

# MACURCO GAS DETECTORS

## FD-11

### INSTALLATION & OPERATING INSTRUCTIONS

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#### GENERAL INFORMATION

The FD-11 is a low voltage, single relay output refrigerant detector. Generally the unit is intended to hook-up to a control panel. See the Refrigerant Detectors data sheet for more technical information.

#### LOCATION

The unit on average can cover about 900 sq. ft. The coverage depends on air movement in the room or facility. The FD-11 mounts fairly low in the room where refrigerants are being used and as close as possible to the potential source of refrigerant gas. Extra detectors may be needed near any areas where work or the air is stagnant.

#### INSTALLATION

The FD-11 mounts over a single gang electrical box or in and over a two gang old work box or a 4x4 electrical box (not supplied by Macurco). Connect the two Red wires to 12 to 24 VAC or VDC (no polarity). Current draw at 12 volts is about 60 ma. and about 30 ma. at 24 volts. Connect the relays to the control panel or device to be switched. The Alarm relay is SPDT and the Trouble relay is N.C. See the Refrigerant Detectors data sheet for relay ratings, connections and specifications.

#### 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 turn on and off during the two minute delay period, and will glow continuously 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. The internal supervisory system will cause the Trouble relay to open, if a problem occurs.

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 red light will turn on and the Alarm relay should also switch. The FD-11 will shut off the red light and switch the relay 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 refrigerant 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.

#### ALARMS DUE TO INTERFERENCE GASES

Various common industrial products, such as cleaning agents and aerosol spray cans, contain fumes or vapors that can cause the FD-11 to alarm. Operation of forklifts, whether battery powered or propane powered, can cause the FD-11 to alarm. Batteries produce Hydrogen gas, which the FD-11 detects. Propane powered forklifts have two sources that can cause alarms: the propane and exhaust gases.

#### 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 FD-11 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 FD-11 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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