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.

Historically, oxygen (O₂) sensor technology is seen as a weak link and the first to die in every instrument. How does MSA’s XCell O₂ Sensor actually achieve a typical lifespan of more than four-years?

Most O₂ 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 O₂ Sensor uses a non-consumable chemical reaction. O₂ is converted to water and then back to O₂. The sensor does not “use itself up” each time it sees O₂, generating a much longer shelf-life and overall lifespan.
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.

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.

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.