ALTAIR® 4X Multigas Detector

With MSA XCell™ Sensor Technology

Frequently Asked Questions

1 The ALTAIR 4X Multigas Detector uses the NEW MSA XCell Sensors. Aren't all electrochemical and catalytic bead sensors basically the same?

All sensors are **not** the same. Sensors are the heart of an instrument; sensor performance can vary greatly depending upon manufacturer. Most multigas detectors use the same sensors from the same few global suppliers. MSA has designed a superior gas detection sensor platform specifically optimized for MSA gas detectors. MSA XCell Sensors are designed for longer life, faster response, and higher performance when used with MSA's ALTAIR 4X Multigas Detector.

MSA has designed and manufactured gas detection sensors and instruments for decades. Our experts are there to support you with any product or application concerns, allowing you to focus on your core business.

2 I read that every MSA XCell Sensor is built with an embedded application specific integrated circuit (ASIC). What is an ASIC and why is it important?

An ASIC is a microchip specifically designed for one application. ASIC's are most commonly associated with consumer electronics that have been greatly reduced in size over the years (i.e. cellular phones). In ASIC development a complete electronic circuit with multiple larger components is reduced to one tiny microchip dedicated to a specific purpose, such as sensor control.

In recent years MSA has developed its own sensor ASIC. This chip contains a microprocessor, all circuits to drive and compensate the sensor, and a digital signal converter.

Every MSA XCell Sensor contains an ASIC. This chip is much more than a **smart** sensor; digital XCell Sensors perform real-time environmental corrections and provide plug-and-play capabilities, greater RF immunity, and a higher overall performance level. Due to digital output, this sensor is not backwards-compatible with older MSA instruments, but instead establishes MSA's future product platform.

3 Historically, oxygen (O_2) sensor technology is seen as a weak link and the first to die in every instrument. How does MSA's XCell O_2 Sensor actually achieve a typical lifespan of more than four-years?

Most O_2 sensors on the market today use a consumable chemical reaction where a piece of lead is consumed and converted to lead oxide. These sensors have a very finite life. Once enough lead is gone, the sensor stops working.

The MSA XCell O_2 Sensor uses a non-consumable chemical reaction. O_2 is converted to water and then back to O_2. The sensor does not "use itself up" each time it sees O_2, generating a much longer shelf-life and overall lifespan.

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4 Catalytic bead sensors can be poisoned over time by silicone, sulfur, and lead compounds. How does MSA achieve a typical four-year lifespan with XCell Ex Sensor? Does this sensor offer more poison resistance?

While XCell Ex Sensors provide greatly-improved poison resistance, this feature alone does not provide a four-year lifespan. The XCell Sensor actually uses two separate detectors inside the sensor. The design is such that only one inner detector can be actively poisoned at a time, effectively doubling useful sensor life.

5 How does the ALTAIR 4X Detector *end-of-sensor-life warning* and *indicator* work?

Following each calibration, a software algorithm calculates the approximate life remaining for each sensor. When it is determined that the sensor is nearing its end-of-life, the instrument displays the end-of-life warning for that particular sensor. Users are given advanced notice (four to six weeks, typical use) that a sensor is nearing its end of life to plan for replacement. The instrument and sensor can continue to be used after the end-of-sensor-life warning as long as regular bump tests are passed.

If sensor output during calibration is too low, the unit will fail calibration and the end-of-sensor-life indicator will be displayed on the instrument screen. This tells the user that the end of the sensor's useful life has been reached and that the instrument should not be used until the sensor is replaced.

6 How does the ALTAIR 4X Detector save me money on calibration gas costs?

Calibration gas is expensive; the ALTAIR 4X Detector uses much less calibration gas due to faster-performing sensors and lower required gas flow rate during calibration and bump testing.

MSA uses a standard 0.25 lpm gas flow rate for calibrations and bump tests. Most competitors use 0.5 lpm regulators which consume twice the calibration gas as the ALTAIR 4X Detector.

Also, faster sensors mean faster span calibration and bump tests. If all of your bump tests and span calibrations are a third faster, then you'll use a third less gas over the life of the instrument. The ALTAIR 4X Detector has a 60-second span calibration time and <15-second bump test time.

Based upon these facts, you'll save **hundreds of dollars** over the life of each instrument.

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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