

MACURCO GAS DETECTORS

HD-12

INSTALLATION AND OPERATING INSTRUCTIONS

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GENERAL INFORMATION

The HD-12 is a low voltage (12-24 VAC or VDC), dual level, dual relay output all electronic Hydrogen detector. The unit is designed to hook to a control panel or energy management system but can be made to operate stand alone.

The LO relay is factory calibrated to 10% of the LEL (Lower Explosion Limit) of Hydrogen Gas. The HI relay is factory calibrated to 25% of LEL of Hydrogen Gas. The unit is factory calibrated but special calibrations are available for the two levels. Call the factory at (303) 781-4062 for more information on calibrations.

LOCATION

The unit on average can cover about 900 sq. ft. The coverage depends on air movement in the room or facility. Locate the unit high in the room where storage batteries are being charged, or where there may be other Hydrogen sources. Extra detectors may be needed near any areas where people work or the air is stagnant.

INSTALLATION

The unit mounts in and becomes the cover of a 4x4 electrical box (supplied by installer). Connect power, 12-24 VAC or VDC no polarity, to the two **White** wires of the unit. The power draw of the unit is 1.5 watts.

The two **Yellow** wires of the unit are connections for the LO relay. The two **Red** wires are the connections for the HI relay. Both relays are normally open (N.O.), dry contact, reed type relays that are inherently explosion proof. The red and yellow wires have no polarity preference. The relays maximum ratings are 0.5 amp, 200v, 10VA.

OPERATION

When power is first applied to the detector, it will go through a warm-up period of about two minutes, during which no alarms can occur. The green light will blink on and off during the two minute delay period, and will glow brightly afterwards. This green light is part of a supervisory circuit that monitors all critical functions of the detector. Except during the two minute delay, should the green light ever go off, it would indicate a malfunction. (A failure of the gas sensing element will result in the green light and red light flashing on and off.)

Once the unit is fully operational (the green light on steady) test the unit by directing gas from an *un-lighted* butane cigarette lighter into the detector near the red light. The lighter needs to be set for maximum gas flow, and be held open for several seconds. The red light will blink on and off to show the LO relay has closed, and the panel has been actuated. Continue to shoot gas into the unit, and the red light will turn on steady to show that the HI relay has also closed. The HD-12 will shut off the red light and relays automatically once the air clears. The detector should be tested regularly about every 6 months, by using gas from an *un-lighted* cigarette lighter, as detailed above.

ALARM ACTION

Macurco suggests that the customer modify its facilities emergency response procedures to provide for appropriate actions should a Hydrogen leak occur. We suggest that if an alarm occurs and maintenance personnel are present, treat the alarm only as a *warning* of a possible problem and attempt to determine and remedy the cause. If the facility is un-attended at the time of an alarm, the emergency procedures might include dialing security personnel or maintenance people.

INTERFERENCE'S

Various common household or industrial products, such as cleaning agents and aerosol spray cans, that are regularly used, contain fumes or vapors that can cause the HD-12 to produce an alarm.

SENSOR POISONS

The gas sensing tip in the detector is designed with extreme sensitivity to the environment. As a result, the sensing function of the tip may be deteriorated if it is exposed to a direct spray from aerosols such as paints, silicone vapors, etc., or to a high density of corrosive gases (such as hydrogen sulfide, sulfur dioxide) for an extended period of time.

SERVICING OF UNIT

The HD-12 does not require regular maintenance. The unit uses a self purging semi-conductor sensor that has a 7-10 year life expectancy. All maintenance and repair of products manufactured by Macurco, Inc. are to be performed at the Macurco manufacturing facility. Macurco does not sanction any third-party repair facilities.

LIMITED WARRANTY

The HD-12 gas detectors are warranted to be free from defective material and workmanship for a period of two (2) year from the date of installation. If any component becomes defective during the warranty period, it will be replaced or repaired free of charge, if the unit is returned in accordance with the instructions below. This warranty does not apply to units that have been altered or had repair attempted, or that have been subjected to abuse, accidental or otherwise. The above warranty is in lieu of all other express warranties, obligations or liabilities. **THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE ARE LIMITED TO A PERIOD OF ONE (1) YEAR FROM THE PURCHASE DATE.** Macurco shall not be liable for any incidental or consequential damages for breach of this or any other warranty express or implied arising out of or related to the use of said gas detector. Manufacturer or its agents liability shall be limited to replacement or repair as set forth above. Buyer's sole and exclusive remedies are return of the goods and repayment of the price, or repair and replacement of non-conforming goods or parts. (The Uniform Commercial Code applicable in the State of Colorado shall govern.)

RETURN INSTRUCTIONS

Call (303) 781-4062 for a Return Authorization number. Then carefully pack the gas detector with a written description of the nature of the return. Send the unit to the following address:

**Macurco Inc.
3946 South Mariposa Street
Englewood, Colorado 80110**

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