WILTON SECURITY SYSTEMS
Electronic Security Specialists

A GUIDE TO
CCTV

WARNING
CCTV in operation.
24hr recording
in progress

HIKVISION
First Choice for Security Professionals

Wilton Security Systems Ltd has been engaged in the installation of electronic security systems for over 25 years.

We are a professional CCTV installer and Maintainer, inspected and accredited by the SSAIB (Security Systems and Alarms Inspection Board)

For most applications we choose to install professional grade CCTV products from HIKVISION, the world's leading manufacturer of CCTV equipment.

As an installer of electronic security systems, we are pleased that CCTV systems have now become affordable for use in your home or business.

That's the good news, but the bad news is that there is now a plethora of CCTV systems available ranging from the D-I-Y systems you can buy from places like Maplin's or online, (mostly Chinese or 'Grey' imports) to very sophisticated systems designed for high-risk public spaces etc., which makes it very difficult for you the end customer to decide what is best for you.

You can buy a complete system with a couple of cameras from a retail store for around £400, but as you might expect the equipment, particularly the cameras, will be far inferior to those used in a professionally installed system, in terms of picture resolution, build quality, reliability, low-light capability, resistance to rain etc. etc. etc.

CCTV equipment is one of the few things in life where you can truly say

"You get what you pay for"

Our best advice has and will always be:

***Decide how much you want to spend and then get the best
Available equipment for your budget.***

CCTV Basics:

Types of Systems

There are basically two protocols/systems that you can use for CCTV.   Each have their advantages and disadvantages.

1. I.P.

I.P. (Internal Protocol) systems are the digital solution often favoured for commercial and larger systems. They run on CAT5/6 cable and are frequently powered using a Power Over Ethernet (PoE) configuration, whereby the video signal and the power for the camera is all provided on a single cable, from the Network Video Recorder (NVR).

I.P. Systems will generally be more expensive than the alternative (Analogue) systems, but in larger systems where integration may be required with other electronic devices or systems then I.P. will often provide the best solution.

2. Analogue

Analogue systems have been the convention for CCTV before the advent of I.P. systems. However, don't be fooled into thinking that they are 'old technology'. Modern analogue systems are able to produce identical results, in terms of image quality, to that achieved with an I.P. system, frequently at a lower cost.

Like I.P. PoE systems, you can now have an analogue system that only requires one cable between the camera and Digital Video Recorder (DVR).

These systems tend to be much cheaper than I.P. systems and as such we would tend to recommend this protocol for most domestic and small commercial installations, unless there is a specific requirement for an I.P. system.

Camera/Image quality

There are various ways to describe the image quality of a CCTV system, but probably the easiest to understand would be to refer to MP or mega-pixels. This is the number of pixels (tiny dots of colour) that you will see on a screen, that make up the overall image. The more pixels the camera is able to generate, the greater and larger the image size and the quality of the image that will appear on a screen or monitor, where it is able to display that level of image resolution.

