

# AlarmCalm & False Alarm Management FAQs

## What is AlarmCalm?

AlarmCalm is the complete false alarm management solution for Advanced fire alarm control panels and fire systems.

AlarmCalm is the most flexible and easily configured false alarm management system available. It comprises fire alarm panel hardware, powerful configuration software and the optional analogue addressable loop device – the AlarmCalm button.

The AlarmCalm system allows:

- Configuration of verification time
- Second stage verification instigated by the alarm acknowledgement device (panel or AlarmCalm button)
- Verification hold time
- Verification of a fire from a second device or via a mode change on a multisensor.

## What is a fire system false alarm?

There are a number of definitions, these include:

The **FIA (Fire Industry Association)** definition:

A false alarm occurs when there isn't actually a real fire but the fire alarm goes off.

The **British Standard for Fire Detection and Alarm Systems BS5839** definition:

A false alarm is a fire signal resulting from a cause(s) other than fire.

NOTE: false alarms may be subdivided into four categories:

- a) **Unwanted alarms**, in which a system has responded, either as designed or as the technology may reasonably be expected to respond, to any of the following:
  - 1) a fire-like phenomenon or environmental influence (e.g. smoke from a nearby bonfire, dust or insects, processes that produce smoke or flame, or environmental effects that can render certain types of detector unstable, such as rapid air flow);
  - 2) accidental damage
  - 3) inappropriate human action (e.g. operation of a system for test or

maintenance purposes without prior warning to building occupants and/or an alarm receiving centre).

- b) **Equipment false alarms**, in which the false alarm has resulted from a fault in the system
- c) **Malicious false alarms**, in which a person operates a manual call point or causes a fire detector to initiate a fire signal, whilst knowing that there is no fire
- d) **False alarms with good intent**, in which a person operates a manual call point or otherwise initiates a fire signal in the belief that there is a fire, when no fire actually exists.

The **BRE (Building Research Establishment)** definition:

A false alarm is a fire alarm signal resulting from a cause, or causes, other than a fire, in which a fire detection and alarm system has responded such as:

- A fire-like phenomenon or environmental influence (e.g. smoke from a nearby bonfire)
- Accidental damage
- Inappropriate human action (e.g. malicious manual call point (MCP) activation)
- Equipment false alarms, in which the fire alarm has resulted from a fault in the system.

### **What can cause a false alarm?**

There are many things, other than a real fire, which can cause a fire alarm to go off:

- Cooking fumes (e.g. burnt toast)
- Steam (e.g. shower rooms, industrial processes)
- Smoking materials (e.g. cigarettes, matches, candles and incense)
- Aerosol sprays
- Hotwork from cutting and welding
- Dust build-up (poor housekeeping, lack of preventative measures for dusty work such as drilling)
- Insects
- Humidity and temperature change
- Poorly trained fire system users
- Accidental or malicious damage to a 'Break Glass' point
- Lack of testing/maintenance
- Testing or maintenance – without having/following processes to manage this
- Incorrect/poorly designed systems.

### **When does a false alarm become an unwanted fire signal?**

A false alarm becomes an unwanted fire signal (UWFS) when the fire and rescue

service is requested to attend.

### **What is an unwanted fire signal?**

An unwanted fire signal (UFS) is a fire signal resulting from a cause other than a fire. Any Automatic Fire Alarm (AFA) that the fire and rescue service (FRS) attends that is not actually a fire is considered to be an unwanted fire signal.

### **What do false alarms cost the UK economy?**

False alarms generated from remotely monitored fire detection and fire alarm systems cost businesses and Fire and Rescue Service (FRS) authorities an estimated £1 billion a year in the UK.

### **How common are false alarms in the UK?**

According to the Great Britain fire statistics from the Department for Communities and Local Government, in the period April 2013 to March 2014, local authority fire and rescue services attended 212,500 fires and 293,100 false alarms in Great Britain; i.e. almost 58% of all fire-related events attended by local fire authorities in Great Britain in 2013-14 were false alarms.

### **Why is it important to minimise false alarms?**

False alarms are costly in a number of ways. Here are some of the reasons why you should be actively reducing them on your premises:

#### **Cost to your business:**

- Down-time from evacuations
- Disruption to production
- Fire service attendance charges
- Annoyance to customers.

#### **Cost to your reputation:**

- Image of complacency about life safety
- Loss of confidence from staff and the fire service
- Risk of prosecution/charge (depending on the local fire authority, false alarms may incur a penalty or charge for attendance).

#### **Cost to lives:**

- Risk of complacency to fire alarms that can result
- Diversion of fire and rescue resources away from real fires.

#### **Cost to the fire and rescue services:**

- Waste of time and manpower

- Diversion of limited resources away from real fires or road traffic collisions
- Disruption to firefighter training and community safety work
- Needless removal of retained firefighters from their normal place of work.

### **Why is false alarm management important?**

Managing false alarms within your fire system is extremely important, primarily because doing so can save time, money, your reputation and safeguard employees.

The estimated cost of false alarms to the UK economy is around £1 billion per year.

Invariably when a fire alarm condition is met and the fire alarm system goes into full alarm, an evacuation of the premises takes place.

In a commercial operation, this results in down time, and lost man-hours. Likewise, production facilities will experience down time, and loss of production time.

In a retail or service-based facility, there will be annoyance to customers and possibly lost revenue due to the evacuation. Additionally, there is the possibility of a charge or penalty being levied against the premises by the local fire authority.

There is also the negative impact that false alarms can have on reputation and perceived reliability of the fire system installed at the premises. If the occupants of the building experience repeated false alarms, this may lead to a loss of confidence in the system and could potentially lead to injury or loss of life in the event of a real fire emergency, due to complacency.

Finally, there is the financial cost and resource drain of false alarms experienced by the fire authority. For example, the London Fire Brigade began to charge a penalty for false alarm callouts in 2014 due to figures showing that in the 2013 financial year fire-fighters were called out to 403 locations more than 10 times in a 12-month period, with an estimated annual cost to the brigade of £37 million.

