

feature

# Reduce your ongoing costs with the right solutions

## Can gas detection really save you time and money?

As technology has got smarter and more intelligent, so have the gas detection solutions available to today's customer.

The word "smart", when referring to gas detection, can mean many things; technologically speaking, "smart" can refer to devices that feature additional intelligence (resulting from hardware, firmware or software), that makes the device easier to use (for example Plug and Play sensor cartridges that can be automatically plugged into a device and auto-recognised).

When talking in the context of saving money, a smart solution is actually much more about the selection of a product that is right for your business and one that harmonises with the many variables at your site to deliver true value to you. But what provides a saving to one site may

end up being more costly to another.

So can selecting the right gas detection really save you money? The answer is most definitely yes, if all variables are considered and a complementary solution is selected.

## Functionality versus suitability

Functionality doesn't necessarily have to be intelligent to make a big impact; suitability is really more key. In fact, some aspects that can add a lot of value in terms of reducing the ongoing cost of gas detection can be very simple. This type of value can be seen in our newly launched Sensepoint XCD, which features a tri-colour display that clearly indicates the unit's status at a glance – even from a distance; green for normal operation, yellow to indicate a fault status and red to indicate an alarm status. Although there are many models that offer LED indicators, few units offer a LCD illumination;

Sensepoint XCD is in fact one of the only models to provide a full colour-illuminated screen that is easily seen from a distance. Although this is not state-of-the-art in terms of the technology used to deliver this functionality, Sensepoint XCD can help save sites considerable costs, as highlighted by the following example: Consider a plant set up, where a series of devices are monitoring for gas hazards and are feeding back information to a PLC (Programmable Logic Controller). If a hazard occurs, the maintenance engineer must enter the area and find the sensor that has gone into warning/fault. If the plant is large with many points of detection, this can take some time. In the case of Sensepoint XCD, the device in warning/fault will be clearly visible by its bright illuminated yellow screen, meaning that the engineer can get straight to the



Sensepoint XCD's unique tri-colour display means that the device status can be seen at a glance - even from a distance



unit in fault. The simplicity of the colour coding means that the device's status is instantly accessible with a simple glance. This can be the difference between an engineer needing to spend up to one hour to locate and access the device or as little time as 10 minutes.

Aspects like Sensepoint XCD's unique tri-colour display screen are not necessarily "smart" in their own right, but as the example highlights, the resulting impact they can have in saving time and subsequent cost may well make them a "smarter" choice over a comparable solution. In addition, the device's display negates the need for additional expense associated with integrating local status lights, providing further cost savings, depending on a site's set up.

### Time is money

Every second counts in business and when it comes to time management, small changes can equate to big savings; in fact even a small reduction of just a few minutes can create notable cash savings over time. Ease of sensor swapping and calibration can help sites save time and money. This can be highlighted by the auto-recognition Plug and Play sensor capabilities of Apex, which uses smart pre-calibrated sensors. These types of sensor can be taken out into the field and changed over in just one minute. This means that the change out of 100 Apex sensors would take just under two hours to complete. Conversely, if a site has 100 devices that use standard sensor technology (with each sensor requiring 20-30 minutes to change those sensors over and re-calibrate), this activity would take approximately 3 ½ days. If each sensor has a life of two years, the savings that a site can make over a 10 year period - just from sensor swapping alone - could be considerable using a device like Apex over a solution that only offers standard sensor technology.

The Sensepoint XCD range features three variants; an mV input transmitter for use with catalytic sensors for flammable detection or IR sensors for Hydrocarbon and CO<sub>2</sub> detection; an electrochemical cell (EC) transmitter for use with EC sensors for the detection of CO, H<sub>2</sub>S and H<sub>2</sub>; and finally an Oxygen transmitter for the detection of Oxygen using EC sensors. All three variants feature the same interface and calibration methods, which mean that operators do not need to be trained to use each variant. This is particularly valuable as plants can evolve and processes can change, meaning additional gas detection solutions are required. Using devices that offer a standard solution and common design and operation like Sensepoint XCD allows businesses to make training efficiencies; professional training is essential to ensure that devices are used properly, so it can be a significant financial benefit to sites when efficiencies can be made in this regard.

