

Total Cost of Ownership Considerations for Managing a Gas Detection Program



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Purchase decisions related to safety equipment such as gas detection are increasingly moving beyond the immediate needs of the safety manager or industrial hygienist. While purchase price and features such as durability, ease of use, safety and product reliability remain vitally important to the safety community, organisations are increasingly focusing on 'total cost of ownership' (TCO). This idea comes from sophisticated purchasing management activities and has become a standard element throughout organisations in their procurement activities - the acquisition of safety equipment is no exception.

In general terms, TCO encompasses not only purchase price of equipment but the total cost associated with acquiring, fielding, using and maintaining equipment within. In parallel with TCO, the value generated or saved is a key factor to any organisation making a purchase decision. Value/TCO elements can be categorised as follows:

- Total delivered cost - which is the cost of purchasing, delivering and fielding a product.
- Cost of consumables - which includes additional items that must be purchased in order to effectively use or maintain the product on a regular or scheduled basis.
- Use costs - which can include the costs of wear and tear, associated capital, testing, maintenance and hourly expenses of using the product or downtime when not in use.
- Administrative costs - which include training, compliance costs, system and fleet management, personnel and managing liability exposures.

In completing TCO evaluations, these and other variables can be compared not only to competing solutions but also with respect to any associated value-add services that are a part of each solution.

TCO variables for a portable gas detection program

A value-based/TCO evaluation can be particularly helpful when evaluating portable gas detection programs. Once the products have been evaluated for the critical safety, use and durability features that nearly all users require, the purchase price is most frequently looked at as a deciding factor. What many fail to consider, however, is that the initial purchase price for a portable gas detector or fleet makes up only a small fraction of the TCO.

Any significant procurement of portable gas detectors requires an understanding of the cost of that solution over the life of the program. Here are some key variables to consider when making an informed decision on the TCO of a portable gas detection program:

1. Total delivered cost

While price per instrument is easy to evaluate with different manufacturers and channel partners competing for business, the total delivered cost can be greatly impacted by the number of detectors required to outfit a project or organisation. One variable that can impact this is the instrument run time. An instrument that can run for 24+ hours on a single charge can greatly reduce the number of instruments needed to cover multiple shifts in continuous operation.

Similarly, product durability can minimise the number of detectors that are removed from service for repair and breakage.

Therefore, a thorough review of specifications should be conducted when deciding on a product.

2. Cost of consumables

The biggest cost associated with any detector is the cost of calibration gas that is used for daily bump tests or instrument calibrations. The flow rate at which a system uses test gas can reduce calibration gas expenses. Simply put, a system which flows at .5 L/min uses at least twice as much gas as one that flows at .25 L/min.

Sensor response time can also have a significant effect on test gas usage - a sensor that achieves a response sooner will use less gas.

The expected sensor life also has an impact on lifetime costs. While the sensor life can vary based on sensor type or make, there are opportunities for comparison and evaluation. Many users plan for 18- to 24-month replacement cycles on key sensors. Technological advancements have enabled longer expectations for sensor life and a thorough review of available offerings should be conducted.

3. Cost of use

Waiting for a calibration or bump check can be an annoyance. Having many workers waiting for bump or calibration of instruments on a large project can be particularly costly in terms of hourly expenses and lost productivity. Therefore, reductions in sensor response time and time waiting for bump test means less time that personnel are waiting on their instruments to be ready for service.

The serviceability and warranty on the instrument is also important. A more robust

product will reduce parts requirements over time and a simple design will mean less time per unit with a repair technician. A comparison of warranty coverage will help to determine the part and sensor expenses over time.

Similarly, technology-driven diagnostic tools included in some detectors can tell users when a sensor needs replacing before it goes down, thereby allowing for a planned repair, rather than an unplanned event that destroys productivity and interferes with the work schedule.

4. Administrative costs

Any robust safety or gas detection program inherently requires administration. User training plans and compliance programs are needed in any safety program. For a gas detection program, instrument tracking, event reporting, and bump and calibration recordkeeping can often fall on busy safety or industrial hygiene personnel. When evaluating gas detection, it's best to conduct a review of the training tools available with the system. Technology-based training courses and certification and online simulators can greatly reduce the time required for implementing training programs or to administer periodic user certification and can be used to supplement care-and-use training provided on-site.

The efficiency of a gas detection program can also be greatly enhanced with automated instrument test stands that automatically conduct bump and calibration of instruments. These are frequently supplemented with sophisticated fleet management software. A comprehensive fleet management system can exponentially reduce administration time and reporting costs by managing calibration records, generating event or incident reports. These tools can also be used for trending information, instrument set-ups and data management for fleets of hundreds or even thousands of These

systems are available as a one-time purchase and integrated as either a stand-alone system or tailored within an existing IT infrastructure. Other systems may require a monthly lease over a number of years for the system itself or in tandem with the instruments and may require adjustments to existing internal data security programs.

MSA's ALTAIR 4X and 5X Portable Gas Detectors

- Xcell sensors fast response with T90 times 60% faster than industry average
- Fastest bump and calibration times in the industry
- Xcell non consuming long life sensors
- 3 and 5 year warranty that includes sensors
- Tough construction to meet demands of industry use

When evaluating systems such as these, users should consider the ease of use, time savings, system flexibility and security of instrument records. More importantly, an evaluation of system costs for the expected life of the instruments or the instrument management program requires a thorough review.



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