

# MSA Fixed Gas & Flame Detection for the Water & Wastewater Industries

---



## A Passion for Safety

---

Every day thousands of municipal and government employees as well as private contractors face many risks working in and around water and wastewater treatment plants. Potential risks include fire and explosions due to hazardous gases and are present regardless of facility size. MSA offers a full line of industry-leading technology to provide detection solutions for water and wastewater facilities monitoring. Providing the best products, service and support in the industry. *That's the MSA passion.*

*Because every life has a **purpose...***

---

## Ultima® X Gas Monitors

The Ultima X Gas Monitor Series features the latest mechanical, electrical and infrared technologies, designed for exceptional performance. These monitors are well-suited to indoor and outdoor applications in virtually any industry including offshore, refineries, chemical and petrochemical facilities, steel mills, water and wastewater plants, mining, and general industry. Advanced features of the Ultima X Gas Monitor include:

- Sensor disconnect under power (proprietary feature) allows for sensor change-out without declassifying a hazardous area.
- Interchangeable, pre-calibrated smart sensors are ready for installation out of the box and can be field-replaced without tools.
- Liquid crystal display alternates between sensor reading and gas type, indicating ongoing diagnostic checks such as sensor end-of-life condition.
- Stainless steel and NEMA 4X polycarbonate enclosures are designed to allow sensor to be mounted separately from transmitter electronics for proper sensor placement, and provide easy display access for calibration from a safe location.
- Infrared point gas detection for continuous monitoring of combustible gases and vapors. Operation using dual wavelength-heated optics technology provides definitive compensation for temperature, humidity and aging effects.
- IP67-rated (dust-proof, protected from temporary water immersion) to withstand rugged demands of water and wastewater industries.
- 10-year IR source warranty helps to reduce cost of ownership, increases reliability and reduces maintenance.
- Optional quick-check LEDs and 4 relay outputs allow for increased indication of alarm and fault conditions.



## Wireless Communications

Combustible and toxic gases can leak virtually anywhere, and leaks may not occur near a facility's gas detection instrument installation area. MSA's Wireless Communication System is an ideal solution for gas detection needs at locations where no infrastructure exists.

- 900 MHz radio that communicates to a gateway provides reliable real-time detection data at distances of up to 1 mile with clear line of sight.
- Accepts both analog and Modbus inputs.
- Power options include solar panel, battery and charger to help ensure up to 2 weeks of autonomous operation.
- Wireless HART adapter can be added to any MSA HART-enabled field device to communicate with any existing wireless HART network.







## Ultima X3® Technology

X3 Technology brings multi-sensing and Modbus RTU output to Ultima X Series Gas Monitors.

- Sensors can be installed remotely up to 3000 ft. from the transmitter.
- Modbus Systems can handle up to 31 monitors with up to 3 sensors per transmitter for a total of 93 sensors.
- Scrolling display—monitor scrolls through type and reading for all attached sensors.
- Use of Modbus RTU digital communications allows these transmitters to be wired in series, thus reducing overall installation cost.



## Ultima OPIR-5 Open Path Gas Detector

Open path IR gas detector provides continuous monitoring of combustible gas concentrations at path length of up to 150 meters.

- Dual detection range enables sensitivity to both small (ppm • meter) and large (LEL • meter) gas leaks. Parts-per-million • meter allows for fast detection of low level leaks.
- Performance-approved for use in harsh environments (-67°F/-55°C).
- Multiple communication outputs (Analog, HART, Modbus, AMS support) provide complete status and control capability in the control room.
- Unitized display for ease of operation and reduced cost. Alignment of open path unit via integrated display has never been so easy.
- Automatic gain control compensates for dirty optics, rain and fog.



## FlameGard® 5 Series Flame Detectors—Two Models

- **FlameGard 5 MSIR Flame Detector—Great for outdoor applications**  
Combines precision multi-spectral infrared (MSIR) sensing array with highly intelligent neural network processors for high accuracy through superior false alarm immunity.
- **FlameGard 5 UV/IR Flame Detector—Great for indoor applications**  
Uses ultraviolet and infrared technologies for flame detection.

