

ULTIMA[®] X5000 Gas Monitor



The future looks bright.

Simple retrofits have identical footprint and wiring to ULTIMA X Gas Monitor series.

Bluetooth[®] wireless technology allows mobile device to act as HMI screen and controller.

Intuitive display features new design equipped with organic LED (OLED) display, with full word text in 9 languages. Bright green, yellow, and red status LEDs for extreme visibility.



Reduce setup time by at least 50% with the X/S Connect App.



Industry-first, touch-button interface provides intuitive, tool-free user experience.

Instrument status indicators illuminate power, fault, and alarm conditions.

Advanced Sensor Technology

POWERED BY
XCell[®]
SENSORS

WITH
TruCal[®]
TECHNOLOGY

- Patented XCell H₂S and CO Sensors with TruCal technology extend calibration cycles for as long as 2 years, actively monitor sensor integrity, and compensate for environmental factors and electrochemical sensor drift.
 - **Diffusion Supervision** sends acoustic signal every 6 hours to check that sensor inlet isn't obstructed so gas can reach the sensor.
 - Worry-free operation—automatically self-checks four times per day.
- 3-year warranty and 5-year expected life for XCell Sensors.
- **Dual sensor capability** doubles sensing power with half the footprint of a single gas sensor transmitter.
- **SafeSwap** enables safe and quick XCell Sensor replacement without powering off gas detector.

Applications

- Chemical
- Oil and gas
- Petrochemical
- Utilities
- Wastewater
- General industry



SafeSwap[®]

WE KNOW WHAT'S AT STAKE.

