



## Buyers Guide

# Fire Detection & Alarm System

Your guide to the procurement of the right BS5839-1:2017 Fire Detection &

Alarm System for your premises



## *Welcome to this, our essential buyers' guide*

Thank you for reading this Lifeline essential buyers guide to Fire Detection & Alarm Systems. We know from our experience that choosing the correct Fire Alarm for your business or property can be a challenge. There are so many choices, including DIY options. In addition to selecting which type of system you require and choosing a reliable company to deliver it. With the right guidance, coupled with a reliable competent company that



provides excellent service, the whole process can be made a lot easier and less time consuming than you might think.

**For these reasons we have created this FREE Buyers Guide.**

This guide includes the best advice we can offer and help you to gain the essential knowledge required in order to choose the right system and the right company. This guide has been created with the benefit of many years of experience and valuable alarms and security industry knowledge. It contains up to date information helping you make your own independent educated choice. We hope that this will help you avoid any expensive mistakes, saving you time and money. At Lifeline Fire and Security we want to make sure you can take your next steps with confidence and ask the right questions. Should you have any additional questions, or require specific guidance in any area of fire safety or security please call our friendly team **01983 521621** or email us at [info@lifeline-security.co.uk](mailto:info@lifeline-security.co.uk) and we will be happy to help you.

## Where to start?

If you are considering having a Fire Alarm installed to protect your property or business premises, we thought you would like to know how to choose a system and a reliable provider.

There are a number of influencing factors to consider, so in order to help you make the right choice, following are a few things you might want to consider:

1. Why do we need a Fire Alarm?
2. Have we procured or carried out a Fire Risk Assessment?
3. What type of system do I need?
4. What influences the type of system I need?
5. Do I have to comply with any British Standards and regulations?
6. How do I choose the best company?
7. What do I need to do once the system is fitted?



It is important to keep in mind that the installation of a Fire Alarm System maybe a legal requirement and as such must comply to the required regulations. In this comprehensive guide we will show you:

- How to identify which system you require
- Obtaining the correct quote
- The importance of choosing the right company
- The importance of proving competence
- The different types of Fire Detection & Alarm Systems available
- The required British and European Standards
- The different categories of Fire Alarm Systems
- Types of Detection & Warning Devices
- Documentation and certification requirements

- Your responsibilities
- Maintenance information
- The importance of warranties for your new system
- Why ongoing support is vital



