API 1800 G
API 1820 G

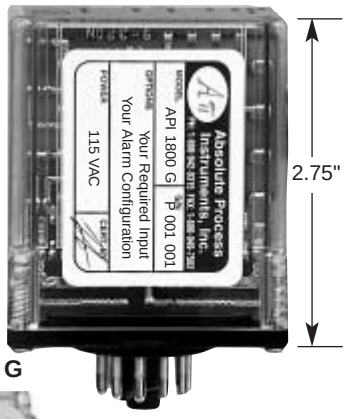
Potentiometer Input Alarm Trips

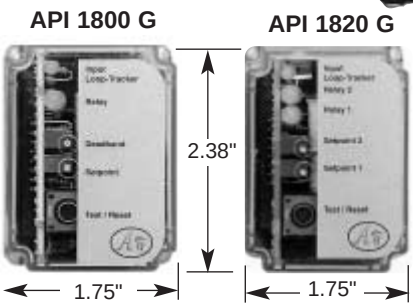
Adjustable Setpoints

Input: ***100 Ω to 1 MΩ Potentiometer***

Outputs: One DPDT Relay or Two SPDT Relays

- ***Accepts Wide Range of Potentiometers***
- ***Calibration Unaffected by Potentiometer Value***
- ***Input LoopTracker® LED***
- ***Alarm Status LEDs***
- ***High Capacity 7 Amp Relay Contacts***





Applications

- **Process Limit Backup Alarm**
- **Valve Out-of-Range Alarm**
- **Over, Under, Out-of-Range Position Monitoring**

Specifications

Potentiometer Range
Minimum: 100 Ω
Maximum: 1.0 MΩ
Full travel of the potentiometer is required
Consult factory for other ranges and configurations

Input Impedance
10 MΩ minimum

Input Protection, Common Mode
750 VDC or 750 VAC_p
System voltages must not exceed socket voltage rating

LoopTracker®
Variable brightness LED indicates input level and status

Relay Output
Factory Configured—See Options for other relay configurations

API 1800 G One DPDT contact set
HI alarm, normal action (failsafe), non-latching standard
7 A @ 240 VAC maximum resistive load
3.5 A @ 240 VAC maximum inductive load

API 1820 G Two SPDT contacts
HI/LO, normal action (failsafe), non-latching standard
7 A @ 240 VAC maximum resistive load
3.5 A @ 240 VAC maximum inductive load

CAUTION: Socket contacts may limit system rating.
External contact protection such as an RC snubber is recommended for inductive loads.

Setpoint
12 turn potentiometer, adjustable from 0 to 100% of span

Deadband
API 1800 G 1.0 to 100% of span, 12 turn potentiometer
API 1820 G Fixed at 1% of span, standard
API 1820 GA 1.0 to 100% of span, 1 turn potentiometer

Functional Test/Reset Button
Toggle relay(s) to opposite state when pressed
Resets latching relay on 1800 G with **HT** option

Response Time
70 milliseconds typical

Ambient Temperature Range
–10°C to +60°C operating

Temperature Stability
Better than ±0.02% of span per °C

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

Models & Options

Factory Configured—Please specify non-standard input or options

API 1800 G Potentiometer input alarm trip, 1 DPDT relay, HI alarm, normal action (failsafe), non-latching, 115 VAC

API 1820 G Potentiometer input dual alarm trip, 2 SPDT relays, HI/LO, normal action (failsafe), non-latching, 115 VAC

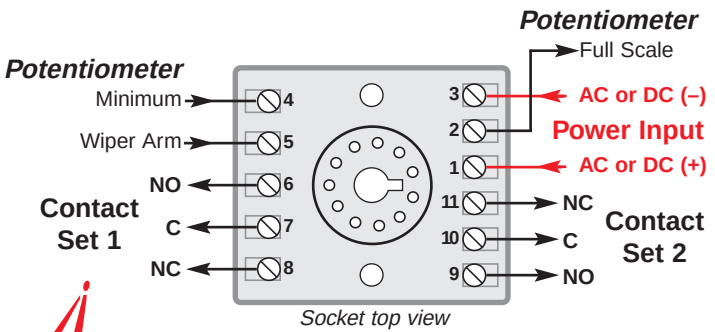
Options—Specify on Order

A230	Powered by 230 VAC, 50/60 Hz
D	Powered by 9-30 VDC
A	Adjustable deadbands for 1820 G
HT	Latching alarm with pushbutton reset, API 1800 G only
HP	Latching alarm with power-off reset, API 1800 G only
R	Reverse-acting alarms (non-failsafe)
L	Low trip (on decreasing signal) for 1800 G
HH	High/High trip for 1820 G instead of High/Low
LL	Low/Low trip for 1820 G instead of High/Low
U	Conformal coating for moisture resistance

Accessories—See other side

Electrical Connections & Dimensions

*Order **API 011** or **API 011 FS** socket separately*



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API 1800 G and API 1820 G Potentiometer Alarm Trips

FUNCTIONAL DESCRIPTION

The API 1800 G and API 1820 G are factory configured for a potentiometer (slidewire) input. The API 1800 G provides a single setpoint adjustment, a DPDT alarm relay output, and a bi-color LED visual alarm indication when the input exceeds (HI alarm) or falls below (LO alarm) a preset level.

The API 1820 G contains two independent setpoints with corresponding bi-color LEDs and SPDT relay outputs for each setpoint.