### **What can local authority fire and rescue services do to help reduce the number of false alarms?**

The nature and frequency of false alarms varies widely across the 50-plus fire and rescue services of the UK.

As a result, the nature and methods of tackling this universal problem also vary.

The fire and rescue services play an important role in educating building owners/occupants about false alarm prevention measures. However, the reduction of

false alarms requires a collective effort by building owners/occupiers, fire alarm manufacturers, fire risk assessors, fire system specifiers/contractors as well as the fire and rescue services.

Some effective ways of reducing the incidence of false alarms include:

- Asking those in charge of buildings and businesses to ensure that someone is responsible for the alarm and knows what to do when it goes off
- Ensuring Fire Marshalls have received appropriate training
- Checking that fire alarms are properly installed and are being properly managed and maintained
- Encouraging the responsible person(s) to investigate fire alarms before calling out the fire and rescue services, where it is safe and practical to do so
- Ensuring that false alarms are followed up and that action is taken to prevent further unnecessary alarms
- Educating building owners/occupiers about the value of replacing detectors with multi-sensors
- Promoting the use of appropriate approved detector/s located correctly
- Use of protective covers over approved manual call points with adequate signage/use of CCTV where necessary
- Use of fully approved analogue addressable panels
- Monitoring of contractors to ensure they are suitably trained to install reliable fire systems
- More rigorous/regular maintenance of the system
- Ensuring there are appropriate 'call filtering' measures in place such as a 'Double Knock' procedure to enable safe investigation of alarm activations prior to summoning the fire and rescue service for assistance
- Appointing an out-of-hours key holder and ensuring they can respond to alarm activations speedily
- Changing smoke detectors to heat detectors in areas where smoke emission can occur during normal operations e.g. kitchens
- Properly isolating areas where dusty work may take place in order to prevent false alarm activation through dust ingress
- Educating contractors about the need to clean smoke detector covers prior to their removal/replacement
- Raising awareness of the need to correctly use extractor fans in kitchen areas to reduce the likelihood of false alarms through cooking
- Specification of the most appropriate form of detection e.g. heat detectors instead of/as well as smoke detectors in kitchens
- Advice about the appropriate use of manual call points and the fitting of covers to manual call points to prevent accidental/incorrect use of them
- Replacing old/outdated detectors/detector heads
- Installation of intelligent fire systems, which allow for flexible, reliable false

alarm management

- Having a system in place to ensure that the causes of every unwanted fire signal are identified and corrective action is taken
- Proper procedures for training new staff on the fire system – particularly in buildings with a high staff turnover
- Ensuring that where there is a change of tenant in a building, that the fire alarm maintenance company is informed to check that the existing system is adequate for the new tenant's needs.

### **What type of false alarm does AlarmCalm help to reduce?**

AlarmCalm can be used to reduce a range of false alarm scenarios by programming the system with verification and investigation delays.

So for example, in the case of unwanted fire signals such as those from burnt toast, a local AlarmCalm button can be pressed by the occupant to acknowledge the smoke from the burnt toast giving time for the fumes to clear the detector.

Once the fumes have cleared and the investigation delay has expired, the fire alarm will reset. (In the event of a real fire however, the fumes would not clear, and so after the investigation delay the alarm would go into a full fire condition.)

In the case of malicious activation of the fire system, e.g. by breaking the glass on a manual call point, AlarmCalm could be used to instigate an investigation delay. However, this would be categorised as an exception, which would be logged in the fire system commissioning log.

This setup may be useful for example in a hospital, where malicious activity is identified as an issue. The break glass could trigger a local sounder, and also a notification at the nearest nursing station to instigate an investigation delay.

Again, if the unwanted signal were due to a build-up of dust from drilling work for example, the availability of an AlarmCalm system would allow the building's occupants to press an AlarmCalm button or a button on the panel to delay the alarm condition and allow time for the dust to clear before the alarm went into a full alarm condition.

### **What type of non-fire conditions can AlarmCalm handle?**

AlarmCalm false alarm management can be effectively used in most circumstances where a fire alarm could be triggered.

For example, there may be a situation where cooking fumes (such as burnt toast) in an apartment or student residence would activate an optical detector and cause a fire alarm.

Here, AlarmCalm false alarm management could be deployed to instigate a verification delay. This verification delay would give time for the smoke to clear and for the detector to drop below the alarm threshold.

The system can be programmed to activate the local sounder or beacon alerting the occupier to the alarm condition. At this stage, the fire alarm would not go into full alarm. Once the verification period had expired, if the smoke had cleared, the alarm would reset. If however the smoke persisted, the alarm would go into a full alarm condition.

Additionally, the apartment could be fitted with an AlarmCalm button, which would give the occupier the opportunity to add an additional investigation delay, giving more time to investigate the issue, and/or clear the smoke before the system went into a full alarm condition.

The above scenario can be repeated for other environmental factors that can result in an alarm condition, such as steam from a shower, dust from building work or heat due to some hot work process.

### **Can AlarmCalm help reduce nuisance false alarms?**

A nuisance false alarm may arise where a building occupant triggers the alarm via the break glass on a manual call point, for example. Normally, there should be no delay to an alarm condition triggered by a manual call point. However, initiation of a delay can be created as an exception within AlarmCalm and documented within the commissioning document for the system.

Take, for example, a scenario where a call point is routinely triggered in a hospital. A false alarm management configuration could be programmed, which firstly initiates a verification delay and activates a local sounder or beacon at the nearest nurse's station. Staff then have the opportunity to verify whether the call point activation is malicious or genuine. If the call point goes un-investigated, or the alarm is not cleared, then the alarm will go into full alarm.

Additionally, an AlarmCalm button could be installed at the nurse's station, to allow a further period of investigation.

## Who is responsible for dealing with false alarms?

National regulations require all commercial premises to take responsibility for fire safety, and so there is a responsibility to ensure that the fire alarm system doesn't generate false alarms. However, it takes a number of people to ensure that this happens.