*Organisations should be able and proud to demonstrate their accreditation*

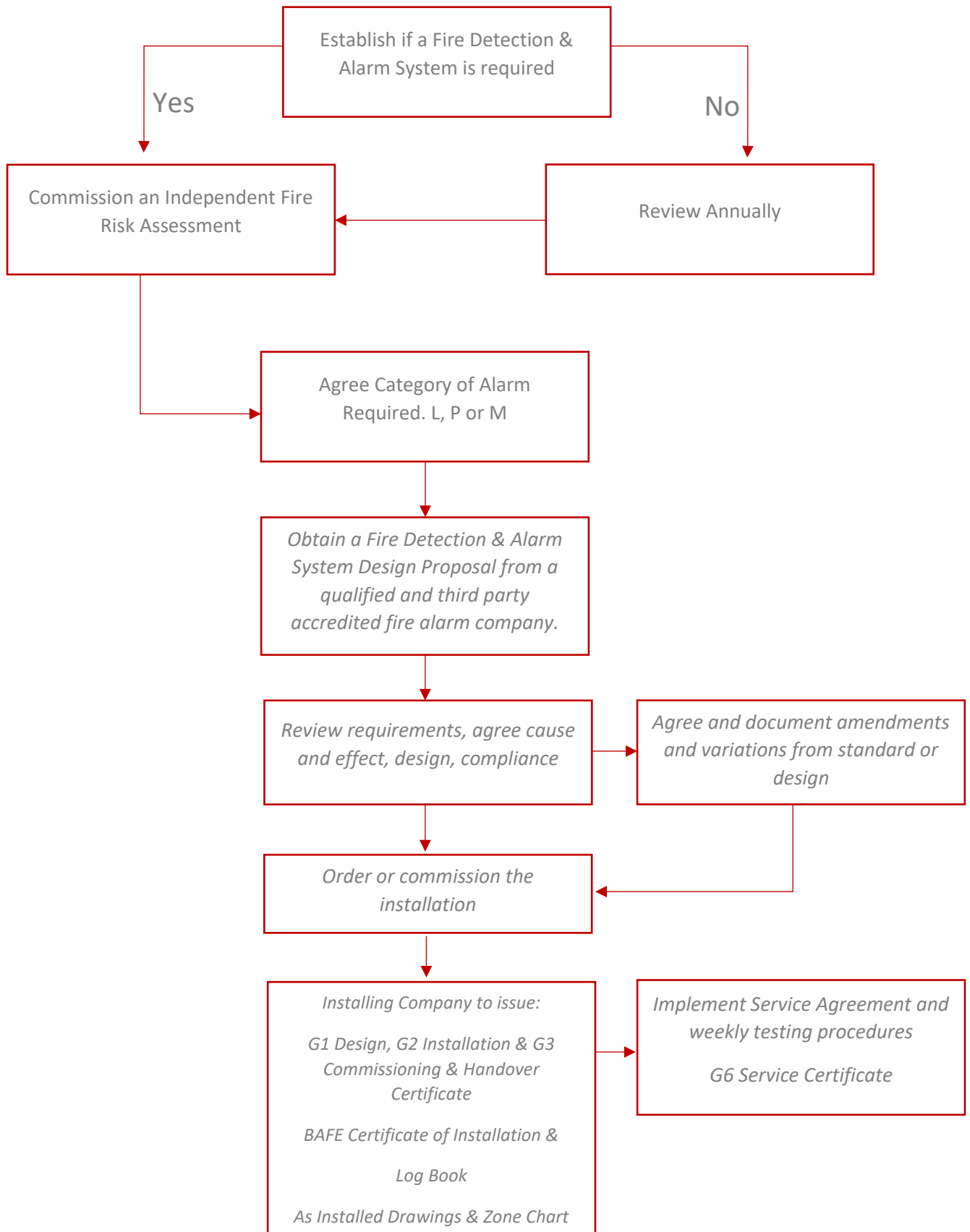
## *What you can do.*

Determine the reason you need a Fire Alarm System. This might be an insurance company requirement, it might be a planning or building control requirement, you may have been informed by authorities that a fire detection and warning system is required. Simply put, all places of work, houses of multiple occupancy, offices, public buildings, are legally required to have a method of warning persons in the event of the outbreak of fire. Depending on the size of the premises, this may or may not establish the requirement for a Fire Alarm System.

As an example, a small shop which operates with two employees, one entrance door, selling cold food over the counter may identify the risk to be extremely low. They may establish that the method of raising an alarm will simply be shouting "FIRE". However, the same shop may now extend their facilities to include onsite cooking, with a bar, an upstairs and downstairs seating area and additional customers and staff. The risk has now substantially changed and the requirement may now extend to the installation of a Fire Alarm System. Every system will be designed based on a **Risk Assessment** relevant to the building and its activities.

An independent **Risk Assessment** should be obtained from a qualified assessor, who will provide the needed category of Fire Alarm. This would not normally be the Fire Alarm Installer as they would have vested interest in providing the Fire Alarm. The independent assessor will be objective about your risks and requirements.

## Fire Alarm Procurement Process



## About your choice of company

Here we list a few of the things you should consider when selecting a Security Systems Provider.

### Competence & Accreditation

Every reputable fire & security company should be able to demonstrate and prove their competence. One of the best ways to ensure you are employing a competent company is by selecting an organisation that is part of a registered inspectorate scheme such as the "National Security Inspectorate" (NSI [www.nsi.org.uk](http://www.nsi.org.uk)). NSI, and BAFE ([www.bafe.org.uk](http://www.bafe.org.uk)) under their Codes of Practice, will frequently inspect registered companies to ensure they are installing and maintaining Fire Alarm Systems to the highest standards. In addition, compliance checks include insurance cover, quality control, financial standing, reputation, performance to codes of practice and standards. By choosing an NSI Gold installer, with BAFE SP203 Accreditation you can be sure of their competence, quality and reputation.

