



# MSA Chemgard™ Series

[ Top-performance, cost-effective  
photoacoustic infrared gas monitors ]



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## Application

The Chemgard Photoacoustic Infrared Gas Monitor series, utilizing photoacoustic infrared (IR) sensing technology, provides precise, low-cost, high-performance monitoring for a variety of gases such as hydrocarbons, solvents, alcohols, alkanes, and toxics.

## Technology

The Chemgard Gas Monitor is extremely stable and highly selective to the gas of interest. The Chemgard Monitor can operate for months with virtually no zero drift.

The instrument has detectability as low as 0.01 ppm for certain applications.

## Description

Three different enclosure styles allow for installation in explosion-proof, NEMA 4, or rack-mounted configurations.

The NEMA 4 and the rack-mount versions of the Chemgard Monitor are easy to use and maintain, with only four front-panel pushbuttons to configure the instrument. The explosion-proof model is easily configured using a four-button, wireless IR transmitter which communicates through the front panel window. For most installations, gas monitoring begins after simply mounting the instrument, connecting the sample line and powering the unit.

The instrument typically

draws the gas sample via an internal pump. This allows the unit to be mounted in a convenient location for the operator if the area to be monitored is inaccessible. A pressurized sample can also be delivered to the unit, eliminating the necessity for the internal pump. An internal flow switch alerts the operator if the gas sample is blocked by either a dirty end-of-line filter or clogged sample line.

The direct-reading display shows the actual gas value as well as any alarms and diagnostic messages.

## Ranges

The Chemgard Series of photoacoustic infrared monitors are highly sensitive instruments available in a variety of output ranges such as:

- 0-10 ppm
- 0-100 ppm
- 0-1000 ppm
- 0-1% by volume
- 0-10% by volume
- 0-100% by volume
- 0-100% LEL

The gas monitor comes factory-calibrated, ready to detect a specific gas in the range desired.

Cross-sensitivity to water vapor, a common problem with other types of infrared analyzers, does not occur with this instrument. Its proprietary sensing technique determines the amount of water vapor in the sample and subtracts it from the gas reading. This permits the gas reading to be extremely

stable, with no compromise in the unit's sensitivity.

## Data Logging

The Chemgard Monitor can log data, giving the user access to date-stamped information on key events including: gas readings, alarms and fault conditions. Gas readings can be logged as maximum or average readings over 15-minute or 1-hour time periods. Data is accessible through the front panel display or the RS-232 port.

## Expandability

Simply by adding the multipoint sequencer option, the Chemgard Monitor can be expanded to monitor up to eight locations.

The display indicates the monitored location and the corresponding gas concentration at each location.

## Features

- Photoacoustic infrared technology
- Easy to install, operate and maintain
- Operates over a wide temperature range
- Can be installed in numerous environments and configurations
- Easy-to-read display showing gas concentration(s) and alarms
- Three alarm levels with relay output
- UL 2075 approval



Chemgard Infrared Gas Monitor-NEMA 4 Version



Chemgard Infrared Gas Monitor-Rack-Mount Version



Chemgard Infrared Gas Monitor-Explosion-Proof Version

## ChemGard Monitor Versions

### NEMA 4 Version

The NEMA 4 version comes in a rugged metal enclosure which is dust- and water-resistant. The NEMA 4 version comes with four sturdy, wall-mount tabs on the back of the enclosure for easy installation.

The one-to-eight sample lines are easily accessed on the bottom of the unit via standard threaded fittings. Electrical wiring access holes are provided on both the right and left sides of the instrument.

The NEMA 4 version is easy to use and maintain, with only four front-panel pushbuttons to configure the instrument.

### Rack-Mount Version

The rack-mount version comes in a standard 19" configuration with handles on either side of the front panel for easy cabinet extraction. The gas sample line(s) and the wiring access is all provided in the rear of the unit.

The rack-mount version is easy to use and maintain, with only four front-panel pushbuttons to configure the instrument.

### Explosion-Proof Version

The explosion-proof version is rated for Class I, Div. 1, Groups B, C, and D areas and comes with four wall-mount tabs on the back corners of the unit. Nine plugged holes are provided on the bottom of the unit for sample line connections, and two plugged holes on the right side of the unit provide wiring access. All connections must be made in accordance with the applicable installation codes.

The explosion-proof model is easily configured using a four-button, wireless IR transmitter which communicates through the front panel window. The window allows the same convenient visual indication of the gas concentration and alarm status that exists on the other two versions.

### All Versions

- All user functions



Hand-Held IR Controller for the Explosion-Proof Version.

configurable through front panel

- Monitor one, four or eight sampling points per instrument
- Three system alarm levels with relays
- Discreet relays expandable up to 3 per sample line (separate enclosure)
- Normally energized Trouble and alarm relays for failsafe operation
- Signal outputs:

Sourcing 4-20mA current output

0-10 VDC signal output

RS-232

- Auxiliary input accepts a 4-20mA analog current signal
  - Audible alarm output for standard buzzer or user horn
  - Remote reset connections for switch to clear alarms
- Other Options**
- Heated enclosure for special applications
  - Z-purged enclosure

- available for special applications
  - Built-in auxiliary gas sensor (CO, O2, etc.) available using auxiliary input
  - Remote Relay Module provides three (3) levels of alarm per monitoring point
  - Remote display option
- See Chemgard Photoacoustic Infrared Gas Monitor

Applications addendum sheet (#A-07-0001) for gases detected by the Chemgard Monitor.

### Order Information

Contact your MSA representative to discuss your Chemgard Photoacoustic Infrared Gas Monitor application.

### Specifications

Typical:	Performance characteristics subject to change, depending on gas to be monitored and full-scale range
For 0-1000 ppm range:	
Accuracy:	0-100 ppm $\pm 2$ ppm; 100-1000 ppm $\pm 10\%$ reading
Linearity:	0-100 ppm linear, 100-1000 $\pm 2\%$ of full scale
Sensitivity:	2 ppm
Resolution:	1 ppm
Note: Specifications for other ranges dependant on application. Consult factory.	
Reproducibility:	$\pm 2$ ppm over 12 months at specified operating conditions
Response:	Updated reading every 7 seconds
Operating	
Temperature:	0-50° C, 32-122° F
Temperature Effect:	$\pm 0.3\%$ per°C of reading
Relative Humidity:	0-99% non-condensing- no effect on reading
Sample flow rate:	1.5 liter/minute
Maximum total tubing length:	
	150 feet with 1/8" ID 500 feet with 3/16" ID
Operating power requirements:	
	120 VAC $\pm 10\%$ at 0.56 Amps, or 240 VAC; $\pm 10\%$ at 0.3 Amps
Alarm relays:	3 relays @ 8 Amps resistive
Approvals:	UL 2075
Physical Enclosure Information	
NEMA 4:	
Dimensions:	18"H x 16"W x 7"D
Weight:	40 lbs.
19" Rack Mount:	
Dimensions:	7"H x 17-5/8"W x 15-1/4"D
Weight:	19 lbs.
Explosion Proof (XP):	
Dimensions:	19-1/8"H x 19-1/8"W x 9-1/2"D
Weight:	100 lbs.

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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