lifeline
alarms & security
services

Buyers Guide

CCTV Systems

Your guide to the procurement of a CCTV System for your premises

Welcome to this, our essential buyers' guide

Thank you for reading this Lifeline essential buyers guide to CCTV Systems. We know from our experience that choosing the correct CCTV System for your home or organisation can be a challenge. There are so many choices, including DIY options. Additionally, 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 CCTV 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 on 01983 521621 or email us at info@lifeline-security.co.uk and we will be happy to help you.

Where to start?

If you are considering having an CCTV System installed to protect your home or business premises, we thought you would like to know how to choose a system and a reliable provider.
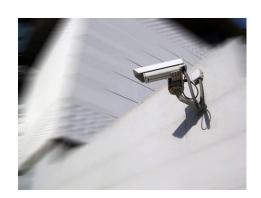
There are a number of influencing factors to consider, so in order for help you make the right choice, following are a few things you might want to consider:

1. What do I want out of an CCTV System?

2. What type of system do I need?

3. What influences the type of system I need?

4. Do I have to comply with any British Standards and regulations?

5. How do I choose the best company?

6. What do I need to do once the system is fitted?

It is important to keep in mind that the CCTV System is not the only solution to your security requirements, but should form part of a layer of an overall security solution.

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 CCTV Systems available

- The required British and European Standards

- Documentation and certification requirements

- Your responsibilities

- Maintenance information

- The importance of warranties for your new system

- Why ongoing support is vital

What you can do.

Determine the reason you need an CCTV System. This might be an insurance requirement. Maybe your home or business is in a higher risk area, or is a holiday home and only occupied periodically, or simply your type of business means you are at greater risk of intrusion or break in, such as attractive stock.

In addition to this, consider factors unique to your situation such as access to your building. Housekeeping and lighting should all be taken in account as well when considering installing an CCTV System. Think too, about the areas that require protection, who will operate the CCTV and when, who has access to it at what times. This will help in making sure you get the correct system installed suited to your individual needs.

You might want to assess your property yourself initially and identify any potential vulnerable entry points or weaknesses and any specific areas you want to have protected. This will help to identify where cameras should be sited so as to provide the best protection. Make sure you have your site surveyed professionally by an CCTV Systems expert. They will consider your individual requirements, produce and submit a plan of exactly how your CCTV System and any detection should be installed to fit your specification. They will also produce a **Risk Assessment** and submit a copy to you based on the requirements and risks of your property.

Selecting the right company to design, install and maintain your CCTV System is an extremely important decision. Selecting the right CCTV System company can make the whole process go smoothly, efficiently and with the least amount of disruption to your home 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 CCTV System? Following are some very important considerations you should make before deciding on your choice:

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 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). NSI, under their Codes of Practice, will frequently inspect registered companies to ensure they are installing and maintaining CCTV System 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, 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 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 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.

Protecting Homes & Businesses

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 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 professionally raised **Security Risk Assessment**. This will detail any specific risks you have discussed, the type of 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 Hatton Garden robbers spent three years carrying out their risk assessment.

Types of CCTV Systems

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

In the UK, CCTV Systems are not graded or regulated to any great degree, but there are standards. Anyone can purchase one and attempt to install it. Unless however you are a CCTV expert, the whole area of CCTV design, installation and support can be a nightmare. In this document we concentrate on professionally installed systems. It makes sense to follow standards, codes of practice and make sure someone has some kind of accountability or standard against which to work.

Analogue – Until the early 2000's CCTV system were predominantly specified and installed as analogue type. The system was based on a coaxial cable installation and provided limited image quality. To make a comparison, it would be a bit like going back watching some of the older TV shows from the 70's which will have been recorded in a lower resolution. Recorders used to be 24hour VHS tape machines, which were then replaced with digital hard disk recorders, more commonly referred to as DVR's (Digital Video Recorder). The infra structure however remained the same, using coax cable.