### Reputation & Testimonials

What is the reputation of the company you are going to select, ask around. Can they provide testimonials or even case studies of their work? A quality security systems company will have great feedback from their clients and will be proud to display the comments made by their customers. Ask for case studies as well of jobs that have been

completed to the customers satisfaction.

### Transparency – Know who you are dealing with

It is essential to ensure the whole project is surveyed, installed and managed by the fire & security systems company with their own security screened staff. This will ensure you receive the very best service, they own the project from start to finish. Ask if the surveyor and engineers are correctly trained in fire & security systems engineering.

You need to know who you are dealing with as well. Who are the faces behind the names? A company that is fully transparent in their dealings will provide names and contact details of the key people in the organisation – including support staff, engineers, supervisors, managers and directors. At Lifeline we have a full team ready and waiting to assist you. Or you may visit our offices in Newport.

### Insurance Cover

Your Security Systems provider must carry sufficient insurance cover? As a minimum any responsible security systems company should have the following:

- ✓ Employers' liability – Lifeline carry £10m Employers liability cover
- ✓ Public liability – Lifeline carry £10m Public Liabilities cover.
- ✓ Efficacy – Lifeline carry £10m of efficacy and failure to perform cover.

## Warranty

What warranty period is provided and what does it include? Once your system has been fitted you want to ensure someone is there to guarantee its operation for 'at least' the next 12 months if not more. Any professional security systems company will guarantee their work for a minimum of 12 months so it is essential you ask this question. Make sure warranties include parts and labour.

## Support

What support is provided post installation? Can you summon engineering support from your fire & security systems company at all times 365/24/7? Ensure they can respond to your system within 4 hours. Insist too on support services such as 24 hour call out, technical support and preventative maintenance.

## Quotation and Design proposal

This should be a very comprehensive document and **not just a one page** list of equipment and a price.

The quotation should also at the very least detail the type and location of the equipment to be used, the detection types and positions, the cause and effect (what it will do if it activates), the standards it will be installed to, what happens when the power goes out. This document should form the basis of everything you require and agree to. It should also be supported by a third party professionally raised **Fire Risk**

**Assessment.** This will detail any specific risks you have discussed, the category of the proposed system and the solution offered as well as datasheets of the proposed equipment.

To date, this will be one of the most important documents in the entire process, so make sure it fills you with confidence.



### WISE WORDS:

*The majority of businesses suffering a fire, do not survive the next twelve months.*





## Types of Alarms

In this section we highlight the various types of alarms available on the market and their unique characteristics.

In the UK, Fire Alarm systems are placed in categories to determine the level of protection, the type of equipment and the risk involved. Categories start at **M** for Manual, and then **P** for Property and finally **L** for Life protection. Your insurer or Risk Assessor will normally specify which grade they require, or if you require advice on categories our consultants will offer advice on the level required. The categories are based on the Risk, building environment and other factors.

### Categories of Fire Detection & Alarm Systems

#### Life Protection



- L1 - **designed for the protection of Life.** Automatic Fire Detection (AFD's) is installed throughout the entire building. L1 systems are the "ultimate" in life protection as they recommend both manual call points (MCPs) and automatic fire detection (AFD) be installed throughout the entire premises. For the AFD installed in addition to L2 requirements care should be taken to choose the detector types according to not only the fire risks in each room, but also the persons at risk. For example, heat detectors should not be the primary detector type in bedrooms as they will not provide quick enough warning to protect the occupant's life.
- L2 - **automatic Fire Detection (AFD) as defined in L3 as well as high risk or hazardous areas.** While the fire risks in rooms opening onto escape routes should be taken into consideration for L3 systems, this can often be done by common sense or in discussion with the client. L2 systems, however, require that a thorough Fire Risk Assessment (FRA) be carried out by a competent person to identify areas of high fire risk. Appropriate AFD should then be used in the identified locations in addition to the requirements of L3.
- L3 - Automatic Fire Detection (AFD) with smoke detection should be installed on escape routes with detection in rooms opening onto

escape routes. In addition to MCPs throughout and optical AFD in escape routes, Category L3 stipulates AFD be installed in all rooms, corridors and compartments that open onto escape routes. These rooms may use any of the common detector types, unlike escape routes, so appropriate detectors should be chosen based on the purpose and fire risks within them. However, the standard does recommend that certain specialist detectors such as flame or video should only be used in these rooms in addition to common detectors.

