



Protecting you and your property...

# Purchasers Guide

## Fire Detection and Alarm Systems

Your FREE Guide on how to assess and choose the correct System for your premises

Are you covered?

Call us on 0845 257 0090 to talk to one of our advisers

Or email us [sales@justicesecurity.co.uk](mailto:sales@justicesecurity.co.uk)

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## Introduction

Welcome to our purchaser's guide on fire detection and alarm systems. This guide has been put together by our experts who have over 100 years of experience between them. Today it seems as though businesses like yours are continuously bombarded with new legislation and rules. We hope to be able to guide you through what can often be a daunting task of complying with your legal requirements when it comes to protecting your staff and property from the dangers of fire.

You probably realise that it is a legal requirement for all businesses to have some sort of means to raise the alarm should a fire start and a means of tackling it. You probably don't know where to start with the process. There are many types and categories of fire detection and alarm system, but which one is suitable for your premises? Some of the questions you may be asking yourself are: -

- Do I need a fire alarm system?
- What type of system do I need?
- What type of detection is required
- What areas need to be covered?
- What standards and regulations does the system need to comply with?
- Do I need to inform my insurance company or the Fire officer?
- How do I choose a reputable company?
- Who is the responsible person?
- What on-going service and maintenance do I require?

## 1 | Where to start

You need to determine why you need a fire alarm system. You may have been prompted by your insurance company (usually due to having a lot of expensive burnable stock) or you may have had a fire officer visit. The local fire officer has the right to enter any business premises, inspect it and issue a notice if there is not adequate means of warning of a fire (fire detection and alarm), firefighting equipment (fire extinguishers) or safe means of escape (emergency lighting).

## 2 | Your Legal Requirements

All Companies in the UK must comply with the Regulatory Reform (Fire Safety) Order or RRO. Some of the requirements of this order are that you must have a written fire risk assessment, ensure your staff are trained on how to use fire extinguishers and carry out the weekly and monthly checks of your equipment. You must have a means of warning of a fire, means of escape, i.e. emergency lighting fire escapes, and a means of tackling a fire, i.e. portable fire extinguishers. The risk assessment can be carried out by a building owner, business owner, somebody competent to do it or a specialist risk assessment company. In many smaller businesses it is the management who can carry out this assessment.

# 3 | Choosing a Competent company

Choosing the right company to design, install and maintain your fire alarm system is extremely important. Having a fire alarm system fitted to your building can be disruptive and involve a lot of work drilling and running cables throughout the building.

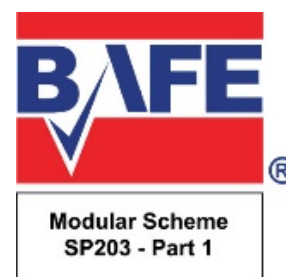
## How long has the Company been established?



A well-established company that has been trading for many years will have many thousands of installations under their belt and be familiar with your type of premises. They will have a large customer base and less likely to go out of business during an economic downturn. A privately-owned company will tend to give you a more personal service as opposed to a multi-national one.

## What accreditations do they have?

Many companies have set themselves up and claim to be competent fire alarm installers, electrical contractors, alarm companies and fire extinguisher companies. The only way to be sure that a company follows the strict guideline of the standards required is to make sure that they are part of a registered inspectorate scheme such as NSI Fire Silver or Gold **AND** BAFE SP203 registered. Under these schemes which are insurance recognised the installing company is inspected every 6 months and has to adhere to strict high standards (NSI Gold companies also benefit from having a quality management system to ISO 9001).



## Can the company provide you with testimonials?



A company that can provide testimonials is obviously confident in what they do and keen to show how happy their customers are with the service they provided. A quick way to find this information is to search the company on *Google* or social media such as *Twitter*.

## Do they employ all of their own trained staff?

Some companies use sub-contractors extensively. In fact some companies are a lot smaller than envisaged and may only employ the surveyor and then sub-contract the actual work as required. Ask if the company employs **ALL** or the majority of their own engineers **directly** and whether they have an extensive training program. Are the installation engineers qualified in what they do?

## Do they carry the right level of Insurance?

In the unfortunate event of an accident or if the fire alarm fails after installation and your business suffers you want to be sure the company carries all the correct insurance. In theory a company that is part of an inspectorate such as NSI will be checked each year for compliance, but it does no harm to ask for a copy.

Check they have **ALL** of the following:

- **Employers liability** to cover their own staff in the event of an accident
- **Public liability** to cover damage or injury to clients and their property
- **Failure to perform and efficiency cover extending to wrongful advice** to cover any failure of the equipment or wrongful advice after installation.

**What sort of customer care do they provide.** Many contractor type companies will only install the system and want to walk away after this and once they have been paid. Regular monitoring and maintenance of your system is important (as well as a legal requirement under the RRO). Make sure the company you are dealing with have a 24/7 support service and can carry out the required preventative and corrective maintenance if and when required.

