

# MACURCO GAS DETECTORS

## RD-1

### INSTALLATION AND OPERATING INSTRUCTIONS

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#### GENERAL INFORMATION

The RD-1 is a detector of the new non CFC refrigerants: R123 and R134A. The front panel decal will indicate which refrigerant the unit is calibrated for. The unit is a low voltage (12-24 VAC or VDC), adjustable, single relay output refrigerant detector. 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. Extra detectors may be needed near any areas where people work or the air is stagnant. It should be mounted fairly low, as R123 and R134A are heavier than air and will be most concentrated at the lowest level of the room. The recommended location is on a wall or column about one foot above the floor.

#### INSTALLATION

The RD-1 Refrigerant Detector mounts in a type 4S electrical box, this is not supplied by Macurco. The two **Red** wires connect to the power (10 to 26 VAC or VDC). The two **Blue** wires connect to the Normally Open relay contacts, which will close upon alarm, and are usually connected to an alarm control panel. There is no polarity preference for either pair of wires.

#### OPERATION

When power is first applied to the detector, it will go through a warm-up period of about two minutes. The unit has an internal delay that prevents alarms during the warm-up period. The green light will flash on and off during the two minute delay period, and will glow steadily afterwards. The red light may also flash on and off during this time but will soon turn off. The lights are part of a supervisory circuit that monitors all critical functions of the detector. A failure of the gas sensing element will result in the green and red lights flashing on and off.

Set the adjustment knob, on the RD-1 cover, to the desired alarm point, within the range of 25 to 275 ppm. NOTE: The current recommended human exposure limits are 30 ppm for R123, and 1000 ppm for R134A. Once the unit is fully operational (the green light on steady) test the unit by directing gas from an unlighted butane cigarette lighter into the detector near the green light. The red light will turn on and off for one minute, then turn on continuously when the relay has closed, and the panel has been actuated. The gas must be present continuously for the full minute for the relay to actuate. The one minute delay is intended to stop any nuisance alarms that may be induced by other gases. The RD-1 will shut off the red light and relay automatically once the air clears. The detector should be tested regularly about every 6 months, by using gas from an unlighted 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.

#### INTERFERING GASSES AND SENSOR POISONS

The sensing element in the RD-1 is **not** specific to R123 or R134A. Various common products, such as cleaning agents and aerosol spray cans contain fumes and vapors that can cause the RD-1 to produce an alarm. Lift trucks and other similar machines can produce gases that can cause alarms also.

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.

#### STABILIZATION TIME

Although it will be fully operational within a few minutes of being first powered, the gas sensor in the unit requires 3 to 7 days to reach its final operating point. The unit is intended to be continuously powered.

#### SERVICING OF UNIT

The RD-1 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 RD-1 gas detectors are warranted to be free from defective material and workmanship for a period of one (1) 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**  
**WWW.MACURCO.COM**