- L4 - **provides Automatic Fire Detection (AFD) within escape routes only.**  
Building on Category M, L4 has MCPs throughout the building for occupants to manually identify a fire while automatic fire detection (AFD) should be installed along escape routes including stairwells. AFDs used for Category L4 systems should be smoke detectors - specifically, optical point detectors or aspirating smoke detectors (ASD) that rely on optical smoke sensors.
- L5 - **is installed in building with a specific risk that has been identified.**  
Similar to L2, this Category can only be designed and installed based on the findings of a thorough FRA - except that L5 should not actually be attempted by designers or installers unless specified in the FRA. Category L5 is for meeting specialist fire safety objectives, often in variation to the recommendations where strict adherence would not be possible. Such systems could include automatically closing metal shutters on a shopfront to contain the fire away from a shared concourse or adding optical point detectors to bedrooms not adjoining the escape route in addition to an L4 system. L5 systems should be designed in conjunction with, and agreed by, relevant authorities before they can be signed off for installation.

### **Manual Protection**

- M - A manual operation only system which has call points on all exits as well as corridors where persons are not expected to walk any more than 45m to operate one.



## Property Protection

These types of systems are purely for the protection of property and fall into two classifications, P1 and P2. The objective of a category P is to provide the earliest warning of a fire to minimise the time taken from ignition of a fire to detection and the subsequent attendance by the fire services, minimising loss to the property.



- P1 - **protects the whole building.** This type of system is designed to protect the entire building, and thus requires AFD throughout the premises. While not dependent on a thorough fire risk assessment (FRA), an FRA is helpful for designing P1 systems, as appropriate detectors will need to be installed in each room to cover the specific risks present. However, as it is focused on the protection of property, alarm devices (sounders, beacons, bells, voice alarms, etc) are only required where specified - in an on-site security office, for example.
  
- P2 - **is installed in defined parts of the building only.** Category P2 requires AFDs in high risk areas, only. Category P2 systems are commonly used when combining with a life protection system other than Category M. For example, a building may have Category L3 protection for escape routes and adjoining rooms, with an additional AFD in the server room that is not directly connected to an escape route.

## WIRED SYSTEMS

A wired Fire Alarm system has traditionally been the most common type of system available and will be found in most applications.

As well as a main control panel and or repeater panels, detection devices are attached to fireproof cable throughout the protected building. The same applies to warning devices such as strobes, beacons, sounders and bells.

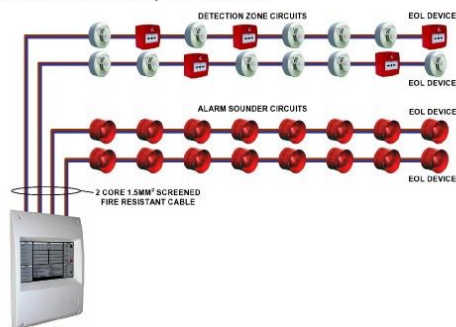
Cables would be installed sympathetically within the building and should be mechanically protected in exposed areas and clipped or supported on both horizontal and vertical runs. This is to retain their fire retardant qualities.

Wired Systems can then be broken down into three types,

Conventional, Addressable and Hybrid.

### Conventional Systems

Conventional Fire Alarm System Schematic



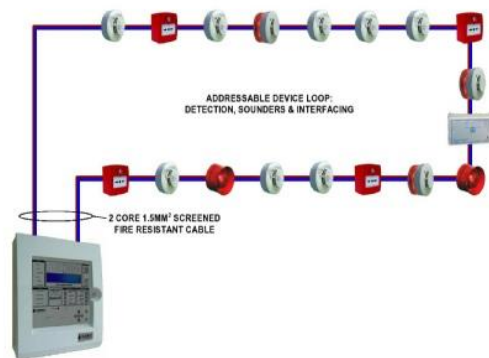
Conventional systems are the most common form of fire alarm system. They are ideally suited for smaller offices, buildings, warehouses, shops and smaller business applications. They will normally indicate a 'zone' in which detection has been activated and the

premises would be small enough to establish which one of the detection devices within the zone has activated. Conventional systems can have either separate detector and sounder circuits or twin wire which allows for sounders and detection devices on the same run of cable.

