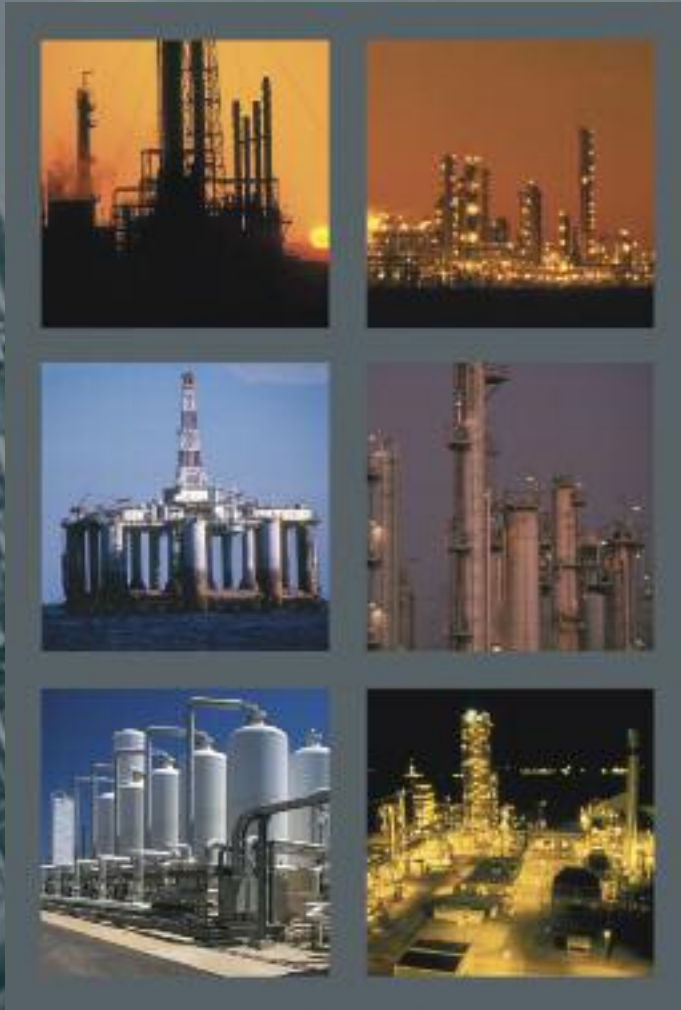


MSA Flame and Gas Detection

for the Oil, Gas, and Petrochemical Industries



www.msanet.com

MSA
The Safety Company

MSA Flame and Gas Detection for Oil, Gas, and Petrochemical Applications



MSA's passion for safety comes from almost a full century of manufacturing the highest-quality gas monitoring instruments. MSA designs and manufactures a complete line of flame and gas detection products for oil, gas, and petrochemical applications. Our passion shows through in our all-stainless steel, globally-approved flame and gas detection permanent instruments, and our reliable and durable single-gas and multigas portable instruments.

MSA is dedicated to designing and manufacturing superior flame and gas monitoring instruments to help ensure that men and women may work in safety, and that they, their families, and their communities may live in health throughout the world. Providing the best products, service, and support in the industry; that's MSA's passion.



Global Reach

MSA is the largest company in the world dedicated solely to producing a complete range of equipment and systems for worker and plant protection. With headquarters located in Pittsburgh, Pennsylvania, our operations extend around the world. Our vast resources ensure that an MSA affiliate is never far away and help to maintain our commitment to protecting lives in more than 120 countries, on all continents around the globe.

Local Presence

MSA-authorized representatives comprise one of the largest distribution networks, providing comprehensive sales, service, and support. MSA field sales representatives and service technicians are thoroughly trained in the use, application, and servicing of our products. With MSA, you have access to dedicated and highly-trained field staff as well as support within our Customer Service Center. Engineers, architects, and operators find flame and gas detection products to suit their every need, with the superior reliability, durability, and design excellence expected from MSA.

MSA offers a full line of permanent gas detection instruments to meet your needs and those of everyone in your organization.

