

Get a
handle on

GAS DETECTION

*Instrument management systems
are revolutionizing safety*

By THOMAS SUSKI

Technological innovations continually challenge the status quo with new and creative improvements to older technology. Throughout history inventions such as the cotton gin, combustible engine and the Internet have caused major shifts in business practices by enabling companies to save time, cut costs and streamline processes.

The evolution of gas detection technology is no different. From the hapless canary that warned miners of atmospheric hazards in the past, to the technologically sophisticated multi-gas monitors of today, innovations in gas monitoring practices have led to significant increases in worker safety and productivity. Gas monitor management and maintenance systems, like Industrial Scientific's DS2 Docking Station™, have furthered this effort and changed the world of gas detection by automating the more time-consuming tasks of instrument management.

Instrument management

Despite considerable advancements in gas sensors and gas monitoring instrumentation, sensors still need to be tested and calibrated. When these routine

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tasks are added to an increased need for compliance documentation and the unfortunate reality of corporate downsizing, the result is that there is more to do with less time and fewer resources than ever before. Oftentimes, this dilemma develops into a very real problem of neglecting proper testing and maintenance procedures at the expense of safety.

In places where there is a potential to encounter unsafe levels of oxygen, or the presence of toxic or combustible gases, using a gas monitor without first testing its accuracy is leaving safety to chance. Performing a function test on the monitor before each shift ensures that the device will perform as expected regardless of what happened to the monitor on the previous shift.

After all, these gas monitors are not being used in a sterile laboratory environment. The reality of industrial work sites is that equipment is subjected to a variety

of abuse in some of the harshest conditions imaginable. Knowing what this equipment goes through, it is essential to check the accuracy of this life-saving device with a function test before the shift begins.

Need for automation

All too often, confusion regarding how (and how often) to manually test and calibrate gas monitors, combined with increased demands on worker productivity, leads to ignoring this responsibility at times or avoiding it altogether. Many companies have learned that addressing this reality with some degree of automation is an effective means of bringing their gas monitoring program into compliance with OSHA regulations.

One level of automation is represented by bump test and calibration stations that perform the desired function based on a user-initiated action. The significant difference between the user-initiated devices and a fully automated instrument docking and management system is that the user needs only to connect the instrument and walk away. What happens next is determined by a schedule of events that the user has assigned for that instrument. The docking system can first recognize the instrument and transmit its serial number via a standard Ethernet cable or a wireless compact flash card to a centralized database. The database then tells the docking system if the instrument is due for a function test, calibration, or if data should be downloaded.

Capturing data

The instrument management system can automatically store test and calibration reports in a directory and sort them by instrument serial number and download date. Having this information demonstrates compliance with OSHA regulations and provides peace of mind from knowing that your gas monitors are in good operating condition.

There is a wealth of other useful information that many gas monitors can collect. Why spend time transferring those records to a spiral notebook when the information can be extracted electronically and automatically with an instrument management sys-

Do the bump test

A function or "bump" test is a method of verifying sensor accuracy with a concentration of gas high enough to make the instrument go into alarm. If the instrument fails to alarm or its reading does not coincide with the measure of gas as indicated on the test cylinder, a full calibration must be performed. This will adjust the instrument's reference point and ensure both accurate readings and alarm events.

tem? The more critical information referred to here includes exposure data such as short-term exposure limit (STEL), time-weighted average (TWA) and alarm events.

An instrument's event logger records gas readings for each sensor during an alarm event. This feature may exist alongside a data logger that can record and electronically store as much as a year's worth of gas readings taken in one-minute intervals.

This information can be captured along with other information that identifies the instrument user, the work site, date and time. This information is not only helpful in keeping workers safe; it allows the company to ascertain the general safety of a facility. By downloading and storing this data with an instrument management system, industrial hygienists are able to easily identify trends that may require the use of ventilation to eliminate the hazard, or other personal equipment such as respiratory protection.

Transmitting information

As previously mentioned, the Internet has changed many aspects of business, and the business of managing a fleet of gas monitors is no exception. Instrument management system technology can now transmit information via the Internet to provide a comprehensive service solution for gas monitoring programs. Now, the capability exists for a docking system to communicate with a service center to perform diagnostic checks for marginal or failed sensors; low, empty or expired calibration gas; and days since last calibration. Since the Internet offers two-way communication, this type of service can also automatically send scheduled email status reports or immediate reports if a problem is detected.

Not only does this system allow end-users to further remove themselves from gas monitor management, it can also automatically initiate a specific service requirement. This may include an on-site visit from a

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manufacturer-certified technician, a replacement part sent to an on-staff instrument technician, or a replacement instrument sent in exchange for the failed one.

Regardless of the type of service chosen, the concept gives end-users more freedom to concentrate on the company's core business. At the same time, significant cost savings can be realized by reducing the number of gas monitors in a fleet and virtually eliminating instrument downtime.

Do your research

All new innovations face judgment from users and observers that will either dismiss the technology as a passing fad or laud it for having a positive, enduring impact on the future. Since the mid-1990s, the concept of a complete gas monitor management system has proven to lower operating costs, improve safety and decrease liability in a variety of industries. This historical perspective and the trend of favoring automation to increase productivity are both indicative of the long-term viability of instrument docking and management systems.

The first step to implementation involves doing some research. Contact gas monitor manufacturers to find out how their instrument management system measures up to your unique needs. Whether you have one gas monitor or thousands to be maintained at dozens of locations around the world, there is a system that will offer greater control, flexibility and peace of mind for your gas detection program.

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