### Addressable Systems

Addressable systems are normally installed in larger premises, such as schools, hospitals, shopping malls, larger office complexes, factories and warehouses.

Analogue Addressable Fire Alarm System Schematic



Where a conventional system will identify a 'zone' in which a device has activated, an addressable system will identify the actual 'device' and location that has activated. Because they use a data system, they are able to provide a lot more flexibility in device type (combined multi sensor), pre-alarm, staged evacuation, outputs and interaction with third party systems.

## WIRELESS SYSTEMS



A wireless system is similar in make up to a wired addressable system, but detection is relayed to the control panel wirelessly. With the progress of battery and wireless technology, wireless Fire Detection & Alarm Systems are very popular in historic buildings, installations that make cabling impossible or where a fast deployment is required. They limit disruption to premises, they are usually quicker to install, but do require regular battery replacement.

## Components & Types of Detection



### MANUAL CALL POINT (MCP)

Manual Call Points or break glass call points are one of the most recognisable elements of a Fire Alarm. They are normally placed adjacent each door to relative safety (or fresh air), each change of level, or at intervals of not greater than 45metres. Each MCP should be fitted with clear lift up protective cover to protect against inadvertent activation.



### SMOKE DETECTORS

Are usually ceiling mounted and in the main are now Optical Smoke Detectors.

Smoke Detectors have a maximum coverage range. Careful calculations should be made by the designer to ensure suitable coverage is provided. Consideration should also be given to siting of detection to provide early effective detection. Additional design criteria might include obstructions, smoke circulation, ignition sources, escape routes and AC units.



### HEAT DETECTION

Heat Detectors will come in two forms normally low or standard temperature around 57 degrees C. High temperature Heat Detectors will operate at around 90 degrees C. These would normally be placed in locations where heat build up is more likely than smoke, or where the local environment might be contaminated by particles, such as exhaust fumes, dust, or legitimate smoke.



#### WISE WORDS:

*The fire safety reform order requires a responsible person(s) be assigned to manage test and operate the Fire Alarm System.*

## MULTI DETECTORS



These devices can be programmed to operate in a number of ways. They can be Heat Detectors during the day time, changing state to become smoke detectors overnight, they can look for heat & smoke at the same time. Multi detectors are highly effective in applications with ever changing environments.

## ADDITIONAL DEVICES

Additional detection methods can include:

*Beam Detection* – used for long or high roof lines,

*Flame Detectors*, normally installed where a fast flash of flame might erupt these might be used protecting areas with a highly explosive atmosphere.

*Air Sampling or Aspiration Systems*, are normally run in tubes at high level perhaps in warehouses. They sample the air for contamination of smoke and activate in the event of detection.



## SOUNDERS/STROBES

Sounders provide the audible warning to the protected premises in the event of activation. Audibility should be of a level that persons can distinguish the warning over and above any

background noise. It is generally accepted that the deployment of more lower decibel sounders is better than one high decibel unit. If the sounder is designed to wake sleeping persons, then a certain decibel rating should be achieved.

It is good practice to supplement audible warning devices with visual warning devices in areas where persons with hearing impairment might be alone. This would include WC's, bathrooms, in areas with a high ambient background noise, or where hearing protection is worn.

## FIRE ALARM CONTROL PANEL & EXPANSION



This is the brains of the system. This will normally be located in the entrance area of the protected building. This means the attending fire officers can easily check to identify the location of the activation. Depending on the type of system installed the panel will display either the activated zone, or the device location or both.

Adjacent each control panel should be an upto date zone graphical chart. This would indicate the layout of the building, the protected areas and orientation.

## Certification

### A Design Statement

Who will take responsibility for the design of the system and what competency do they have? Are they third party certificated to design Fire Alarm Systems? **Under the Fire Safety Reform Order, it is a lawful requirement to demonstrate competency.**

The design will include the System category, number and location of detection devices, break glass call pints and warning devices. The statement should also include Cause & Effect (what the system will do upon activation), include stand by battery calculations. This means how long the system can continue to operate on battery back up without mains power.

