

Fixed Gas and Flame Detection for the Water & Wastewater Industries



There are various standards that guide safety in the operation of water and wastewater treatment plants. MSA products are engineered to meet these standards as they specifically apply to fixed gas and flame detection (FGFD) applications.



The NFPA 820 Standard for Fire Protection in Wastewater Treatment and Collection Facilities establishes minimum requirements for protection against fire and explosion hazards. Specifically the standard applies to:

- | | |
|-------------------------|----------------------------------|
| (1) Collection sewers | (7) Wastewater treatment plants |
| (2) Trunk sewers | (8) Sludge-handling facilities |
| (3) Intercepting sewers | (9) Chemical-handling facilities |
| (4) Combined sewers | (10) Treatment facilities |
| (5) Storm sewers | (11) Ancillary structures |
| (6) Pumping stations | |

MSA FGFD products comply with NFPA 820 standards when required.

In addition, MSA FGFD products meet the needs for atmospheric gas monitoring in water and wastewater treatment plants as associated with oxygen deficiency in permitted spaces and commonly found toxic gases such as hydrogen sulfide (H₂S), carbon monoxide (CO), sulfur dioxide (SO₂) and chlorine (Cl₂). MSA FGFD products can be used to comply with OSHA: Standard 1910.148 Appendix E Sewer System Entry guidelines when fixed gas monitoring is required.

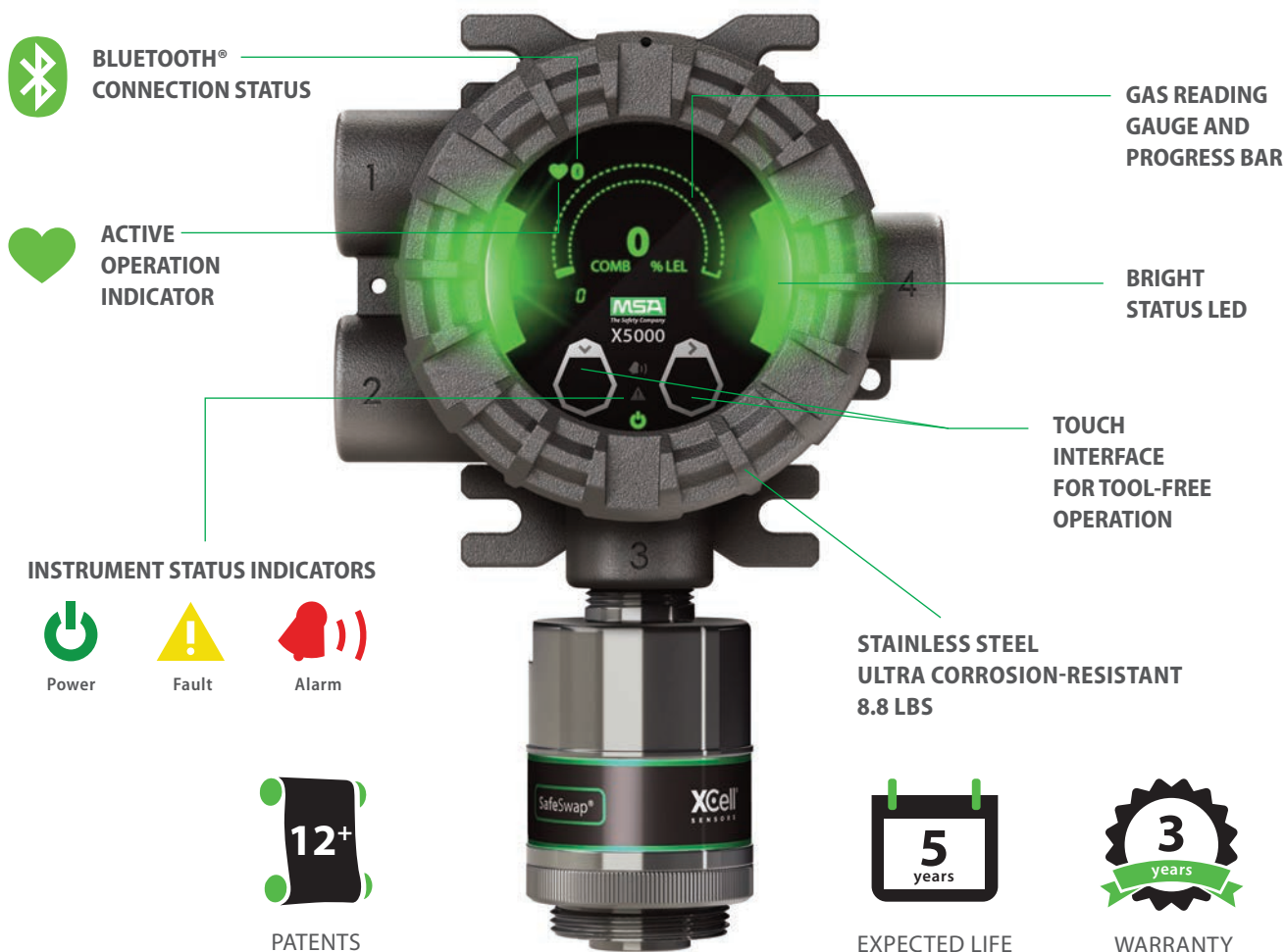
... Atmospheric monitoring. Entrants should be trained in the use of, and be equipped with, atmospheric monitoring equipment which sounds an audible alarm, in addition to its visual readout, whenever one of the following conditions are encountered: Oxygen concentration less than 19.5 percent; flammable gas or vapor at 10 percent or more of the lower flammable limit (LFL); or hydrogen sulfide or carbon monoxide at or above 10 ppm or 35 ppm, respectively, measured as an 8-hour time-weighted average.