ULTIMA X5000 Gas Monitor: Sensor Specifications



Electrochemical Sensors													
Gas	Default Range	Selectable Full Scale Range	Resolution	Response Time*		Repeatability	Zero Drift	Operating Temperature		Sensor Type	Sensor Life	Warranty	Classification
				T50	T90			Min.	Max.				
Ammonia - 100	0 - 100 ppm	25 - 100 ppm	0.1 ppm	< 20 Sec	< 60 Sec	< ±1%	< 1% FS / Month	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 2
Ammonia - 1000	0 - 1000 ppm	190 - 1000 ppm	10 ppm	< 20 Sec	< 300 Sec	< ±15%	< 1% FS / Month	-30°C (-22°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 2
Carbon Monoxide - 100	0 - 100 ppm	10 - 1000 ppm	1 ppm	< 3 Sec	< 9 Sec	< ±1%	< 1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Carbon Monoxide - 1000	0 - 1000 ppm	10 - 1000 ppm	1 ppm	< 3 Sec	< 9 Sec	< ±1%	< 1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Carbon Monoxide - 500	0 - 500 ppm	10 - 1000 ppm	1 ppm	< 3 Sec	< 9 Sec	< ±1%	< 1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Carbon Monoxide H ₂ Resistant	0 - 100 ppm	10 - 1000 ppm	1 ppm	< 3 Sec	< 9 Sec	< ±1%	< 1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Chlorine - 5	0 - 5 ppm	1 - 20 ppm	0.1 ppm	< 5 Sec	< 12 Sec	< ±1%	< 1% FS / Month	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 2
Chlorine - 10	0 - 10 ppm	1 - 20 ppm	0.1 ppm	< 5 Sec	< 12 Sec	< ±1%	< 1% FS / Month	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 2
Chlorine - 20	0 - 20 ppm	1 - 20 ppm	0.1 ppm	< 5 Sec	< 12 Sec	< ±1%	< 1% FS / Month	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 2
Ethylene Oxide	0 - 10 ppm	1 - 10 ppm	0.1 ppm	< 50 Sec	< 140 Sec	< ±15%	< 2% FS/Month	-20°C (-4°F)	40°C (104°F)	Echem	2 Years	1 Year	Div/Zone 2
Hydrogen	0 - 1000 ppm	250 - 1000 ppm	10 ppm	< 40 Sec	< 185 Sec	< ±10%	< 1% FS / Month	-30°C (-22°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 1
Hydrogen Chloride	0 - 50 ppm	25 - 50 ppm	1 ppm	< 30 Sec	< 120 Sec	< ±35%	< 1% FS / Month	-30°C (-22°F)	40°C (104°F)	Echem	2 Years	1 Year	Div/Zone 2
Hydrogen Cyanide	0 - 50 ppm	25 - 50 ppm	1 ppm	< 8 Sec	< 30 Sec	< ±15%	< 1% FS / Month	-20°C (-4°F)	40°C (104°F)	Echem	2 Years	1 Year	Div/Zone 1
Hydrogen Fluoride	0 - 10 ppm	5 - 10 ppm	0.1 ppm	< 60 Sec	< 90 Sec	< ±15%	< 2% FS / Month	0°C (32°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 2
Hydrogen Sulfide - 10	0 - 10 ppm	10 - 100 ppm	0.1 ppm	< 7 Sec	< 23 Sec	< ±1%	< 1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Hydrogen Sulfide - 50	0 - 50 ppm	10 - 100 ppm	0.1 ppm	< 7 Sec	< 23 Sec	< ±1%	< 1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Hydrogen Sulfide - 100	0 - 100 ppm	10 - 100 ppm	0.1 ppm	< 7 Sec	< 23 Sec	< ±1%	< 1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Hydrogen Sulfide - 500	0 - 500 ppm	20 - 500 ppm	1 ppm	< 20 Sec	< 60 Sec	< ±10%	< 1% FS / Month	-40°C (-40°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 1
Nitrogen Dioxide	0 - 10 ppm	1.5 - 10 ppm	0.1 ppm	< 30 Sec	< 60 Sec	< ±10%	< 1% FS / Month	-40°C (-40°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 2
Nitrogen Oxide	0 - 100 ppm	2.5 - 100 ppm	0.5 ppm	< 5 Sec	< 20 Sec	< ±15%	< 1% FS / Month	-30°C (-22°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 1
Oxygen	0 - 25%	5 - 25%	0.10%	< 6 Sec	< 11 Sec	< ±1% Vol	< 0.2 % Vol / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Oxygen (FM)	0 - 25%	5 - 25%	0.10%	< 6 Sec	< 11 Sec	< ±1% Vol	< 0.2 % Vol / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Oxygen, Low	0 - 25%	2 - 25%	0.10%	< 10 Sec	< 30 Sec	< ±10%	< 1% FS / Month	-30°C (-22°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 1
Sulfur Dioxide - 100	0 - 100 ppm	25 - 100 ppm	1 ppm	< 10 Sec	< 30 Sec	< ±15%	< 1% FS / Month	-30°C (-22°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 2
Sulfur Dioxide - 25	0 - 25 ppm	5 - 25 ppm	0.1 ppm	< 3 Sec	< 6 Sec	< ±1%	< 1% FS / Month	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 2

*Typical response at standard temperature and pressure test conditions

ULTIMA X5000 Gas Monitor: Sensor Specifications



XCell Catalytic Bead Sensors													
Gas	Default Range	Selectable Full Scale Range	Resolution	Response Time*		Repeatability	Zero Drift	Operating Temperature		Sensor Type	Sensor Life	Warranty	Classification
				T50	T90			Min.	Max.				
Methane (5.0%)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< ±1% LEL	< 5% LEL / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Propane (2.1%)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< ±1% LEL	< 5% LEL / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Heptane (1.05%)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< ±1% LEL	< 5% LEL / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Nonane (0.8%)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< ±1% LEL	< 5% LEL / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Hydrogen (4.0%)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< ±1% LEL	< 5% LEL / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Methane (4.4% EN)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< ±1% LEL	< 5% LEL / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Propane (1.7% EN)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< ±1% LEL	< 5% LEL / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Heptane (0.85% EN)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< ±1% LEL	< 5% LEL / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Nonane (0.7% EN)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< ±1% LEL	< 5% LEL / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1

