False Alarm Management

White Paper - Part 1

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Introduction

Who is FireClass?

FireClass manufacturers fire detection equipment and is a world leading fire alarm system manufacturer and supplier. The FireClass range of fire detection equipment compromises both addressable and conventional systems with a full suite of ancillaries including fire alarm control panels and repeaters, smoke detectors, carbon monoxide detectors, fire alarm sounders and manual break glass call points. FireClass also manufactures a range of fire suppression equipment including gas extinguishing control panels and manual release and abort call points.

FireClass is a revolutionary new class of commercial fire detection products.

Comprising a comprehensive range of fully approved quality products designed and manufactured in Europe, FireClass is designed to appeal to both the end user and installer. It is the latest fire detection technology packaged as an easy to install, out-of-the-box, digital open-protocol solution.

Designed and engineered in Europe, FireClass technology is part of Tyco International, the world leader in fire and security solutions. Tyco has been specialising in fire detection control equipment for the last 50 years. Our team of expert engineers and designers have been developing fire detection solutions for a wide range of environments from simple conventional systems to complex integrated systems for hazardous industrial installations.

This expertise and heritage has been responsible for innovative solutions over the years including the first carbon monoxide fire detection technology for commercial environments and triple sensing technology. It is this expertise which has now been applied to the FireClass technology to bring you FireClass – a new class of fire detection solution designed to meet all your needs from a single supplier.

The FireClass range of fire detection equipment includes, conventional, addressable and gas extinguishing fire alarm control panels with a suite of ancillaries including smoke detectors, fire alarm sounders, and break glass manual call points.

Purpose of the white paper

FireClass wishes to emphasise the importance false alarm management should be to the fire and security industry. It is not just a focus on manufacturers but also for installers and end users. By reducing false alarms ultimately fewer lives are put at risk and more lives would be saved each year. There is also a cost benefit for all businesses involved in the supply chain. This reduction in costs can be refocused on product innovations providing more security and a safer work environment for all. FireClass has a number of innovations which can help manage and reduce the risk of a false alarm which the paper will also highlight and provide further detail on. The white paper is split into two parts, the first part was released on the 9th May 2013 and seeks to define the false alarm landscape, part 2 focuses on the specific products and technologies that FireClass can provide to aid in the battle against false alarms.

What types of false alarm occur?

It is accepted that there are a variety of false alarms that occur. Malicious false alarms are exceptionally frustrating for all parties involved. Although less prevalent in larger organisations, institutions such as schools and hospitals and other public areas such as train stations still are affected by malicious false alarms. Fire alarm systems and their equipment are constantly being upgraded and innovated to reduce both the

frequency and the damage these false alarms can do. Some systems now allow for a visual confirmation of the fire before the fire service is notified and sometimes simply having protective screens, such as the ones FireClass manufacturers reduce malicious false alarms instantly.

Depending on the design of your fire and security system there are a number of ways to reduce malicious false alarms. The white paper will delve into specific technologies and products that FireClass provide which could significantly help, later in this paper. Looking at the layout of your fire alarm system can also help significantly. Conventional manual call points can be replaced with break glass call points, which will lead to a small drop in malicious false alarms. Hinged covers can help further, dummy and real security cameras placed prominently near specific call points can all help reduce the amount of malicious false alarms.

In certain fire alarm systems, fire services have introduced a delay in responding and wait for audio or visual confirmation the fire alarm is real. This allows a fire safety officer to locate and inspect the area in the first instance. An addressable fire alarm system can help both the fire safety officer and fire service quickly locate potential fires and reduce the damage caused.

There will always be an element of false alarms raised that were backed by good intent. Far from discouraging individuals not to raise an alarm if they believe there is one, the entire industry should be focused on investing in as much awareness and training as is possible. This will reduce false alarms but also ensure that real fire alarms are raised quickly and appropriately.