At design and specification stage, the **specifier** needs to clearly state the need for a fire alarm system that is suitable for the building in question, and that offers adequate levels of protection from false alarms.

The **building owner and/or occupier** has a responsibility to ensure that someone within the premises is designated as responsible for the system and adequately trained on how to use it. Procedures should be in place to ensure testing and maintenance procedures do not cause false alarms, and contractors working within the premises do not cause false alarms.

The **fire alarm company** is responsible for installing a suitable system, and ensuring that it works correctly. They are also responsible for maintaining the system.

A **fire risk assessor** will make recommendations for overall fire protection, not just for the alarm system itself.

**Fire and rescue services** will work with the building owner/occupier to eradicate false alarms.

## Do UK Fire Authorities charge for false alarm call-outs?

The Localism Act 2011 allows Fire and Rescue Authorities to charge for responding to a report of fire where the call is made within the following circumstances:

- There is a report of fire
- The premises are not domestic premises
- The report is false
- The report is made as a direct or indirect result of warning equipment having malfunctioned or been badly installed
- There is a persistent problem.

However, each Fire and Rescue Authority making use of the power to charge needs to establish a robust methodology for assessing the costs to the Authority in responding to the unwanted fire signal. They also have a duty to ensure that taking one financial year with another, that the income from levying a charge for responding to unwanted fire signals does not exceed the cost of provision.



Authorities may decide to respond to unwanted fire signals without charge, or they may decide to charge different amounts to different groups.

Once each Authority has an unwanted fire signal charging policy in place, they should produce a plan to provide clarity about the charges to be imposed.

### **Who is responsible for any charges levied for unwanted fire signals?**

Although each Fire and Rescue Authority can determine who is liable to be charged, it will usually be the person with responsibility for the fire alarm system's performance and maintenance (the Responsible Person) who will be liable for any charge.

### **How much can fire and rescue services charge for call-outs that turn out to be the result of unwanted fire signals?**

As per the point above: "Do UK Fire Authorities charge for false alarm call-outs?", the charge is decided by each individual Authority, with some choosing not to levy any charges at all.

For illustration, the following Authorities charge as follows:

- West Yorkshire (£350 – after three calls to the same premises in 12 months)
- London Fire Brigade (£290 after ten calls to the same premises in 12 months)
- Leicestershire Fire and Rescue (£290 after nine callouts in 12 months – Hospitals Exempt)

### **What is the difference between Type A and Type B verification?**

When 'alarm verification' is selected, the fire panel will carry out additional checks before determining that an alarm signal from a detector is a real fire.

What happens during the alarm verification process can be tailored to the particular requirements of each building.

Verification types are largely determined by the ability of the occupants to take action to prevent the situation turning into a full-blown unwanted fire alarm.

#### **Verification method – Type A dependency (not displayed)**

This verification method allows a delay of up to 60 seconds before any qualified detector enters fire alarm condition. The panel display will show 'normal' providing the detector clears within the set period.

So, for example, if cooking fumes or burnt toast activate a smoke detector, the system will not go into fire alarm if the smoke clears the detector within 60 seconds.

### **Verification method – Type B dependency (displayed)**

This method offers greater flexibility, and can also allow individual detectors to go into alarm for longer periods before determining whether a fire has occurred.

Throughout the alarm verification, the panel and any associated repeater panels will provide information on the location of the alarm. It is extremely easy to program the panel to give audible and visible warnings that are targeted specifically at occupants in the vicinity of the potential alarm (e.g. in the room in which toast is burning/shower steam has caused an alarm) so that they can take action to avert a full alarm.

Configuration options allow the specification of verification by mode change (i.e. if smoke is detected then this can be verified via a heat detector) or by a second detector (i.e. if smoke is detected in a room, and then detected in an adjacent room or corridor).

It is this Type B dependency where the true power and flexibility of the AlarmCalm false alarm management system comes into play, with the added configuration and alarm acknowledgement provided through the addressable acknowledgement button.

### **Verification method – Type C dependency (displayed)**

Following receipt of a fire alarm signal from a fire detector or a manual call point, the panel enters fire alarm condition, but there is the option available to stop the activation of outputs until a second alarm signal is received from another fire detector or manual call point, which may be in the same, or another, zone.

### **Does AlarmCalm provide an alarm verification delay?**

When using Type B dependency alarm verification, AlarmCalm delivers a number of configurable timing parameters allowing complete control of the false alarm management strategy.

The examples below are based on the detection of smoke via a smoke detector, but the principles also apply to other types of detector:

#### **Verification time:**

The verification time starts from the instant that smoke in the detector increases above the alarm threshold. The panel will turn on any configured verification outputs (i.e. outputs in the same building area as the detector) while verifying the alarm.

So, for example, in a building area that is a room in a hotel, once the smoke in the detector rises above the alarm threshold, the panel may turn on the sounder and a beacon in the room.

**Verification hold time:**

The verification hold time indicates the period of time that the panel will hold the building area in the verification state.

So, for example in Figure 1, the smoke cleared the detector within the verification time so the alarm didn't go into a full alarm condition, but the verification continued to be displayed on the panel and the local verification outputs continued to be activated.

In the example of a hotel room with an excess of steam from the shower, the local beacon and sounder will remain activated until the verification hold time has elapsed, even if the steam has been cleared from the detector. Once the verification hold time has elapsed, and the steam level has dropped below alarm threshold, the system will reset to normal state.

**Stage 2 verification time:**

The second stage verification time is part of the Alarm Acknowledgement Facility (AAF), and enables the occupants of a building area to acknowledge potentially unwanted alarms, i.e. from burning toast, by triggering an AAF input device such as the AlarmCalm analogue addressable button.

The AAF can extend the verification time in order to investigate and rectify the situation before a full fire alarm condition is raised. The occupier of the building area must press the alarm acknowledgement input device before the verification time has elapsed, allowing an additional second stage for the smoke to clear.

