce the corresponding minimum output signal. For example: +4 mA output, the Zero control will provide adjustment for the 4 mA or low end of the signal.

4. 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. For example: for 4-20 mA output, the zero control will provide adjustment for ±0 V or ±10 V output.

5. Repeat adjustments for maximum accuracy.

### Output Test Function

The Test switch may be pushed to provide a fixed output when depressed. This will drive the 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.

It can be adjusted to vary the output signal from 0 to 100% of the calibrated output range. When released, the output will return to normal.

Turn the multi-turn Test Range potentiometer while holding the Test Switch depressed until the desired output test level is reached.

#### Operation

The API 4380 G input is filtered, either amplified or attenuated as required, then passed through an optical isolation circuit to the output stage.

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 input wiring.

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**API 4380 G**

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