Cameras were also analogue fitted with a BNC connector and powered separately by a low or mains voltage power supply.

Installation of these systems started to be phased out in the early 2000's.

IP (Internet Protocol) – Most modern systems are now IP Based. This is what we concentrate on mainly through the rest of this guide, as these are the products mainly on offer. With an IP based system, the cable infra structure uses Cat Ve and above network cable. Similar principles apply in that the signal is transmitted back to the NVR, (Network Video Recorder) from the camera. However, IP based systems now allow so much more flexibility in terms of the siting and location of equipment, types of cameras, recording times and image quality. The modern-day IP based system has introduced a new level of CCTV surveillance.

Some of the main advantages of IP based systems include:

- Massively improved image quality

- Low light camera performance

- Analytics, such as ANPR, tripwires & intrusion zones.

- Scheduled recording

- Remote access using smart device app.

Hybrid – These system are of a type, whereby some legacy coax cable infra structure might be adopted to prevent a complete re-cable. The system may also have an element of IP equipment added as well making a hybrid of both analogue and digital IP. This will allow analogue and IP digital to run alongside each other.

Professionally installed CCTV systems will be designed to suit your need. BEWARE of CCTV kits. They may appear cheap, but they are rarely designed to meet specific needs.

CAMERAS

Cameras come in all shapes and sizes with various differing credentials.

Lenses might be fixed or vari-focal, they may also have a fixed or automatic Iris. Some may have additional supplementary Infra-Red Lighting, with varying distances and angles of illumination. Other factors will include image quality, lux level, frames per second, and image aspect ratio. These are all addressed in the glossary later in the guide.

FIXED DOME

Fixed Dome style cameras have one fixed position of view. They can typically be located internally or externally depending on the application. Dome style cameras are an excellent choice for internal applications. Cameras might be located internally in hallways or corridors and might be easily accessed. The dome housing element makes the camera less likely to be interfered with.

Dome cameras may also be more pleasing on the eye on a domestic property in in an office.

TIP: Whilst many cameras might look similar on the outside, what is under the cover or shell might be completely different.

Typical Applications for dome cameras might be:

- Corridors
- Storerooms
- Offices
- Areas of high footfall traffic
- Retail Shops
- Domestic Properties

Dome cameras make an excellent choice when deployed in stable, clean environments.

FIXED BULLET

As with a dome camera, Bullet or conventional style cameras have a fixed position of view.

Bullet cameras are generally deployed externally. The size of the camera allows for additional processing power, various chips settings and powerful long range infra-red illumination. Many will have a vari-focal lens making the setup of the image easier. Images can be zoomed in and out of to gain the correct view.

Bullet cameras can be wall, ceiling or pole mounted. As these cameras are often more visible to passers-by, they also act as a huge deterrent.

PTZ (Pan, Tilt, Zoom)

This type of camera can be controlled by an operator to pan round, tile up and down and zoom in and out. These are really powerful pieces of kit and provide a wide range of viewing options. Advantages include:

- Ability to zoom in up to 50x Optical

- Auto Tracking of objects entering its field of vision

- Pre set views

- Guard Tours

- Alarm Inputs

As an example, your alarm system might be triggered, let's say by the Fire Exit Door. The PTZ cameras can be programmed to Pan, tilt and zoom into that door (if visible) on receipt of the alarm condition.

On the down side, they will only be able to view in one direction at a time.

COVERT

Covert cameras can be hidden or housed within most everyday items. An excellent choice when proof of criminal activity is required. These are normally only used one a suspicion of criminal activity has been identified. Because of their nature, it would prudent ensure you have identified a good reason for their use and limit the use only for the detection of a specific crime rather than continuous covert monitoring.

SPECIALIST CAMERAS

There are an ever growing number of specialist cameras all designed to deliver various solutions.

Fisheye – 360 Vision cameras, normally ceiling mounted to provide a birds eye view of the are below.

Thermal – Designed to be used to identify heat sources. Fire, humans, animals.

