

**Input:** 0-10 Hz to 0-20 kHz

**Output:** One 8 Amp DPDT Relay

- Accepts Most Types of Pulse Signals
- Field Adjustable Setpoints
- Plug-In Design for Fast Installation
- Input LoopTracker® and Alarm Status LEDs
- Alarm Test, Optional Reset Button

## Applications

- Machinery Speed Alarm
- Redundant or Backup Alarm
- Conveyor or Machine Malfunction Alarm

## Frequency Input Range

Factory configured, please specify frequency range  
Minimum: 0-10 Hz Maximum: 0-20 kHz

## Input Type

Capacitively coupled, unpowered input  
Accepts sine wave, sawtooth, square wave, or pulses  
Minimum 5 µsec pulse and 100 mV amplitude change

## Input Amplitude

100 mVRMS to 150 VRMS

## Input Impedance (Voltage)

100 kΩ minimum

## Input Protection

Normal mode: 200% of input rating  
Common mode: 600 VDC or 600 VAC<sub>p</sub> input to ground  
System voltages must not exceed socket voltage rating

## LoopTracker

Variable brightness LED indicates input level and status

## Relay Output

Two SPDT form C contact sets operating in unison as one DPDT contact set  
One setpoint, 12 turn potentiometer, 0-100% of span  
Factory configured alarm type  
Standard: HI alarm, non-latching, normal acting  
Options: LO alarm, latching, reverse acting

## Relay Contact Rating

8 A @ 240 VAC resistive load or 30 VDC resistive load  
See graph on other side for relay load ratings  
Caution: Do not exceed socket voltage rating  
Use an RC snubber for inductive loads

## Deadband

Alarm trip/reset window is symmetrical about the setpoint  
1.0 to 100% of span, 12 turn potentiometer

## Output Test/Reset Button

Toggles relay to opposite state when pressed  
Resets latching relay with HT option

## Ambient Temperature Range and Stability

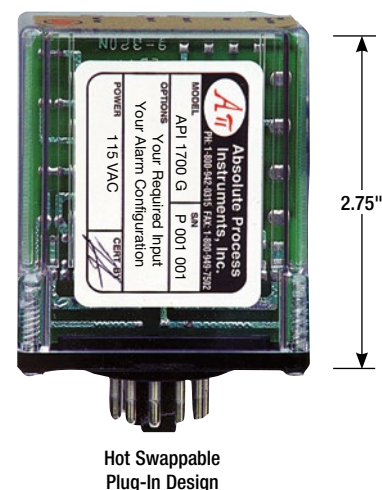
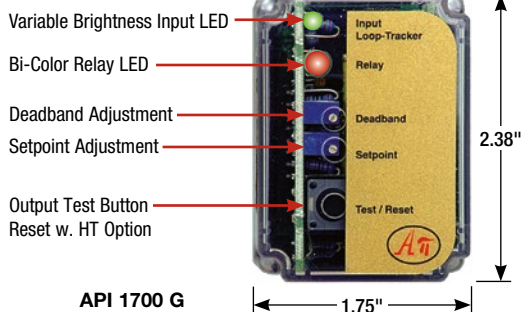
-10°C to +60°C operating ambient  
Better than 0.04% of span per °C stability

## Housing and Sockets

IP 40, requires installation in panel or enclosure  
Plugs into API 011 or API 011 FS socket  
Socket mounts to 35 mm DIN rail or can be surface mounted

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



**Quick Link**  
[api-usa.com/1700](http://api-usa.com/1700)

**Free Factory**  
**I/O Setup!**

## Description

The API 1700 G is factory configured for a frequency input and provides an alarm contact output. Heavy duty relay contacts allow the module to directly control high capacity loads.

The API 1700 G provides a single setpoint adjustment and DPDT relay contacts. The alarm output can be factory configured for HI or LO operation, non-latching or latching, normal or reverse acting. Top-accessible potentiometers are used to adjust the alarm setpoint and deadband.

## LoopTracker and Alarm Status LEDs

API exclusive features include a LoopTracker LED that varies in intensity with changes in the input signal.

A red/green bi-color alarm status LED visually indicates alarm status. This LED provides a quick visual picture of your process at all times.

## Output Test/Unlatch

API's exclusive functional test button can be used to verify the alarm and system operation. The output test button greatly aids in saving time during initial startup and/or troubleshooting. The HT latching option provides the additional function of unlatching the alarm when the reset button is pressed. The alarm will reset if the alarm condition not longer exists.

