

MSA XCell[®] Sensors



Because every life has a purpose...

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 for additional information.

Combustible

Ex Sensor

ALTAIR 4X, ALTAIR 5X

Gas: Combustible (LEL)

Package: Single gas

Range: 0-100% LEL or 0-5% CH₄

Resolution: 1% LEL or 0.05% Vol CH₄

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 5X

Gas: Combustible (LEL)

Package: Single gas

Range: 0-100% LEL or 0-5% CH₄

Resolution: 1% LEL or 0.05% Vol CH₄

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 CH₄ 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 5X

Gas: Combustible (LEL)

Package: Single gas

Range: 0-100% LEL or 0-5% CH₄

Resolution: 1% LEL or 0.05% Vol CH₄

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 keytone [MEK], xylene).

Oxygen

O₂ Sensor

ALTAIR 4X, ALTAIR 5X

Gas:	Oxygen
Package:	Single gas
Range:	0-30% Vol O ₂
Resolution:	0.1% O ₂
Response Time (typ):	t(90) <10 seconds
Alarm Setpoint:	Min 5% Vol/ Max 24% Vol
Warranty:	3 years

- Advantages:**
- Long life: >4-year life, more than 100% additional life than other lead-based sensors.
 - False-alarm rejection: don't be fooled; XCell Sensors are immune to pressure spikes.
 - Durable: when other sensors freeze, XCell Sensors keep working down to -40°C.



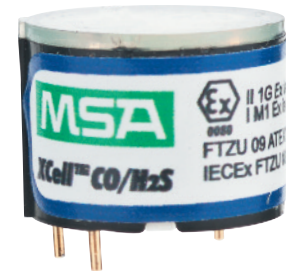
Carbon Monoxide

CO/H₂S Sensor

ALTAIR 4X, ALTAIR 5X

Gas:	Carbon monoxide
Package:	Two-tox
Range:	0-1999 ppm CO
Resolution:	1 ppm CO
Response Time (typ):	t(90) <15 seconds
Alarm Setpoint:	Min 10 ppm/ Max 1700 ppm
Warranty:	3 years

- Advantages:**
- Long life: >4-year life means fewer sensor replacements over the instrument's life.
 - Reliability: virtually no cross-channel interference brings accuracy to a new level.
 - Stability: when it comes to helping to savings lives, be secure in knowing that XCell Sensors are rock solid performers.
 - Response: industry-leading response time not only helps to save lives, but your time and money as well.
 - Resilience: extremely robust filter means that you see the gas of interest.



CO-HC Sensor

ALTAIR 5X

Gas: Carbon monoxide (high concentration)

Package: Single gas

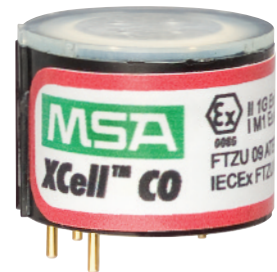
Range: 0-10,000 ppm CO

Resolution: 5 ppm CO

Response Time: t(90) <15 seconds normal temperature

Alarm Setpoint: Min 10 ppm/ Max 8500 ppm

Warranty: 3 years



- Advantages:**
- Performance: extended range for high concentration CO applications.
 - Long life: >4-year life means fewer sensor replacements over the instrument's life.
 - Reliability: feel confident that XCell Sensor's linearity provides accuracy across the entire readable range.
 - Response: industry-leading response time not only helps to save lives, but your time and money as well.
 - Resilience: extremely robust filter means that you can even operate within environments where alcohol vapors may be present.

H₂S/CO H₂ RES Sensor

ALTAIR 4X, ALTAIR 5X

Gas: Carbon monoxide (hydrogen-resistant)

Package: Two-tox

Range: 0-1999 ppm CO

Resolution: 1 ppm CO

Response Time: t(90) <15 seconds normal temperature

Alarm Setpoint: Min 10 ppm/ Max 1700 ppm

Warranty: 3 years



- Advantages:**
- Performance: this XCell Sensor has a very low cross-sensitivity to Hydrogen <5%.
 - Long life: >4-year life means fewer sensor replacements over the instrument's life.
 - Response: industry-leading response time not only helps to save lives, but your time and money as well.
 - Resilience: extremely robust filter means that you see the gas of interest.

Hydrogen Sulfide

CO/H₂S Sensor

ALTAIR 4X, ALTAIR 5X

Gas: Hydrogen sulfide

Package: Two-tox

Range: 0-200 ppm H₂S

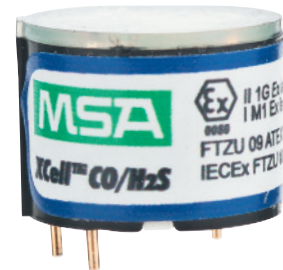
Resolution: 1 ppm H₂S

Response Time (typ): t(90) <15 seconds

Alarm Setpoint: Min 5 ppm/ Max 175 ppm

Warranty: 3 years

- Advantages:**
- Long life: >4-year life means fewer sensor replacements over the instrument's life.
 - Response: industry-leading response time not only helps to save lives, but your time and money as well.
 - Stability: when it comes to helping to save lives, be secure in knowing that XCell Sensors are rock solid performers.



CO/H₂S-LC Sensor

ALTAIR 4X, ALTAIR 5X

Gas: Hydrogen sulfide (low concentration)

Package: Two-tox

Range: 0-100 ppm H₂S

Resolution: 0.1 ppm H₂S

Response Time (typ): t(90) <15 seconds

Alarm Setpoint: Min 1 ppm/ Max 70 ppm

Warranty: 3 years

- Advantages:**
- Long life: >4-year life means fewer sensor replacements over the instrument's life.
 - False-alarm rejection: don't be fooled; increased sensitivity means fewer false alarms, allowing you to work uninterrupted.
 - Response: industry-leading response time not only helps to save lives, but your time and money as well.