The agreed other type of false alarm comes down to equipment, installation and servicing. FireClass cannot emphasise enough the importance of these three areas combined. This is also not just in relation to false alarms but also for the very purpose they were intended for. Common causes of false alarm include;

- Poorly maintained systems or lack of maintenance
- Badly designed or poorly installed systems
- Insect infestation.
- Build-up of dirt and dust in detector smoke chambers
- Steam ingress into smoke chambers such as from en suite bathrooms in hotels
- Smoke from processes other than fire, welding for example
- Aerosols and atmospheric pressures
- Cooking processes such as flambéing
- Theatrical smoke, dry ice, candles and incense
- Sudden heat ingress such as opening industrial oven doors
- Water ingress into electronics
- Diesel emissions on loading bays
- Cutting, welding and 'hot' work

This white paper will focus around the issues with which FireClass can actively help, as one of the leading fire detection and suppression companies in the world.

Are false alarms that big an issue?

The graph below is taken from the Fire Statistics Great Britain 2010/11 published by the National Statistics Office.

Fire false alarms, 2000/01 – 2010/11
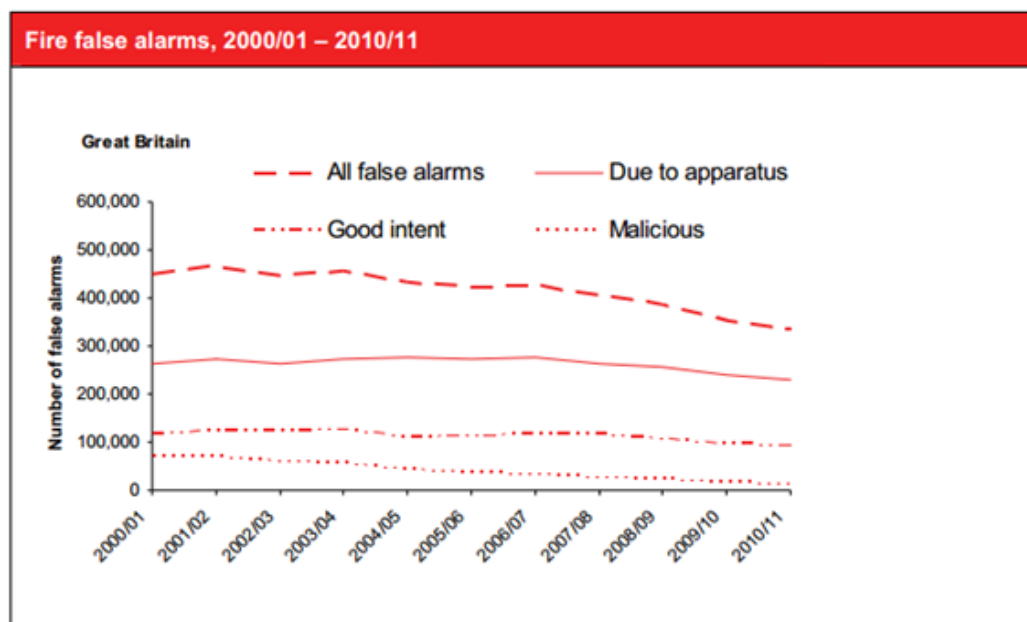
In 2010/11 the UK fire service were called out to 337,000 false alarms, according to the Department for Communities and Local Government (DCLG).   The annual cost to the fire service alone was estimated to be in the region of £1 billion. When you consider the financial implications to businesses and services that are also affected by downtime by false alarms the costs suddenly start spiralling incredibly.   It has been estimated in some circles that the real cost in terms of to the fire service works out at £300 for every half hour they are occupied. Because of the Localism Act 2011, local fire authorities can now charge following persistent false alarms and facilities managers need to be aware of this new cost of poor management of the fire alarm system. The costs of production loss coupled with potential fines will quickly dwarf the cost of managing and maintaining a fire detection system.

Cost is not the focal point of the issue. The fire and security industry is one of the most unique frameworks within the world. Rather than a purely competitive zeal for business the industry is dedicated to providing as comprehensive a service to protecting lives and property as much as is humanly possible. False alarms result in fire services not being able to attend genuine emergencies or fires placing honest people in an unfair danger.   There are significant risks for both the fire service and the general public in attending a fire alarm. Due to the nature of the life or death situations the fire service may be attending, deaths whilst driving under a blue light are not uncommon.

False alarms also breed complacency. If a workforce is constantly being evacuated due to false alarms when a real alarm actually occurs, panic can occur and lives put at risk due to not taking the situation as seriously as it should be.