This document is important. It is the document that specifies who takes responsibility for the design of the system.



A G1 Design Certificate should be issued.

### Installation

Who will take responsibility for the installation of the system, do they understand the correct wiring standards, and are they qualified and third party certificated to install Fire Alarm Systems?



A G2 Installation Certificate should be issued.

### Commissioning & Handover

Who will take responsibility for the commissioning of the system, ensuring it meets the design statement, operates correctly, meets the requirements of the premises and leaves the system in full operational order. Are they third party accredited to commission Fire Alarm Systems?



A G3 Commissioning & Handover Certificate should be issued.

Selecting the right company to design, install and maintain your Fire Alarm System is an extremely important decision. Selecting the right Fire Alarm System company can make the whole process go smoothly, efficiently and with the least amount of disruption to your property or business. Making the wrong choice could mean you waste money, end up with an unreliable system, poor quality workmanship, delays and interruption to your daily routines. In addition, you might still be at risk from security breaches while you are unprotected. So, how do you decide on which company to appoint to install your Fire Alarm System? Following are some very important considerations you should make before deciding on your choice:





## Signalling

This can be described as what will your system do when or if it activates, who will know about it and how.

### AUDIBLE ONLY

This is the most basic option of Fire Alarm systems. If the system is triggered, audible and visual internal alarm sounders activate to alert that a Fire Alarm activation has been detected. This type of alarm can be suited to premises with 24 hour occupancy, night porter or other permanent staff or support.

If however the alarm were to activate when no persons were present in the building, the fire alarm could be activating for several hours before anyone is made aware.

### MONITORED SYSTEM



A monitored system allows for two different types of response. Either a nominated keyholder can be alerted, or the signal is sent to an ARC (Alarm Receiving Centre). This is proving to be one of the most popular types of system. Depending on the arrangement, the ARC will then either alert the keyholder or initiate emergency service or Fire Brigade response. Currently the Fire service will respond to alarm activations where these have been passed by the ARC. It is your responsibility to ensure that

the Fire Alarm Systems performs well and does not invoke unnecessary response to unwanted and false activations.

Depending on the risk and the assessed grade, a system may have a single path signalling system or dual path, using two different technologies such as telephone line and GPRS.



**PROFESSIONAL MONITORING STATIONS ARE OPERATIONAL 24 HOURS A DAY**



#### Wise Words:

*"he who pays least ends up paying the most".*

## Paying for & Running Your System

The cost of your Fire Alarm System will depend on a number of factors such as the size of your property, the amount of control equipment and detection devices required and the type of system you choose.

Once the system is installed, you will normally have a service agreement available, which should provide you with priority access to engineers 24 hours a day, service inspections and any monitoring facilities you will have selected.

Protecting your property is important, however keeping your Fire Alarm System in optimal working order is vital

## Standards

There are a lot of standards pertaining to Fire Alarm Systems and how they are designed, installed and used.

The most up to date standards are:

**BS5839-1:2017** - Installation and configuration of Fire Detection and Alarm Systems.

**BS5839-6:2017** - Installation and configuration of Fire Detection and Alarm Systems in residential properties.

**EN54** – Third party verification of components making up a Fire Detection and Alarm System.

## Fire Service & Alarms

Fire Service response is available on Fire Alarm systems signal. Monitored systems can only be installed by certificated providers and must be subject to a maintenance agreement. Excessive false or unwanted alarms may jeopardise fire service response.

## Handover

It is essential that once the Fire Alarm System is commissioned, that the engineer demonstrates how to use the system to the appropriate individual(s). This will include how to operate the system, good housekeeping and how to keep the system in a good state of repair. Once the system is fully complete and the installation is finished then the design, installation and commissioning certificates should be handed over to the client, together with an NSI Certificate of Installation and any warranty details.

## Service, Maintenance & 24hr Support

Ongoing service and maintenance of the system by a competent approved NSI accredited security systems company should be carried out. A monitored system should be serviced twice a year, and non-monitored systems at least annually. Good practice would see a signed service agreement in place.