Sulfur Dioxide

SO₂ Sensor

ALTAIR 5X

- Gas:** Sulfur dioxide
- Package:** Single gas
- Range:** 0-20 ppm SO₂
- Resolution:** 0.1 ppm SO₂
- Response Time (typ):** t(90) <10 seconds
- Alarm Setpoint:** Min 0.5 ppm/ Max 17.5 ppm
- Warranty:** 3 years
- Advantages:**
 - 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.



H₂S-LC/SO₂ Sensor

ALTAIR 4X

- Gas:** Sulfur dioxide
- Package:** Two-tox
- Range:** 0-20 ppm SO₂
- Resolution:** 0.1 ppm SO₂
- Response Time (typ):** t(90) <15 seconds
- Alarm Setpoint:** Min 1 ppm/ Max 17.5 ppm
- Warranty:** 3 years
- Advantages:**
 - 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/NO₂ Sensor

ALTAIR 4X, ALTAIR 5X

Gas:	Nitrogen dioxide
Package:	Two-tox
Range:	0-50 ppm NO ₂
Resolution:	0.1 ppm NO ₂
Response Time (typ):	t(90) <15 seconds
Alarm Setpoint:	Min 1 ppm/ Max 47.5 ppm
Warranty:	3 years



- Advantages:**
- Long life: >4-year life means fewer sensor replacements over the instrument's life.
 - Response: industry-leading response time not only helps to save lives, but your time and money as well.
 - Stability: when it comes to helping to save lives, be secure in knowing that XCell Sensors are rock solid performers.

Ammonia

NH₃ Sensor

ALTAIR 5X

Gas:	Ammonia
Package:	Single gas
Range:	0-100 ppm NH ₃
Resolution:	1 ppm NH ₃
Response Time (typ):	t(90) <40 seconds
Alarm Setpoint:	Min 10 ppm/ Max 75 ppm
Warranty:	2 years



- Advantages:**
- Long life: >3-year life with patent-pending non-consuming reaction outlasts competition by more than 50%.
 - Resilience: XCell NH₃ Sensors recover from repeated exposures, meaning fewer sensor replacements.
 - Response: industry-leading response time not only helps to save lives, but your time and money as well.

Not suitable for continuous NH₃ exposure.

Chlorine

Cl₂ Sensor

ALTAIR 5X

Gas: Chlorine

Package: Single gas

Range: 0-10 ppm Cl₂

Resolution: 0.05 ppm Cl₂

Response Time (typ): t(90) <30 seconds

Alarm Setpoint: Min 0.3 ppm/ Max 7.5 ppm

Warranty: 2 years

- Advantages:**
- Life: >3-year life, patent-pending non-consuming reaction outlasts competition by more than 50%.
 - Response: industry-leading response time not only helps to save lives, but your time and money as well.
 - Stability: when it comes to helping to save lives, be secure in knowing that XCell Sensors are rock solid performers.
 - Resilience: XCell Sensors continue to perform within low humidity environments when others do not.



Additional toxic sensors available for detection of PH₃, HCN, ClO₂, NO, and CO₂ 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 ₂	CO/H ₂ S	CO-HC	H ₂ S/CO H ₂ RES	CO/H ₂ S	CO/ H ₂ S-LC	SO ₂	H ₂ S-LC/ SO ₂	CO/NO ₂	NH ₃	Cl ₂
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 PH₃, HCN, ClO₂, NO, and CO₂ in the ALTAIR 5X Multigas Detector

XCell Sensor Instrument Compatibility

	Ex	Ex-M	Ex-H	O ₂	CO/H ₂ S	CO-HC	H ₂ S/CO H ₂ RES	CO/ H ₂ S-LC	SO ₂	H ₂ S-LC/ SO ₂	CO/NO ₂	NH ₃	Cl ₂
ALTAIR 4X MULTIGAS DETECTOR	YES	YES	YES	YES	YES	NO	YES	YES* ¹	NO	YES* ¹	YES* ¹	NO	NO
ALTAIR 5X MULTIGAS DETECTOR	YES	PENDING	YES	YES	YES	PENDING	YES	PENDING	YES	NO	PENDING	YES	YES

*¹ Requires ALTAIR 4X Multigas Detector software version 2.03



TK 1

HYDROXID

NO. 1 36-21-6
7 32-18-5

HYBY-AMMON-TK14

DANGER

MSA

ALTAIR 9X

0 20.8
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RESIN-FAB TANK

DANGER

05H

MSA – The Safety Company

Our business is safety. We've been the world's leading manufacturer of high-quality safety products since 1914. MSA products may be simple to use and maintain, but they're also highly-sophisticated devices and protective gear – the result of countless R&D hours, relentless testing, and an unwavering commitment to quality that saves lives and protects thousands of men and women each and every day. Many of our most popular products integrate multiple combinations of electronics, mechanical systems, and advanced materials to ensure that users around the world remain protected in even the most hazardous of situations.

Trust & Durability

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.

At MSA, every life has a purpose.

Your direct contact



MSA Europe

Thiemannstrasse 1
12059 Berlin
Germany
Phone +49 (0)30 68 86-0
Fax +49 (0)30 68 86-15 58
E-mail info.de@MSAsafety.com

MSA International

1000 Cranberry Woods Drive
Cranberry Township, PA 16066
USA
Phone +1-724-776-8626
Fax +1-724-741-1559
E-mail msa.international@MSAsafety.com

