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Open or Closed Protocol:
Your Guide to Making an Informed Decision

Introduction

The options afforded by the ever-evolving technologies in the fire detection world are many and varied and, for the majority of today's businesses and property owners, can be confusing. You will receive advice from all quarters; the manufacturers of the equipment, the system designers/installers or your facilities management providers.

Regardless of the reasons that any one type of system is chosen over another, there is an absolute necessity that all of its components work seamlessly in providing the rapid and dependable detection of fire. There are also other considerations for businesses and building owners which will manifest themselves further down the lifespan of the fire detection system that you need to be aware of before making an overall decision. One of the principle considerations is the choice of protocol.

Protocols as mentioned in BS EN54-13:2005

The components forming a Fire Detection and Alarm System are designed to provide a system with a particular aspect of its overall functionality. Only when all the components are connected together is the system likely to perform in the desired manner and then only if the components intercommunicate effectively.

For the purposes of this document, the Control and Indicating Equipment (CIE) is the focal point of the system and all other components are required to communicate effectively with the CIE. Communication does not only require the consideration of communication protocols; other aspects such as power supply requirements and data transmission characteristics should also be considered

The fire detection system infrastructure typically consists of a collection of devices such as smoke and heat detectors, manual call-points, interfaces and audio/visual equipment (bells, sounders, beacons or strobes) all connected together via loops of cable. This cable starts and ends at the fire alarm control panel which 'manages' the complete system.

Each device on a fire system continually transmits its data to the panel through a specific protocol – this is essentially the communication language that the manufacturers have developed for their own equipment and that the control panel manufacturers have adopted. There are many different protocols available, basically one per manufacturer but two distinct types - each having its own advantages and disadvantages.

With an Open Protocol type system the manufacturers of a range of devices distribute the technical details of their protocol to third parties such as control panel manufacturers and other device or component manufacturers allowing all of them to produce compatible equipment – all utilising the same protocol.

With a Closed Protocol system a single manufacturer produces a range of devices AND control panels that all utilise its own specific protocol. This manufacturer does not provide general access to the technical details of its protocol and restricts the use of it to trained approved installation companies only.

The question you need to ask yourself and your installer at this point is

"What is the best investment option for you and your building, considering the whole lifetime of the fire detection system?"

This is sometimes referred to as the Total Cost of Ownership (TCO).

Open Protocol Systems - An Explanation

Generally Open Protocol systems allow fire detection equipment and control panels to be compatible between a greater selection of manufacturers, offering you more freedom of choice when sourcing products and installation companies.

Advantages

✔ Your installer is free to select devices which best meet the requirements of the project design from a greater selection of sources

✔ You, as a building owner, are free to source your equipment from a wider range of suppliers depending on their individual areas of proficiency, safe in the knowledge that the common protocol means complete compatibility

✔ Once a fire system has been installed you are free to choose a maintenance company other than the installation company to carry out the on-going maintenance regime or to provide additions or upgrades to the system

Disadvantages

✖ If a device from one manufacturer using the shared protocol is upgraded, there is no guarantee that it will remain compatible with all the other devices from other manufacturers using the same protocol

✖ Trying to investigate and resolve problems arising from incompatibility could become costly in terms of time and other resources

Closed Protocol Systems - An Explanation

With Closed Protocol systems there is generally no compatibility between any equipment produced by each of the individual closed protocol manufacturers. Once you choose one closed protocol you are, in effect, locked into one company for the manufacture, supply and maintenance (and in some instances the installation) of the complete system.

Advantages

✔ Because each and every device in the system, including the control panel, is provided by the one manufacturer there is a common design and production plan, meaning compatibility is assured

✔ When individual devices do need upgrading they are tested alongside the rest of the manufacturer's product range to ensure the system's compatibility before the new products are brought to market

✔ System failure due to unauthorised tampering is reduced as access to the system is restricted by the manufacturer to approved installation and maintenance companies.

Disadvantages

✘ As a building owner you are wholly dependent on one manufacturer for access to new equipment, upgrades, spares and maintenance. Without direct competition this tends to allow manufacturers to charge you a premium rate for these services

✘ Upgrades to the system could be restricted to the technology currently available from the chosen manufacturer/supplier, potentially affecting your choice of brand new or innovative solutions available elsewhere in the marketplace

✘ Closed protocol manufacturers can lack competition for maintenance services and this can encourage lapse service, slow call-out responses and expensive maintenance contracts which are impossible to get out of

✘ If you do decide to upgrade or change the system, it can be an expensive and disruptive exercise as the majority of the original supplier's system would have to be removed from the premises and replaced. In some circumstances, this might involve multiple risk assessments and a complicated series of temporary closures of the building to the public and staff for the duration of some of the work (to comply with local legislation).

Making the right choice

The question you need to ask yourself and your installer at this point is "What is the best investment option for me and my building, considering the whole lifetime of the fire detection system". This "whole lifetime" investment is sometimes referred to as the Total Cost of Ownership (TCO) and is an important long-term consideration.

> "An open protocol system allows you or your system designer to choose the most apt equipment needed for your building, for both your immediate and future requirements"

If you decide to choose a fire detection system provided by a Closed Protocol manufacturer you will have access to devices and panels specifically designed to operate together with complete compatibility. This solution will then be installed and maintained by an approved supplier who has been trained in that specific system.

You need to be aware of some potential issues here, for example

?   Does the manufacturer have a strict upgrade policy restricting you to one upgrade per year?

?   Do they guarantee complete backwards compatibility for their new products or will you be forced to replace some other components that don't quite fit with the new devices?

?   Are there other solutions on the market that despite being more cost-effective cannot be utilised as they are not part of the manufacturer's system offering?

Potentially you might be tied-in to a lengthy maintenance contract so consider whether the manufacturer has a good reputation within the industry for the provision of equipment and services.

Opting to choose an Open Protocol system allows you and your installation company the freedom to make decisions about the precise equipment needed based upon the exact requirements of the building rather than being restricted to one manufacturer's product range. Make sure your chosen installation company has the experience and expertise in many different manufacturer's product ranges so that you can be sure they will offer accurate and impartial advice on the system design. It is also recommended that you check their fire industry accreditations such as BAFE or LPS1014.

Bearing in mind the TCO as mentioned previously, it is always important to understand the levels and restrictions of your fire alarm system maintenance contract, regardless of who is supplying or installing. You need to be able to calculate upfront the expected costs of future maintenance to properly evaluate the TCO of the intended system.

Conclusion

There are numerous pros and cons to both Open and Closed Protocol systems and you need to evaluate a whole range of criteria such as compatibility, suitability, install costs, maintenance costs, service levels, industry accreditations and any ongoing system lifetime costs in order to be able to make an informed decision based on your current requirements and, of course, any implications for the future.