

HGD-2000 Hydrogen Gas Detector

Installation & Operation Instructions - Dual Relay Model

Hydrogen gas is only 7% the density of air, and thus rises. Your hydrogen gas detector, therefore, should be installed at the highest, draft-free location in the battery room or compartment where hydrogen gas would accumulate.

Remove the cover from the detector box using care not to break the hinge connection at the top of the box.

Attach the detector to the wall, ceiling, or optional junction box using the mounting holes at the top and bottom of the detector box.



Alarm on & off

For hard wiring using conduit, the detector box will fit the following junction boxes: Appleton 2G5075S, Bowers 702 SPL, Raco 951, or Steel City 2G-1/2&3/4. If you have difficulty finding one of these junction boxes, you can order one from your dealer.

The detector has a terminal block for connection to a single-phase ac power source and to one or two internal relays. The relays can be used to switch a remote exhaust fan and/or alarm on and off.

For 120 volts ac power, use an 18 gage SJT 3-conductor PVC jacketed cable (Belden 19348, equivalent or better). For relay wires, use 14 gage wire (Belden 9989, equivalent or better). The detector typically draws 80 mA when powered, or 170 mA if the alarm buzzer is sounding.

The detector's relay dry contacts are rated at 10A / 250VAC, sufficient for most 1/3 HP exhaust fans. For higher current requirements, add external relays.

Ensure that your installation complies completely with all relevant local, state, federal, and OSHA safety and health regulations.

An optional 2 inch (5 cm.) square remote box with duplicate LEDs, test button, and buzzer if wanted, can be placed anywhere. This remote box connects to the detector box via a crossover style 6-connector, 6-contact telephone-type modular cable (RJ-12).

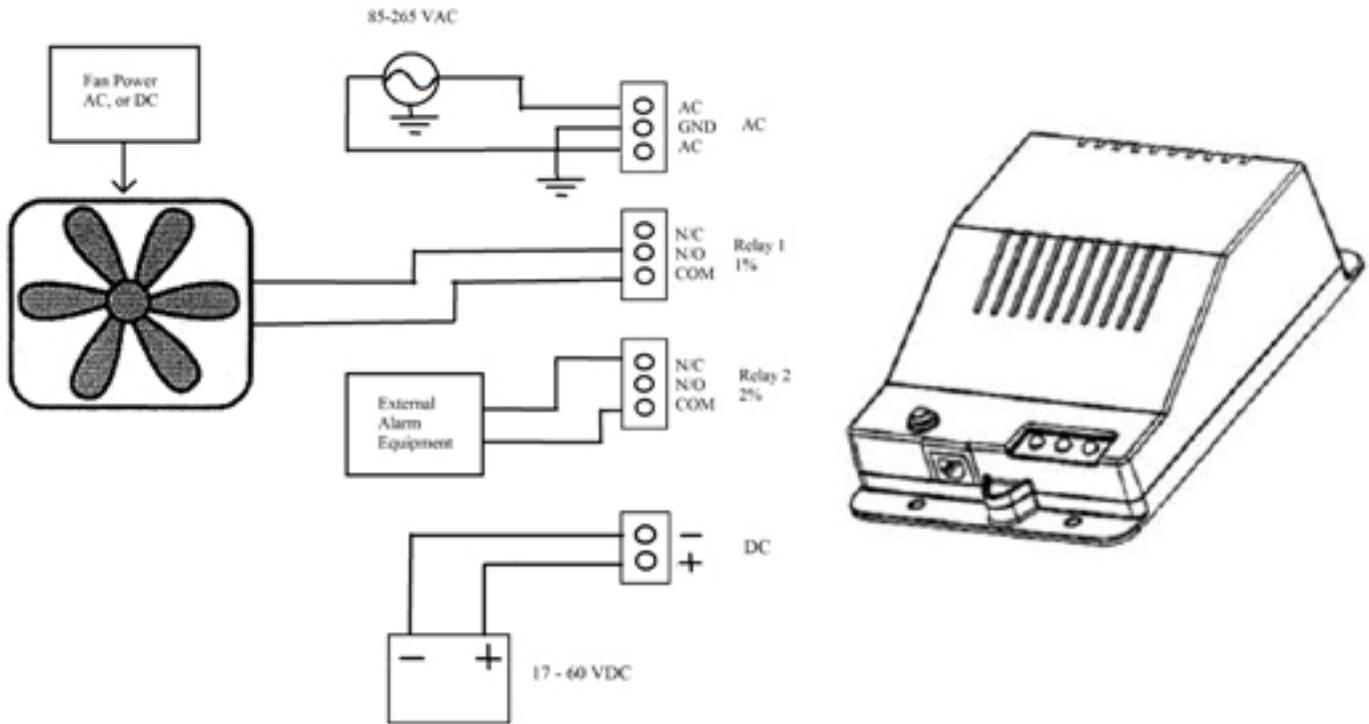
Operation

Keep the detector on at all times. If the green LED is lit, power is on.