The second stage verification time starts from the instant that the occupier presses the button, not in addition to the verification time. Once the smoke clears the detector, the panel will automatically cancel the verification and return to normal as long as the verification hold time has elapsed.

If the smoke is still present once the second stage verification time has elapsed, a full fire condition will be raised.

## **With which Advanced fire systems is AlarmCalm false alarm management compatible?**

The AlarmCalm false alarm management software and AlarmCalm addressable button are compatible with the MxPro 5 analogue addressable fire panel and the Axis EN, Axis AU and Axis AX fire systems.

## **Can AlarmCalm false alarm management be added to an existing Advanced fire system?**

AlarmCalm false alarm management can be applied to any existing fire panel network, which uses MxPro 5 intelligent addressable panels, or panels from the Axis EN, Axis AU or Axis AX fire system range.

The false alarm programming aspect of AlarmCalm can be applied by upgrading the panel firmware, as well as upgrading to the latest version of the Dynamix Tools Panel Config Tool (version 6.49 or above).

Software updates are available from Advanced via the Advanced360 technical support facility.

## **Does AlarmCalm require reworking of wiring, or special wiring configuration?**

No, the AlarmCalm addressable acknowledgement button is very easy to install with simple configuration of FAM occurring at commissioning.

The AlarmCalm button is loop-powered and connected to the loop in the same way as any other device, making for quick installation. The button can be placed anywhere on the loop and only takes up one address with no complicated/specific wiring required.

For example, in a hotel room or residence, there is no need to wire in a sounder and detector with the AlarmCalm button as a module controlling those circuits. All configuration is done in software at the panel and via the configuration software tools.

## **What is the AlarmCalm button?**

The AlarmCalm Button is attractive, highly flexible and easily installed and configured.

It features:

- Push-button operation

- Customisable slide-in label
- Programmable acknowledgement signal and silence verification outputs (sounders, strobes, modules)
- LED pulse on stage one activation, constant on AlarmCalm button activation
- Programmable AlarmCalm button buzzer on activation
- Different sounder ring styles during verification
- Day/night/day of week operation by time clocks
- Verification by second device or mode change
- Programmable maximum number of AlarmCalm buttons in operation before full fire condition is signalled
- Full definition of time periods by the user
- Compatibility with standard single gang UK electrical back boxes
- Compatibility with Advanced's MxPro 5 and Axis fire systems
- Wiring terminations suitable for all Advanced recommended loop cables.

### Can AlarmCalm be configured to function within each room or residence?

The false alarm management is configured by defined building areas. When enabling verification, a default configuration is applied to all building areas covered by the selected panel. Each panel can support up to 200 building areas.

It is often necessary to have independent verification strategies for different areas of the building. Therefore areas can be added to the configuration.

Every building configuration is different and is defined by the layout and use of the premises. But some examples of building areas in practice may be:

1. **Student accommodation or halls of residence:** Each individual residence would constitute a building area. Common or shared kitchen areas may have slightly different verification requirements; with escape corridors being excluded from verification.
2. **Hotel:** Each room would be a building area with common verification parameters, with escape corridors and common areas being excluded.
3. **Apartment building:** False alarm management in an apartment building may consist of each apartment as a building area, with common corridors and escape routes being excluded from alarm verification.

### Is AlarmCalm false alarm management complicated to set up?

In order to simplify the configuration of the system, the Dynamix Tools Panel Config Tool has been designed so that you can specify the parameters that apply to the majority of the building areas, and then add only the exceptional areas.

Take for example, a multi-occupancy building with 50 apartments, all with identical verification requirements and four escape corridors. Parameters will be applied to the whole building; however, the building areas relating to the four corridors will have exceptions created to disable verification, as verification is not permitted in those areas.

By default, the building areas are the same as the zones configured within the panel. There is no need to change this relationship if the zone/building area relationship is sufficient for the configuration required. If more flexibility is needed however, the building area can be extended within the Dynamix Tools Panel Config software. This means that the majority of the false alarm management verification parameters can be configured with only a few clicks.

### **How many detectors can be in a single building area?**

There is no limit to the number of detectors that can be located within a building area. A building area could contain a single detector or, at the other extreme, every device on a panel could be assigned to a single building area.

### **Can two or more building areas be in verification at the same time?**

Yes, each building area can be in a state of alarm verification at the same time, independent of what is happening in the other building areas.

An example of this may be in a hotel, where a building area may be in alarm verification due to steam from a shower, while another is in alarm verification due to overuse of an aerosol.

### **Can I limit the number of building areas in simultaneous verification?**

Yes. In some scenarios, it may be necessary to enter a fire condition if multiple areas are in verification at the same time. The 'maximum areas in verification' option within the Dynamix Tools Panel Config software allows a limit to be placed on this.

Setting the 'maximum areas in verification' to one means that a fire condition will occur if more than a single building area is in verification at any one time.

Setting the 'maximum areas in verification' to 20 will allow 20 building areas to be simultaneously in verification. Should a further building area go into verification, the system would go into a full alarm condition.

## **Can AlarmCalm be configured to take verification from other building areas, zones or detectors?**

The false alarm verification and alarm acknowledgement facility operate within a building area. So, if smoke is detected by a smoke detector, then the alarm can be verified by any other device or mode change within that building area. Likewise, only configured outputs such as sounders and beacons in that building area will be activated.

However, it is possible to configure the system to go into a full alarm condition, should multiple building areas be in verification state simultaneously. This configuration option is discussed in: “Can I limit the number of building areas in simultaneous verification?”

## **Can AlarmCalm false alarm management be configured based on time of day?**

Yes. Different verification settings can be applied based on time of day. Clocks work on a seven-day week, allowing verification and investigation delay strategies to differ between weekdays and weekends for example.

In some scenarios, the verification requirements may differ according to the time of day, or a building area being occupied/unoccupied.