Potentiometers with a value of 100 Ω through 1.0 MΩ can be connected without recalibration and without affecting accuracy as long as 100% of the potentiometer is being utilized in the application. Consult factory for assistance with special models with offsets or input ranges using other than 0 to 100% of the potentiometer range.

The API 1800 G alarm output can be factory configured for HI or LO operation. Non-latching and normal acting (fail-safe) operation is standard. Latching and/or reverse acting (non-fail-safe) options are available.

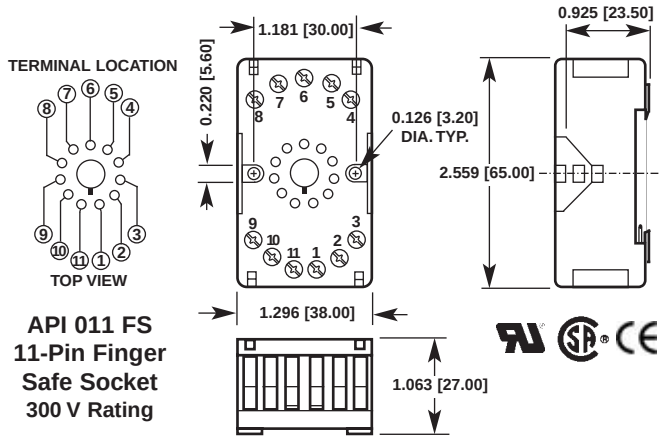
The API 1820 G can be factory configured for HI/HI, HI/LO, LO/HI or LO/LO operation. Normal acting (fail-safe) operation is standard. Reverse acting (non-fail-safe) alarms are available.

Heavy duty relay contacts (7 A @ 240 VAC, resistive load) allow the module to directly control high capacity loads without a secondary device. Standard module power is 115 VAC. Options include 230 VAC or 9-30 VDC.

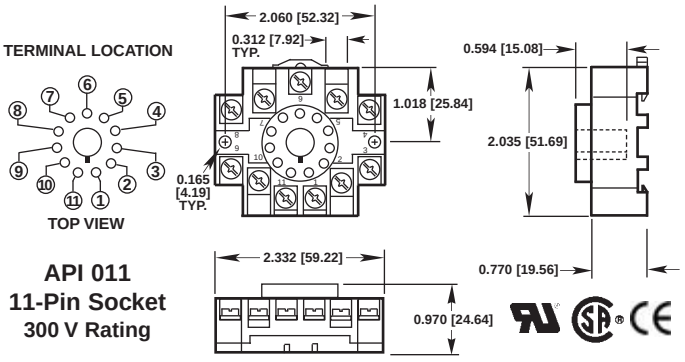
A top-accessible, multi-turn potentiometer is available to adjust the alarm setpoint (one for each setpoint on the API 1820 G) from 0 to 100% of the calibrated input span. The API 1800 G comes standard with a multi-turn deadband potentiometer which allows the alarm trip and reset window to be adjusted symmetrically about the setpoint from 1 to 100% of the span.

The deadband is fixed at 1% for each setpoint on the API 1820 G. Independently adjustable deadbands are available as an option. Deadband is typically used to eliminate false trips or alarm chatter caused by rapid fluctuations in the process input.

The API-1800 G and API 1820 G plug into an industry standard 11-pin socket sold separately. Sockets API 011 and finger-safe API 011 FS allow either DIN rail or panel mounting.



API 011 FS
11-Pin Finger Safe Socket
300 V Rating



API 011
11-Pin Socket
300 V Rating

UNIQUE FEATURES

API exclusive features include a ***LoopTracker® LED*** which varies in intensity with changes in the process signal, a **Bi-Color Alarm Status LED** (Red = Alarm, Green = Normal, one for each setpoint on the API 1820 G), and a **Functional Test Pushbutton** which toggles the alarm status independent of the input when depressed.

The green LoopTracker LED varies in intensity with changes in the process input signal. Monitoring the state of this LED can provide a quick visual picture of your process loop at all times.

The functional test pushbutton toggles the alarm status independent of the input when depressed. It verifies the alarm and system operation and also provides the additional function of unlatching the alarm on the API 1800 G if the latching option was specified.

The bi-color alarm status LED is green when the alarm is in the “safe” condition and red when in the “alarm” condition. All three features greatly aid in saving time during initial start-up and/or troubleshooting.

OPERATION

For a standard configuration, (normal mode, non-latching) the alarm will activate when the input signal exceeds the setpoint (HI alarm) or falls below the setpoint (LO alarm), then automatically reset when the alarm condition no longer exists.

It is important to note that in the normal (failsafe) mode, the relay coil is energized in the safe condition and de-energized in the alarm condition.

In the reverse acting (non-failsafe) mode, the relay coil is de-energized in the safe condition and energized in the alarm condition.

The alarm status LED will always be Green in the non-alarm condition and Red in the alarm condition.

If configured as latching, it will be necessary to push the functional test pushbutton or remove power from the module to reset the alarm. The alarm will only reset if the alarm condition no longer exists.

RELATED PRODUCTS

The following products are also available for use with a potentiometer Input. Refer to the appropriate data sheets in this section for details.

API 4003 G I
Factory ranged potentiometer (slidewire) to DC isolating transmitter. Used in applications requiring special offsets and ranges.

API 4008 G
Field configurable potentiometer (slidewire) to DC isolating transmitter.

ACCESSORIES

API 011	11-pin socket
API 011 FS	11-pin finger safe socket
API TK36	DIN rail, 35 mm W x 39" L, aluminum

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

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