## 4 | Types of fire alarm system

There are several different types of fire alarm system on the market and these can be defined into 3 types.

- **Conventional or Non-Addressable.** These are the basic fire alarm systems which are suitable for small business premises, HMOs, shops, and other small buildings. They are wired using a special fire proof cable and will be triggered by a manual call point or detector and will trigger the sounders. The building will be divided into zones and will indicate on the fire control panel which zone or area has been triggered. The system will be usually located at the exit point of the building and have a battery back up supply to keep the system running during a mains failure for a period of time.



- **Addressable.** Addressable systems are also wired with a special fire proof cable but are connected in loops so that any single break in the cable should not affect the system from working. These systems have far more information for the user and will not only give an indication of what zone has activated but what actual device. These systems also offer far more parameters such as pre-alarm, staged evacuation, plant shut downs, lift grounding etc. these systems are ideal for larger or more complex buildings. As the cost of the equipment has come down over the years, these systems are now being used in smaller buildings due to their flexibility and user friendliness.

- **Wireless Radio.** These systems work like the addressable systems but do not require any wiring or disruption throughout the building. These systems are as reliable as their wired counterparts and they are especially useful when wiring cannot be used such as in stately homes, churches, or simply any business that cannot have the disruption of a wired system. As the cost of cabling and the labour to install it has gone up over the years conversely the cost of wireless system equipment comes down, these systems are being installed more and more in all manner of premises.



# 5 | System Categories

As well as the type of fire alarm system above, systems can then be divided into categories depending on the outcome of any insurance, fire officer requirements and the result of the fire risk assessment. The type of category is to do with the design and coverage of the system. For example, is the system designed to protect property and stock? A good example here would be a paper Warehouse. Or is the system designed to save life? A good example would be a nursing home. Systems can also be of mixed category providing protection for stock and life. There are 3 main categories: -

- **Category M or manual system.** These systems have manual break glass call points only and therefore have no automatic fire detection such as smoke or heat detectors. They are designed for a person to give a warning to all occupants of the building of a fire by breaking the glass in the call point. Sounders will be distributed throughout the building to give an audible warning of fire alarm system activation. Sounders may also incorporate beacons. Call points will be at every exit of the building and at each change of floor level.
- **Category L systems for the protection of life** An L system is designed for the protection of life and can be further sub divided into: -
  - **Category L1** as per a Category M system **plus** automatic detection in ALL areas of the protected premises. Comprehensive coverage throughout
  - **Category L2** as per Category M **plus** automatic detection in all escape routes, rooms that lead onto escape routes and high-risk areas such as kitchens, boiler rooms etc
  - **Category L3** as per Category M **plus** automatic detection in all escape routes and rooms that lead onto escape routes.
  - **Category L4** as per Category M **plus** automatic detection in all escape routes
  - **Category L5** as per Category M **plus** automatic detection in defined areas designed to satisfy a specific fire safety objective this type of category may be required by a fire officer.
- **Category P systems for the protection of property** A P system is designed for the protection of property and may not require call points or sounders but will require remote signalling for automatic notification to the emergency services.
  - **Category P1** automatic fire detection throughout the entire protected premises
  - **Category P2** automatic fire detection fitted in defined areas of the building.

# 6 | Detection Devices

There are various types of detection equipment and many will work on all types of system (conventional, addressable, and wireless). The type and number of detectors will be specified by the alarm company system designer and/or surveyor.

## Manual Call point (MCP)



Used on most fire alarm systems, these units are installed at exit points of the building and at each change of floor level.

## Smoke detectors

Used in most areas and are the most popular type of detector used in most buildings. They come in two types: optical and ionisation, although, ionisation is rarely used these days. Smoke detectors are always used on escape routes because of their early indication of fire



## Heat Detectors



Installed where it is not feasible to use a smoke detector such as kitchens or areas that suffer from dust or condensation. Heat detectors come in 2 types: **fixed temperature** used in areas such as kitchens or boiler rooms where the temperatures can fluctuate but will trigger when the set maximum temperature is reached. The second is **rate of rise**. These detectors work by sensing a sharp change in temperature. An example could be a garage workshop where smoke detectors may trigger false alarms.

## Multi Sensors

These sensors have the benefit of smoke and heat detector combined into one unit and can either be used together or one element of the detector. They can be used in difficult areas to avoid false alarms



## CO Detectors



Not to be confused with the domestic CO detectors used in HMO type properties. These units, whilst not used very often, are for buildings where a traditional smoke detector cannot be used and a heat detector is not appropriate. They are not as effective as traditional smoke detectors and should be used as part of a fire detection solution and not the sole means of detection.



