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Cerberus® PRO – Guide to BS7273 part 4:2007

Compliance with BS7273 part 4 is a requirement in BS5839 part 1 and is applicable if you actuate any fire protection systems or safety facilities using the fire detection and alarm system.

Quote from BS5839 Part 1 2013 Section 9.0 Actuation of other fire protection systems or safety facilities:

Any of the system Categories defined in 5.1 may be used to actuate other fire protection systems or trigger safety facilities, whether for the purpose of life safety, property protection or a combination of the two.
If the system is to be used for the actuation of other fire protection systems or safety facilities, the recommendations of this part of BS 5839 might, or might not, be necessary or sufficient. The system might have special requirements in respect of the number, zoning and siting of detectors, provision of power supplies, control, indication or other facilities, or monitoring and fire resistance of interconnecting wiring.
It needs to be ensured that the interconnection of other systems or equipment with the fire detection and fire alarm system does not prejudice the reliability of the fire detection and fire alarm system.

The problem

Fire alarm systems are increasingly being used for the control and operation of the fire protection systems and safety facilities in the building and not just detecting fires and sounding the alarms.
It is demanding greater cause and effect capabilities from the fire detection system to deliver an enhanced and safer means of controlling smoke and fire spread by compartmentalising the building without rigid or permanent structures in place.
If the fire alarm system actuates or triggers an output to the fire resisting doors, secure doors, lift returns, air handling systems or smoke dampers it should comply with BS7273 part 4:2007
There is a natural assumption that the interfaces on a fire system fail safe but what happens if the CIE software or main processor fails and the magnet is still energised? - It may be possible that the fire doors do not operate or even worse, people could be locked inside the building in a fire condition.

So why has this part of BS5839 part 1 been overlooked or ignored?

It is generally assumed that because a panel manufacturer can control interface outputs that they must fully comply with BS5839, but this is not always necessarily the case. BS7273 part 4 is often overlooked because it is only a small paragraph in BS5839 and refers to a complex and onerous standard.
It is also known that many addressable panel manufacturers do not comply with Category A in the event of a processor or protocol failure as the outputs would still receive power but loose communication and remain in their last or current state i.e. fail to operate!
Category A has the most difficult fail safe conditions to achieve and is applicable to buildings with sleeping risk or open to the public i.e Hotels, Hospitals, Care Homes etc...Shopping centres, public houses, cinemas, theatres etc....

Answers for infrastructure.

Failsafe Conditions (Category A)

Category A has 13 fault conditions that require a failsafe condition of the outputs.

- Open or short circuit
- Reduction of power supply level to maintain the release mechanism
- Failure of normal power supply
- Failure of the standby power supply
- The simultaneous occurrence of above
- Short circuit or open circuit
- The removal of a manual call point or detector
- Any earth fault
- The rupture of any fuse
- In the case of a software controlled CIE panel or protocol failure as per EN54:2 13.4 & 13.6
- Disablement of device on which the mechanism is dependent on release

The Solution

The Cerberus® PRO system is designed for many markets and has to comply with the most stringent of all standards across the Globe. Therefore; it has many features that are well beyond any UK standards and regulations and has multiple layers of redundancy built into the panel and even distributed intelligence in the devices.

Cerberus PRO even has a redundant processor built into the CIE's ensuring that detection, alarming and actuation of Fire Protection systems is guaranteed even in the event of a main processor failure.

Most importantly, not a single device will be lost due to "turbo" isolators in every device; cause and effect will be communicated across the EN54 compliant network and will summon the fire brigade in the event of a fire even in a catastrophic fault condition.

Cerberus PRO fully complies with BS7273 part 4 Category A, without the need for expensive additional circuits, watchdog relays or expensive PSU's and batteries.

Highlights

- Full compliance with BS7273 part 4
- Full compliance with EN54:2 and all of the required options
- Built in redundancy in every device and panel
- Ultimate failsafe panel with Degrade Mode of operation
- Distributed intelligence in all of the devices even in event of protocol failure
- Powerful cause and effect, enabling safe actuation of Fire Protection Systems
- Full protection of the Critical Signal Path

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