Suprema® Control System

MSA's Suprema Control System, the standard in flame and gas detection technology, features modular redundancy for monitoring of 4-20mA output sensors, smoke detectors, heat sensors, manual alarm call points, pull stations, and more. Designed to meet a wide range of safety needs, the Suprema Controller offers:

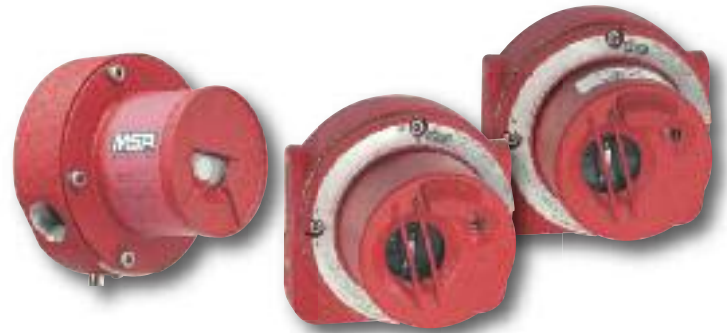
- Signal processing for up to 256 inputs and 512 outputs per controller.
- A modular, intelligent, field-configurable safety system that provides distributed bus technology architecture to help ensure fail-safe internal data transfer.
- Easy installation, commission, and reconfiguration.
- Minimal maintenance, keeping the cost of ownership low.
- ATEX safety approvals and TUV approval for up to SIL3 systems, and NFPA 72 compliance.



Ultima® OPIR-5 Open Path Gas Detector

The Ultima OPIR-5 Detector is an open path IR gas detector that provides continuous monitoring of combustible gas concentrations at a path length of up to 150 meters.

- Dual detection range enables sensitivity to both small (ppm · meter) & large (LEL · meter) gas leaks. The ppm · meter range allows for fast detection of low level leaks.
- Performance approved for use in harsh environments
- Up to 150 meter path length
- Multiple communication outputs (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 an open path unit via the integrated display has never been so easy.
- Automatic gain control compensates for dirty optics, rain and fog



The FlameGard® 5 Series of Flame Detectors includes three models:

- **FlameGard 5 MSIR Flame Detector**
Combines a 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**
Uses ultraviolet and infrared technologies for flame detection.
- **FlameGard 5 UV/IR-H2 Flame Detector**
Uses ultraviolet and infrared technologies to detect hydrogen fires.

Features that set the FlameGard 5 Series apart:

- Multi-spectral infrared sensing array (in the FlameGard 5 MSIR Detector) with highly intelligent neural network processors provides high accuracy through superior false alarm immunity
- Wide field of view
- SIL 3 suitable products
- Continuous Optical Path Monitoring (COPM) checks optical path integrity and electronic circuitry once every minute

The **FlameGard 5 Test Lamp** provides an easy way to verify the functionality of any of the FlameGard 5 Detectors.



MSA offers a full line of permanent gas detection instruments. to meet your needs and those of everyone in your organization.



Ultima® XL/XT Series Gas Monitors

Ultima XL/XT Series Gas Monitors are economical continuous gas monitors. Single-sensor units use catalytic, electrochemical, and infrared gas detection technologies for combustible and toxic gases and for oxygen deficiency. HART Field Communications Protocol running over 4-20mA output provides convenient setup, calibration, and diagnostics. Hand-held HART communicator, controller, or laptop provides display, while local calibration employs LEDs and push-buttons. Ultima XL Gas and Ultima XL Infrared Combustible Gas Monitors are explosion-proof with stainless steel enclosures, while the Ultima XT Gas Monitor is housed in general-purpose plastic.

- Sensor disconnect-under-power without declassifying a hazardous area
- Interchangeable smart sensors; no reconfiguration required
- One circuit board for increased reliability and easier serviceability
- Calibrate, set up, or perform diagnostics with HART from any point along the 4-20mA line
- Easy installation with 2-piece field wiring connectors
- Asset management using HART interface
- Adjustable full-scale Ultima range
- 10-year warranty on XL IR Monitor (IR source only)



Ultima XE Gas Monitor

Ultima XE Gas Monitors offer mechanical and electrical technologies for continuous gas monitoring of combustible and toxic gases, as well as for oxygen deficiency. HART Protocol provides increased sensor data, part of cost-effective asset management. Calibrate, set up, or perform diagnostics with HART from any point along the 4-20mA line. HART allows for existing component install and wiring to be used, reducing installation costs. Advanced features include:

- DuraSource™ Technology for improved sensor life.
- FM, UL, CSA, ATEX, and IEC approvals.
- Single electronics board for maximum reliability and serviceability.
- Disconnect-under-power, allowing for hazardous area sensor replacement.
- Interchangeable smart sensors enable easy installation and replacement; new sensors are recognized, triggering automatic alarm and relay setting reconfiguration.
- Display conveniently alternates between sensor reading and gas type, featuring scrolling diagnostic messaging.
- Onboard LEDs and relays provide increased alarm and fault condition indication.
- SIL 2-certified products.