ULTIMA XIR Plus Infrared Sensors													
Gas	Default Range	Selectable Full Scale Range	Resolution	Response Time*		Repeatability	Zero Drift	Operating Temperature		Sensor Life	Warranty	Classification	
				T50	T90			Min.	Max.				
XIR+ 0-100% LEL Ethanol	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ 0-100% LEL Ethylene Oxide	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ 0-100% LEL Gasoline Hexane	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ 0-100% LEL Hexane	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ 0-100% LEL Isopropanol	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ 0-100% LEL Methane (5%)	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ 0-100% LEL Methyl Methacrylate	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ 0-100% LEL Propane (2.1%)	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ 0-100% LEL Ethanol EN	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ 0-100% LEL Ethylene Oxide EN	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ 0-100% LEL Gasoline Hexane EN	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ 0-100% LEL Methane (4.4%) EN	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ 0-100% LEL Propane (1.7%) EN	0 - 100% LEL	20 - 100% LEL	1%	—	< 2 Sec	< ±1% LEL	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ Carbon Dioxide (2%)	0 - 2% Vol	0.4 - 2%	0.05%	< 3 Sec	< 6 Sec	< ±1%	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	
XIR+ Carbon Dioxide (5%)	0 - 5% Vol	1 - 5%	0.05%	< 3 Sec	< 6 Sec	< ±1%	N/A	-40°C (-40°F)	60°C (140°F)	10+ Years	10 Years	Div/Zone 1	

*Typical response at standard temperature and pressure test conditions

ULTIMA® X5000 Gas Monitor



Specifications

Product Specifications	
COMBUSTIBLE GAS SENSOR TYPE	Catalytic Bead (XCell combustible) Infrared (XIR Plus)
TOXIC GAS & OXYGEN SENSOR TYPE	<p>XIR PLUS Carbon Dioxide (CO₂)</p> <p>XCell Toxic Ammonia (NH₃), Carbon Monoxide (CO), Carbon Monoxide (CO) H₂-resistant, Hydrogen Sulfide (H₂S), Chlorine (Cl₂), Sulfur Dioxide (SO₂)</p> <p>XCell O₂ Electrochem. Oxygen (O₂) Ammonia (NH₃), Ethylene Oxide (ETO), Hydrogen (H₂), Hydrogen Chloride (HCl), Hydrogen Cyanide (HCN), Hydrogen Fluoride (HF), Nitric Oxide (NO), Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂)</p>
SENSOR MEASURING RANGES	<p>Combustible 0-100% LEL</p> <p>CO₂ 0-2%, 0-5% Vol</p> <p>CO 0-100, 0-500, 0-1000 ppm</p> <p>CO, H₂-resistant 0-100 ppm</p> <p>Cl₂ 0-5, 0-10, 0-20 ppm</p> <p>ETO 0-10 ppm</p> <p>H₂ 0-1000 ppm</p> <p>HCl 0-50 ppm</p> <p>HCN 0-50 ppm</p> <p>HF 0-10 ppm</p> <p>H₂S 0-10, 0-50, 0-100, 0-500 ppm</p> <p>NH₃ 0-100, 0-1000 ppm</p> <p>NO 0-100 ppm</p> <p>NO₂ 0-10 ppm</p> <p>O₂ 0-25%</p> <p>SO₂ 0-25, 0-100 ppm</p>
APPROVALS CLASSIFICATION	<i>Markings vary by component. See manual for specific component markings.</i>
DIVISIONS (US/CAN)	Class I, II, III; Div 1 & 2, T4/T5/T6
ZONES (GLOBAL)	Ex db nA IIC T5 Gb (Class I, Zone 1/Zone2) Ex tb IIIC T85°C Db (Class II, Zone 2I)
ENCLOSURE RATING	Type 4X, IP66
WARRANTY	<p>X5000 transmitter 2 years</p> <p>XIR PLUS 10 years source, 5 years electronics</p> <p>XCell Sensors 3 years</p> <p>Electrochemical Sensors Varies by gas</p>
APPROVALS	CSA, FM*, ATEX, IECEx, INMETRO, DNV-GL Marine, CE Marking, SIL 2 suitable. Complies with C22.2 No. 152, FM 6320

