

HGD-4000 Hydrogen Gas Detector

Installation & Operation Instructions

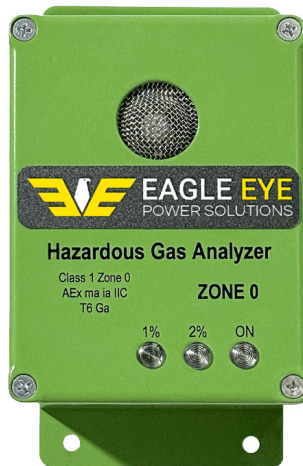
Hydrogen gas is only 7% the density of air, and thus rises. Your hydrogen gas detector, therefore, should be installed at the highest, draft-free location in the battery room or compartment where hydrogen gas would accumulate.

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

This gas detector passes the test for either Class I Division I or

Class I Division II. The NFPA also has a new system that uses Zones in

Chapter 505. The HGD-4000 also meets the requirements for Zone 0 AEx ma ia IIC T6.



The detector's 1% relay dry contact is 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.

Operation

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

When power is first turned on, approximately 3 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 may activate the internal relay at a slightly lower concentration level.

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 2% relay will close and the 1% relay will remain closed and the yellow LED on.

When the concentration decreases below 2%, the red LED will turn off, the internal alarm will stop, and the 2% Solid State Relay 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.**

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.

Hydrogen Gas Detector Installation Diagrams

Wire Color

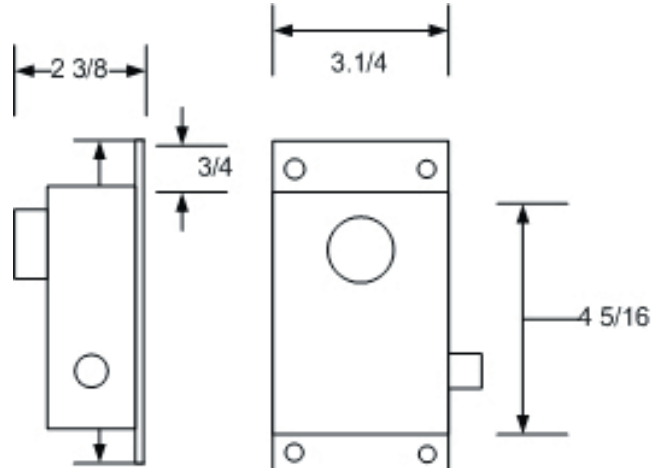
Black AC Power in
 Green Ground
 White AC power in

Relay 1% Signal Points

Yellow NO
 Brown Common

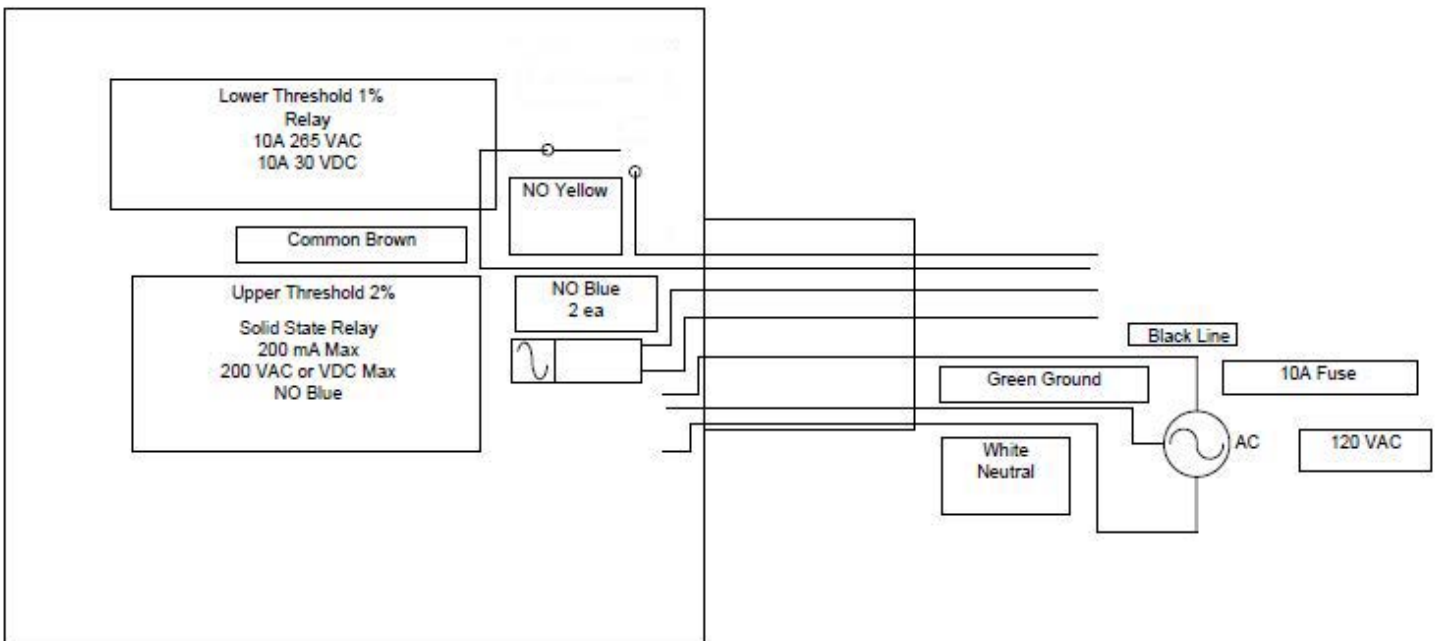
Relay 2% Signal Points

Blue NO
 Blue Common



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 1% internal relay is rated at: 10 amps at 250V AC, 10 amps at 30V DC, 1/3 horsepower at 125V AC, 1/3 horsepower at 250V AC.
4. The 2% internal relay is a solid state relay rated for 200mA (at Temp) at 200V AC or DC.
5. For currents higher than these relay ratings, add an external relay.

Wiring Diagram



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