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TouchStar ATC
CCTV BUYERS GUIDE

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INTRODUCTION

Managing the safety and security of your facilities and the people that use them can be a complex task. At TouchStar ATC, we have been supplying bespoke security solutions to businesses across a variety of sectors for more than 30 years.

Using our extensive experience in CCTV systems, we have created this buyer guide that will help support you on your way through to the purchase of a new or upgraded system.

Covering everything from starting out, defining your system requirements, supplier selection and legislation through to types of systems and system support, we take you through the steps to help you determine the best fit solution for your premises.

1. The Start Point

At its simplest level, CCTV monitors and offers round the clock surveillance in both private and public property.

The demands on any CCTV installation will vary from sector to sector. For some businesses, the CCTV may be required to act purely as a deterrent, its physical presence simply in place to help prevent unwanted or suspicious activity. However, for many businesses, the requirements can be a lot more sophisticated.

Whilst today's systems offer numerous operational and cost benefits, they are not faultless. It is important when looking at any system that you undertake a thorough appraisal of your requirements and objectives. Choosing a best fit solution can really optimise security operations within any operation, ensuring they become more effective, more efficient, and more fit for purpose.

Some of the most common benefits of a CCTV installation include:

- Deterring theft
- Constant protection
- Protecting lone workers
- Providing camera footage for evidence
- Health and safety/monitoring incidents on-site
- Deterring vandalism
- Assist with time management/staff timekeeping
- Giving managers visibility of the entire business site
- Monitoring staff safety
- Providing peace of mind

2. Legislative Requirements

When starting out, there are various legislative requirements that need to be considered alongside the installation of a CCTV system which cover the following areas:

GDPR

The GDPR definition of personal data is "information that relates to an identified or identifiable individual", which covers images captured by CCTV.

- **LEGITIMATE INTERESTS**

GDPR states that any organisation already using or intending to install a CCTV system must be able to prove '**legitimate interest'** – in other words, a justifiable and legally-compliant reason for taking and recording CCTV images.

Examples of legitimate interests could include securing premises and/or safeguarding of staff and visitors. However, it is important to note that the legitimate interest in question **must** apply to the entire area covered by the cameras.

- **DATA STORAGE AND PROCESSING**

Another significant statute of CCTV under GDPR is the length of time images are stored and processed. Organisations cannot store **CCTV** footage indefinitely; in fact, they can only keep it for "as long as is completely necessary", which depends upon why the images are captured in the first place. GDPR doesn't define any acceptable retention periods, but common sense would dictate that a shop wouldn't need to retain footage longer than six months, for example – by which time any reported crimes should have been investigated.

There's more detailed information on CCTV, the GDPR and what's covered available from the Information Commissioner's Office (ICO) website, including a data protection code of practice for surveillance cameras and personal information.

- **NOTIFICATION OF CCTV MONITORING AND RECORDING**

All organisations that use CCTV have a legal obligation to inform people that they may be recorded and why the CCTV is in place. This includes members of the public and staff members alike.

Signage is generally the simplest way to tell people that they're in a surveillance area, these must be clearly visible and readable, and should include details of your purposes for using CCTV, how long you will retain the footage and who it will be shared with.

Crucially, it's also a requirement that the ICO is notified of any business use of CCTV. You may also need to pay a fee, depending on how many people your business employs and your annual turnover. You can notify the ICO online by visiting www.gov.uk/data-protection-register-notify-ico-personal-data.

3. Supplier Selection

There are many suppliers/installers that operate within the CCTV industry so it can be a complex task to narrow them down to the ones that will provide you with the experience, reliability, and support levels you may require.