For example, in an office building, a verification time may be configured to allow occupants to investigate an alarm condition. However, during the night when the building is not occupied, the alarm should not be delayed with a verification time. The ‘time clock’ option within the configuration software allows any one of ten programmable time clocks to be used for this purpose. Each building area then has independent day and night settings.

Incidentally, certain types of detector can be configured to change sensitivity mode to verify an alarm. For these detectors, the ‘mode (when verifying)’ can also be set differently during the day and night via the point details screen within the configuration tool.

## **How are staff or building occupiers informed of an alarm to be investigated?**

When a building area enters an alarm verification state, configured outputs in that building area will be activated.

The outputs may be a sounder, beacon or relay. These outputs inform the occupants in the vicinity of the detector that has been activated that there is an alarm condition.

If the occupants are aware of the cause of the alarm, they can take action to rectify the situation, i.e. in the event of smoke from cooking, or steam from a shower, the occupants can attempt to clear the smoke or steam.

If they are successful in clearing the detector input signal before the verification time has elapsed, the system will reset and enter a normal state once the verification hold time has elapsed.

The sounder and beacon will remain activated until the verification hold time has expired.

Should the occupants be unable to clear the input signal before the verification time has elapsed, or if the fire event is verified by another detector or a mode change, the system will enter a full alarm condition.

### **Can a verification delay be instigated from the panel, rather than in a building area?**

It is possible to configure a global acknowledgement of an alarm verification state regardless of the building area in verification.

To do this, a panel input is configured with Alarm Acknowledgement Facility (AAF).

The provided options for this are:

- **AAF only:** Alarm verification in any building area is acknowledged without any effect on the verification outputs, i.e the sounders and beacons will continue to operate.
- **AAF (with silence):** Alarm verification in any building area is acknowledged and audible verification outputs are turned off.
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### **Are false alarm management events recorded in the fire alarm panel event log?**

All events relating to the alarm verification state and alarm acknowledgement are recorded in the panel log file.



## Can AlarmCalm false alarm management be used on networked panels?

Alarm verification can be configured on networked panels, as each panel is configured with its own strategy.

This allows most verification settings to be changed without undue concern about the effect this will have on other panels on the network.

Verification information passes over the network, so by default all nodes will be aware of verification alarms occurring on other nodes on the network. You may wish to control or limit the effects of this in some situations.

**Network displays:** All displays on the network will, for type B verification, identify the zone and location text of any detector in verification alarm.

If you do not wish this information to display on certain nodes, there is an option within the configuration software not to display pre-alarm network signals.

**Maximum areas in verification:** By default, 'maximum areas in verification' includes fires occurring on the panel being configured, and those occurring on other nodes on the network.

If on a particular panel/node, verification alarms occurring at other panels should not be included, they can be excluded according to the sector assigned to each networked panel.

## How can fire systems help in false alarm management?

Automatic fire detection systems are designed to provide an early warning of a potential fire within a building and enable the occupants of the building to escape to safety. However, the vast majority of signals from automated fire alarms are not actual fires.

Fire detection systems are designed to react to input stimulus such as smoke or heat, but unfortunately they can also be triggered by steam, cigarette smoke, aerosol spray and light smoke from cooking.

These detections are classed as false alarms, and it is up to building owners and occupants to take steps to reduce them, or manage how these signals are handled in order to avoid them becoming unwanted fire signals.

False alarms can be reduced or avoided by ensuring that the fire alarm system is properly maintained and reflects the conditions and use of the premises. However,

the fire system itself can include features that allow occupants to verify an alarm, take corrective action, and ultimately avoid a full alarm condition.

This can be done through a pre-alarm state, where outputs close to the detected smoke or heat are activated to notify occupants in the vicinity of a possible alarm condition. If the occupants are aware of the cause, i.e. shower steam, smoke from burning toast or cigarette smoke, they can take action to clear the condition by wafting smoke from the detector for example. Provided the smoke is cleared in a pre-defined period of time, the system can reset to a normal state.

In a situation where the fire system does detect a fire and a full fire alarm condition arises, the fire system can provide a mechanism to give the occupants time to investigate the alarm before evacuating the whole building.

This facility is of particular value for example in large buildings with many occupants spread across multiple floors, or shopping centres where it would be detrimental to evacuate everyone due to a false alarm.

The location of the detected fire is indicated on the panel to allow a responsible person to start a countdown investigation delay. They can then investigate the location of the fire signal and determine if it is a real fire situation. If the fire alarm is a false alarm, the operator can reset the alarm at the panel. Alternatively, they can confirm the fire by pressing the nearest break glass. The system will go into evacuate mode should the investigation delay countdown elapse before the operator has returned to the panel to reset the alarm.

### **What is fire alarm verification?**

It is a way of verifying if a fire exists. The verification method may originate from a second detector, a mode change in a detector, or by using a verification delay to see if the input signal, which triggered the alarm, clears within a set verification time.

In a scenario where a smoke detector is triggered due to burning toast in an apartment, it would be unnecessary to evacuate the entire building due to this everyday mishap.

Alarm verification could be used to configure a 90-second verification time on smoke detectors in apartments. The outputs in the apartment (i.e. sounder and/or beacon) would be activated and a 90-second countdown started. This would give the occupant 90 seconds to clear the smoke, open a window and ventilate the room, before the alarm system went into a full alarm condition. Should they be unable to clear the smoke in that time, the fire system would go into a full alarm condition.

If this were a real fire situation, then within the 90-second period, the alarm could be verified by another detector, a mode change (e.g. heat detection) or, if after 90 seconds the smoke level was still above the alarm threshold, the fire would be verified. If this occurred, the fire system would go into full alarm before the verification time had elapsed because the alarm has been verified by another device.

### **What is fire alarm acknowledgement?**

The Alarm Acknowledgement Facility (AAF) allows building occupants to acknowledge a fire pre-alarm condition.

In the example of an apartment occupant burning some toast and setting off a smoke detector, the detector would trigger a pre-alarm condition, which would activate the outputs in that apartment, for example a beacon and a sounder.