Ultima XIR Infrared Gas Monitor

Ultima XIR Gas Monitors provide microprocessor-based, infrared-point gas detection for continuous monitoring of combustible and carbon dioxide gases and vapors. Ultima XIR Monitors employ dual-wavelength heated-optics technology, providing definitive compensation for temperature, humidity, and aging effects. IR technology offers excellent long-term stability, eliminating the need for frequent calibrations and reducing overall cost of ownership. Ultima XIR Monitors operate over extended temperature ranges, have rapid response time, and are immune to sensor poisoning. Ultima XIR Monitors function in both high-gas and low-oxygen environments and contain no moving parts, jumpers, switches, or pots.

Ultima XIR Monitors offer the same features as Ultima XE Gas Monitors plus advanced features including:

- FM, UL, CSA, ATEX, and IEC approvals.
- Simple zero adjustment for reliable accuracy.
- DuraSource Technology for improved sensor life.
- 10-year warranty on IR source.
- Field-selectable algorithms for many hydrocarbon-based gases.
- Fail-to-safety operation designed without sintered disk.
- SIL 2-certified products.



Ultima X Series Gas Monitors with X³® Technology

Ultima X Series Gas Monitors with X3 Technology provide continuous monitoring of combustible and toxic gases and oxygen deficiency. X3 Technology is X to the Power of 3, bringing multi-sensing, signal boost, and Modbus output to Ultima X Series Gas Monitors. This technology allows 3 sensors to be inputted into one Ultima X Gas Monitor and provides Modbus RTU output. Each sensor can be remoted up to 3,000 feet from the monitor. Any combination of electrochemical, catalytic, and infrared-type sensor is available, a perfect match for all applications and industries.

- Multi-sensing; up to 31 monitors with up to three sensors inputted per monitor for a total of 93 sensors.
- Scrolling display: monitor scrolls through type and reading for all attached sensors.
- Signal boost: universal 85-256VAC or 7-30VDC power supply available at remote conduit.
- RTU output: industry standard RTU format, RS-485 half-duplex communication interface, and integration into PLC/DCS systems.



Ultima MOS-5 Intelligent Hydrogen Sulfide Sensor

The Ultima MOS-5 Sensor is a micro-processor-based transmitter designed for use with a Metal Oxide Semiconductor (MOS) sensor.

- Robust construction has been proven in the most extreme environments
- Precise and reliable MOS sensor is highly selective; unaffected by many gases commonly present in plant environments
- User self-calibration: simply activate a magnetic switch and apply gas - No special tools or area declassification is required
- Lower use of H₂S calibration gas and personnel time required to perform routine maintenance saves time and money
- Suitable for use in SIL 3 systems and approved by FM and CSA
- Functions within a wide range of ambient temperatures and high humidity
- 2-year product warranty including the long life MOS sensor

MSA offers a full line of portable gas detection instruments to meet your needs and those of everyone in your organization.



ALTAIR® Single-Gas Detector

ALTAIR Single-Gas Detectors provide maintenance-free monitoring of carbon monoxide, hydrogen sulfide, or oxygen. 2-year lifespan and unit's high performance results in highly cost-effective monitors.

- Advanced design offers superior dust and water protection and high RFI resistance
- Rubberized housing and 1-button operation provide durability and ease of use
- Triple-alarm system features 2 bright LEDs, piercing audible alarm, and vibrating alarm
- Automatic recording of last 25 alarm events
- To read data or change alarm set points, simply connect unit to MSA's infrared adapter using built-in IR communication port



ALTAIR Pro Single-Gas Detector

ALTAIR Pro Single-Gas Detector toxic gas and oxygen detectors display toxic gas concentration or percent oxygen on a large, clear, backlit LCD. The ALTAIR Pro Single-Gas Detector provides worry-free performance and stands up to the roughest handling in the toughest industrial environments. Its rubberized armor housing and one-button operation provide durability and simplicity.