Here are some common areas to consider when looking at potential suppliers:

ACCREDITATION / CERTIFICATION

One of the best ways to determine whether you are dealing with a competent CCTV installer is to check their accreditations. Some of the most common accreditations associated with a competent CCTV installer are as follows:

- **NSI**

NSI approval is a highly respected and trusted hallmark in the security and fire sectors, demonstrating technical expertise and a reassuring quality of service. NSI approved companies are all subject to a rigorous audit programme annually. The vast majority of NSI approved companies choose to hold Gold approval which includes all cases ISO 9001 approval for Quality Management Systems. For companies who declare they hold NSI approval, they must demonstrate their certification alongside any NSI services they promote.

- **SSAIB**

SSAIB is a leading certification body for organisations providing security systems and services, fire detection and alarm systems, telecare systems and services, manned services, approved contractors scheme and monitoring services.

- **CONSTRUCTIONLINE**

Working to enhanced PAS 91 criteria, Constructionline have a validated portfolio of suppliers that can be “deemed to satisfy” for SSIP (Safety Schemes in Procurement). In using the Constructionline platform, buyers can expect to simplify and speed up their search, validation and purchasing decision processes considerably, improving resource and cost efficiency.

- **SAFE CONTRACTOR**

Recognised as the leading health and safety accreditation, a Safe Contractor accredited company not only demonstrates health and legislation compliance, but also provides reassurance that you are working with a safe, stable and ethical business.

3. Supplier Selection (continued)

CASE STUDIES/TESTIMONIALS

A company that can demonstrate a portfolio of happy clients, testimonials and case studies provides a good indication you are dealing with a reputable CCTV installer. Companies should also be happy to provide references or a site visit if applicable.

SERVICES

It is worth investigating what services your CCTV supplier can provide and this can help you understand what support you are likely to expect. A supplier that has been established for many years and has their own in-house installation team provides a good level of confidence that you are likely to receive high service levels. However, it is also important to ensure that your service requirements are aligned with the capabilities of your supplier. Most suppliers can be grouped as follows:

- Supply Only
- Supply and Install
- End-to-End – Design, Specification, Install, Support and Maintenance

INSURANCE

Checking the insurance details of any supplier is a must. Most suppliers that carry an accreditation will be covered, but it is always a worthwhile activity to ensure that they have the correct cover in place.

It is important to check for 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

4. The Survey Process

It is important that when considering a CCTV installation of any kind that you should look for a supplier that will help you undertake a thorough appraisal of your requirements and objectives. Requirements can vary from sector to sector, the size and the nature of the premises can all have an impact on the final recommendations or the installation phase of your project.

As an integral part of the initial specification process, a CCTV provider should provide a complementary site visit. The purpose of the site survey will be to establish an in-depth understanding of the requirement, understand systems objectives and potential challenges, provide a full site survey report as well as providing accurate costings of the recommendations.

During your site survey, you should expect an installer to address the following aspects:

- Indication of typical light levels
- Surveillance zones
- Requirements for remote monitoring
- Requirements for video motion detectors
- Analytical requirements to detect advanced events
- IT network assessment
- How the CCTV system will be operated, will it be viewed 24/7 or called upon following an event?
- Mains power supply assessment

Any recommendations that are made should include camera locations and positioning as well as considering scalability and future-proofing of your proposed installation.

5. CCTV System Overview

Once you have engaged with an installer, it is good to be aware of what options are available. The site survey will make recommendations for a best fit solution.

An overview of the various system types, cameras, and integrations can be summarised as follows:

ANALOGUE

Analogue CCTV is a cabled system. These systems are often wired from an analogue unit (also known as a DVR) with a coaxial cable or RG59. Nowadays, most DVR's have a network connection port, so they can be connected to the internet and the CCTV images can be reviewed remotely on either a smart phone or tablet device.

Camera images are recorded and stored on a hard drive in a FIFO (first on, first off) basis. 30 days is the standard recording requirement; however, this can be dependent upon the size of the hard drive.

Analogue systems have now been superseded by more modern IP systems, but there are still many of these systems still in operation. From an operational perspective, the most noticeable difference between an analogue system and it's more modern counterparts is the quality of the footage and the efficiency of the system. From a future-proofing perspective, the newer camera's technology integrations are developed for IP systems, therefore analogue systems are slowly being phased out.

