

ALTAIR range of multigas detector solutions for mining applications

MSA's multigas detectors with patented revolutionary XCell sensor technology offer extreme durability and performance optimised for mines.

Mining is one of the most challenging industries when it comes to protecting the health and safety of workers. Working in mines and carrying out mining operations exposes a worker to various significant hazards. To minimise the risks related to exposure to hazardous gases and to ensure the safety of miners, it is essential to use early warning, personal air monitoring devices.

The response speed for gas detectors in mines is critical because saving seconds on response times can also mean saving lives. Building on its years of design experience, MSA has revolutionised sensor technology with breakthroughs that improve detector performance in mining applications. This is a real strength of the ALTAIR 4X multigas detector which comes with MSA XCell sensor technology. The detector simultaneously measures up to four gases using the sensors for combustible gases, O₂, CO, H₂S, NO₂ and SO₂. It has a typical life of more than double the industry average, and is engineered using MSA's proprietary application-specific integrated circuit (ASIC) design. Thanks to miniaturisation of the sensor control electronics and their position inside the sensors themselves, MSA XCell sensors are able to offer superior stability, accuracy and fast responses.



The presence of combustible gases is the main gas risk faced by miners in their daily work. Methane gas explosions in underground coal mines remain a serious risk which requires comprehensive monitoring. Owing to its understanding of mining, MSA has equipped the ALTAIR 4X detector with a methane-optimised XCell EX-M sensor. It provides increased stability over time which, along with the patented catalytic bead support wire protecting the sensor from shock and increased toxicity resistance, decreases downtime and the frequency of sensor replacements.

Monitoring oxygen levels is equally as important as detecting combustible gases in mining environments. Breathing oxygen is absolutely necessary to human life. Moreover it is critical that the gas detector is turned on and that oxygen levels are measured from ground level and during the descent into the mine in the lifts. MSA's XCell O₂ lead-free sensor is well suited for demanding mining environments. It allows the ALTAIR 4X to provide greater accuracy and repeatability during changing environmental conditions including pressure spikes, humidity and temperature fluctuations.

Carbon monoxide is the most dangerous of all the toxic gases which occur in mines. It is almost always contained in the afterdamp, a toxic mixture of gases left in a mine following an explosion of coal dust or firedamp. The XCell range of sensors makes it possible to equip the ALTAIR 4X with an industry-first CO/NO₂ combination sensor which not only detects deadly carbon monoxide but also the equally dangerous nitrogen dioxide, a gas often released in conjunction with carbon monoxide.

This exclusive sensor technology is at the heart of the innovative ALTAIR 4X detector. With its 24-hour battery, it is as tough and functional as it looks. A rugged IP 67 housing (dust and waterproof) provides unsurpassed durability, including the ability to withstand a 6 m drop onto concrete. Additionally, the ALTAIR 4X provides an advanced safety feature with its optional glow-in-the-dark case, ideal for low-light conditions in mining applications.

The detection of methane and carbon monoxide as well as monitoring oxygen levels are crucial to safety in mines but measures must go much further. Some underground coal mines require the monitoring of increased levels of carbon dioxide resulting from oxygen displacement. MSA can offer the ideal tool for this – the ALTAIR 5X multigas detector with field-proven integral pump and equipped with a reliable and long-lasting infrared sensor.

There are also other, less frequent toxic gases which must be detected, particularly in ore and mineral mines, such as hydrogen sulphide, naturally occurring seam gas and sulphur dioxide produced by blasting. These can be measured by XCell sensors installed either in an ALTAIR 4X or an ALTAIR 5X if it is necessary to monitor up to six gases in one instrument.

The ALTAIR 5X rugged housing provides unsurpassed durability and with large, glove-friendly buttons and an optional, high-contrast colour display, it is easy to operate in mining environments. Unique features such as MotionAlert and InstantAlert are standard on the ALTAIR 5X as well as the ALTAIR 4X, providing added user confidence. Both detectors are the ideal choice, not only from a safety point of view but also when considering total cost of ownership. They are provided with a full 3-year warranty for standard configurations and the fast XCell sensors ensure reduced gas usage for calibration.

MSA's multigas detectors help to mitigate dangerous gas risks and prevent accidents. Due to the harsh mining environments in which miners need to use their equipment, the high quality of MSA gas detectors with their innovative features are key to safe operations.