

MSA Chemgard® Series

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



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Application

The Chemgard Photoacoustic Infrared Gas Monitor series using photoacoustic infrared (IR) sensing technology provides precise, low-cost, high-performance monitoring for a variety of gases such as hydrocarbons, solvents, alcohols, CO₂, CO, 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

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

Chemgard Monitor NEMA 4 and rack-mount versions are easy to use and maintain, with only 4 front-panel pushbuttons to configure the instrument. The explosion-proof model is easily configured using a 4-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, allowing the unit to be mounted in a convenient operator location 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 operators 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:

- 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 users 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

The Chemgard Monitor can be expanded to monitor up to 8 locations simply by adding the multipoint sequencer option.

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
- 3 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 in a rugged metal enclosure, is dust- and water resistant and includes four sturdy, wall-mount tabs on the enclosure back for easy installation.

1-8 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 4 front-panel pushbuttons to configure the instrument.

Rack-Mount Version

Rack-mount version in standard 19" configuration provides handles on both sides of front panel for easy cabinet extraction. Gas sample line(s) and wiring access are provided in the rear of the unit.

The rack-mount version is easy to use and maintain, with only 4 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 4 wall-mount tabs on the back corners of the unit.

The explosion-proof model is easily configured using a 4-button, wireless IR transmitter which communicates through the front panel window. The window allows the same convenient visual indication of gas concentration and alarm status that exists on the other 2 versions.

All Versions

- All user functions configurable through front panel
- Monitor 1,4, or 8 sampling points per instrument
- 3 system alarm levels with relays
- Normally energized trouble and alarm relays for fail-safe 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
- Switch connection resets alarms remotely

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 3 levels of alarm per monitoring point
- Remote display option

Order Information

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

See *Chemgard Photoacoustic Infrared Gas Monitor Applications bulletin A-07-0001* for gases detected by the Chemgard Monitor.

Specifications

Typical	Performance characteristics subject to change, depending upon gas to be monitored and full-scale range
For 0-1000 ppm range Accuracy Linearity Sensitivity Resolution	0-100 ppm \pm 2 ppm; 100-1000 ppm \pm 10% reading 0-100 ppm linear, 100-1000 ppm \pm 2% of full scale 2 ppm 1 ppm <i>Note: Specifications for other ranges dependent upon application. Consult factory.</i>
Reproductibility	\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 Weight	18" H x 16" W x 15 1/4" D 40 lbs.
19" Rack-mount Dimensions Weight	7" H x 17 5/8" W x 15 1/4" D 19 lbs.
Explosion-proof (XP) Dimensions Weight	19 1/8" H x 19 1/8" W x 9 1/2" D 100 lbs.

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.

ID 07-2033-MC / June 2010

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Corporate Headquarters
P.O. Box 426, Pittsburgh, PA 15230 USA
Phone 412-967-3000
www.MSAnet.com

U.S. Customer Service Center
Phone 1-800-672-4678
Fax 1-724-776-3280

MSA Canada
Phone 1-800-672-2222
Fax 1-800-967-0398

MSA Mexico
Phone 01 800 672 7222
Fax 52-44 2227 3943

MSA International
Phone 412-967-3354
FAX 412-967-3451