Devices like XNX Universal Transmitter, which provides one single interface solution to all on-site gas detection (even when different sensing principles are employed), can help take training related savings even further. This device also offers great longevity with its "future-proof" design that allows new outputs to be added as they are adopted by industry.

Both XNX Universal Transmitter and Sensepoint XCD can warn of potential issues and advise of the need for maintenance. Both devices also offer simple set up via an intuitive user interface, reducing the chance of incorrect set up or calibration, which can lead to nuisance alarms.



MicroDock II and Fleet Manager II from BW Technologies by Honeywell can help to simplify the control of portable fleets

When it comes to using portable devices, there are also a number of efficiencies that can be made by using automatic docking stations such as MicroDock II from BW Technologies by Honeywell. This type of device can carry out automatic bump testing and calibration and also data logging.

When combined with Fleet Manager II software, MicroDock II can help sites save time and money in a variety of ways. Aspects like issuing portable gas detectors can be made more efficient; a store manager can issue a device in just five minutes, with no paper trail or hard copy forms to fill out, compared with half an hour. At a site issuing up to five units per month this provides a time saving of 25 hours after one year when compared to the manual method.

The product combination of MicroDock II and Fleet Manager II software is capable of turning a variety of arduous tasks into nothing more than the press of a few buttons and a few minutes wait; Fleet Manager II software permits a variety of automatic tasks such as auto report generation, sending out email reminders of a need to calibrate devices and the auto generation of calibration certificates.

MicroDock II can also be used with all of BW Technologies by Honeywell's portable gas detectors, providing sites with a single solution for portable fleet management.

### Speculate to accumulate

The saying "you get what you pay for" often rings true, meaning that more intelligent devices and those that deliver enhanced functionality tend to have a



higher purchase price. But this money can often be recouped many times over as can be highlighted by the savings that automatic data logging can have on a site's labour cost. For example, a controller that can carry out regular automatic data logging, may cost 500€ more than a controller that cannot offer this functionality. A site that wishes to data log every hour will need an engineer to undertake this work manually, if an automatic facility is not available. If each data log check takes 15 mins to complete, this means that in a 16 hour day, 4 hours will be required to make the relevant checks. This means the automatic data logging device's additional purchase cost has already been recovered in just one single week's use.

The same can be said of aspects like intelligent communications platforms such as HART and MODBUS that facilitate enhanced two-way communication between the device and the control system. This type of functionality has many potential benefits like assisting with planned maintenance activities, allowing operators to schedule maintenance to save money and improve time efficiency, as well as ensure maximum equipment uptime. This can also be achieved without the need for additional cabling. Considering that cabling is the single biggest cost for any site, this is attractive indeed. XNX Universal Transmitter provides all industry standard outputs including HART, allowing for remote diagnostics and configuration.

An aspect like HART also means that field time can be reduced. Devices that have been inhibited for maintenance don't need to be manually re-instated by a second employee working in a control room - they

can be set to automatically go online. This functionality also limits the occurrence of nuisance false alarms that can adversely impact on a plant's production.

### **Intelligent design and its impact on your bottom line**

Intelligent product design can dramatically help sites reduce the spares required (which is typically 2-5% of a product order). No site wants to have money tied up in spares, so any reduction that can still allow for product to be available when needed, is advantageous. For example, Sensepoint XCD utilises a common design across its three transmitter model variants; if a site is monitoring for a variety of hazards, including toxic, flammable and Oxygen depletion with 300 points in total (based on 100 of each type with 2 sets of sensors per transmitter), the typical spares required using this type of device would be 15 transmitters, and 10 of each sensor variant. For argument's sake, if the transmitter cost was 500€ and each sensor cost 30€, the spares value would represent 8,400€. Conversely, if the same site was using an uncommon transmitter design, they would require 45 transmitters in total (15 per variant) and 90 sensors (to cover 2 spares per variant device). Using the same example pricing, the spares stock value suddenly increases to 25,200€. This highlights the massive savings that common design can yield; equating to a 66.6% saving in spares alone.

These savings can be taken one stage further when using XNX Universal Transmitter; this device provides one single transmitter solution to all on-site gas detection. Using the

same example of 300 varied flammable, toxic and Oxygen depletion, only 6 spare transmitters (based on 2% of total volume for spares) would be needed compared with 15 (providing a saving of 4,500€, based on each transmitter costing 500€).