WE KNOW WHAT'S AT STAKE.

ULTIMA® X5000 Gas Transmitter

The **ULTIMA X5000 Monitor** takes gas detection to a whole new level.

- New design featuring an Organic LED (OLED) display and bright status LED's for extreme visibility
- An industry first—a touch-button interface for an intuitive user experience and tool-free operation
- TruCal technology actively monitors the sensor integrity and compensates for environmental factors that cause regular electrochemical sensors to drift
- Automatically self-checks 4x/day
- Reduces downtime
- Three year warranty on XCell sensors
- SafeSwap enables safe and quick replacement of gas sensors without turning off the instrument
- Dual sensor capability doubles the sensing power with half of the footprint of a single gas transmitter
- Bluetooth wireless technology allows mobile device to act as an HMI screen and controller. The X/S Connect App is designed with high security standards and provides real-time information to your mobile device
- Check status and get alerts up to 75 ft. (23 m) away
- Reduce set-up time by at least 50%
- Identical footprint and wiring as the ULTIMA X series makes retrofits simple using the existing conduit and wiring as well as an integral mounting bracket



POWERED BY
XCell[®]
SENSORS

WITH

TruCal[®]
PLATFORM



ULTIMA X5000 Gas Monitor

(XIR PLUS SENSOR SHOWN)
DUAL SENSING CAPABILITY FOR
ANY COMBINATION OF SENSORS

COMBUSTIBLE, TOXIC, OR OXYGEN
DIGITAL SENSORS

SafeSwap[®]

Safely and quickly replace
sensors without turning off
the instrument

Senscient ELDS Laser-based Open Path Gas Detection

The **Senscient ELDS laser-based open path gas detector** is available for a wide range of toxic and flammable gases. The Senscient ELDS uses “SimuGas” self-testing to eliminate employees entering hazardous areas for gas checks. Nuisance false alarms are virtually eliminated with its breakthrough Harmonic Fingerprint processing.

- Gases detected: hydrogen sulfide (H₂S), methane (CH₄), ammonia (NH₃), carbon dioxide (CO₂), hydrogen chloride (HCl), and others
- Gas-specific Harmonic Fingerprint detection eliminates false alarms and prevents plant shutdowns
- SimuGas automated function checks are recorded daily and eliminate need for manual intervention
- Tuneable lasers scan more narrow portion of spectrum where water interference from weather conditions are minimized
- Bluetooth wireless technology and SITE software simplifies commissioning, diagnostics, and event log retrieval
- Senscient ELDS lasers are hard on fog, rain, and snow but are easy on the eyes with a Class 1 eye-safe designation.
- Fastest responding device for safety critical ventilation zone and cross duct applications
- No costly communication cable required between transmitter and receiver
- Significantly improves the safety, efficiency, and operational costs of your gas detection program

Ideal for use
in large area
perimeter monitoring,
tunnels and combined
sewer overflow
(CSO) holding tanks.



FlameGard® 5 Series Flame Detectors—Ideal for Methanol Fires

- **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.
- **FL500 UV/IR Flame Detector—Great for indoor applications**
Uses ultraviolet and infrared technologies for high speed flame detection with increased false alarm immunity in a compact design.