Most people will be familiar now with High-Definition (HD) televisions. The early ones were referred to as 720p and most HD systems now are 1080p.   Ultra-High Definition (UHD) Televisions are also referred to as 4K (8MP), with some 8K TVs starting to appear now as well.
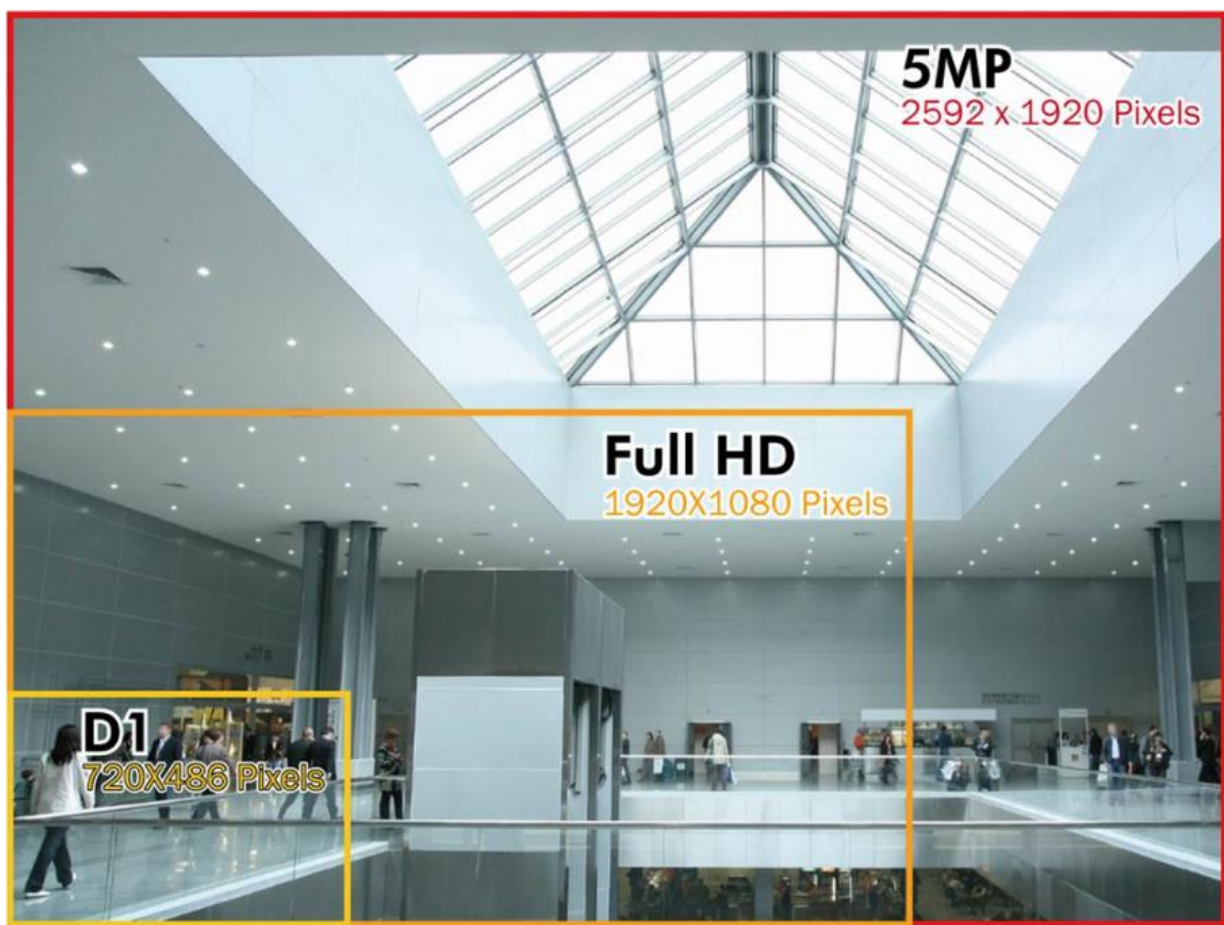
Screen resolution is described as the width and height of a screen. So, for example the first 'HD' televisions were 1280 pixels wide by 720 pixels in height. Therefore, the screen was made up of 921600 individual pixels.

Also, the greater the camera resolution, the larger the image (more detail and picture width) you will achieve.

The picture below shows the difference between Full HD (Standard) and a 5MP image quality using an analogue system. (But the theory would be the same for I.P.)

Remember, there are also 4K/8MP cameras available which will give a resolution of 3840 x 2160 mega-pixels.

(D1 is the old conventional Analogue resolution)

We would normally recommend and fit 'Super High-Definition' 5 Mega-Pixel systems as standard for Analogue systems and 4 Mega-Pixel for Digital (I.P.) systems, although 4K (8MP) are available.

Note: In order to achieve a 5MP picture on your screen, all parts of the system, Camera's, Recorder and Monitor must be able to handle a 5MP data rate, if you use a 2MP camera on a 5MP monitor you will only get a 2MP image!

Video Recorders

NVRs / DVRs

You can in theory have as many cameras as you want on a CCTV system; the limiting factor is the number of channels on your Network Video Recorder (I.P.) or Digital Video Recorder for analogue systems.

They basically come in 4, 8, 16, 32 and 64 channel versions.

When deciding on what size (number of channels) you require for your application, it is worth considering if you might extend the system in the future. If you feel that you now only require 4 cameras, it might be worth fitting an 8-channel recorder if there was a possibility that you might add additional cameras in the future.