PanoView – Cameras with 4 or even up to 8 cameras built into one housing providing a complete 360 degree view. Ideally mounted on a post.

TIP: Try to avoid DIY based systems at all costs. Most are not of a quality to be a long term investment. They are often very quickly replaced with professional system. Dr Google and Mr Amazon are rarely at the end of a phone for 24hour support.

MEGAPIXELS, IMAGE QUALITY & JARGON

Below is a brief description of some of the language you will hear and what it means.

VARI FOCAL

Fixed manual Iris lenses are normally fitted to the cheapest cameras. It means the lens is fixed at one viewing angle only and also cannot adjust itself to changing lighting conditions. Vari-Focal and auto Iris Lenses can be changed to suit the required view and will adapt to changing light conditions, such as bright sunlight.

MEGA PIXEL

This is the number of pixels or dots that make up an image. So, a 1.0MP Camera would not contain the same amount of detail as a 2.0 or 3.0MP camera.

Don't get too hung up on this however. There is no point in having a 3.0MP camera if it cannot see well in the dark. All you get is high quality darkness. A 2.0mp camera with a low light chip set, will perform better than a 3.0mp camera without a low light chip.

INFRA RED

Infra Red lighting is supplemented lighting to illuminate an area of darkness. This assists the camera to be able to view the subject.

OPTICAL & DIGITAL ZOOM

Digital zoom is a method by which the camera image can be zoomed into, but only at the processed image quality. Digital zoom is carried out by the software and does distort and pixilate the image.

Optical zoom is carried out by the lens of the camera and retains image quality and focus.

VIDEO MOTION DETECTION (VMD)

VMD is a method of detection where by the camera view can be set to alert you if a field of vision changes. The sensitivity can be adjusted using a grid on the screen.

ANALYTICS

These are detection types used in IP camera systems. Analytics digitally processes information within the parameters awarded to the camera. Types of analytics include;

- ANPR - Automatic Number Plate Recognition

- Line Crossing – Detects if a virtual line has been crossed.

- Heat Mapping – Detects where most activity has been recorded

- Intrusion – Detects if an area has been entered.

Analytics is more powerful than VMD and has a greater range of detection methods. VMD may also be susceptible to external influences such

as moonlight, trees moving in the breeze and similar activities.

DETECTION

As with an intruder alarm system, additional externally rated detection devices can be added to the system. These can be used to mobilise a view on a PTZ type camera.

FRAMES PER SECOND (FPS)

This is the number of frames (or still images) taken by the camera to make a moving image. The more FPS, the more information is recorded. It is best to record in the highest FPS setting you can achieve.

LUX LEVELS

This is the measurement of lighting conditions. Each camera will have a lowest performing lux level.

Lux Level	Equivalent to:
100k	Sunlight
10k	Normal Daylight
100	Dark Day
1.0	Twilight
0.1	Full Moon
0.001	Overcast Night

HARD DISK SIZE

This is the capacity of archive video footage that the NVR will accept. Again, a complicated calculation is made to come up with the required hard disk size. This will depend on the number of hours of recording, the Mega Pixel of the camera, the video compression format, the FPS and file size.

Eg. A 3.0mp camera recording for 24 hours a day at 25fps, in H264+ compression, will take more hard disk space than a 2.0mp camera, recording for 12 hours a day, at 12fps at H264+. Examples are shown under the Recorders, NVR's & Hard Disk section.

MONITORS

Most monitors are LED Flat Screen and require an HDMI input. If you have an analogue system your image ratio will be 4:3. If you have an IP system, your image ratio will be 16:9. Displaying analogue images on a 16:9 ratio monitor or vice versa will result in the images being distorted.

APPS & SOFTWARE

Make sure you have been left with fully operational remote access to your system if that is what you require. The engineer will set up the remote access from your app and desktop software to your system. Good installing companies will always change any default password settings.

RECORDERS NVRS & HARD DISKS

Here we address the brains of the system, the recorder.

