



MSA Halocarbon R-134a Monitoring System

[for U.S. Navy LPD 17 Class Ships/
Shipboard Monitoring Applications]

Application

The US Navy has recently embarked on a project to engineer and construct the newest class of Naval Warships—the LPD series.

The LPD-17 class is an amphibious warship that will perform various expeditionary warfare missions. Among those missions is the rapid deployment of various military hardware including assorted mechanized vehicles. This portion of the ship's overall mission is similar to many other Navy and Maritime applications in that it requires the use of common refrigerants for environmental control.

Because of the global nature of the ship's mission, environmental controls are essential. This includes temperature regulation in the personnel quarters and in the hardware and ammunition stowage areas. The MSA Chemgard® Photoacoustic Infrared (PIR) Gas Monitor is designed for detecting refrigerant leaks that may endanger personnel while also possibly indicating the need for system maintenance. The Chemgard Monitor, based on photoacoustic infrared (PIR) detection, has a proven record for accuracy and ruggedness in such applications. The MSA Chemgard Monitor offers multipoint detection and is modified with a hardened enclosure in order to meet military shock and vibration requirements.

Application requires:

- MIL-S-901D High-impact lightweight shock
- MIL-STD-461 EMI
- MIL-STD-167/1 Vibration

Chemgard Gas Monitor Product Description

This MSA halocarbon R-134a monitor is a multipoint sample draw detection system comprised of four subsystems—one for each refrigeration machinery area. Each subsystem has multiple detection points, based on the area's monitoring requirements. This system is based on the MSA Chemgard Monitor. A small sequencer is used for each refrigeration machinery



area. Each sequencer panel has a manifold supporting 4 sampling points. (Additional sampling points can be added if necessary.) Each manifold uses a single pump to draw a sample from the area and introduce it to a common infrared detector (see Fig. 1). The detector analyzes the sample and activates any required alarms. Two relays are used: one activates a local horn and strobe; the other alerts the control system. The instrument sequences through all sampling points at a rate of approximately 30 seconds per point.

This MSA halocarbon detection system is modified to meet MIL Specs for shock, vibration and EMI/RFI.

System Contents

- * Four multipoint sequenced Chemgard Monitors (one for each refrigeration machinery room). The monitors are configured for 4 sampling points, assuming a standard-sized area, and provide a 0-1,000 ppm monitoring range with adjustable setpoints. Two contact outputs are included. One output provides alarm enunciation locally and to the two room entrances. The other contact output is used as an input to the ship's engineering control system.
- * Durable stainless steel enclosure.
- * Reset button located on front door.
- * Samples are delivered to the Chemgard Monitor via sample tubing.
- * Remote horn silence and contact outputs to the ship's engineering control system.

Note: This is a representative description of this product and its potential applications. Contact MSA Custom Products at customproducts@MSAnet.com for information on customizing this unit to fit a specific need.

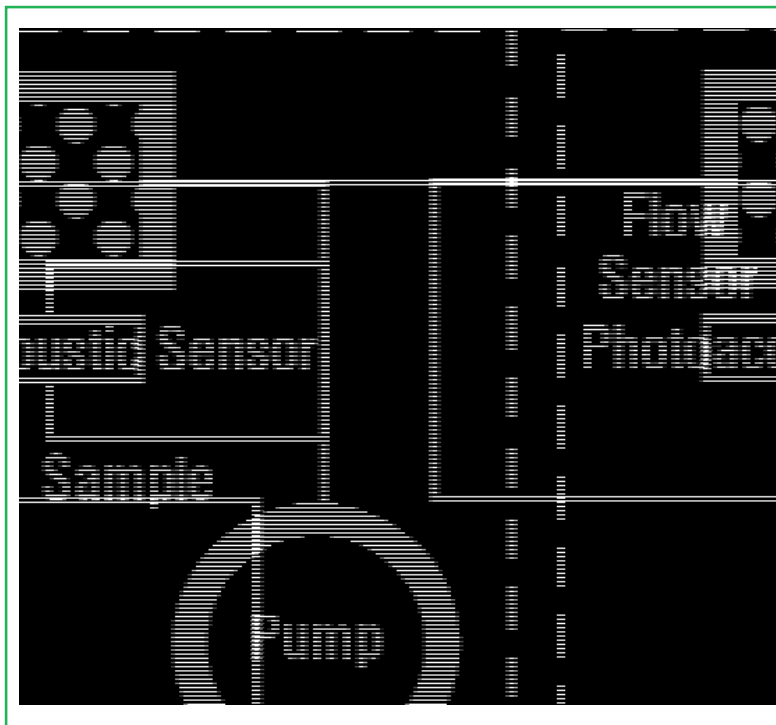


Figure 1. 4-point instrument flow diagram.



Figure 2. Interior of housing showing Chemgard Monitor with multipoint sequencer

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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