Features that set MSA flame detectors 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 230 ft.
- FL500 UV/IR flame detector has six fuel sources FM performance approved (including methanol).
- 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.



Multi-Point Gas Monitors and Controllers

TG5000® Gas Monitor for Chlorine, H2S, O2, Sulfur Dioxide, and Combustible Gasses

The TG5000 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 for alarms
- NEMA 4X design
- LED display with highly visible LED indicators
- Piezo horn with horn silence button
- Same Long-life, MSA-designed sensors that X5000 Detector has
- Simple pushbutton calibration
- Available as single-point or 2-point unit
- Utilizes Ultima X5000 technology
- 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



SUPREMA Touch Controller

SUPREMATouch is a gas and fire warning system for large area measuring and monitoring in industries and small or medium size plants. It can be used with a wide range of detectors including flammable and toxic gas, oxygen, smoke, fire and heat and manual call points.

The SUPREMATouch includes a large colour touchscreen display for easier and user-friendly operation, enhanced processing power and addressable fire and detector capability. Latest hardware and software technology permits simple planning, installation, configuration, integration and operation.

The compact, modular design of the SUPREMATouch allows it to be economically tailored for each application and be extended and adapted any time to meet changing sensor and alarm requirements. Designed around standard industrial 19" racks, SUPREMATouch provides signal processing for up to 256 inputs and 512 outputs and the ability to distribute the system over up to 8 racks using satellites to minimize installation cost



9010/9020 Controller

The 9010/9020 SIL controller comes with advanced design and innovative features. The 9010 controller operates with one independent sensor, while the 9020 operates with two independent sensors per control module. Each module comes with an independent AC/DC power supply for increased system reliability. Both units feature full internal diagnostics, which minimize false alarms and unexpected down time. The controller powers up the remote gas detectors, while its large four-digit LCD and LED provide crucial information such as gas concentration, alarm status and more. SIL 2 certified.



ModCon® 75 Touch 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
- Battery backup holds system information in case of power loss
- Up to 9 zone relays are standard
- Remote relay option allows for local alarming
- Event logging - alarm and fault events can be stored on SD card
- Common fail-safe fault and horn relay
- 7" LCD display



Achieving NFPA 820 Compliance with MSA Panel Solutions

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 system. The system monitors for oxygen, hydrogen sulfide and combustible gases (methane or petroleum vapors). In addition, the system is specifically designed for optimum performance in high-moisture environments and complies with NFPA 820 fire protection standards for wastewater treatment plants.

The basic TriGas Monitor sample draw system consists of up to 4 sensors with Ultima X5000 with onboard relays to provide local alarms.

Options:

- 1 or 2 top-mounted beacons
- Side-mounted horn
- Heated enclosure
- 4X stainless steel or fiberglass enclosure



TriGas Monitoring System

The enhanced TriGas Monitoring System also monitors for methane, hydrogen sulfide and oxygen to meet NFPA 820 standards in harsh environments but has greater expanding features to build-on the basic TriGas design. The options available on the TriGas Monitor are standard for the TriGas Monitoring System. Additional features include: (1) the capability to handle both single or dual zone for two sample inlets for non-classified and NEC Class 1, Division 2 areas and added protection to handle NEC Class 1, Division 1 applications where combustible gas is always present and (2) alarming options to have remote relays and remote interactive displays with HMI capability.

The TriGas Monitoring System can also be used where workers will enter and work within confined spaces for extended time periods. With additional mounting feet and handle, the unit can be placed near the confined space entrance, alerting workers as to the confined space's atmospheric conditions. This solution can be used to comply with OSHA: Standard 1910.148 Appendix E Sewer System Entry guidelines when fixed gas monitoring is required.

For dry wells and applications where a gas monitoring station is required with use of remote sensors, mounting the Ultima X5000 on a MSA plate assembly with power supply, horns and strobes is an ideal solution to meet site compliance to NFPA 820 standards. The dual remote sensor option of the Ultima X 5000 whether mounted in ambient air or ducts can extend to 328 feet away from the transmitter. A complete assembly pre-wired supplied with engineered drawings saves contractor installation costs.



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 X5000, Ultima X or X3 Sensor/Transmitters with duct-mount kit feature remote calibration for use within larger pipes. All advanced features of the Ultima X5000, Ultima X or X3 Monitors are available.

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 PITTS*		■	■			■				
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. Specifications subject to change without notice.



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