The Impact of Common Design to Your Bottom Line

When it comes to integrating gas detection, the perfect solution for most end users would be a "one size fits all" approach where a universal device could be used to interface with any existing gas detector onsite, providing one simple solution to sites' ever changing gas detection needs. Historically gas detection devices have been engineered with specific uses in mind, meaning that sites detecting both toxic and flammable gases have needed to integrate different models.

There is a trend in the industry among leading manufacturers towards the supply of devices that feature a common design; understandable when you consider the notable benefits of using such an approach. In fact common device design is highly beneficial to all parties involved, creating a simplified platform for the user/operator or service engineer who is maintaining the device as well as providing reduced ongoing costs for the business itself.

The benefits of common design

There are a number of important aspects to consider when selecting gas detection. Two key considerations are how easy the device is going to be to use and integrate and how costly its ongoing use will be. Common design can have a positive impact in both of these areas:

The reduction of operational costs via common design:

- Helps to reduce the money spent on training operators/service engineers to use the device
- Improves reliability and helps to maximise product uptime; there is less chance of the operator misinterpreting messages or incorrectly changing settings
- Helps to reduce the spares stock required on site
- Means that the same tools can be used on all devices
- Offers reduced labour costs through common installation methods
- Provides a flexible solution that can adapt to a site's gas detection needs as they evolve

Improved operator / service engineer experience:

- Provides a common simple form of operation for all gas detection devices on-site
- Can provide a common simple and familiar display with icons
- Provides a solution that requires reduced training

Cut your training costs

Product training can be costly; especially when you are sending multiple engineers off site to complete this activity. Aside from the costs associated with the training itself, there is also the cost of additional labour whilst training is taking place.

Imagine a hypothetical petrochemical plant where three principles of detection have been integrated and three different transmitter variants are providing the interface to these principles of detection.

If you consider that training fees are, on average, 2000€ per day, and that the petrochemical plant will be sending three engineers from Russia to a training centre located in the UK, the cost will be approximately 8,500€ including flights, accommodation and expenses for the three engineers. Added to this is the additional labour cost for providing cover whilst the engineers are away on training. Even though the training is only over one day, the travel to and from the UK will mean that three days of cover are required to account for an additional day either side for travel. Based on a labour rate of 300€ / 8 hour shift, the labour cost would be 2,700€, meaning that an overall cost of 11,200€ can be attributed to the training of the three engineers.

This cost can potentially be lowered by using a device with a common design such as XNX Universal Transmitter from Honeywell Analytics. This device is designed to work with all of Honeywell Analytics' range of gas sensing technologies (IR Open Path, IR point, Hi-temperature, EC and mV). The device also provides a range of outputs (Foundation Fieldbus, HART, Modbus, 4-20mA and relays), creating a universal transmitter solution that can be used comprehensively throughout a site. XNX Universal Transmitter's interface is intuitive, supported by graphs, digits and icons, providing a simple to use solution.

When using a device like XNX Universal Transmitter a single engineer can be trained to use the device equating to training costs of just <€3,000. In addition there is no extra cover labour cost because only one engineer is being sent on training, meaning that the other two are available for work.

The simplified interface and operation also means that he can train additional engineers on-site once he is familiar with the device's operation.

Minimise the occurrence of false alarms and maximise uptime

Product downtime can be very costly; just one nuisance alarm that causes a required process shutdown of 60-90 minutes at a site producing 1000 barrels of oil per hour can equate to up to 90,000€ lost revenue (based on a barrel price of 60€).

Common design can help to minimise the occurrence of false alarms by providing operators with a common interface meaning that there is less chance of incorrectly interpreting messages or changing device settings. The more comfortable an operator is with the equipment they are using, the less likelihood there is that an error will occur.

Reduce your on-site spares stock

Common device design can enable businesses to carry less spares. As an industry average, 2-5% of the total gas detection expense is attributable to additional spares stock. Potential savings can be illustrated by the following example. The Sensepoint XCD range from Honeywell Analytics features three variants; a mV input transmitter for use with catalytic sensors for flammable detection or IR sensors for Hydrocarbon and CO_2 detection; an electrochemical cell (EC) transmitter for use with EC sensors (for the detection of CO, H_2S and H_2); and finally an Oxygen transmitter for the detection of O_2 using EC sensors.

If a site is monitoring for a variety of hazards, including toxic, flammable and O_2 depletion with 300 points of detection in total (based on 100 of each type with 2 sets of sensors per transmitter), the 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€.

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Devices with common design also use the same tools and installation methods, meaning that efficiencies can be made regarding commissioning and ongoing servicing of equipment. Even small time efficiencies can equate to large savings; just a minute or two saved when maintaining a device can make a notable difference, as the following example highlights.

Consider a plant that needs to detect Methane and Hydrogen Sulphide and has 100 points of flammable and toxic detection. If the average time spent on each unit is 10 mins to check and re-calibrate, the labour bill associated with this activity will be just over a day (1.04 days) based on a day consisting of two 8hr shifts. If a day of labour costs 600€ (300€ / shift), and this activity needs to be carried out twice yearly, the total labour cost would be 1,200€. Imagine an identical plant using a device like XNX Universal Transmitter that provides one single interface solution to these points of detection. Because each point of detection has the same interface and uses the same tools, the average time per device could be potentially decreased by three minutes per device.

Based on the same labour costs and working day, this activity would only take 0.7 days, meaning that the same labour bill by the end of the year is reduced to 875€; a saving of just under 30% through saving as little as 3 minutes per device.

Common design and universal use: One step closer to the end user ideal

As the examples in this article highlight, common device design can help businesses to save money, whilst also providing a familiar platform for operators and service engineers. And additional dimensions such as universal use, which can be seen in devices like XNX Universal Transmitter from Honeywell Analytics, prove that gas detection is evolving ever closer to the end user ideal where one simple and cost effective on-site solution can serve all needs.