At this stage, it is only the outputs in the apartment that are activated, and not those in the rest of the building.

An AAF, such as a button, can be pressed by the occupant to acknowledge the fire condition. This would usually silence the sounder in the apartment and may also be used to trigger a second stage verification time. The second stage verification would give the occupant an extended period of time to clear the cause of the false alarm.

If they are successful in clearing the smoke before the second stage verification time elapses, the system will reset to a normal state. However, if the smoke is still present after this time, a full fire alarm condition will occur.

### **What are fire alarm investigation delays to outputs?**

In some scenarios, it may be undesirable to have the fire alarm system instigate a full evacuation of the premises once the fire alarm has gone into a full fire alarm condition. For example, in a shopping centre it could cause a great deal of disruption and lost revenue if the building were evacuated. It is therefore vital to be able to investigate fire signals and avoid unnecessary disruption.

In this instance, an investigation delay would allow a member of staff to acknowledge an alarm and trigger a five-minute countdown.

In the example of the shopping centre, the alarm panel may be located in a central control room, and the staff there can mobilise security staff on the floor to investigate the fire and confirm or reject the presence of a fire.

If the fire is confirmed, or the investigation delay timer elapses, the outputs will activate. However, if the fire signal is unwanted, the fire alarm can be reset before the outputs are activated.

### **Do I have to use an AlarmCalm button in my false alarm management system?**

The AlarmCalm button is not a mandatory component in the AlarmCalm false alarm management system. It is possible to use only the panel hardware and the software configuration tool to set up alarm verification within building areas.

This means that you can program a first stage verification time, complete with verification from a second device (such as another smoke detector or a manual call point), or verification from a mode change in a device such as smoke and then heat.

The AlarmCalm button is an acknowledgement device, which can be used to acknowledge the verification alarm and also instigate a second stage verification period.

### **Why is AlarmCalm made up of panel hardware, configuration software and loop devices?**

AlarmCalm has been designed to be a truly flexible false alarm management system. The fact that it is made up of different components means that it offers a completely customisable solution.

In a false alarm management strategy, an acknowledgement button (such as the AlarmCalm button) is not always required. It may be enough to have a verification period paired with secondary verification from another device or a mode change (e.g. smoke and heat). Therefore, it is advisable to make the AlarmCalm button a separate, independent unit, which augments the false alarm management features in AlarmCalm.

By making the AlarmCalm button and the AlarmCalm false alarm management configuration independent also means simplifying the installation process, as there are no special wiring schematics to follow in order to make false alarm management available in a building area.

The configuration is all handled via software. The AlarmCalm button is an addressable device, so it is simply wired into the analogue addressable loop where required. The AlarmCalm button can even be added retrospectively to existing Advanced fire panel networks, and the false alarm management features enabled by upgrading the panel firmware and the PC config tool to the latest versions.

## **What is the advantage of having the AlarmCalm button installed on the loop?**

Having the AlarmCalm button as a loop-powered device means the level of work required for installation is greatly reduced.

There are no complicated wiring schematics to follow, or special arrangement of the AlarmCalm button in relation to the detectors and sounders in a building area. You simply connect the device to the analogue addressable loop and then auto-learn the devices onto the panel, as you would for any detector or output device.

## **What visual or audible alerts does the AlarmCalm button give?**

The AlarmCalm button has an LED, which is illuminated when the button has been pressed to acknowledge a verification pre-alarm state.

There is also a version of the AlarmCalm button that has a built in buzzer. This buzzer activates when the alarm enters the alarm verification state so drawing the occupant's attention to the button.

N.B. The buzzer is not intended to be a replacement for a sounder.

## **How many AlarmCalm buttons can I install?**

The AlarmCalm button is an analogue addressable device, much like a detector or loop-powered sounder. Therefore the only limit on the number of AlarmCalm buttons that can be used is the number of devices that can be installed on the loop.

## **Will the system auto-learn the AlarmCalm button?**

Yes, once the AlarmCalm buttons have been installed on the loop, the panel can auto-learn their configurations along with those of the other devices on the loop.

## **What fire detection protocols does the AlarmCalm button work with?**

The AlarmCalm button supports the Apollo and Argus Vega protocols.

## **What does the firmware upgrade to your fire alarm panels achieve?**

The firmware is required so that the panel is compatible with the latest version of the Advanced DynamixTools Config Tool, which is the software used to set up and configure false alarm management and alarm verification strategies.

We always advise that panel firmware be kept up-to-date with the latest versions.

The latest versions of Advanced's panel firmware can be downloaded via the Advanced360 technical support facility.

Advanced360 is a free facility for all Advanced customers, however, the ability to download software requires that you have proof of purchase of a software license.

### **Does it take a long time to configure the fire panel building areas?**

The AlarmCalm alarm verification configuration has been specifically designed to be efficient to setup.

For instance, zones can be directly mapped as building areas with the click of a tick box. So for example Zone 1 = Building Area 1, Zone 2 = Building Area 2 etc. Also, the configuration software allows you to set up the default verification configuration for all building areas and then create specific rules for the exceptions to the default verification.

For example, in an apartment building with 50 residences, all 50 apartments will have the same configuration. However, the access corridors will be excluded from alarm verification to comply with standards.

### **Are building areas the same as zones?**

Building areas and zones are separate groupings of devices. However, by default, zones can be directly mapped to building areas. This means that it is incredibly quick to roll out alarm verification throughout a building using zones as building areas. You can then of course customise the building areas to suit your setup, and create exceptions to the default verification configuration.

### **Can optical smoke detectors/multisensors and heat detectors be used in AlarmCalm?**

Any input device in a building area can be used to trigger an alarm verification state.

This means that any smoke detector, heat detector or multisensor can be used to trigger the pre-alarm state. The alarm verification can also be set up to use any second device in the building area as a verification of the alarm. Alternatively, a mode change can be used as the verification.