Model	Input	Standard Alarm Configuration	Power
API 1700 G	Factory ranged, specify frequency range	Single setpoint one DPDT relay HI alarm, non-latching, normal acting	115 VAC
API 1700 G A230			230 VAC
API 1700 G P			85-265 VAC or 60-300 VDC
API 1700 G D			9-30 VDC

## Options—add to end of model number

- L** LO trip. Alarm trips on decreasing signal.
- HT** Latching alarm with push button reset
- HP** Latching alarm with power-off reset.  
Module power must be turned off to reset alarms
- R** Reverse-acting alarms. Relay coils energized in an alarm condition. No alarm condition with module power off.
- U** Conformal coating for moisture resistance

## Accessories—order as a separate line item

- API 011** 11-pin socket, DIN rail or surface mount
- API 011 FS** 11-pin finger safe socket, DIN rail or surface mount
- API CLP1** Module hold-down spring for high vibration or mobile applications



API 011 FS  
300 V Rating



API 011  
300 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](http://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](http://www.P65Warnings.ca.gov)

## Socket and Mounting

Install module in a protective panel or enclosure. Allow space around module for air flow. Use API 011 or API 011 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.

## Input

The input range is factory configured and calibrated (at 24°C ±1°C), and does not require adjustment. See the model/serial number label for input type, range, and options. See wiring diagram for connections. Polarity must be observed.

## Relay Output

API 1700 G relay operation is factory configured. The default configuration is HI alarm normal acting. See model/serial number label for non-standard relay configuration options.

See wiring diagram for connections. The module does not provide power to the relay contacts.

Inductive loads (motors, solenoids, contactors, etc.) will greatly shorten relay contact life unless an appropriate RC snubber is installed.

## Module Power

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

When using DC power, polarity must be observed. The positive (+) must be wired to terminal 1 and negative (-) must be wired to terminal 3.

## Setpoint

This multi-turn potentiometer allows the operator to adjust the level at which the alarm is activated. This control is adjustable from 0 to 100% of the input range.

## Deadband

The API 1700 G deadband potentiometer allows the alarm trip/reset window to be adjusted symmetrically about the setpoint from 1 to 100% of the span.

Deadband allows the operator to fine tune the point at which the alarm trip and reset. The deadband is typically used to prevent chattering of the relays or false trips when the process signal is unstable or changes rapidly.

## Adjustments

To calibrate the alarm section, set the deadband control to the minimum (counterclockwise). The deadband will be 1.0% of input span in this case.

Set the signal source to a reference that represents the desired trip point.

Adjust the setpoint control to the point at which the relay changes state from a non-alarm to an alarm condition.

If a larger amount of deadband is desired turn the deadband potentiometer clockwise. The deadband is symmetrical about the setpoint; both transition points will change as deadband is increased.

Alternately set the setpoint and deadband until the desired trip/reset points are set.

## Output Test Function

The functional test button toggles the alarm status independent of the input when depressed. It verifies the alarm and system operation. When released, the relays will return to their prior states. This can be used as a diagnostic aid during initial start-up or troubleshooting.

The API 1700 G with the HT latching alarm option, the test button provides the additional function of unlatching the alarm relays provided the alarm condition no longer exists.

## Operation

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 bi-color alarm LED provides a visual indication of the alarm status. In all configurations, a green LED indicates a non-alarm condition and a red LED indicates an alarm condition.

**NOTE:** Although the API 1700 G has a pair of relays, these relays will energize and de-energize in unison.

## High Alarm (Default H)

The alarm relay changes state when the input exceeds the deadband trip point. The relay resets when the input drops below the deadband reset point unless the module has a latching relay option. For a high alarm, the trip point is above the reset point.

## Low Alarm (L)

The alarm relay changes state when the input goes below the deadband trip point. The relay resets when the input exceeds the deadband reset point unless the module has a latching relay option. For a low alarm, the trip point is below the reset point.

## HT Option

The module has a latching alarm with a push button reset. The Test button or powering the module off can be used to reset the alarm provided the alarm condition no longer exists.

## HP Option

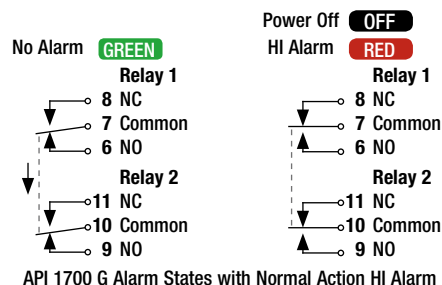
The module has a latching alarm with a power-off reset. Module power must be turned off to reset alarms. The alarm will reset provided the alarm condition no longer exists.

## Normal Acting Alarms (Standard)

Normal acting alarms energize the relay coils in a non-alarm condition and de-energize them in an alarm condition. This will create an alarm condition if the module loses power.

## Reverse Acting Alarms (R Option)

Reverse-acting alarms energize the relay coils in an alarm condition and de-energize them in a non-alarm condition. There is no alarm condition with module power off.



**⚠ \* Do not make connections to unused terminals!**  
**To maintain full isolation avoid combining power supplies in common with input, output, or unit power.**

