



Toxgard® II

Gas Monitor

For monitoring toxic gases, combustible gases or oxygen deficiency.

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Toxgard Monitors are used in a variety of industrial or commercial applications. The monitor is easy to install and operate. Just apply power to the Toxgard II Gas Monitor and it is ready to go or use it as a transportable gas monitor with its optional internal battery. The combustible gas Toxgard II Monitor requires just a simple connection to its remote sensor.

Applications

Toxgard II Monitors can be applied in any application where there is a threat of the build-up of combustible gases, the presence of toxic gases, or oxygen deficiency.

Toxgard II Monitors are suitable for indoor and outdoor applications in virtually any type of industry including refineries, chemical and petro-chemical facilities, steel mills, water and waste water, mining, and general industry.

Standard Features

- Large, four-digit LED display
- Three levels of alarm
- Large LED alarm indicators
- Internal relay contacts for FAULT, CAUTION, WARNING and ALARM.
- Failsafe fault relay output
- Diagnostics that appear on the display
- Audible alarm
- 4 to 20 mA output

Advanced Features

The advanced features of the Toxgard II Monitor provide benefits never before available in a gas monitor:

- Automatic calibration that eliminates errors due to differences in procedures.
- Calibration at predetermined time/date with no manual intervention when used with Ultima Auto-Cal Module.
- Date of last successful calibration recorded within the Toxgard II Monitor.
- "Replace Sensor" indication when sensor nears its end-of-life.
- Real-time clock for time and date stamping of events.
- Logging of minimum, maximum and average gas concentrations over predetermined time intervals.
- Selectable lock-out of output signals during calibration to inhibit alarms and control actions.
- Digital, multi-drop communication.

Design

All Toxgard II Gas Monitors, regardless of the gas selected for detection, are housed in a rugged, metal enclosure designed for NEMA 4X. With the sensor mounted external to the enclosure, it is easily replaced by simply unscrewing the sensor housing and

removing the plug-in sensor. All Toxgard II Monitors are factory calibrated, making them ready for installation and immediate operation. The Toxgard II Monitor's unique design eliminates all potentiometers, or any other type of internal adjustment.

Operation

Toxgard II Monitors normally operate in the diffusion mode, but also can be specified with an internal pump in applications where it is necessary or more convenient to draw a sample from a remote location.

All Toxgard II assemblies are shipped with a unique Sensorgard which protects the sensor from dirt, water, etc., while allowing gas to penetrate into the unit. The Sensorgard also acts as a baffle in windy environments.

With the remote sensor version, sensors and transmitters can be separated for installations where access to the sensor may be difficult.

Outputs

All Toxgard II Monitors come standard with a large, 1.75" LED display for local indication of gas readings or any other stored parameter.

Additionally, relay contacts are provided for CAUTION, WARNING and ALARM levels. A normally energized Fault relay also provides a contact output for any condition that would not be considered NORMAL by the Toxgard II Gas Monitor.

Alternately, any Toxgard II Gas Monitor can be specified with a digital output for connection to MSA's DAN® 2001 Digital Network System for gas monitoring. While all of the information stored in the Toxgard II Gas Monitor can be accessed locally for viewing on the front panel display, many times it is desirable to have the capability to view this information, setup parameters, change alarm levels, etc. at a central location. The DAN 2001 Digital Network System accomplishes these tasks: multi-drop communication, common system relays and many others. (See Data Sheet 1600-08 for more information about MSA's Digital Network System.)

Calibration

Although the Toxgard II Gas Monitor features tremendous stability, it is essential, as with all gas monitors, that it be calibrated periodically with the gas of interest to ensure proper operation.

The Toxgard II Monitor reduces the possibility of human error when performing a calibration. Simply activate the calibration mode and follow the instructions on the LED display. It instructs the user when to apply zero and span gas. The

Toxgard® II Gas Monitor with options and accessories.



- **Gas-** Simply select the gas to be monitored.
- **Sensor location-** While bottom mount is the typical selection, a side mount option is available particularly if the Toxgard II Monitor will be used as a transportable gas monitor. The Monitor can then be allowed to sit on any flat surface during operation.
- **Audible Alarms-** All units come standard with a 70 db sona-alert. A 93 db Federal horn or 95 db Banshee horn with selectable output tones can be selected as an alternate.
- **Strobes-** Up to two (2) top-mounted strobes can be selected to be activated from the Warning and Alarm levels.
- **Battery Backup-** Provides power in the event input power to the unit becomes interrupted. Also allows for transportable operation of the unit.
- **Digital Communication-** Allows Toxgard II Monitor to operate on the DAN 2001 digital network. All information including gas values, stored information, and set-up parameters can then be displayed or controlled at a central location. For more information on the DAN 2001 System see Data Sheet 1600-08.
- **Internal Pump-** For applications where it is necessary to draw a sample to the unit.
- **Air-line Regulator-** Allows the Toxgard II unit to monitor breathing air lines typically for low levels of carbon monoxide.
- **Flow Cap-** Used whenever a non-pressurized gas sample is to be delivered to the sensor.
- **Handle-** For easy carrying of the unit when used as a transportable monitor.
- **Key lock** (not shown) - If it is necessary to lock the enclosure during operation for security purposes.