In a scenario where smoke is detected in an apartment, the initial smoke detection would start the verification period and put the alarm into an alarm verification state.

If a second detector in that building area also detected smoke, then the system would go into full alarm. Similarly, if the initial smoke were detected in a multisensor

and that detector sensed a mode change e.g. heat, then that would verify the alarm condition.

### **What other devices can I use for verification? For example beam detectors or other inputs?**

Any other input device can be used as verification of an alarm during an alarm verification stage. For example a manual call point automatically overrides any verification delays and puts the alarm into a full alarm condition.

### **What does the panel show during false alarm verification?**

When the fire system goes into a pre-alarm state, it depends on the type of verification in use as to what is displayed on the panel.

If Type A verification is used, then nothing will be displayed on the panel. Type A verification is a programmable delay of up to 60 seconds, which delays fire alarm when a detector is triggered.

If Type B verification is used, the alarm will show an alarm verify status, along with details of the zone and device in fire.

### **What happens when someone presses an AlarmCalm button?**

The AlarmCalm button forms part of the Alarm Acknowledgement Facility. It is designed to allow an occupier of a premises to acknowledge an alarm condition, where they are aware that the alarm is due to an unwanted signal, e.g. in a hotel room or apartment where burning toast or the overuse of an aerosol has caused the smoke detector signal to rise above the alarm threshold.

In this case, the outputs within the building area, such as a beacon and sounder, will be activated. The occupier can acknowledge the alarm by pressing the AlarmCalm button, thereby silencing the sounder.

The instant the button is pressed, a second stage verification time can be configured to start, which will give the occupier an additional period of time to clear the alarm signal.

If they manage to clear the signal before the second stage verification time has elapsed, then the alarm system will return to a normal condition. However, if the smoke level is still above the alarm threshold after the verification time has elapsed, the alarm will go into a full fire alarm condition.

### **Can I configure different outputs in different building areas?**

The AlarmCalm alarm verification facility within the Dynamix Tools Config software allows the configuration of outputs that are activated in the event of a detector instigating a pre-alarm condition on the fire panel.

The simplest form of configuration is to activate all outputs in the building area when an input in that building area is triggered. This would mean that any output device such as a beacon, sounder or relay output in the building area would be activated during the alarm verification period.

However, it is also possible to configure outputs 'per point', allowing flexible configuration of the outputs that will be activated in a building area when a fire alarm verification status occurs.

### **Can the fire manger/ responsible person verify the fire alarm on the panel or a repeater?**

It is possible to configure an AAF (Alarm Acknowledgement Facility) using a button on the panel. This would give a responsible person the option of acknowledging the alarm at the panel, and instigating the second stage verification time.

### **What is the device threshold? Why is this important?**

The device threshold, or alarm threshold is the point at which an input signal triggers an alarm.

For example, it would be undesirable for an alarm to be triggered for low levels of light smoke or dust. Therefore the threshold is the point at which the smoke level is deemed high enough for an alarm condition to be triggered.

When an input signal in a detector rises above the alarm threshold, the fire alarm enters an alarm state. If using false alarm management, then this would be an alarm verification pre-alarm state. The alarm will reset to a normal state if the signal level at the detector falls below the alarm threshold. However, if the input level remains above the alarm threshold after the verification period has elapsed, then the fire alarm will go into a full alarm condition.



## **Why is speed important in false alarm management?**

Whilst core aspects of false alarm management are alarm verification, alarm acknowledgement and investigation delays to outputs, time is of the essence.

The fire system, be that single loop, single panel or a 200 node network, needs to react fast.

There are issues having a 60-second acknowledgement time set if your network takes 15 seconds to process inputs – that's 25% of the time available.

Advanced's MxPro 5 and Axis EN fire systems provide an excellent foundation for complete, high performance false alarm management due to the speed and performance of their networking.

## **What is a building area?**

AlarmCalm allows buildings to be divided into false alarm management zones called Building Areas (up to 200 per panel or 40,000 per network).

These are virtual areas that can mirror or be independent of fire zones and can share grouped, or have individual FAM, settings. There is no limit to the number of points in a Building Area and every device in the area can be configured precisely. Complicated cause-and-effect is also easily programmed.

## **How does the fire system go into full alarm?**

AlarmCalm is extremely flexible and allows you to program the fire system to go into full alarm according to your exact needs.

It is possible to configure the system to enter full alarm condition when a pre-set number of building areas are in verification state simultaneously. This pre-set number can range from two building areas to 200 to cater for locations with false alarm management requirements as diverse as hotels, care homes, offices, student accommodation or hospitals, plus many more.

AlarmCalm allows sophisticated adjustment of verification times. For example, in an office building, a verification time may be configured to allow occupants to investigate an alarm condition during the day. However, during the night, when the building is unoccupied, alarm verification can be switched off, as there would be nobody present to carry out checks.

There are a number of scenarios in which the fire system will enter full alarm condition, including: if by the end of the pre-set verification time, the detector(s) is (are) still receiving a fire signal above the pre-set alarm threshold

### **What happens if someone presses a call point?**

This will vary depending on the way that the false alarm management has been configured. Typically, activation of a call point will override any false alarm settings. However, in buildings where there can be a high risk of call point misuse e.g. schools, hospitals etc., call point activation can be programmed to trigger

### **Can I use a call point instead of an AlarmCalm button?**

No, call points are intended to initiate an immediate fire condition on the panel as well as visible and audible outputs in order to start building evacuation.

The AlarmCalm button, on the other hand, is designed to allow building occupants to acknowledge the presence of a localised fire alarm, verify its cause and avert a full-scale evacuation, if the alarm has been triggered by a non-hazardous cause e.g. steam from a shower or smoke from a toaster.

### **What methods can I use to notify the fire manager that a building area is in verification?**

A range of options are available as any output can be programmed to trigger notification that a building area is in verification e.g. a sounder/beacon etc.

### **What outputs are available during verification?**

Any sounder, beacon or relay can be chosen to activate during verification. The output(s) can be specified during programming.

