

The Evolution of Gas Detectors

Portable multigas detection instruments are widely relied upon to protect users from the hazards of toxic and combustible gases. For many applications, typical sensor configuration is combustible gas, carbon monoxide, hydrogen sulfide and oxygen deficiency/enrichment, also known as the *big four*. Detection of the big four most commonly occurs in industrial applications such as oil/gas/petrochemical, chemical, utilities, steel, general manufacturing and the fire service.

For practicality, instruments must be compact and lightweight, but also durable and easy to use. In the past, multigas detectors were large, heavy, cumbersome devices worn on a shoulder strap. As technology advanced, instruments became much more compact, adding features such as datalogging, extended battery life, vibrating alarms, brighter visual alarms and louder audible alarms. Sensors that were formerly the size of a spool of thread are now button-sized and last much longer than their bulky predecessors. Smaller instruments that clip to a pocket, collar or hard hat greatly reduce worker fatigue and improve efficiency.

Portable instruments must be rugged and resistant to the rigors of realistic use while still providing accurate readings. The drop test benchmark for portable instruments has increased from three feet to six feet, and in recent years to as much as ten feet, an

illustration of the level of design enhancements for instrument durability and reliability. Today's users do not accept instruments that spend more time on the workbench than in the field.

Twenty years ago instrument alarms were the exception rather than the norm, but now vibrant visual, piercing audible and vibrating alarms are typical even in very small units. Alarms can be configured to provide users with a confidence signal--typically an LED flash or "heartbeat"--indicating proper instrument function.

Instrument manufacturers have always strived to attain a high level of wearer acceptability, a difficult objective when portable instruments resembled a bag of sugar in size and weight. As size decreased, instrument placement moved from the shoulder to belt and now to a pocket or hard hat, increasing wearer comfort accordingly.

Wear-ability, however, cannot compensate for an instrument that is too complicated to understand and operate. Intuitive instrument designs offer only a few multi-functional buttons within a menu-driven format, allowing users to obtain the most useful information possible with little effort. Information input or alteration of alarm set points should be simple, practical and password-protected, preventing any unwanted alteration of alarm settings. The convenience of being able to change

settings and sensor configurations via software is obvious as well.

Industry record-keeping along with the streamlining of workplace procedures prompted hardware and software development that enables instrument linkage to computers. Data-logging can function as an airplane's black box for recording instrument events. Network capability and wireless communication are the latest trends in instrument fleet management. Data is not continuously transferred to a database, but in the event of an incident, gas readings can be retrieved at a later time.

In the world of gas detection, safety of course is paramount, but reality demands that new technologies also offer cost-efficiency. The best modern multigas detectors provide performance, reliability, toughness, ease of use and high value.

Authors:

Greig Thomson, Keshwar Anroedh

Writer:

Leslie Mitchell

Greig Thomson is a Product Line Manager for Portable Instruments, MSA Europe

Keshwar Anroedh is a Product Line Manager for Portable Instruments, MSA North America