When power is first turned on, approximately 10 minutes will elapse before the detector will start to function. This delay is to prevent false activation of the internal relay and alarm.

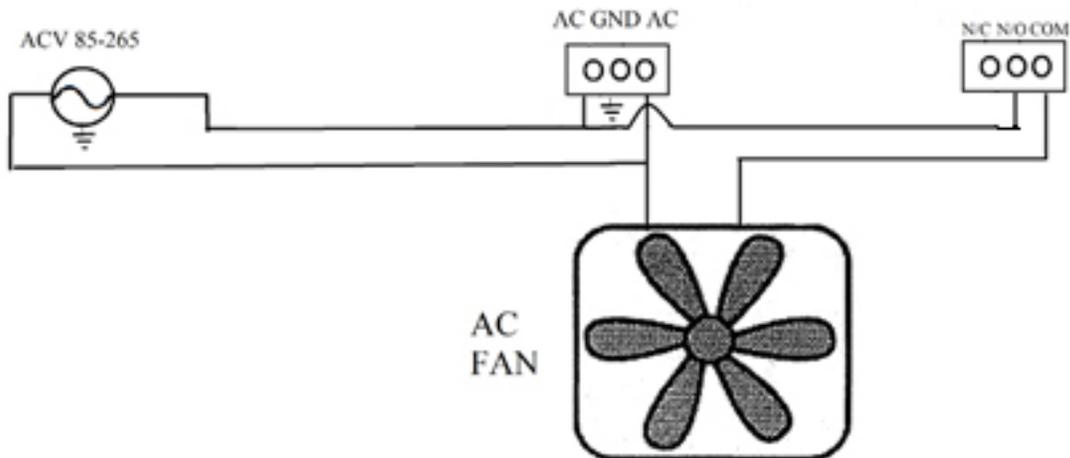
If the unit has been stored un-energized for more than 1 week, the sensor will require 7 days or more to stabilize. During this period the sensor will be overly sensitive to hydrogen gas. This

Hydrogen Gas Detector Installation Diagram



1. The detector has an internal, normally-open Form C relay that closes if the sensor detects a 1% concentration of hydrogen gas in the air surrounding it.
2. Connect the wires from the relays in "series" with the live wire (black) of the ac input line to the exhaust fan and/or alarm,
3. The detector's internal relays are rated at: 10 amps at 250 volts ac 10 amps at 30 volts dc 1/3 horsepower at 125 volts ac 1/3 horsepower at 250 volts ac
4. For currents higher than these relay ratings, add an external relay.

Directly Switched AC Fan Installation



may activate the internal relay at a slightly lower concentration level, but normally should not reach the point of activating the internal alarm.

If the concentration of hydrogen gas in the air surrounding the sensor reaches 1% by volume, the yellow LED will light and the 1% internal relay will close to activate a remote fan and/or alarm. A 4 second delay prevents false activation.

Should the concentration reach 2%, the red LED will flash, the internal 80 db warning alarm will sound, and the 2% internal relay (dual-relay model only) will close. The 1% relay will remain closed & the yellow LED on.

When the concentration decreases below 2%, the red LED will turn off, the internal alarm will stop, and the 2% relay (dual-relay model only) will open. When the concentration falls below 1%, the 1% relay will open and the Yellow LED will turn off.

The sensor is calibrated at room temperature and humidity at sea level. It is slightly more sensitive at higher temperature, humidity or altitude. In these situations, the detector may activate at a slightly lower gas concentration. This, however, should not noticeably affect its operation nor require any adjustment.

Note: The sensor detects several other combustible gases in addition to hydrogen. Its sensitivity to these other gases, however, is much lower than its sensitivity to hydrogen. Although additive, the presence of other gases is unlikely to falsely activate the detector.

Calibration

This detector has been calibrated at the factory for hydrogen gas and should not be adjusted in the field. **DO NOT ATTEMPT TO FIELD CALIBRATE THIS UNIT.**

Testing (after the ac power is on for 10 minutes)

A "push-to-test" button is located on the unit's front. Push and hold this button for approximately 10 seconds to test the unit's electronic circuitry. The caution and warning LEDs will light in sequence; the relays will activate whatever is connected to them and the internal warning alarm will sound.

Note: The "push-to-test" button does NOT test the sensor itself.

Unless the detector becomes overly sensitive, recalibration or replacement of the sensor board should not be necessary for several years. For safety sake, however, replace the sensor board every five years.

Warning: This detector is added protection, not a substitute, for prudent safety measures where hydrogen gas is present. For large or highly sensitive areas, use two or more detectors.

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