Environmental Specifications																															
OPERATING TEMPERATURE RANGE	<p>XCell -40°C to +60°C</p> <p>Electrochem. See page 2</p> <p>XIR PLUS -40°C to +60°C</p>																														
RELATIVE HUMIDITY (NON-CONDENSING)	<p>XCell toxics & O₂ 10-95%</p> <p>XCell combustible 0-95%</p> <p>XIR PLUS 15-95%</p>																														
Mechanical Specifications																															
INPUT POWER	11 to 30 VDC, 3 wire																														
SIGNAL OUTPUT	Dual 4-20 mA current source, HART																														
BLUETOOTH (OPTIONAL)	Bluetooth Low Energy (BLE) v4.3 or higher																														
RELAY RATINGS	5 A @ 30 VDC; 5 A @ 220 VAC (3X) SPDT - fault, warn, alarm																														
RELAY MODES	Common, discrete, horn																														
NORMAL MAX POWER	<table border="1"> <thead> <tr> <th></th> <th>Without Relays</th> <th>With Relays</th> </tr> </thead> <tbody> <tr> <td>XIR PLUS</td> <td>5.7 W</td> <td>6.7 W</td> </tr> <tr> <td>XCell combustible</td> <td>3.9 W</td> <td>4.9 W</td> </tr> <tr> <td>XCell Toxic & O₂</td> <td>1.8 W</td> <td>2.8 W</td> </tr> <tr> <td>XIR PLUS & XCell combustible</td> <td>9.9 W</td> <td>10.9 W</td> </tr> <tr> <td>XIR PLUS & XCell toxic or O₂</td> <td>6.0 W</td> <td>7.0 W</td> </tr> <tr> <td>Dual XIR PLUS</td> <td>10.6 W</td> <td>11.6 W</td> </tr> <tr> <td>Dual XCell toxic & O₂</td> <td>2.6 W</td> <td>3.6 W</td> </tr> <tr> <td>Dual XCell combustible</td> <td>9.6 W</td> <td>10.6 W</td> </tr> <tr> <td>Dual XCell comb. & XCell toxic or O₂</td> <td>4.3 W</td> <td>5.3 W</td> </tr> </tbody> </table>		Without Relays	With Relays	XIR PLUS	5.7 W	6.7 W	XCell combustible	3.9 W	4.9 W	XCell Toxic & O₂	1.8 W	2.8 W	XIR PLUS & XCell combustible	9.9 W	10.9 W	XIR PLUS & XCell toxic or O₂	6.0 W	7.0 W	Dual XIR PLUS	10.6 W	11.6 W	Dual XCell toxic & O₂	2.6 W	3.6 W	Dual XCell combustible	9.6 W	10.6 W	Dual XCell comb. & XCell toxic or O₂	4.3 W	5.3 W
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EMC DIRECTIVE	Complies with EN 50270, EN 61000-6-4, EN 61000-6-3																														
DISPLAY	Organic LED (multi-lingual) with contrast ratio of 2000:1 and view angle of 160°																														
HART	HART 7, HART device description language available																														
FAULTS MONITORED	Low supply voltage, RAM checksum error, flash checksum error, EEPROM error, internal circuit error, relay, invalid sensor configuration, sensor faults, general system																														
CABLE REQUIREMENTS	3-wire shielded cable for single sensor and 4-wire shielded cable for dual sensor configurations. Accommodates up to 12 AWG or 4 mm ² <i>Refer to manual for mounting distances.</i>																														
Dimensions																															
HOUSING (W x H)	5.88" x 5.71" (150 x 145 mm)																														
W/XCELL SENSOR	5.88" x 10.15" (150 x 258 mm)																														
W/XCELL & XIR SENSORS	13.42" x 10.15" (341 x 258 mm)																														
LID (DEPTH)																															
W/RELAY BOARD	4.86" (123 mm)																														
W/O RELAY BOARD	3.86" (98 mm)																														
WEIGHT	8.8 lb. (4 kg), 316 SS																														

See manual for FM approved sensors.

Note: This Bulletin contains only a general description of the products shown. While product uses and performance capabilities are generally described, the products shall not, under any circumstances, be used by untrained or unqualified individuals. The products shall not be used until the product instructions/user manual, which contains detailed information concerning the proper use and care of the products, including any warnings or cautions, have been thoroughly read and understood. Specifications are subject to change without prior notice. MSA is a registered trademark of MSA Technology, LLC in the US, Europe, and other Countries. For all other trademarks visit <https://us.msasafety.com/Trademarks>.

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