The recorder that makes up part of an IP CCTV system is known as an NVR (Network Video Recorder).

These will normally be presented in several size or cameras capacity options. The restricting factor is the camera capacity, or the number of cameras the NVR is capable of processing. These are normally presented in 4, 8, 16, 32, 64 and 128 and so on capacities. It is important to consider the future as well. If you fill the NVR to capacity immediately you will have no capacity for future expansion and you will need to buy another unit. Always allow at least 25% expansion unless you are 100% sure your system will not need to expand.

IMAGE QUALITY

Cameras are mostly delivered in 1080p. This is similar definition to watching Sky Sports HD. 4K cameras are also available in the market. However, consider the use, lighting and actual quality required. 4K cameras are 4 x 1080p quality.

HARD DISK SIZE & TYPE

The number and size of the hard disk will determine how long your

recordings are kept for. Using the example on the previous page, the following table shows examples of recording archive times and the hard disk size required. In addition, the type of hard disk is critical. It **must** be a Surveillance Grade Hard Disk. Regular PC hard disks are designed to write 10% of the time and read data the other 90%. With a CCTV NVR, the system is writing data over 90% of the time and accessing recorded data less than 10% of the time. The build quality and cost of surveillance grade hard disks differ greatly from regular PC Hard disks.

No. Cam	Recording Hours	FPS	Format	HDD Size	Archive Time
4	24	25 1080p	H264+	4.0Tb	28days
6	24	25 1080p	H264+	4.0Tb	21days
8	24	25 1080p	H264+	6.0Tb	36days

ⓘ **Wise Words:**

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

MAKE SURE YOU HAVE REMOTE ACCESS TO YOUR SYSTEM

Paying for & Running Your System

The cost of your CCTV System will depend on a number of factors, such as the size of your property, the number of cameras 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 CCTV System in optimal working order is vital.

Standards

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

The most up to date standards are:

NCP109.3, *BS EN 62676-4:2015*

NSI code of practice for design, installation and maintenance of CCTV surveillance systems

BS 7958:2009 Closed circuit television (CCTV). Management and operation. Code of practice – For Public Areas

BS 8418:2010 Installation and remote monitoring of detector-activated CCTV systems. Code of practice designed to invoke Emergency Response.

Data Protection

Once a CCTV system has been installed, it is most likely that you will need to register the system with the Information Commissioner. You may need to display signs warning people that CCTV is in operation. Click here to check on your requirements with the ICO (Information Commissioners Office).

Police & CCTV

Police response is available on CCTV Systems that meet the required standard (BS 8418:2010). However, the police will only guarantee a response to confirmed CCTV signals from Alarm Monitoring Stations and which have been granted a police URN (unique reference number). A verified alarm signal is when any verified detection methods have been triggered. Monitored systems can only be installed by certificated providers and must be subject to a maintenance agreement. Excessive false or unwanted alarms will jeopardise police response.

Handover

It is essential that once the CCTV 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 CCTV system should be serviced at least annually. Good practice would see a signed service agreement in place.

Important! Make sure your installing company can remotely support and check your system. They will be able to pick up on faults, camera loss and recording failure quickly to prevent loss of protection.

Your 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 CCTV Systems should have a preventative maintenance visit where 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 police response systems) to keep your CCTV System up to date and working at its optimum level. The engineer will check camera views, power supplies, any battery back and charging, send test signals to Apps or the monitoring

station, amend the time and date if it has drifted. 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 CCTV 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 CCTV System.

> ⓘ *Always make sure you replace default passwords with strong alternatives.*

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.

COMPREHENSIVE
3 YEAR
WARRANTY

Checklist

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

Question	**lifeline** alarms & security services	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 Security Systems?	**30 years** (circa)	*Nearly 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 Police Approved	✔️	*Yes*
Are you Insurance Company approved	✔️	*Yes*

We trust that you have found this guide useful in making a choice of CCTV System 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.

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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.