**Beam Detectors** Typically used in warehouses and areas with a large high coverage. A beam detector can cover an area of 15m x 100/150m and are often more cost-effective to install than smoke detectors which would require in excess of 20 devices to cover the same area. Beam detectors are point to point so need line of sight from its transmitter and receiver. They are particularly useful in warehouses as the transmitter and receivers are positioned at each end of the building as opposed to many smoke detectors spread between racks and fork lift truck areas, making installation and servicing a lot easier.



## 7 | Warning Devices and remote signalling



**Warning sounders** are installed on most systems (although a Category P system does not necessarily require them). The sound pressure (or noise level) must meet a minimum level between usually 65dbA or 5dbA above the ambient noise level. If the premises have a noisy environment, then consideration should be given to having beacons as well as sounders. Consideration should also be given to the Equality Act and the fact that a person could be hard of hearing or deaf and may not hear a sounder activating.

Warning sounders are defined as local audible devices and are designed to warn everyone in the building of a fire alarm activation and are always used in a category L system.

**Remote signalling** devices are used when the building is empty but a warning of the fire alarm activating needs to be passed to key holders and or the emergency services. Remote signalling has to be used in a category P system where the protection of property is required for obvious reasons. Remote signalling can also be used in a Category L or mixed system for the relatively small annual cost it gives peace of mind that the building is protected 24/7 and the authorities will be called should a fire develop.



## 8 | The Survey process



Following your enquiry, the surveyor or designer should make an appointment to visit your premises which should be a **FREE no obligation** consultation. Depending on the size and complexity of the building and the type of business trading from the property, the surveyor will need to spend time with a representative of the business to discuss the risk assessment and any insurance or fire officer requirements.

The surveyor should carry out a comprehensive walk of the building and make various notes. They should then go away and send you a design proposal and firm quote to install the system. Make sure the quote is fixed and that it includes the cost of ongoing maintenance and monitoring. Some companies will not give this information at the outset and offer a cheaper installation price and then once accepted and installed,

will offer a very high maintenance and call out package. You should get **ALL** prices up front before contracts are exchanged.

## 9 | The installation, commissioning and handover process

### Installation

Once you have made all of the above checks, received suitable quotes and designs and are happy to go ahead with your chosen provider, the company should be able to give you a firm start date upon acceptance.

Before installation, the company should issue you with a design certificate in accordance with BS 5839 and per BAFE requirements. Other processes should be carried out by the installation company prior to installation such as loop and theoretical standby battery calculations as well as a proposed zone layout for the engineer to work from. They should also issue a method statement and risk assessment these may well come with the engineer on the first day of installation



On the first day of installation, the engineer(s) should identify themselves to a representative of the customer's company. The engineers should carry ID and would normally be wearing company uniform. They would discuss with the customer what they intend to do, any risk assessments they should be aware of and what areas they will be working in. They should be as clean and tidy as possible keeping noise down as best as they can (note that a wired system can cause some disruption as the buildings fabric will require holes drilling through and cables clipped extensively).

The installation engineers may need to liaise with other providers such as your electrician, IT support or telecoms provider.

The engineers should start the job and continue each day until the system is fully installed and awaiting commissioning.

### Commissioning

Once physically installed and powered up, the engineers will carry out the various tests on the new system to make sure it complies and is working in accordance with parameters. This will involve activating the system many times and taking sound pressure checks throughout the building. A zone layout should be fixed next to the fire alarm panel to give indication of where the system has activated.

### Handover

Once the system is commissioned, the engineer should give a full demonstration of how to use the system and its operation. The engineer should give advice on carrying out the weekly testing by the responsible person and provide a log book for the system (a fire officer visit would ask for the log book). Upon completed handover, the installation and commissioning certificates along with the BAFE Certificate of Conformity should be issued.





# 10 | User responsibility (The responsible person)

As per the British standards and the Regularity Reform (Fire safety) Order. The fire system should be managed by a responsible person. This person is responsible for the weekly testing of the system and to make sure that a maintenance contract is in place with the fire alarm company to include a 24/7 service and the routine maintenance inspection visits are carried out at least every 6 months (more often with a larger more complex system)

# 11 | Ongoing service and maintenance

As mentioned above, before signing any contract to install the system you should be aware of the ongoing maintenance and monitoring costs. A fire alarm system will need servicing by a competent company at least once every 6 months (more often with more complex and larger systems). The company should also have a 24/7 emergency service and be capable of attending the premises around the clock within 8 hours.



The routine **preventative maintenance** checks are carried out to ensure your system is working correctly (just like an MOT on a car) however, the system can develop a fault between checks and will often give a warning on the display at the main control panel. This is a life protection system so all faults should be reported to the maintenance company immediately who should arrange a prompt response to the site to carry out **corrective maintenance** of the system.

If your system has been installed and maintained correctly and of good quality products, there is no reason why your investment should not last for 10-15 years.

## Conclusion

We hope this guide has been of use to you. If you have any questions or would like some advice please do not hesitate to contact us. We also provide guides on our other disciplines such as intruder and fire alarm systems, CCTV and access control.

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