Your fire & security systems company should provide engineering support 365 days a year. Emergency contact details should be made available to provide access to engineering support. Agreements should include a call out facility with a minimum response time (the standard is 4 hours) to ensure any emergencies are

responded to as soon as possible. All Fire Alarm Systems should have a preventative maintenance visit during which tests are carried out to ensure the system operates at its optimum level of performance and any failing components are addressed before they cause any major failure.



Your installation should carry a warranty of at least 12 months. It is important to determine with your supplier that this warranty includes both labour and parts.

It is important to have any faulty components corrected or replaced as soon as possible. Just as you would do with any other investment, it is wise (mandatory in the event of Fire Service response systems) to keep your Fire Alarm System up to date and working at its optimum level. The engineer will check sounders, mains voltage, battery backup and charging, send test signals to the monitoring station,

amend the time and date if it has drifted, replace any batteries that are low or in poor condition. These checks will also greatly reduce the risk of a part of the system not operating correctly at the time when you need it the most. A report should then be left with you or sent to you for your records, following the service inspection.

Your new Fire Alarm System should last around 5 - 10 years, depending on its usage, before upgrades to the system will be needed. During this time things will break down and/or get damaged. There will be building changes, legislation and standard changes but if you correct these as they happen then you can be certain of a reliable and cost-effective Fire Alarm System.

We have produced a Do's and Don'ts document that will assist you to keep and operate the system to the best of its ability. Click [here](#) to download a copy.

Ask about our 3 year Warranty Program.



## Checklist

Use this check list to see how we compare in meeting your requirements.

| Question  |    | Explanation   |
|---|---|---|
| Are your staff all security screened to BS7858 and Police checked?    |    | All staff are security screened to BS7858 prior to their starting at Lifeline.  |
| How long have you been installing Fire Alarm Systems?                 | <b>30 years</b>   | 30 years. (Since 1990)  |
| Do you have adequate resources to support my systems?                 |    | We have a dedicated operations and engineering team available 24hours a day,  |
| Do you have a Data Protection Policy and are you compliant with GDPR? |    | Yes, see our website for our full privacy, data protection and data retention policies  |
| Do you have an ISO 9001 Quality System that covers security systems?  |    | Yes. This is rigorously implemented and independently audited at least four times throughout the year.  |
| Do you operate from secure premises?                                  |  | Yes, access controlled, covered by monitored intruder & fire alarms, fogging system and CCTV.   |
| Do you have Chamber of Commerce Quality in Business Accreditation?    |  | Yes. We were the first company to achieve this setting the standard for others to follow.   |
| Do you have official manufactures support?                            |  | Yes. We officially partner with our manufacturer partners, many of whom we know personally.   |
| Do you offer a 36month Warranty?                                      |  | Yes. We are the first and currently the only island security company to offer a certificated 36 month parts and labour warranty on our installations. |
| Can you send me some case studies?                                    |  | Check our website or call and we will send you some relevant case studies.  |
| Do you use subcontractors?  |  | Never! All staff are direct employees of Lifeline.  |
| Are you NSI Gold Accredited?  |  | Yes, the first and still the only Island based company with this the highest accreditation in the industry.   |
| Are you Insurance Company approved                                    |  | Yes   |

We trust that you have found this guide useful in making a choice of Fire Alarm Provider. Armed with this basic knowledge you should be able to select a provider and type of system that will suit your individual requirements.

This guide really covers just the basics, if you require any additional information, then please contact us on 01983 521621 or use our contact form on the [website](#), or email us at [info@lifeline-security.co.uk](mailto:info@lifeline-security.co.uk).



### **Lifeline Alarm Systems Ltd**

The Island Security Centre

Riverway, Newport

Isle of Wight, PO30 5UX

T. 01983 521621

E. [info@lifeline-security.co.uk](mailto:info@lifeline-security.co.uk)

W. [www.lifeline-security.co.uk](http://www.lifeline-security.co.uk)

**lifeline**  
alarms & security  
services



*Protecting Homes & Businesses*

Lifeline Alarm Systems Ltd is a multi-award winning Fire and Security solutions provider. Based on the Isle of Wight, Lifeline were the first and still the only NSI Gold Security Systems and BAFE SP203 Fire Systems accredited installer.

By employing an individual approach to each application, Lifeline provide bespoke solutions to meet and match specific requirements to each unique circumstance, delivering optimum system design, performance and support.