



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 refrigeration systems or chillers. Some of the refrigerant gases detected by the Chillgard LS Monitor include HCFC-123, HFC-134a, CFC-11, CFC-12 and HCFC-22. For maximum flexibility, the Chillgard LS Monitor is available in both a single-point diffusion and a 4-point pumped model. **Now it is available with UL approval.**

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. The instrument measures in the range of 0-1000 ppm for most refrigerants. With the capability to measure as low as 20 ppm, the Chillgard LS Monitor provides excellent protection by detecting low-level leaks of refrigerants that can be costly to replace. It also ensures that workers in the monitored area will be alerted of any increase in the ambient level of refrigerant gases.

The Chillgard LS Refrigerant Gas Monitor is designed for easy installation, start-up and operation. The monitor is perfectly suited for installation in mechanical equipment rooms. Its output connects directly to any

existing Building Automation System (BAS) or other controller.

The Chillgard LS Monitor saves operating costs by detecting a leak early enough to prevent a major loss of refrigerant gas. In addition, some replacement refrigerants have a threshold-limit value (TLV) lower than their predecessors. The TLV determines the amount of refrigerant gas a worker can be exposed to while in the mechanical equipment room. Because of these factors, monitoring for refrigerant gases is now a necessity.

Simplicity

The Chillgard LS Monitor is easy to install and operate. There are no moving parts in the diffusion version, which simplifies maintenance and repair. Four mounting holes allow for easy installation.

Upgradeability

When your chiller is converted to one of the newer refrigerants, your MSA Chillgard LS Monitor can also be converted to detect the new refrigerants. Conversion requires a simple change of the photoacoustic infrared optical bench located on the circuit board.

Features

- Single-point diffusion or 4-point pumped models
- Complies with ANSI/ASHRAE 15-1994
- UL approval
- Features photoacoustic infrared sensing technology
- High performance: sensitive and stable
- Operates over a wide temperature range
- Very low cost
- Easy to install, operate and maintain
- Diffusion sensor has no moving parts
- Water- and corrosion-resistant plastic enclosure
- Five LEDs indicating power, fault and 3 alarm levels
- Digital Signal Processor
- Output options: 4-20 mA, RS-485 Modbus
- Optional calibrator
- Strobe option
- Patent Pending



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.

Applications

Commonly used industrial refrigerant gases can also be monitored. Applications include:

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

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.

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.

Ordering Information

See the Chillgard LS ATO Bulletin for ordering information.



Chillgard LS 4-point Monitor



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.



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