- Replaceable sensors and battery
- One-button operation provides ease of use
- Distinctive alarm system
- Alarm check, bump check, fresh air zero, and calibration made easy
- Built-in IR communication (event and data logging)
- Water- and dust-resistant rugged design



ALTAIR 4X Multigas Detector

Features include average 4+ years sensor lifespan (double the industry average), sensor response and clear times of less than 20 seconds, and faster span, calibration, and bump times save you money.

MSA's proprietary application-specific integrated circuit (ASIC) design places sensor electronics inside the miniaturized sensor itself, resulting in superior stability, accuracy, and reliability. The ALTAIR 4X Multigas Detector with XCell Sensor Technology is compatible with the ALTAIR 4 QuickCheck® Station and the ALTAIR 4 Galaxy® Test Stand, and uses ALTAIR 4 Multigas Detector calibration gas. Other features include 24-hour run time at normal operating temperatures and glow-in-the-dark over-molding as an ATO option.

The ALTAIR 4X Multigas Detector retains these exclusive features:

- MotionAlert™ feature standard alarm alerts workers that a fellow worker may have succumbed to the environment's hazards.
- InstantAlert™ feature lets workers manually activate this standard alarm to alert co-workers of unexpected hazards.
- Rubber over-molded rugged housing allows units to survive drops of 10+ ft.
- Dust and water resistance.
- High-contrast, icon-driven display with intuitive icons for fast interpretation of detector readings.
- Top and bottom, bright red LED visual alarms can be seen from almost every angle by both users and co-workers.



ALTAIR 5X Multigas Detector with MSA XCell® Sensor Technology

The ALTAIR 5X Multigas Detector monitors up to six gases simultaneously, using a combination of MSA XCell and infrared sensors.

Built on Durability

- Only instrument in its class with internally-integrated pump
- Full three-year warranty on LEL, O₂, H₂S, CO, SO₂, and IR sensors
- Withstands 10-foot drop test

Powered by Performance

- Four-year sensor life on LEL, O₂, H₂S, CO, SO₂, and IR sensors –60% longer than industry average
- Three-year sensor life on NH₃ and Cl₂

- MSA-exclusive instrument end-of-sensor-life warning, MotionAlert™, and InstantAlert™ features

Flexibility to meet your Needs

- Interchangeable plug-and-play sensor slots (XCell sensors)
- Color or monochrome display options

Revolutionizing Sensor Technology

- Industry-first 60-second span calibration time*
- Sensor response and clear times in under 15 seconds* – 50% faster than industry average

** for LEL, O₂, CO, H₂S, and SO₂*



Galaxy® Automated Test System

The Galaxy Automated Test System, MSA's automated record keeping and calibration test system, offers low cost, ease of use, versatility, and durability. The Galaxy Automated Test System operates without the touch of a single button. After setup, users place their instrument in the test stand and the Galaxy System automatically performs tests. The Galaxy System is standalone, requiring no computer, controller, or network interface; only minimal training is needed. All gas tubing and electrical connections are pre-connected. The Galaxy Automated Test System is compatible with ALTAIR Multigas Detectors, Solaris® Multigas Detectors (data logging version), Sirius® Multigas Detectors, and Orion® Multigas Detectors (data logging version).

- Wired network interface
- Instrument charging capability, memory card, and test receipt printer options
- Standard web browser accessibility for data retrieval and reporting
- In-line gas cylinder holster keeps work areas orderly
- Expandable; up to 10 systems can be interconnected



Sirius® Multigas Detector

Sirius Multigas Detectors provides users with outstanding multifunctional capabilities by integrating a high performance photoionization (PID) detector into a 4-gas detector. Users can simultaneously monitor for volatile organic compounds while measuring for combustible, toxic, and oxygen-deficient atmospheres within one reliable, easy-to-use unit.

- MSA's patent-pending PID design offers superior performance including humidity resistance, stable zero readings, and fast response times.
- Interchangeable rechargeable and disposable battery options keep instruments running nearly 24/7.
- One-button auto calibration makes calibration simple for all users.
- Compatible with MSA's Galaxy System for automated calibration and recordkeeping.

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.



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