MicroDock II uses a modular design approach which delivers a flexible solution for a whole portable fleet. The device works with all of BW Technologies by Honeywell's range of portable gas detectors, and the docking station can be expanded to contain up to 10 docked units. This provides a flexible platform that can evolve as a site's portable philosophy changes.

### **Maintenance: Prevention costs less than reaction**

Ongoing equipment maintenance has been talked about throughout this article, but a special mention should be made to the positive impact that adopting the right maintenance philosophy can have. Preventative maintenance is preferable to reactive and a big factor in facilitating preventative maintenance is the implementation of solutions that can self diagnose, warn of potential issues and feedback various status indicators to control; a device that has no undetected failure modes (also known as a fail-to-safety device), offers not only enhanced protection but also large potential cash savings via its ability to forewarn of a developing issue.

It is also important to consider how any servicing activity will be supported; such as in-house resource or using a third party service provider. A company like Honeywell Analytics is able to offer excellent flexibility around the provision of service via its Expert Solutions; customers can pick and choose options with this fully customisable service and create a package ideally suited to their own unique needs.

An Open Path optical device such as Searchline Excel from Honeywell Analytics operates with no undetected failure modes. This type of device uses a transmitter and receiver set-up where a beam of IR light is sent over a range. Hydrocarbon gases absorb IR light at different wavelengths (depending on the gas itself), so a difference in signal





strength at the receiver indicates a gas cloud in the range. If this signal drops below a certain level, the device will warn that its beam is becoming blocked. Equally if the signal sent from the transmitter falls below a certain level, the device will interpret this as possible dirty optics and warn of the fact that work will need to be carried out in due course, thus minimising unforeseen failures.

Conversely, a catalytic bead device has undetected failure modes. For example, if someone has accidentally painted over a catalytic bead device and blocked its sinter, or a poison such as silicone kills the sensor, the detector will not indicate a fault and will appear to be capable of detecting gas; it will just show a zero reading as if no gas is present. Not only does this compromise potential safety, it means that more frequent checks need to be made.

In a petrochemical plant where known catalytic bead poisons are present, this bump testing might need to be as frequent as every three months, equating to an increased maintenance labour requirement of 400% when compared to an Open Path IR device's ongoing requirements; and this does not account for additional savings that can be made from a reduction in points needed (one Open Path device can typically

replace five points of detection), and the subsequent reduction in cabling. These additional dimensions make the migration from point to Open Path one that can potentially deliver huge savings.

It is important to clarify that many factors impact upon whether a fail-to-safety device is more applicable than a solution with undetected failures. For example, many petrochemical applications choose to fit catalytic bead devices because they are less likely to be affected by the potential failure modes. When considering the impact of maintenance, an individual site's philosophy should be considered, including the available resource to undertake necessary work, and also any additional process equipment in the area where gas detection is situated that also requires ongoing maintenance.

The maintenance of portable devices is something that is evolving; the new EN 60079-29-2:2007 regulation which was released in November 2010, advises the bump testing of portable gas detectors each day before use. Naturally, this kind of safety introduction can impact upon a site's maintenance costs. Devices like MicroDock II from BW Technologies by Honeywell help to simplify bump testing, limiting the adverse impact that this type of compliance can have.

Bump testing a portable device using MicroDock II is as simple as docking the unit in the station, pressing a single button and waiting for less than two minutes. This not only helps to save time on bump testing using the manual method but also provides operators with a simple system that requires minimal training; another appealing aspect as the new regulation states that that bump testing should ideally be carried out by the person using the equipment. This helps to make compliance with daily bump testing guidelines less costly and easier to integrate into a site.

#### **A case by case approach**

Local factors and individual plant set up will have a massive impact on whether one device is more suitable than another in terms of providing cash savings. In reality there are a wide variety of factors that can impact upon the selection of gas detection solutions capable of reducing the ongoing cost of gas detection. It's important to work with a supplier who can provide multiple technologies and specification variance, as this will enable them to give impartial guidance on choosing the right solution that is truly fit for purpose, based on your individual variables.