5. CCTV System Overview (continued)

HYBRID SYSTEMS

As the name implies, these systems can use traditional analogue cameras as well as modern IP cameras. Often referred to as HD over Coax (or HD analogue), these systems transmit high-definition video and audio streams over coaxial cable that have been traditionally limited to standard quality video.

Utilising legacy coaxial cabling for existing camera positions is not only a cost-effective approach, but avoids the disruption associated with a full system rewire. Installed as part of an upgrade path, existing analogue cameras can be fitted to a system and then retrofitted with new IP cameras over a period of time.

IP (INTERNET PROTOCOL)

Also known as a digital system, IP CCTV systems have been around for several years and are firmly established within the industry. Slightly more expensive than analogue, these systems are wired from a Network Video Recorder (NVR) with a CAT5 cable.

Typically speaking, these systems are power over ethernet (POE). Installation is simpler with just one cable required to transmit and receive data.

Much more secure than their analogue counterparts, IP cameras capture encrypted and authenticated footage. The cameras also offer excellent image resolution and can be plugged directly into the network which removes the need for a recording device as it can be viewed directly over the internet. With footage stored in the cloud, it reduces the need for server space and ensures you will still have access to your footage even if a camera is stolen or damaged.

CAMERA TYPES

From fixed to fully functional and 360-degree cameras through to internal or external HD, IP and thermal cameras, there are an array of options available that can enable you to build a best fit security system.

Each camera type has pros and cons. Choosing the right one should be based on the individual scenario and environment requirements as best assessed by your CCTV provider.

- **FIXED DOME CAMERAS**

As the name describes, these camera's point in a fixed location and are housed in a dome casing. Dome cameras can also come with dark lens covers which has a distinct advantage of disguising which direction the camera may be pointing.

These devices are suited to many environments for both day and night-time operation. However, whilst these cameras can be used within internal or external environments, they are more suited to internal applications. External factors such as rain can attach to the dome cover and cause the infrared to bounce back and blind the camera.

- **FIXED TURRET CAMERAS**

Offering the same image quality as the dome, this camera type is very similar to the dome camera, but without the constraints of the dome housing. The removal of the glass housing removes the potential of infrared bounce making it a perfect all rounder for all environments in both day and night-time scenarios.

5. CCTV System Overview (continued)

- **BULLET CAMERAS**

Named after it's bullet like shape – these camera's have all the same features of the turret and dome cameras but with greater zooming capabilities. Similarly, they are suitable for all environments, with in-built heather to enable operation in particularly cold working environments.

- **OPTICAL OR MOTORIZED ZOOM**

Taking a static fixed camera, these devices feature electronic or digital zooming capabilities.

- **PTZ CAMERAS**

Short for Pan Tilt Zoom, these clever little cameras enable fully motorised control via joystick operation. With excellent zooming capability, these cameras have become increasingly popular within security control rooms or remote operation via the internet.

PTZ devices can be set up to carry out pre-set tours of areas, can be manually overridden to pan/zoom in on areas of interest, or the latest models can be integrated with movement detectors that enables automatic tracking of moving objects.

Suitable for all environments, these devices integrate infrared for poorly lit/dark environments and include clever little features such as wipers and in-built heaters to ensure that the image quality is never compromised.

For standalone operations, where movement detectors or security stations are not involved, these devices are best installed as part of a mixed device estate, with image blind spots being a disadvantage to camera's that are configured within a touring mode. Static cameras are often a good choice to complement your installation and ensure full coverage.

- **WIRELESS CAMERAS**

Perfect for temporary sites or those whereby a wired connection is not viable, wireless cameras offer an alternative solution. Whilst the cameras are more expensive than a wired option, they can prove to be a more cost effective option when the cost of installation and cabling works is considered. Despite wires not being required to connect the cameras, local power is still required to operate the system. Image quality doesn't tend to be as good as the wired options.