### Features that set the FlameGard 5 Series apart:

- Multi-spectral infrared sensing array (FlameGard 5 MSIR Detector) with highly intelligent neural network processors provides high accuracy through superior false alarm immunity
- MSIR sensor array for a range up to 230ft.
- Wide field of view
- SIL3-suitable products
- Continuous Optical Path Monitoring (COPM) checks optical path integrity and electronic circuitry once per minute

**FlameGard 5 Test Lamp** provides easy functionality verification of any FlameGard 5 Detector.



## Controllers

### TriGard® Gas Monitor for Chlorine and Sulfur Dioxide

TriGard Gas Monitor detects chlorine, sulfur dioxide, other toxic gases, remote combustible gases, and oxygen deficiency or enrichment. These monitors are designed specifically for water and wastewater applications. MSA TriGard Gas Monitor offers affordable monitoring solutions for a variety of needs.

- Adjustable range
- Multiple sensor mounting options
- AC- or DC-powered
- On-board relays
- NEMA 4X design
- LCD display with highly visible LED indicators
- Piezo horn with horn silence button
- Long-life, MSA-designed sensors
- Simple pushbutton calibration
- Available as single-point or 3-point unit
- Battery backup (optional)

Advanced features include sensor disconnect under power, interchangeable *smart* sensors and onboard LEDs and relays.







## GasGard® XL Controller

Versatile, easy-to-use wall-mounted controller monitors toxic and combustible gases and oxygen deficiency. Compact durable housing is constructed of fire-retardant ABS plastic. Large and clear multi-language LCD display provides real-time target gas readings and events, offers full system diagnosis and is supported by individual LEDs per channel with common relays and internal buzzer. GasGard XL Controller can be easily configured to accept up to 8 remote gas sensors.

- Fully configurable via USB or RS485 Modbus connection and free software
- Event log upload through isolated Ethernet RS 485 or USB
- Multi-language display selectable via controller menu
- Expandable up to 8 independent channels using plug-in boards
- Dedicated keys make all functions accessible from front panel
- Common relay board for Alarm Level 1 and 2, Horn 1 and 2 or Failure
- Optional 2 additional relays per channel
- Large graphic display with intuitive icons; all channels shown at a glance
- Internal buzzer 85 dB



## GasGard® 100 Control System

New GasGard 100 Control System provides easy user interface, intelligent architecture and innovative functionality. System offers a scalable, high performance data acquisition/data logging platform with an intelligent approach to data acquisition and control.

Form a complete gas detection solution by equipping GasGard 100 Systems fully integrated measurement, display and recording platforms with MSA's extensive line of transmitters and sensors.

- Open Ethernet connectivity with Web-based configuration and data monitoring functions lets controller handle many monitoring and historical logging functions.
- See real time trends with your Web browser from any PC without specialized software!
- Data monitoring and reporting functions allows for customized reports and layout configurations for viewing trending analysis and more. Use email alert feature to view continuous plant status updates for times when you can't be physically present.
- Flexible, modular architecture manages anywhere from one to six measurement modules on the backplane—each GasGard 100 Controller serves as a measurement node, avoiding long, dense sensor leads throughout machines or processes.



## ModCon® 75 Controller

Controller for use with Ultima X Gas Monitor with X3 Technology enables self-configuration, saving time and money. Pre-programmed, self-configuring controller monitors up to 25 Ultima X Gas Monitors with X3 Technology transmitters (75 sensors total). Compact unit offers remote control for many features. RTU input/output and over-Ethernet interface capability.

- All pertinent data displays on main data screen
- 7-year battery backup provides memory and real-time clock
- Up to 9 zone relays are standard
- Remote relay option allows for local alarming



## Custom Systems

*MSA can create a custom system for your specific application.*

### Tri-Gas Sample Draw System

Areas of wastewater treatment plants that are subject to flooding such as wet wells and influent headworks, are ideal for MSA's Tri-Gas Monitor sample draw custom system. The system is ideal for monitoring oxygen, hydrogen sulfide and combustible gases (methane or petroleum vapors). In addition, system is specifically designed for optimum performance in high-moisture environments.

MSA's Tri-Gas Monitor sample draw system consists of up to 3 sensors with Ultima X or X3 Technology digital communications (RTU output) with onboard LEDs and relays to provide local alarms.