Either way you really need to ensure that there is sufficient recording capability within your NVR/DVR to allow for prolonged recording of high definition imagery.

The higher the resolution of the camera(s) used, the more 'data' it generates and the more space will be required on the systems hard drive to record and store those high definition images.

I.P. cameras use slightly more data than an analogue system!

When your hard-drive is full, the system will start recording back at the beginning and 'wipe' the oldest recordings thereon. Consideration will therefore need to be given as to how long you wish to keep recordings etc.

This time period will vary due to many different considerations, but as a rule of thumb, a 1 Tb (Terabyte) hard-drive should provide 31 days of continuous recording of One camera. Therefore a 4 channel, 4 camera system should have at least a 4TB hard-drive fitted.

Hard-Drives

Hard-Drives fitted in NVRs or DVRs should not be conventional hard-drives as fitted in computers etc.

They should be specialist 'Surveillance' hard-drives designed and manufactured specifically for prolonged and continuous use with a fast data transfer rate.

Because the hard-drive is in constant use, and dealing with large amounts of data transfer, the possibility of a failure is fairly high. Given the high cost of a replacement, you should ensure that there is an adequate guarantee provided on the drive fitted in your NVR/DVR.

Most installers can also offer a 'Rescue Package' alongside the guarantee for the hard drive, whereby if it should fail, the manufacturer will attempt to recover the imagery on the hard-drive at the time of the failure.

Wilton Security Systems always fit 'Seagate Surveillance' hard-drives in their recorders and offer an industry leading THREE YEAR warranty on each unit they install.

Cameras

There are many different types of camera available, most fitted with Infra-Red for Night applications. Mostly 'Fixed' cameras are used but you can also get various specialist cameras including PTZ (Pan/Tilt/Zoom), ANPR, Thermal etc.

For most installations the three most common used are:

1. Bullet Cameras
    (White or Grey)

2. Dome Cameras

3. Turret Cameras
    (White or Grey)

(Pictures are not to scale)

We find that in most cases, a Turret camera will provide the best aesthetic solution:

The main consideration is whether you want them to be very visible to provide a deterrent or whether you want them fitted discreetly.

All of our cameras are designed for external use and have the highest environment rating of 'IP66 or IP67', against water and dust ingress *(Something to consider if looking at cheaper cameras)*

The IP Code, International Protection Marking, IEC standard 60529, sometimes interpreted as 'Ingress Protection Marking', classifies and rates the degree of protection provided against intrusion (body parts such as hands and fingers), dust, accidental contact, and water by mechanical casings and electrical enclosures. It is published by the International Electrotechnical Commission (IEC). The equivalent European standard is EN 60529.

Infrared night vision

You obviously want to use your CCTV system at night. Whilst during the day your cameras will give you a perfect colour picture, normal Colour cameras cannot work well in low-light conditions. Therefore, you will need additional lighting or you can use 'Low-Light' cameras.

Different cameras have different levels of IR illumination, most illuminate up to 40 metres from the Camera, therefore this is another important consideration in camera selection.

Infra-Red, LEDs are built into the cameras.

All of our camera's come with IR illumination capability.

Note: This is a low-resolution screengrab of a night time image

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The following two screengrabs show the image as captured of a typical street scene, during both normal Daylight mode and also at Night with IR Illumination *(4MP Camera Turret Camera))*
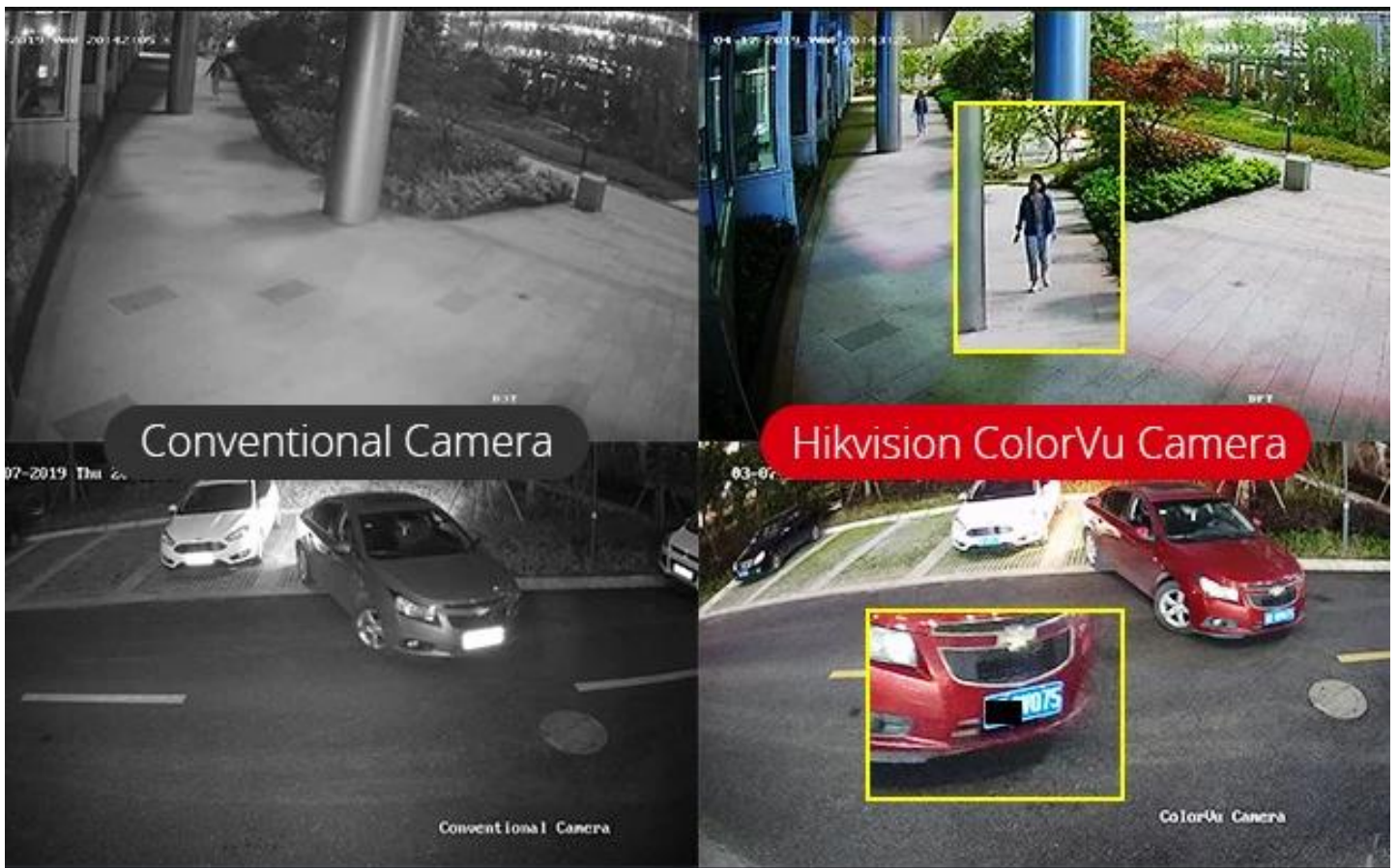
We are also excited to advise you of a new camera that is now available:

Conventionally we have had to rely on Infra-red illumination to provide an image at night (or in dark conditions), but that will only produce a black and white (monochrome) image.

The new 'ColorVu' range of CCTV cameras are able to produce a Colour image as they incorporate a white light, rather than 'infra-red'

You will appreciate that this has many advantages, less glare on reflective surfaces, easier identification of vehicles by colour and also clothing etc.

The image above shows the difference with a reduction in glare from IR illumination, which would completely obscure the number plate of a vehicle.

The images above show the same scene. On the left is an image produced by a conventional camera relying on Infra-Red (IR) to illuminate the scene and the image on the right is from a new 'ColorVu' camera with built in white light.

The 'ColorVu' camera range is available for both Analogue and I.P. Based systems.

In addition to new installations, they can also be used to upgrade an existing system, (IP or Analouge) where this additional feature would be of an advanatage.

At this time (May 2020) they are only avaiable with either 2.8mm or 4mm Fixed Lens, which will be suitable for most applications. The IP version comes as a standard 4mega-pixel camera and the Analougue comes as 5mega-pixel.