- **THERMAL IMAGING CAMERAS**

A more specialist camera, these are used to predominantly identify heat sources, such as that emitting from a person or fire. They can be used in areas of bad visibility such as fog or smoke, but just display an image outline as opposed to any detail such as colours or features.

5. CCTV System Overview (continued)

DETECTION DEVICES

There are various types of detection devices and features that may be incorporated. The type and number of detectors will be specified by your installer dependent upon your environment, system requirements and objectives.

Detection devices are particularly useful on unmanned sites in conjunction with monitored systems.

- **DETECTORS AND BEAMS**

External movement detectors or beams can be used on a site so that if movement is detected a PTZ camera can be panned round to the scene and an alert set off. There are several beam types that can be utilised to cover the perimeter of a site, the approach, the exterior, and the interior including:

- **Laser** – Can detect a moving object's size, speed, and distance from the detector and process that information with a unique algorithm, which results in high-reliability detection of people and objects. The detector can also be mounted vertically or horizontally across several applications and site conditions.
- **Radar** – Provides reliable detection even in unfavourable conditions, it is perfect for detecting intrusions in large areas. The accuracy of these systems is particularly high allowing operators to determine the exact location of an intrusion.
- **Dual Technology** – Cost effective and easy to install, dual-technology combines a passive infrared sensor with a high frequency microwave for reliable detection. The infrared detector detects temperature variations during an intrusion and can be used in a wide variety of environments to protect specific assets or strategic locations such as passageways or building entrances.
- **Fibre Optic** – Sensitive to pressure, sound and motion, this is a particularly cost-effective solution for protection of large perimeters and other infrastructures.

- **VIDEO MOTION DETECTION**

A VMD or Video Motion Detector utilises software in the NVR to detect changes that occur in a series of images. The software can be configured to notice certain objects that may have been left, such as a suspicious item (bag) that has been left in an airport. Depending on how the software has been set up, these systems can be a little more prone to false alarms.

- **ARTIFICIAL INTELLIGENCE (AI)**

System intelligence such as AI powered facial recognition can help accelerate response times by quickly identifying people of interest. For example, a shopping centre would be able to create a secure watch list to help assist operators identify known shoplifters or a hospital would be able to track unauthorised individuals that had entered restricted and potentially unsafe zones.

Furthermore, the system is also able to identify vehicles or objects that could potentially pose a threat to the safety or security of any premise, it's assets or people. This intelligence can be invaluable to any operator or security team, enabling a proactive response and preventative measures to be implemented to increase the effectiveness of a physical security system.

5. CCTV System Overview (continued)

- **ANPR**

Automatic number-plate recognition can be used to create a database of recognised number plates. Such systems use cameras to read vehicle registration plates to create vehicle location data. These systems can be configured to integrate many different security systems, such as with access control, whereby barriers and gates may automatically open if the vehicle is on the database or trigger an audible alarm if the vehicle has not been recognised. Systems commonly use infrared lighting to allow the camera to take the picture at any time of day or night.

- **MONITORS**

More specialist monitors have been designed specifically for security and control centre environments. From single monitors to large video walls, devices should feature sharp, brilliant image clarity (HD or 4K) which provide the durability and reliability to monitor operations 24 hours a day/7 days a week.

- **TANNOYS AND AUDIO CHALLENGE**

Tannoys and audio are particularly useful for monitored systems. Acting as a preventative measure, the integration can allow operators to broadcast pre-recorded audio files or real time audio to warn off potential criminals when an intruder alert is triggered. The system requires the integration of both speakers and PA to be connected to the NVR.