**Options:**

- 1 or 2 top-mounted beacons
- Combustible IR sensor
- Federal, side-mounted horn
- Heated enclosure
- 4X stainless steel enclosure
- Additional common dry contacts
- Available with discrete 4-20 mA output



### Scrubber Monitoring System

With increased concern for clean air, many wastewater treatment plants have added air scrubber systems to help control odors from hydrogen sulfide emissions. MSA offers both in-situ-type sensors for large diameter pipes and/or pre-engineered sample draw systems for those applications that require higher detection ranges up to 500 ppm. Both of these products can also be used in chlorine scrubber applications with range of 0-25 ppm.

MSA Ultima X or X3 Sensor/Transmitters with duct-mount kit feature remote calibration for use within larger pipes. All advanced features of Ultima X or X3 Monitors are available, including *smart* sensors, onboard relays and LEDs, internal power supply option, and true 1-person calibration.

The MSA Scrubber Monitoring System is a pre-engineered system that is compatible with most wet or dry scrubbers. System operates within a closed loop so that no gas vents to the atmosphere. Built to withstand harsh outdoor environments, unit is housed in a heated NEMA 4X enclosure.

Maintenance and calibration are simple procedures. If an obstruction occurs in the sample line, unit provides flow failure indication. Calibration can be performed with IR calibrator, eliminating the need to open the system's front door.

**Benefits:**

- Ensures that your scrubber functions and meets EPA requirements.
- Indicates breakthrough for carbon bed scrubbers.
- Controls chemical feeds for wet scrubbers.
- Conserves expensive chemicals.
- Eliminates odor complaints from the community.



MSA Fixed Gas & Flame Detection Systems are designed to help our customers meet NFPA Standard 820 as indicated below.

Hazard Location	Flame Detection	Methane	Oxygen	Hydrocarbon	Chlorine	Hydrogen Sulfide	Carbon Monoxide	Carbon Dioxide	Sulfur Dioxide	Ammonia
ANAEROBIC DIGESTERS, BOTH FIXED & FLOATING COVER*		■	■			■		■		
DIGESTER CONTROL BUILDING		■	■			■				
DIGESTER GAS PROCESSING ROOMS		■	■			■				
UNDERGROUND (PIPING) TUNNELS CONTAINING NATURAL OR SLUDGE GAS PIPING	■	■	■			■				
IN-VESSEL COMPOSITING*	■	■								
ALCOHOL STORAGE		■	■							
INCINERATORS		■	■	■			■			
CHLORINATION ROOM					■					
CHLORINE STORAGE TANKS & ROOM					■					
AMMONIA STORAGE TANKS & PIPES										■
DE-CHLORINATION PROCESSES			■						■	
SULFUR DIOXIDE STORAGE TANKS									■	
WET WELLS (STORM WATER, RESIDENTIAL WASTEWATER)		■	■			■				
PUMPING STATIONS		■	■			■				
COURSE & FINE* SCREEN FACILITIES		■	■			■				
FLOW EQUALIZATION TANKS*		■				■				
GRIT REMOVAL TANKS*		■	■			■				
PRE-AERATION TANKS*		■				■				
PRIMARY SEDIMENTATION TANKS*		■	■			■				
OXYGEN AERATION TANKS		■								
SCUM HANDLING BUILDING*		■	■			■				
SCUM PITS*		■	■			■				
SCUM PUMPING AREAS* WET & DRY SIDE		■	■			■				
SLUDGE THICKENER*		■	■			■				
SLUDGE STORAGE AREAS*		■	■			■				
SLUDGE BLENDING TANKS* AND HOLDING WELLS		■	■			■				
ODOR CONTROL SYSTEM ACCESS	■	■				■				
COMPOSTING PILES	■									
DEWATERING BUILDINGS	■									
ANAEROBIC DIGESTION GAS STORAGE		■								
UNDERGROUND (PIPING) TUNNELS NOT CONTAINING NATURAL OR SLUDGE GAS PIPING	■									

\*If building is enclosed.

**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 07-2079-MC / December 2013

© MSA 2013 Printed in U.S.A.

**Corporate Center**  
1000 Cranberry Woods Drive,  
Cranberry Township, PA 16066 USA  
Phone 724-776-8600  
[www.MSAafety.com](http://www.MSAafety.com)

**U.S. Customer Service Center**  
Phone 1-800-MSA-INST  
Fax 1-800-967-0398

**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 724-776-8626  
Toll Free 1-800-672-7777  
Fax 724-741-1559  
Email [msa.international@msasafety.com](mailto:msa.international@msasafety.com)

**Offices and representatives worldwide**  
For further information: