



WE KNOW WHAT'S AT STAKE.

# XCell Sensors

MSA XCell Sensors are a breakthrough in sensor design, enabling faster response and shorter span calibrations, saving you time and money. ASIC (application-specific integrated circuit) technology inside of each sensor provides greater control and higher performance than other sensors on the market.

Every XCell Sensor is built by MSA with a proprietary embedded ASIC microchip that drives the sensor and converts its output to a digital signal. This microchip is much more than a digital sensor; XCell Sensors perform real-time environmental corrections, provide plug-and-play capabilities and deliver greater RF immunity with higher overall performance.

MSA XCell Sensors have a typical life of more than four years\*, double the industry average. By miniaturizing sensor controlling electronics and placing them inside of the sensor itself, MSA XCell Sensors offer superior response time, stability, accuracy, and reliability. MSA is proud to offer XCell Sensors with:

- State-of-the-art automated assembly for greater control and reliability.
- Laser-welded sensor housings to eliminate opportunities for leaks.
- End-of-sensor-life warning to minimize downtime and inventory replacement.

*With less time spent on calibration and bump tests, you save on calibration gas, maintenance costs and in turn, save money. But most importantly, MSA's industry-leading response times help to save lives.*



\*Refers to most standard XCell Sensors. Specific exotic gas and special application sensors have shorter expected lives. Please refer to [www.MSAafety.com](http://www.MSAafety.com) for additional information.

# Combustible

## Ex Sensor

ALTAIR 4X, ALTAIR 4XR, ALTAIR 5X

**Gas:** Combustible (LEL)  
**Package:** Single gas  
**Range:** 0-100% LEL or 0-5% CH<sub>4</sub>  
**Resolution:** 1% LEL or 0.05% Vol CH<sub>4</sub>  
**Response Time (typ):** t(90) <10 seconds (methane)  
 t(90) <15 seconds (pentane)

**Alarm Setpoint:** Min 5% LEL/ Max 60% LEL

**Warranty:** 3 years

**Advantages:**

- Long life: >4-year life using dual detector beads means fewer sensor replacements over the instrument's life.
- Durable: patented support system allows sensor to survive a 6-meter drop in an ALTAIR® 4X Multigas Detector.
- Response: industry-leading response time not only helps to save lives, but your time and money as well.
- Performance: run up to 3 shifts with XCell Sensor's low power consumption.
- Resilience: extremely robust filter helps to keep sensors free of poisons and inhibitors.



## Ex-M Sensor

ALTAIR 4X, ALTAIR 4XR

**Gas:** Combustible (LEL)  
**Package:** Single gas  
**Range:** 0-100% LEL or 0-5% CH<sub>4</sub>  
**Resolution:** 1% LEL or 0.05% Vol CH<sub>4</sub>  
**Response Time (typ):** t(90) <10 seconds (methane)

**Alarm Setpoint:** Min 2% LEL/ Max 60% LEL  
 Min 0.1% VOL/ Max 3% VOL

**Warranty:** 3 years

**Advantages:**

- Specialized: additional stability for extended CH<sub>4</sub> exposures found in mining/liquefied natural gas (LNG) applications.
- Long life: >4-year life using dual detector beads means fewer sensor replacements over the instrument's life.
- Resilience: extremely robust filter helps to keep sensors free of poisons and inhibitors.



## Ex-H Sensor

ALTAIR 4X, ALTAIR 4XR, ALTAIR 5X

**Gas:** Combustible (LEL)  
**Package:** Single gas  
**Range:** 0-100% LEL or 0-5% CH<sub>4</sub>  
**Resolution:** 1% LEL or 0.05% Vol CH<sub>4</sub>  
**Response Time (typ):** t(90) <10 seconds (methane)  
 t(90) <15 seconds (pentane)

**Alarm Setpoint:** Min 5% LEL/ Max 60% LEL

**Warranty:** 1 year

**Advantages:**

- Specialized: increased response to select solvents and heavy hydrocarbons (acetone, nonane, methyl ether ketone [MEK], xylene).



## Oxygen

### O<sub>2</sub> Sensor

ALTAIR 4X, ALTAIR 4XR, ALTAIR 5X

<b>Gas:</b>	Oxygen
<b>Package:</b>	Single gas
<b>Range:</b>	0-30% Vol O <sub>2</sub>
<b>Resolution:</b>	0.1% O <sub>2</sub>
<b>Response Time (typ):</b>	t(90) <10 seconds
<b>Alarm Setpoint:</b>	Min 5% Vol/ Max 24% Vol
<b>Warranty:</b>	3 years
<b>Advantages:</b>	<ul style="list-style-type: none"><li>• Long life: &gt;4-year life, more than 100% additional life than other lead-based sensors.</li><li>• False-alarm rejection: don't be fooled; XCell Sensors are immune to pressure spikes.</li><li>• Durable: when other sensors freeze, XCell Sensors keep working down to -40°C.</li></ul>



## Carbon Monoxide

### CO/H<sub>2</sub>S Sensor

ALTAIR 4X, ALTAIR 4XR, ALTAIR 5X

<b>Gas:</b>	Carbon monoxide
<b>Package:</b>	Two-tox
<b>Range:</b>	0-1999 ppm CO
<b>Resolution:</b>	1 ppm CO
<b>Response Time (typ):</b>	t(90) <15 seconds
<b>Alarm Setpoint:</b>	Min 10 ppm/ Max 1700 ppm
<b>Warranty:</b>	3 years
<b>Advantages:</b>	<ul style="list-style-type: none"><li>• Long life: &gt;4-year life means fewer sensor replacements over the instrument's life.</li><li>• Reliability: virtually no cross-channel interference brings accuracy to a new level.</li><li>• Stability: when it comes to helping to savings lives, be secure in knowing that XCell Sensors are rock solid performers.</li><li>• Response: industry-leading response time not only helps to save lives, but your time and money as well.</li><li>• Resilience: extremely robust filter means that you see the gas of interest.</li></ul>



## CO-HC Sensor

ALTAIR 5X

<b>Gas:</b>	Carbon monoxide (high concentration)
<b>Package:</b>	Single gas
<b>Range:</b>	0-10,000 ppm CO
<b>Resolution:</b>	5 ppm CO
<b>Response Time:</b>	t(90) <15 seconds normal temperature
<b>Alarm Setpoint:</b>	Min 10 ppm/ Max 8500 ppm
<b>Warranty:</b>	3 years
<b>Advantages:</b>	<ul style="list-style-type: none"> <li>• Performance: extended range for high concentration CO applications.</li> <li>• Long life: &gt;4-year life means fewer sensor replacements over the instrument's life.</li> <li>• Reliability: feel confident that XCell Sensor's linearity provides accuracy across the entire readable range.</li> <li>• Response: industry-leading response time not only helps to save lives, but your time and money as well.</li> <li>• Resilience: extremely robust filter means that you can even operate within environments where alcohol vapors may be present.</li> </ul>



## H<sub>2</sub>S/CO H<sub>2</sub> RES Sensor

ALTAIR 4X, ALTAIR 4XR, ALTAIR 5X

<b>Gas:</b>	Carbon monoxide (hydrogen-resistant)
<b>Package:</b>	Two-tox
<b>Range:</b>	0-1999 ppm CO
<b>Resolution:</b>	1 ppm CO
<b>Response Time:</b>	t(90) <15 seconds normal temperature
<b>Alarm Setpoint:</b>	Min 10 ppm/ Max 1700 ppm
<b>Warranty:</b>	3 years
<b>Advantages:</b>	<ul style="list-style-type: none"> <li>• Performance: this XCell Sensor has a very low cross-sensitivity to Hydrogen &lt;5%.</li> <li>• Long life: &gt;4-year life means fewer sensor replacements over the instrument's life.</li> <li>• Response: industry-leading response time not only helps to save lives, but your time and money as well.</li> <li>• Resilience: extremely robust filter means that you see the gas of interest.</li> </ul>



## Hydrogen Sulfide

### CO/H<sub>2</sub>S Sensor

ALTAIR 4X, ALTAIR 4XR, ALTAIR 5X

<b>Gas:</b>	Hydrogen sulfide
<b>Package:</b>	Two-tox
<b>Range:</b>	0-200 ppm H <sub>2</sub> S
<b>Resolution:</b>	1 ppm H <sub>2</sub> S
<b>Response Time (typ):</b>	t(90) <15 seconds
<b>Alarm Setpoint:</b>	Min 5 ppm/ Max 175 ppm
<b>Warranty:</b>	3 years
<b>Advantages:</b>	<ul style="list-style-type: none"><li>• Long life: &gt;4-year life means fewer sensor replacements over the instrument's life.</li><li>• Response: industry-leading response time not only helps to save lives, but your time and money as well.</li><li>• Stability: when it comes to helping to save lives, be secure in knowing that XCell Sensors are rock solid performers.</li></ul>



### CO/H<sub>2</sub>S-LC Sensor

ALTAIR 4X, ALTAIR 4XR, ALTAIR 5X

<b>Gas:</b>	Hydrogen sulfide (low concentration)
<b>Package:</b>	Two-tox
<b>Range:</b>	0-100 ppm H <sub>2</sub> S
<b>Resolution:</b>	0.1 ppm H <sub>2</sub> S
<b>Response Time (typ):</b>	t(90) <15 seconds
<b>Alarm Setpoint:</b>	Min 1 ppm/ Max 70 ppm
<b>Warranty:</b>	3 years
<b>Advantages:</b>	<ul style="list-style-type: none"><li>• Long life: &gt;4-year life means fewer sensor replacements over the instrument's life.</li><li>• False -alarm rejection: don't be fooled; increased sensitivity means fewer false alarms, allowing you to work uninterrupted.</li><li>• Response: industry-leading response time not only helps to save lives, but your time and money as well.</li></ul>



# Sulfur Dioxide

## SO<sub>2</sub> Sensor

ALTAIR 5X

<b>Gas:</b>	Sulfur dioxide
<b>Package:</b>	Single gas
<b>Range:</b>	0-20 ppm SO <sub>2</sub>
<b>Resolution:</b>	0.1 ppm SO <sub>2</sub>
<b>Response Time (typ):</b>	t(90) <10 seconds
<b>Alarm Setpoint:</b>	Min 0.5 ppm/ Max 17.5 ppm
<b>Warranty:</b>	3 years
<b>Advantages:</b>	

- Long life: >4-year life outlasts competition by more than 33%.
- Response: industry-leading response time not only helps to save lives, but your time and money as well.
- Resilience: XCell Sensors continues to perform within low humidity environments when others do not.



## H<sub>2</sub>S-LC/SO<sub>2</sub> Sensor

ALTAIR 4X, ALTAIR 4XR

<b>Gas:</b>	Sulfur dioxide
<b>Package:</b>	Two-tox
<b>Range:</b>	0-20 ppm SO <sub>2</sub>
<b>Resolution:</b>	0.1 ppm SO <sub>2</sub>
<b>Response Time (typ):</b>	t(90) <15 seconds
<b>Alarm Setpoint:</b>	Min 1 ppm/ Max 17.5 ppm
<b>Warranty:</b>	3 years
<b>Advantages:</b>	

- Long life: >4-year life outlasts competition by more than 33%.
- Response: industry-leading response time not only helps to save lives, but your time and money as well.
- Resilience: XCell Sensors continues to perform within low humidity environments when others do not.



## Nitrogen Dioxide

### CO/NO<sub>2</sub> Sensor

ALTAIR 4X, ALTAIR 4XR, ALTAIR 5X

<b>Gas:</b>	Nitrogen dioxide
<b>Package:</b>	Two-tox
<b>Range:</b>	0-50 ppm NO <sub>2</sub>
<b>Resolution:</b>	0.1 ppm NO <sub>2</sub>
<b>Response Time (typ):</b>	t(90) <15 seconds
<b>Alarm Setpoint:</b>	Min 1 ppm/ Max 47.5 ppm
<b>Warranty:</b>	3 years
<b>Advantages:</b>	<ul style="list-style-type: none"><li>• Long life: &gt;4-year life means fewer sensor replacements over the instrument's life.</li><li>• Response: industry-leading response time not only helps to save lives, but your time and money as well.</li><li>• Stability: when it comes to helping to save lives, be secure in knowing that XCell Sensors are rock solid performers.</li></ul>



## Ammonia

### NH<sub>3</sub> Sensor

ALTAIR 5X

<b>Gas:</b>	Ammonia
<b>Package:</b>	Single gas
<b>Range:</b>	0-100 ppm NH <sub>3</sub>
<b>Resolution:</b>	1 ppm NH <sub>3</sub>
<b>Response Time (typ):</b>	t(90) <40 seconds
<b>Alarm Setpoint:</b>	Min 10 ppm/ Max 75 ppm
<b>Warranty:</b>	2 years
<b>Advantages:</b>	<ul style="list-style-type: none"><li>• Long life: &gt;3-year life with patent-pending non-consuming reaction outlasts competition by more than 50%.</li><li>• Resilience: XCell NH<sub>3</sub> Sensors recover from repeated exposures, meaning fewer sensor replacements.</li><li>• Response: industry-leading response time not only helps to save lives, but your time and money as well.</li></ul>



*Not suitable for continuous NH<sub>3</sub> exposure.*

# Chlorine

## Cl<sub>2</sub> Sensor

ALTAIR 5X

<b>Gas:</b>	Chlorine
<b>Package:</b>	Single gas
<b>Range:</b>	0-10 ppm Cl <sub>2</sub>
<b>Resolution:</b>	0.05 ppm Cl <sub>2</sub>
<b>Response Time (typ):</b>	t(90) <30 seconds
<b>Alarm Setpoint:</b>	Min 0.3 ppm/ Max 7.5 ppm
<b>Warranty:</b>	2 years
<b>Advantages:</b>	<ul style="list-style-type: none"><li>• Life: &gt;3-year life, patent-pending non-consuming reaction outlasts competition by more than 50%.</li><li>• Response: industry-leading response time not only helps to save lives, but your time and money as well.</li><li>• Stability: when it comes to helping to save lives, be secure in knowing that XCell Sensors are rock solid performers.</li><li>• Resilience: XCell Sensors continue to perform within low humidity environments when others do not.</li></ul>