### **How do I signal an evacuation?**

By default, activation of a break glass unit will cause a full fire condition to be displayed and initiate a building evacuation. However, in circumstances where there is a high risk of malicious or accidental activation of break glass units, this default setting can be altered to meet the individual needs of the building's management/occupants.

### **How does the fire system reset?**

The system constantly self-checks all devices. It resets automatically if the system is clear.

### **If the system has reset how quickly can it go into fire?**

Immediately. This can be controlled via the false alarm management settings.

### **Where does false alarm management fit into building safety?**

False alarm management has a crucial part to play in reducing occupants' complacency about fire alarms, thereby helping to preserve quick reaction times and ultimately saving lives.

It can save money by ensuring that there is no unnecessary business 'downtime' and by avoiding fire and rescue services call-out charges.

### **Which of Advanced's conventional fire panels offer false alarm management?**

QuickZone Excel offers Type B verification.

### **Is the AlarmCalm button suitable for any installation?**

The AlarmCalm button is best suited to buildings with regular/longer term occupants who can be trained in its use.

### **Where should I install an AlarmCalm button?**

The AlarmCalm button can be placed anywhere required in the false alarm management design.

### **What false alarm management options do I have in the fire system?**

Verification, mode change, day/night mode, coincidence and delays to outputs are all available on the fire alarm system.

### **Why is network stability important in false alarm management?**

Core aspects of false alarm management are alarm verification, alarm acknowledgement and investigation delays to outputs, however, speed is everything. There's little point in setting a 60-second acknowledgement time if your network takes 15 seconds to process inputs – that's 25% of the time available.

Advanced's MxPro 5 and Axis EN panels operate at a baud speed\* of 38,400 bps (bits per second). Performing at such high levels of efficiency guarantees that fire signals will be received at all panels within eight seconds on large networked systems. Falling short of these response times seriously affects the integrity of the fire system, its ability to protect life and property and to signal false alarms.

*\* baud speed is the rate at which information is transferred in a communication channel.*

## **What's the difference between fire alarm verification and fire system investigation delays to outputs?**

Fire alarm verification occurs prior to a fire condition being displayed on the panel. Investigation delays to outputs occur after a fire condition is registered on the panel.

## **Does each area of a building need to be a separate building area?**

No, building areas are virtual areas that by default match fire zones but can be specified independently, to cover multiple zones and points, or individual points. Each Advanced MxPro 5 or Axis EN panel supports 200 building areas, (so up to 40,000 over a large network).

Each building area can have entirely independent FAM strategies, or can be grouped and share common settings.

## **How are building areas numbered?**

By default, building areas are numbered to match fire zones. However, they are designed to work independently from fire zones, as 'virtual areas' that allow complex, fully customised false alarm management strategies to be programmed. Advanced recommends logical, consecutive numbering of building areas, whilst also leaving some numbers 'free' between areas in case there is any future expansion of the system.

## **Can I set the same false alarm management settings to a range of building areas (e.g. common building areas) quickly?**

Yes, the panel's default is for all common building areas to share the same settings. It is only if you require a different, customised configuration that there is any need to change these.

## **Do I set verification and investigation delays to outputs the same way?**

They are set in slightly different ways but are very easy to configure using Advanced's Dynamix Tools configuration software. Full instructions can be found via the Advanced 360 portal.

## **What alarm verification methods are there?**

Alarm verification can be displayed on the panel or not displayed. The main verification types are A (not displayed), B (displayed) and C.

## **Why is it recommended that some building residents play a role in false fire alarm verification?**

In buildings with long-term occupants, it is likely that the occupants will have been/can be trained to have knowledge of the system. This is an extremely worthwhile step in achieving effective false alarm management, as human intervention is still one of the most reliable ways of identifying and preventing false alarms.

## **What is verification by detection mode change?**

This setting requires that a multi-sensor detect both smoke and heat in order to confirm the presence of a fire.

## **What is verification by coincidence detection?**

This is a setting that allows verification to be cancelled if the fire spreads within an area and activates a predetermined number of devices.

**For answers to any questions not covered above, please contact the Advanced Technical Team on: 01670 707 111**

### **Useful links:**

<http://fia.staging4.pixl8-hosting.co.uk/cut-false-alarm-costs/why-are-false-alarms-a-problem-.html#sthash.4LsNFSDP.dpuf>

<http://fia.staging4.pixl8-hosting.co.uk/cut-false-alarm-costs/reducing-false-alarms/infographic.html>

<http://www.cambsfire.gov.uk/firesafety/75.php>

<http://www.fia.uk.com/en/cut-false-alarm-costs/whos-responsible-for-false-alarms.cfm>

<http://www.cfoa.org.uk/10863>

<http://www.london-fire.gov.uk/Documents/Sup06-Management-of-Calls-to-Automated-Fire-Alarms.pdf>

<http://www.nfpa.org/research/reports-and-statistics/the-fire-service/fire-department-calls/unwanted-fire-alarms>

<http://www.bre.co.uk/filelibrary/pdf/projects/BRE-Trust-Report---The-causes-of-false-fire-alarms-in-buildings.pdf>

<http://www.london-fire.gov.uk/FireAlarms.asp>

[http://www.ctif.org/sites/default/files/ctif\\_report20\\_world\\_fire\\_statistics\\_2015.pdf](http://www.ctif.org/sites/default/files/ctif_report20_world_fire_statistics_2015.pdf)

<http://www.ifsecglobal.com/fias-false-fire-alarm-campaign-highlighting-cost/>

<http://www.nifrs.org/wp-content/uploads/2012/05/A-guide-to-reducing-the-number-of-false-alarms-from-fire-detection-and-fire-alarm-systems.pdf>

<http://ifpmag.mdmpublishing.com/causes-false-fire-alarms-buildings/>

[https://en.wikipedia.org/wiki/False\\_alarm](https://en.wikipedia.org/wiki/False_alarm)