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Specifications

Gas Types:

Combustibles; oxygen; toxics

Temperature Range:

Toxics and oxygen: -20° to +50°C
-4° to +122°F

(Range on some models may differ.)

Combustibles: -40° to +90°C
-40° to +194°F

Drift:

Zero Drift: <5%/Yr., typically
Span Drift: <10%/Yr., typically

Noise:

Less than 1% FS

Accuracy:

Repeatability: ±1% FS or 2 ppm
±2% FS
Linearity: (Combustible; O₂; CO)
±10% FS or 2 ppm
(others)

Step Change Response:

T20 O₂ and toxics < 12 sec. (Typ. 6 sec.)
T50 O₂ and toxics < 30 sec. (Typ. 12 sec.)
T50 Combustibles < 8 sec.
T90 Combustibles < 20 sec.

Humidity:

0-95% RH, non-condensing

Sensor Life:

Combustibles: 3 years typically
Toxics and O₂: 2 years typically
Full replacement warranty: 1 year

Hazardous Area Rating:

General Purpose, XP Remote Sensor
Assembly can be installed in Class I, Div 1
areas.

Power Input:

110-220 VAC power input

Signal Output:

4-20 mA: 2-wire current source
Digital: See Bulletin 1600-08

Internal Relays:

Fault, Caution, Warning, Alarm

Internal Relay Contact Rating:

5 amp @ 125 VAC; 5 amp @ 30 VDC

Battery Back Up:

Battery type: 12V lead acid

Battery operating time:

No options; minimal alarm activity:
Toxics and O₂: up to 24 hr.
Combustibles: up to 10 hr.
Full options; depending on alarm activity:
E-chem: 1-4 hrs
Combustibles: 0.5-2 hr.

Physical:

Dimensions:
Enclosure: 10"W x 12"H x 5"D
Weight: 13 lbs.

Toxgard II Monitor automatically makes any necessary adjustments. There's no guesswork with the Toxgard II Gas Monitor. The actual gas readout is displayed during calibration.

When calibration is complete, the Toxgard II Monitor automatically returns to normal operation.

For convenient record keeping, the Toxgard II Monitor date stamps the last successful calibration.

With use of the optional Auto-Cal Module, calibration gas can even be permanently connected. The calibration process then takes place at designated time intervals, eliminating any manual intervention.

An internal two-button keypad allows access to all set-up parameters and stored values including initiation of calibration. In addition, two types of remote communication devices are available for the Toxgard II Monitor. The Toxgard II Calibrator and Controller both provide a digitally encoded signal for nonintrusive calibration and access to the advanced features. This patented technique eliminates tools as well as the need to open the enclosure during set up or calibration.

Calibrator

The Toxgard II Calibrator offers the industry's simplest method of calibration. It is an easy-to-use, three-button device that allows calibration of the Toxgard II Monitor. The Toxgard II Calibrator is available for those who do not need to access the Toxgard II Monitor's advanced features.

Controller

The Toxgard II Controller provides complete access to all features through its full-function keypad.

The controller is used to:

- Set the real-time clock
- Set alarm levels
- Change span-gas values
- Display - date of last calibration
- Display - minimum, maximum and average gas values
- Change address
- Set future calibration time/date

in addition to providing basic calibration functions. It is completely password-protected.

Optional Modules

Auto-Cal Module

Provides a means to permanently connect calibration and zero gas. The Toxgard II Monitor then can be programmed to calibrate itself at pre-determined time and date.

Accessories

Remote Sensor Assembly

Allows sensor to be separated from transmitter for difficult-to-reach installations.

Ordering Information

All Toxgard II Monitors are manufactured using MSA's unique Assemble-To-Order (ATO) process. This allows you to select any of the listed options in order to ensure your Toxgard II Monitor satisfies your individual requirements.

Represented by:



Note: This Data Sheet contains only a general description of the MSA Toxgard II Gas Monitor. 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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