*Additional toxic sensors available for detection of PH<sub>3</sub>, HCN, ClO<sub>2</sub>, NO, and CO<sub>2</sub> in the ALTAIR 5X Multigas Detector.*

## XCell Sensor Applications

	Combustible			Oxygen	Carbon Monoxide			Hydrogen Sulfide		Sulfur Dioxide		Nitrogen Dioxide	Ammonia	Chlorine
	Ex	Ex-M	Ex-H	O <sub>2</sub>	CO/H <sub>2</sub> S	CO-HC	H <sub>2</sub> S/CO H <sub>2</sub> RES	CO/H <sub>2</sub> S	CO/ H <sub>2</sub> S-LC	SO <sub>2</sub>	H <sub>2</sub> S-LC/ SO <sub>2</sub>	CO/NO <sub>2</sub>	NH <sub>3</sub>	Cl <sub>2</sub>
AEROSPACE	■			■										
AGRICULTURE	■			■	■			■	■			■	■	
AUTOMOTIVE	■			■						■	■	■		
AVIATION	■			■								■		
CHEMICAL	■		■		■			■	■	■	■	■	■	■
FIRE	■			■	■			■	■					
FOOD/BEVERAGE	■			■	■			■	■	■	■	■	■	■
FOUNDRIES	■			■	■			■	■	■	■	■		
HAZMAT	■			■	■			■	■	■	■		■	
HEAVY MANUFACTURING	■			■	■			■	■	■	■	■	■	
HVAC	■			■								■	■	
INDOOR AIR QUALITY	■			■										
MARINE	■				■		■	■	■			■	■	■
MEDICAL	■												■	
MINING		■		■	■	■		■	■			■		
OIL/GAS/PETROLEUM	■	■	■	■	■		■	■	■	■	■		■	
PAPER/PULP	■									■	■	■	■	■
PHARMACEUTICAL	■									■	■		■	■
POWER	■						■			■	■	■	■	
SEMICONDUCTOR	■											■	■	■
STEEL	■				■	■	■	■	■	■	■	■	■	
WATER/WASTEWATER	■				■			■	■	■	■		■	■
WELDING	■											■	■	

\*Additional sensors available for detection of PH<sub>3</sub>, HCN, ClO<sub>2</sub>, NO, and CO<sub>2</sub> in the ALTAIR 5X Multigas Detector

## XCell Sensor Instrument Compatibility

	Ex	Ex-M	Ex-H	O <sub>2</sub>	CO/H <sub>2</sub> S	CO-HC	H <sub>2</sub> S/CO H <sub>2</sub> RES	CO/ H <sub>2</sub> S-LC	SO <sub>2</sub>	H <sub>2</sub> S-LC/ SO <sub>2</sub>	CO/NO <sub>2</sub>	NH <sub>3</sub>	Cl <sub>2</sub>
ALTAIR 4XR/ ALTAIR 4X	YES	YES	YES	YES	YES	NO	YES	YES†	NO	YES†	YES†	NO	NO
ALTAIR 5X	YES	NO	YES	YES	YES	YES‡	YES	YES‡	YES	NO	YES‡	YES	YES

† Requires ALTAIR 4X Multigas Detector software version 2.03 or greater

‡ Requires ALTAIR 5X Multigas Detector software version 1.27.06 or greater



## MSA-The Safety Company

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*Established in 1914, MSA Safety Incorporated is the global leader in the development, manufacture and supply of safety products that protect people and facility infrastructures. Many MSA products integrate a combination of electronics, mechanical systems and advanced materials to protect users against hazardous or life-threatening situations. The company's comprehensive product line is used by workers around the world in a broad range of markets, including the oil, gas and petrochemical industry, the fire service, the construction industry, mining and the military. MSA's core products include self-contained breathing apparatus, fixed gas and flame detection systems, portable gas detection instruments, industrial head protection products, fire and rescue helmets, and fall protection devices.*

### Trust & Durability

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For nearly 100 years our passionate mission of safety empowers us, "The Safety Company", to protect lives. We are committed to providing the latest in innovative, best-in-class safety solutions that feature integrated systems capability and allow our customers to return safely to their families and friends.

Every day our customers place their lives in our hands. In response, we provide them with protection they can trust, and their stories become our stories. Hand in hand, we partner with our customers to earn that trust.

**MSA: We Know what's at stake.**