- **LOW LIGHT CAMERAS AND SENSORS**

Most cameras integrate limited infrared technology which can extend to a range of 10-20 meters. For applications where additional visibility is required in low light areas there several supplementary options:

  - Infrared Floodlighting – Capable of flood lighting a complete area. The area appears pitch black or poorly lit to the naked eye, deterring intruders, but provides brightly lit recorded footage.
  - Ultra-Low Light Technology – Infrared is an illuminator which provides a bounce back into the lens from the intruder. Whilst infrared can provide an outline image in low level lighting conditions, they lack detail and colour. In applications where this is required, ultra-low light technology enables users to capture high-definition, full-colour images in poorly lit environments.

- **TOWERS AND COLUMNS**

Providing a structure to fix cameras to, these are perfect for yard environments or wide-open areas where buildings are not available for mounting cameras onto. The latest towers offer the ability to integrate cameras, loudspeakers, intercoms, and floodlights.

6. CCTV Monitoring

CCTV monitoring ensures that any premise is fully safeguarded and protected, 24 hrs a day, 7 days a week. Monitoring can be enabled just for out of hours or on empty premises, in these instances images and alerts are transmitted to a remote video response centre to investigate.

Footage can be stored on site, but more commonly with monitored sites, it can be stored remotely in the cloud, meaning it is fully backed up, secure and easy to access.

Monitoring can optimise existing manned security operations, allowing for full visibility of large operations and triggering alerts to enable security personnel to go to investigate any incident. For particularly high-risk sites, these can offer a cost-effective alternative to on-site manned guarding's saving many thousands of pounds in these costs.

Fully monitored systems must comply with BS 8418 and specialist companies have this additional scope on their accreditation certificates. A BS 8418 system can gain immediate Police response.

7. Cost

When looking at quotes comparatively, it is very common for costs to vary. Whilst reviewing a CCTV quote, it is often good to review them with the following costs checks in mind:

- **Understand Your Power Source** – There are significant cost differences between wired and wireless systems. The cost of the cameras also vary dependant upon the power source, wireless cameras are notably more expensive for example. With regards to any power work required, it is important that you check whether your installer is accredited for electrical works, if this is not the case, there will be an additional cost required for an electrical contractor.
- **Understand Camera Specifications and Configurations** – The costs will vary dependent upon image quality and features such as motion detectors, night vision and so on.
- **Ensure There is Sufficient Storage for the System** – The number of cameras and quality of image will all have an impact on what storage will be required for the system, so make sure there is enough storage for your needs.
- **Network Installation** – Is there going to be a separate network installed for the new CCTV or will it be connected to the buildings main infrastructure? It is recommended that a CCTV system is on its own network or split away from the main infrastructure via a VLAN as it will prevent lagging and distorted images from restricted bandwidth.
- **Service Charges** – Some providers may or may not include costs such as monitoring, maintenance and repairs. As a minimum, ensure that servicing costs are included – any CCTV system is a business asset and should be maintained as such.

8. System Installation and Training

Once you have approved a quote you should expect a project manager to be assigned to your installation. The purpose of the project manager will be to verify the initial recommendations, undertake the appropriate level of testing to support the process, carry out the relevant risk assessments, issue a method statement and plan the installation.

A good project manager will work hand in hand with the relevant contacts on your site to develop the infrastructure for an effect deployment. Identifying the work areas and schedules, a successful installation will ensure there is little or no disruption to your day-to-day operations.

TRAINING

Providing on-site course and site-specific training, you should expect your CCTV installer to provide the resources that enables you to capitalise on all the benefits from your newly installed system. Your installer should be able to provide on-site, high quality training based on all aspects of your CCTV technology.

9. Service Support and Maintenance

When looking for a supplier, it is worth looking for a well-established supplier that has a good network of local engineers to provide the best and most reliable support for your installation.

CCTV systems are an asset and do require regular maintenance. This could be an annual service or more frequent preventative maintenance visits depending on the size and complexity of the system. It is important to be aware of what support your supplier can offer and whether these align with your needs, e.g what are their response times and whether they offer out of hours etc.

10. Conclusion

We hope you have found this guide useful. If you need any further information or guidance, talk to our team of experts who will be able to advise you on any element of a CCTV system installation.

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