Reducing False Alarms

Fire and rescue services are taking drastic measures to cut the costs associated with attending these call outs. Some are reducing the number of engines sent while others have stopped mobilising altogether in response to automatic fire alarms. However, there are other ways to reduce false alarms and the costs they generate.

Technology and training, along with good system design, can help to reduce the frequency of false alarms. There are many reasons alarms go off accidentally. The alarm may be poorly installed or it could be the incorrect system for its purpose. The device could also be fitted at the wrong height or installed in the wrong place. Importantly, if there are issues with the alarm at installation, then unless these are addressed the false alarms will continue to happen.

There are many sources of advice available to those responsible for the fire alarm system. The fire service plays an important role but manufacturers and installers of fire safety equipment can also be a great source of information. This is where FireClass seeks to provide our ethical obligation to help where we can. This training and advice can go a long way in helping to reduce false alarms.

Some businesses now employ a 'double knock' approach. This approach indicates in the event of a fire, a fire assessor or suitable individual will determine if the fire threat is genuine or a false alarm. A fail safe is built into the system, allowing for a short time frame before the fire service are automatically contacted. However in the event of another piece of fire detection equipment being sent into a state of alert, the fire service responds immediately, with no time delay. Quite often this is usually a piece of fire detection equipment that is built from a different technology. For example if a smoke alarm detected a fire, a heat detector or break glass call point issuing a state of alarm subsequently would result in an immediate response.

Fire Safety and the Law

Compliance

In BS5839-1: Fire detection and fire alarm systems for buildings; Code of practice for system design, installation, commission and maintenance it is required to have the following;

- A current Risk Assessment
- A log Book that records the date and time of the weekly tests, any faults or false alarms. If any work is conducted on the system this also needs to be recorded along with details of who carried out the work.
- A BS 5839-1 G1 design certificate which specifies the fire plan, drawings detailing the category and level of protection and any variations agreed with applicable parties.
- A BS 5839-1 G2 Installation certificate, including a set of 'as fitted' drawings.
- A BS 5839-1 G3 Commissioning certificate, equipment manuals with user instructions.
- Alternatively a G5 certificate in place of the G1, G2 & G3 that includes all the additional material listed above.
- A BS 5839-1 G4 Acceptance certificate that confirms the date of handover
- A BS 5839-1 G6 Inspection & Servicing certificate(s) that record all tests and checks made at each service visit since original installation – handover.
- A BS 5839-1 G7 Modification certificates identifying any work undertaken on the system since the date of handover.

The prosecutions for failing to respect the law in relation to fire safety and the subsequent punishments and or prison terms being handed out, are becoming significantly larger to show the real life implications of failing to take every precaution possible in preventing fires and saving lives.

FireClass has commissioned a [Consultants guide](#) in respect of BS5839-1:2002. The Code of Practice for fire detection and alarm systems for buildings is a detailed and comprehensive document which requires careful reading to fully understand its' requirements and latest approach to ensuring the safety of buildings and their occupants from the ever present threat of fire. Please download a free [copy here](#).

Responsible Person

The first thing on the agenda for any person responsible for certifying the safety of a building is ensuring that the correct fire alarm is installed. Research conducted by the Department for Communities and Local Government found that of the 16,400 dwelling fires last year, 37% occurred in places that lacked an alarm. A further 25% occurred in places where a fire alarm was present but non-operational.

Each system must have the appropriate detectors for the environment it is detecting. A heat-detecting system would be inappropriate for a kitchen environment as it would generally be much hotter than other areas of the building. If a heat-detection system was to be used in this kind of environment the chances are that the alarm would be set off unnecessarily and frequently. Many fire solutions analyse air quality and if there is a lot of dust in the area in which they are sited, they may become blocked. Without proper servicing and maintenance an issue like this could go unnoticed and create future problems. Optical sensor products might seem like a better, cheaper option but it will not always be the most suitable. It might work in a fire situation but it could frequently be set off accidently.

The responsible person nominated to supervise your fire detection and fire alarm system, should have received appropriate training. That person will have the skills, knowledge, or experience needed to make sure that:

- The system is properly maintained and remains in good working order.
- Faults are dealt with quickly and efficiently
- Persons who have to take specific action when a fire alarm goes off have appropriate training
- All false alarms are investigated and action taken to solve any problems

Many unwanted fire alarm signals are caused by building work being carried out in the vicinity of fire detectors. The responsible person for your company should ensure that staff and visiting contractors are made aware that the building is fitted with an automatic fire detection and fire alarm system.

Where possible, permanent notices should be displayed at the entrance to all areas in which detectors are sited. A suitable text is: "this area is protected by automatic fire detectors. Before undertaking any work involving heat, flame, dust or sparks, clearance must be obtained from (Name of responsible person)."

The responsible person must also ensure that maintenance or other work is carried out on the system only by a competent person. If the person nominated needs training, you can get further advice from:

- The company that installed or maintains the system
- British Fire Protection Systems Association

The appointed Responsible Person must ensure that the risk assessment of the premises is carried out and crucially regularly updated every year at least once. The responsible person should also ensure that the fire alarm system is maintained by a competent and trained servicing organisation.

Part of the risk assessment must ensure that the correct type of detection is installed throughout the premises and it is applicable to manage the risk from fire and from false alarm potential. Any reputable fire alarm company will be happy to advise.

In the event a building has a changed purpose or in the event building work is carried out and the building is extended or even downsized all interested parties must be consulted. There is a likelihood the fire alarm system will need to be altered and it is imperative that these changes are made. Depending on the building work undertaken or the new purpose, has potential massive implications on a system, determining whether an addressable or conventional system is most appropriate, whether any building work affects any of the existing fire detection equipment and crucially whether all parts of the building would be covered by the fire detection equipment. The wiring of the systems is likely to be affected, buildings with ducting may require different types of sensors to be applied and the type of detector may no longer be appropriate. One of the areas often overlooked is the cause and effect programming as the risk from both fire and false alarm may change.

Interested parties can include, but are not limited to;

- The manufacturer of the fire alarm system
- The fire alarm servicing organisation
- Fire prevention officers,
- Insurance Organisations
- Facility Managers
- The Fire Service
- The building firm
- Mechanical engineers

The responsible person should ensure that the alarm is regularly tested and indeed the fire plan for evacuation procedures is regularly undertaken. Weekly sounder tests are a common occurrence in most buildings and the responsible person should ensure that those persons using the fire alarm system are properly trained. This stops needless false alarms and call outs resulting from procedures not being followed and for inadvertent false alarms being triggered by improper use of the fire alarm system.

One of the common reasons for a false alarm being triggered is systems becoming old and obsolete. Whilst most individuals would think it fairly regular to update their vehicles or clothing over time, fire alarm systems can be significantly overlooked. Crucially this has a bearing on management of false alarms. Technology advances at a rapid rate and indeed if it was possible to provide every organisation and building with up to date technology in their fire alarm system, the issue of false alarms would not be as prevalent as it is today. Modern fire equipment is also based on much more complex technology than even equipment that was considered new 10 years ago. The complex technology used in fire detection equipment can include the following in the fire alarm system programming to reduce false alarms;

- Time delays,
- Day/night modes,
- Co-incidence detection and verification

Servicing as a method of reducing false alarms.

The role of the servicing organisation and or engineer is just as important as that of a responsible person. A suitable risk assessment should determine the frequency with which the system needs to be serviced. Factors such as the size of the fire alarm system, complexity level, the risk level covered by the fire alarm system influence the frequency for how often a fire alarm system should be serviced. At the minimum this should be twice a year, rising up to 4-5 times. Regular servicing ensures that the risk of a false alarm is reduced. At each service the engineer will check and test all operations of the control elements of the system. This includes not just the fire alarm control panel and the performance of the system but also the power supplies and fire alarm sounders. Reputable service organisations also test 25%-50% of all the devices such as detectors which are checked yearly. This level of detail in servicing reduces the risk of equipment being faulty which in turn reduces the level of false alarms.

The engineer will also check the false alarm record to determine;

- The rate of false alarms expressed as number of false alarms per 100 detectors
- Whether two or more false alarms have arisen from any single device
- Whether any persistent cause of false alarm can be identified
- The dirt build up levels in all detectors and change any which are going out of operational parameters

If warranted, the engineer and service organisation will carry out further in depth investigation into persistent false alarms and try to establish the technical or environmental causes. FireClass recommends always erring on the side of caution, in the event of a real life emergency the possible ramifications of not doing so are disastrous. The industry has also seen some of the highest fines issued this year against organisations and individuals neglecting their duties. Whilst FireClass seek to manage and reduce the frequency of false alarms, failure to maintain and monitor systems properly can result in extremely costly cases.

Selected case studies taken from Building 4 Change (http://www.building4change.com/page.jsp?id=1111**)**

Co-operative Group, 26 Apr 2010

The world's largest consumer-owned business, the Co-operative Group, was fined over £200,000 after pleading guilty in Southampton Crown Court to serious fire safety breaches at its store in Southampton.

The prosecution by Hampshire Fire and Rescue Authority took into account six breaches of fire safety under the Regulatory Reform (Fire Safety) Order 2005. The Co-Operative Group was fined £35,000 for each of the six offences and ordered to pay a total of £210,000, plus costs in excess of £28,000 to Hampshire Fire and Rescue Authority.

Christopher Morris, 23 Dec 2010

A former retained firefighter who failed to maintain a fire alarm in a care home was fined £11,000 including costs in what is thought to be the first case of its kind.

Christopher Morris, 56, was fined £2,500 for each offence and £6,000 in costs for failing to maintain a fire alarm system at a care home in Trafford, Manchester, to a recognised standard and failing to inform the owners of the home of the deficiencies in the system.

Morris is believed to be the first fire alarm engineer to be prosecuted as a Responsible Person under the Regulatory Reform (Fire Safety) Order 2005. At the previous hearing the bench at Trafford Magistrates Court decided it did not have sufficient powers to deal with the case and what they described as 'culpable neglect' by the defendant.

Lee Pemberton, 28 Oct 2011

A landlord and his property firm were ordered to pay more than £33,000 for breaching fire safety legislation. Lee Pemberton, a director of PemCo Investments Ltd, pleaded guilty to seven offences relating to a property above a shop, in Lune Street, Preston.

Lancashire Fire and Rescue Service chiefs said Pemberton put residents at risk of death or serious injury if there had been a fire in the house of multiple occupants. The offences included failing to provide appropriate fire detectors and alarms, a lack of a suitable fire risk assessment and an unsuitable system of maintenance for the building.

Pemberton, who had already been prosecuted by the fire service for previous breaches of the Regulatory Reform (Fire Safety) Order 2005, was fined £1,000 for each offence at Preston Magistrates' Court. He was also ordered to pay £500 costs.

PemCo was also fined £3,000 for each offence, totalling £21,000, and ordered to pay £5,520 costs.

David Moseley and DM Care 10 Apr 2013

A record fine has been handed to a care home owner who put residents at risk through fire safety breaches.

David Moseley and his firm DM Care were given a £35,000 fine after local fire services found several breaches of regulations following a fire last year. The Ambassador Care Home in Lytham Road, South Shore, was found to have a Santa's Grotto blocking an exit route by emergency services when the blaze started in January 2012, Blackpool Gazette reports.

Furthermore, no approved fire protection systems and alarms were in place, therefore leaving residents' lives at risk. While nobody was hurt in last year's conflagration, 40 people in the care home had to be led to safety by fire-fighters during the incident.

In a court case held last month, DM Care was given a record fine for an incident such as this in Lancashire and the maximum that could have been imposed.

Conclusion

False Alarm Management White Paper Part 1 issued by FireClass focuses on the issues within the industry. The second part of this paper will focus on the areas which FireClass can specifically help with, in the form of training and the products and technology that go into FireClass to make it the market leader in terms of preventing False Alarms.

False alarms represent the most significant drain on the fire service. For organisations they cause operational and financial implications which are a needless drain on their own resources. As can be seen false alarms have been reducing for 10 years, not least due to the legislation requiring the appointment of an appropriate person and their duties but also the technology employed in the fire detection equipment has been advancing at a rapid rate. Organisations, by making a comparatively small investment in a system with features built in to stop, or at least delay, an alarm activating; will instantly see the far greater benefits when it comes to the safety of our communities.

Sources:

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Building 4 Change Website – www.building4change.com

Communities and Local Government –https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6762/568234.pdf

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FireSafety website - www.firesafetysearch.com

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