



# Chillgard® LS Photoacoustic Infrared Refrigerant Monitor

[ The new wave of photoacoustic IR refrigerant leak detection monitors ]

The Chillgard LS Photoacoustic Infrared Refrigerant Monitor provides economical, low level monitoring of refrigerant gases used in most refrigerant systems or chillers including R123, R134A, R11, R12 and R22. For maximum application flexibility, the UL approved Chillgard LS Monitor is available in either a single point diffusion or a 4 point pumped model.

## Applications

The Chillgard LS Monitor is part of the MSA family of Chillgard products designed to monitor for the loss of refrigerant gases in a variety of applications:

- Mechanical equipment rooms
- Propellant filling operations
- Solvent cleaning stations
- Cold storage and transport facilities
- Meat packing plants
- Supermarkets and refrigerant storage locations
- Other specialty applications using halocarbons

The full scale range of the unit is 0-1000 ppm with the capability of measuring a refrigerant leak as low as 20 ppm. The Chillgard LS Monitor provides fast reliable detection for low level leaks of refrigerants thus preventing a major loss of costly refrigerant gas. The Chillgard LS Monitor is capable of detecting well below the established threshold limit values for the refrigerants. The units' standard 4-20mA output can be connected directly to any existing Building Automation System (BAS) or other controller. The 4-20mA output can be used to provide indication of a leak prior to a worker entering the room containing the refrigerant gas. With the integral status LEDs and optional strobe, workers have a visual indication of the refrigerant level in their work area.

## Features

- Single-point diffusion or 4-point pumped models
- Complies with ANSI/ASHRAE 15-1994
- UL approval

- Photoacoustic Infrared sensing technology
- No moving parts in diffusion model
- Water and corrosion-resistant plastic enclosure
- 24 VAC/DC or 110/220 VAC power
- Five LEDs indicating power, fault and 3 levels of alarm
- Digital Signal Processing
- Standard outputs: 4-20mA and RS-485

## Sensor Technology

The Chillgard Series of monitors utilize very stable and highly selective photoacoustic infrared (PIR) technology to sense refrigerant gases. The Chillgard LS Monitor can operate for months with virtually no zero drift. Its inherent stability eliminates the requirement of various



auto-zeroing techniques that take the monitor "off-line" at regular intervals. Installation of a "fresh air" sampling line or "on-line" scrubber is not required with the Chillgard LS Monitor.

The Chillgard LS Monitor has a high immunity to interferants such as cleaning agents and solvents. There is minimal effect due to changes in humidity, a common problem with all other sensor technologies. Both are typical sources of false alarms when other sensing technologies are in use.

### Simplicity and Upgradeability

The Chillgard LS Monitor is designed for easy installation, operation and maintenance. There are no moving parts in the diffusion version simplifying maintenance and repair. A replacement Chillgard LS optical bench is shipped pre-calibrated for the gas of interest. Therefore, converting the Chillgard LS Monitor to detection of a different refrigerant gas requires only a simple change of optical benches.

### Typical Chillgard LS Refrigerant Monitor Installation

Proper operation of the Chillgard LS Monitor depends on proper installation. The following guidelines will aid you in your Chillgard LS Monitor installation:

Place the single-point diffusion Chillgard LS Monitor in the location most likely to develop a refrigerant gas leak or spill. For the 4-point version, the inlet of the sample line should be placed as close as possible to the leak or spill location. Such areas include valves, fittings and the chiller itself. Also, monitor any refrigerant-storage location.

Since most refrigerant gases are heavier than air, monitor these gases close to the floor. Any pits, stairwells or trenches are likely to fill with refrigerant gas before the main area. It may be necessary to monitor these locations for refrigerant gas.

**Note:** This Data Sheet contains only a general description of the product shown. While uses and performance capabilities are described, under no circumstances should the product be used except by qualified, trained personnel, and not until the instructions, labels or other literature accompanying the product have been carefully read and understood and the precautions therein set forth followed. Only they contain the complete and detailed information concerning this product.

Data Sheet 07-2042  
Jan 2004 (L)  
© MSA 2004 Printed in U.S.A.



Instrument Division:  
P.O. Box 427, Pittsburgh  
PA 15230 U.S.A.  
www.MSAGasdetection.com

In U.S.:  
Phone: 1-800-MSA-INST  
Fax: 1-724-776-3280

In Canada:  
Phone: 1-800-MSA-INST  
Fax: 1-905-238-4151

In Mexico:  
Phone: 52-55 2122-5770  
Fax: 52 (5) 3 59 43 30

MSA International:  
Phone: 412-967-3228  
Fax: 412-967-3373

### Specifications:

#### Single-point Diffusion Model

Operating Range:	0-1000 ppm
Minimum Detectability:	20 ppm
Linearity:	0-100 ppm linear, 100-1000 ppm $\pm 5\%$ of reading
Warm-up time:	10 minutes
Response time:	50% of a step change in less than 60 seconds
Operating temperatures:	0 to 40° C (32 to 104° F)
Non-operating temperatures:	-40 to 60° C (-40 to 140° F)
Temperature effect:	<4%/10° C
Relative humidity:	0 to 99%
Operating Power Options:	24 VAC/DC, 110/220 VAC optional
Analog output:	4 to 20 mA
Physical:	7.1" high x 10" wide x 4.25" deep
Weight:	5.5 lbs.

#### 4-point Pumped Model

Same as above except for the following:	
Minimum sample flow rate:	0.75 liters/min.
Maximum total tubing length:	300 ft.
Physical:	14.7" high x 11.2" wide x 5" deep
Weight:	9.5 lbs.

### Options

- Transportable Version
- Calibration Box – MSA p/n 10035292
- Unit-mounted strobe - 634674
- Remote light towers
- Chillgard LC Control Module – see Data Sheet 07-0009 for more information

### Ordering Information

A Chillgard LS Monitor ATO order form is available in the MSA preferred products catalog. Call 1-800-MSA-INST (1-800-672-4678) to obtain a copy of the preferred products CD



Chillgard LS 4-point Monitor



### Offices and representatives worldwide

For further information:

