HOCHIKI

World Class Leaders in Fire Detection Since 1918

Call Challenge Overview

"Call Challenge" – a New Approach for The Scottish Fire & Rescue Service Responses to Automatic Fire Alarm Signals from Commercial Premises

THE BACKGROUND TO THE CHANGE

Fire and Rescue Service teams across the UK are responsible for providing immediate assistance and support to those in need. One of the primary roles of these services is to respond to fire-related incidents and emergencies. However, over the years, many fire and rescue services have faced a growing challenge – dealing with an ever-increasing number of false alarms from Fire Alarm Systems.

Automatic Fire Alarm Systems (AFAS) provide an early warning of fire and are one of the most effective ways to keep your business, staff and customers safe in the event of a fire. But unfortunately, a significant number of signals from these systems are not actual fires – they are false alarms often caused by cooking fumes, dust incorrectly reported by smoke sensors as smoke, or a lack of regular maintenance and testing of the fire alarm system. These unwanted fire alarm signals (UFAS) mean fire crews are called out unnecessarily.

In Scotland alone, its crews are called to an average of 28,000 false alarms each year and investigating each incident can involve several firefighters and up to two fire appliances as part of the response.

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252,000 firefighters needlessly called out

To put this into context, this equates to 252,000 firefighters needlessly being called to unwanted fire alarm signals each year, when their time could be better spent tackling real fires, training or carrying out community safety work.

THE "CALL CHALLENGE" APPROACH IN SCOTLAND

In an attempt to reduce the number of false alarms attended to by the SFRS, not all reports of fire will be automatically attended to by an appliance and its crew. Instead, the "Call Challenge" approach will be invoked.

The call challenge is a process that involves asking the duty-holder with responsibility for the workplace premises whether they have investigated a fire alarm before reporting a fire.

The aim is to ensure that the incident is a genuine emergency and requires an immediate response from the SFRS. By doing so, it is hoped that the SFRS can reduce the number of false alarms they respond to and focus their resources on real incidents that require urgent attention.

Fires Reported via 999 Calls

The call challenge is carried out by trained SFRS call handlers. When a 999 call is received, the call handler will ask for confirmation of an actual fire, or signs of fire, before sending the nearest resource. This will involve the duty-holder on site to safely investigate for signs of fire.

Signs of fire include: visual confirmation of flames/smoke or the smell/sound of burning.

Fires Reported by an Automatic Fire Alarm via ARCs (Alarm Receiving Centres)

The SFRS will treat any fire alarm signal as a sign of fire, other than from a single smoke detector.

Depending on the sophistication of the fire alarm system at the premises, it may be possible for an ARC to identify the device that has activated and advise the SFRS accordingly. Alarm signals from heat sensors, multi-sensors (heat and smoke) or sprinkler systems will not require investigating and an appliance will be mobilised immediately.

However, if an alarm signal received by the ARC cannot identify the type of device and the signal is received out of hours whilst the premises is empty, the SFRS will not automatically attend until an investigation has been carried out, even if this means a keyholder having to attend site to confirm the presence of a fire.

After rigorous public and private sector consultation, The SFRS adopted the "Call Challenge" approach when responding to 999 calls or AFAS signals from the 1st of July 2023.

Further information is available on the SFRS web site.

What Should Building Owners in Scotland Do Next?

Fire Alarm System Maintenance

As a building owner you must ensure that your premises are safe for staff, visitors and occupants in the event of a fire. You have a responsibility under the Fire (Scotland) Act 2005 to maintain the facilities and equipment provided and failure to do this could lead to prosecution.

? Need to speak to an expert? Contact us today and we'll put you in touch with an approved maintenance company, based on your location.

Staff Training

Your staff and other occupants should be made aware of how to respond safely to AFAS activations in each premises. It is recommended that you read the guidance **"How to Investigate Your Fire Alarm"** [1] prepared by the Fire Industry Association. Ignoring this advice or assuming the fire and rescue service has been notified in the event of a fire alarm activation could put people and property at risk.

? Need training? Hochiki can deliver a range of CPD-Accredited training seminars, either online or in-person. Contact us today to arrange a free training session.

Building Insurance

You should contact your insurance company to discuss the SFRS change in response to AFAS activations, to ensure you are adequately insured and protected. Please note that the SFRS will always attend a confirmed fire.
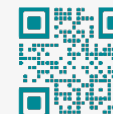
[1]

Taking Steps to Reduce False Alarms

The Fire Industry Association has plenty of information on its web site on how business owners can help to reduce false alarms, which can cause complacency, reduce the effectiveness of fire safety procedures in the event of a real fire, and disrupt your business – creating unwanted downtime and loss of money.

In summary, the general guidance for reducing false alarms is:

- ✓ Review your Fire Safety Risk Assessment and keep a log of all false alarms to identify any trends which should be raised with your fire alarm engineers.

- ✓ **Create an action plan to reduce the chance of any false alarm occurring.**

- ✓ Check sensor or detector types and their locations – would moving detectors or changing the type used reduce activations? Seek advice from your fire alarm engineer.

- ✓ **Upgrade your AFAS with more modern technology, for example, multi-sensors that can sense both heat and smoke, to replace smoke-only detectors.**

- ✓ Fit manual call points with protective plastic covers in known problem, vulnerable or high traffic areas.

- ✓ **Ascertain whether any false alarms are a result of activating the wrong type of call points such as green emergency door release points, for example.**

- ✓ Keep your AFAS appropriately maintained

- ✓ **Consider whether a link to an Alarm Receiving Centre is necessary or if it is appropriate to suspend the automatic dialling function whilst your buildings are occupied or at certain times of the day**

- ✓ Seek further guidance and advice from your alarm system provider or servicing agent, as well as your local legislative fire safety officer

Multi-Sensors – Recommended By the FIA to Reduce False Alarms

The Building Research Establishment (BRE) and The Fire Industry Association (FIA) through their combined research proved that advanced multi-sensors which detect multiple criteria can outperform more basic models particularly in reducing false alarms.

In general, it was found that the more sophisticated the optical heat multi-sensors were, the less prone they were to common causes of false alarms, whilst their ability to detect real fires was not compromised. This research will most likely further the development of product standards and codes of practice for smoke and multi-sensor detectors.

FIA **bre**

Read the research

What is a Multi-Sensor?

> **"** *a fire sensor that monitors more than one physical and/or chemical phenomenon associated with fire* **"**

So typically, these are sensors that detect smoke and heat, and sometimes CO, where these are monitored simultaneously. The all-round protection offered by multi-sensors makes them a popular choice for specifiers and installers for a number of reasons:

- They tend to be more effective than traditional single phenomenon sensors, because they are considering more than one external factor when making that fire decision

- They can also help reduce false alarms because generally they are much more accurate when determining the difference between a transient signal and a real fire situation

Traditional multi-sensors are most commonly used to detect heat, smoke, and sometimes CO, the main elements of a fire.

HEAT is generally detected by thermistors – components that physically react to heat, either over a set time (rate of rise sometimes referred to as RoR) or at a prescribed temperature level (referred to as Fixed Temperature).

Some models of heat sensor can be programmed to react to either heat phenomenon, depending on the environment or the assessed risk.

SMOKE is traditionally monitored via a smoke chamber which uses an infrared light source or sources in conjunction with light receptors to detect smoke particles in the air within the chamber. The amount of emitted light reflected back is continually monitored – the idea being that if anything enters the air within the smoke chamber, the amount of reflection would change, which would then suggest the presence of smoke particles.

CO (Carbon Monoxide) is monitored by a special sensing element within the multi-sensor as this gas is often released very early during a smouldering fire. In other words, one that isn't necessarily producing enough visible smoke or heat, found particularly in furniture fires. So CO is generally a good indicator of a real fire, when other phenomena such as smoke are detected at the same time.

True Multi-Sensor Certification

When it comes to multi-sensors, the testing and approval process isn't as clear cut as with more traditional sensors. As more and more advanced detection methods come into play, the testing methods and resulting certification has also advanced.

Multi-sensors that claim to utilise multiple types of sensing elements to determine a fire condition should be tested to all of these European standards, if they claim to be a true 'multi-sensor':

EN 54-29:

Multi-sensor fire detectors - Point detectors using a **combination** of smoke and heat sensors

EN 54-30:

Multi-sensor fire detectors - Point detectors using a **combination** of carbon monoxide and heat sensors

EN 54-31:

Multi-sensor fire detectors - Point detectors using a **combination** of smoke, carbon monoxide and optionally heat sensors

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ACC
Multi-Sensor

Heat   Smoke

An Intelligent loop-powered Multi-Sensor incorporating a thermal element and a High Performance photoelectric smoke chamber.

Has three modes controlled from the Control Panel, allowing **either the optical or thermal element or both** to be active in making the fire decision.

- User selectable modes of operation
- Incorporates Optical & Heat elements
- Removable, High Performance Smoke Chamber
- Twin LEDs allow 360 viewing – green when polling, turn red in fire
- Variable sensitivity
- Electronically Addressed
- LPCB approved to **EN 54 Parts 5, 7 & 29**
- Available in white, ivory and black

ACD
Multi-Sensor with CO

Heat   Smoke   Carbon Monoxide

An intelligent loop-powered Multi-Sensor, with smoke, heat and CO sensing elements. The unit offers **24 EN-approved modes of operation** and incorporates a smart algorithm which allows the sensor to learn from its environment and **reduce false alarms.**

The CO sensing element can be used to detect smoke as well as life-threatening CO levels in certain modes.

- 24 EN-Approved Modes of operation
- Incorporates Optical, Heat & CO elements
- Removable, High Performance Smoke Chamber
- Twin LEDs allow 360 viewing – green when polling, turn red in fire
- Variable sensitivity SMART algorithm to reduce false alarms
- Electronically Addressed LPCB approved to **EN 54 Parts 5, 7, 29, 30 & 31**
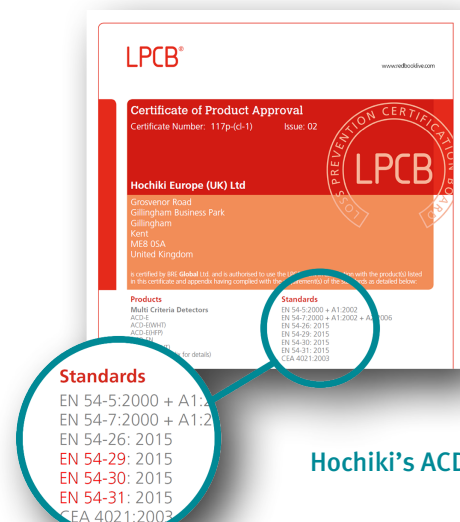- Available in white or ivory

Unfortunately, what is seen most often are sensors claiming to be multi-sensors but approved only to EN54 part 5 or part 7 (that's heat and smoke respectively) not to some of the newer multiple criteria standards such as parts 29, 30 and 31.

From our standpoint here at Hochiki, we believe true multi-sensors should be able to demonstrate this intelligent, multiple criteria monitoring capability by being designed with these new published standards in mind from the outset.

So our advice at this point is to check the manufacturer's LPCB certificates – freely available on the LPCB's own reference site "Red Book Live" to check a multi-sensor's technical credentials.

Standards
EN 54-5:2017 + A1:2018
EN 54-7:2018
CEA 4021:2003

Not a true multi-sensor

Standards
EN 54-5:2017 + A1:
EN 54-7:2018
EN 54-29:2015

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Standards
EN 54-5:2000 + A1:
EN 54-7:2000 + A1:2
EN 54-26: 2015
EN 54-29: 2015
EN 54-30: 2015
EN 54-31: 2015
CEA 4021:2003

Hochiki's ACD

Conclusion

In conclusion, the call challenge for 999 calls is a valuable tool that the SFRS can use to reduce the waste of resources responding to false alarms. By ensuring that only genuine emergencies receive an immediate response, the service can improve its efficiency of their operations and provide a better service to the public.

As such, it is likely that we will see more fire and rescue services across the UK introducing "Call Challenge" in the coming years.

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