Remember: These cameras do give of a white light (A bit like a bright torch) so may not be suitable for some applications.

Mobile Connectivity

The NVR/DVR is able to connect to your broadband via the 'HIK CONNECT' APP, which will enable it to be accessed remotely using a smart phone or tablet.

You can also access it via your computer.

This means you can view your system even when you are away.

DATA PROTECTION ACT and CODE OF PRACTICE FOR CCTV MONITORING

Attention is drawn to the Data Protection Act 2018 and the Information Commissioner's Office CCTV Code of Practice 2008.

By Law the customer may be responsible for registering the system with the Information Commissioners' Office
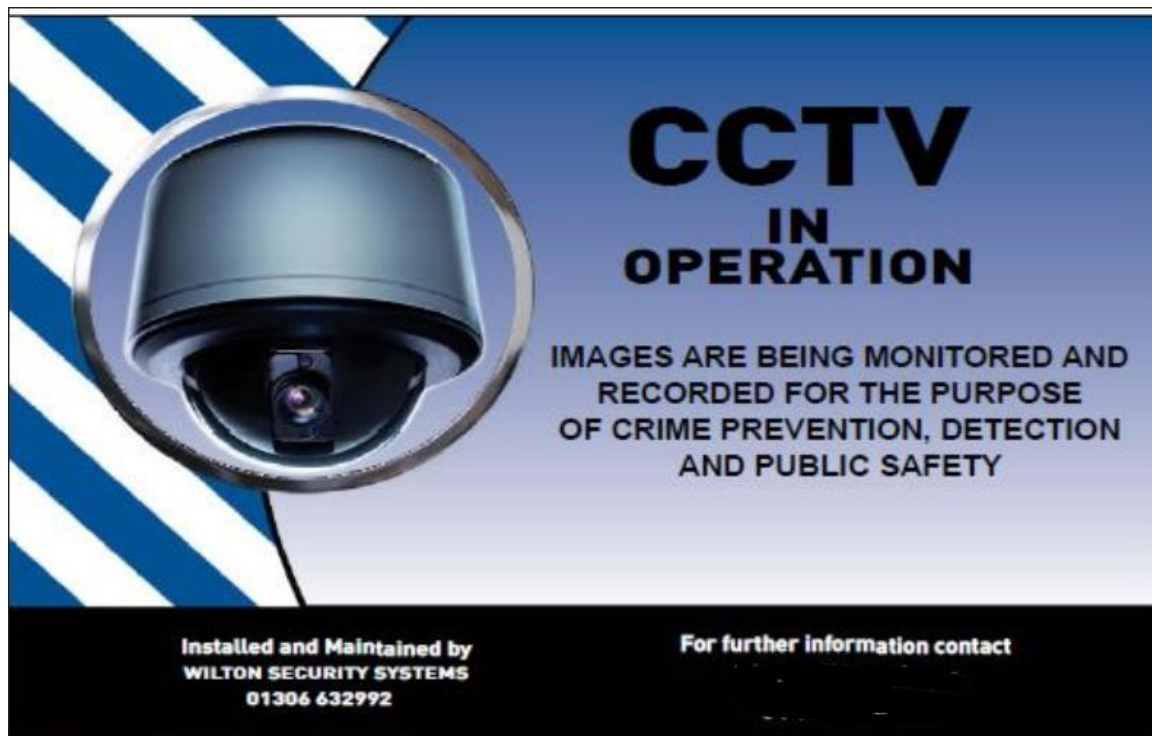

Information can be obtained from the Information Commissioner's Office: -
Website: www.ico.gov.uk http://www.ico.gov.uk

Whilst the customer will be responsible for meeting any requirements of the above Act, but we will assist you where required.

CCTV INFORMATION SIGNS

Two Metal, personalised CCTV warning signs, will be provided, providing information compliant with the Data Protection Act.

What to look for if comparing installation quotes:

- Is the installer an 'Approved' installer (SSAIB or NSI)
- Is it a like for like quote: I.P. or Analogue?
- What size hard drive will be included and is it 'Surveillance Standard'.
- What resolution is the system e.g. 5mega-pixel and is the recorder and monitor capable of processing that resolution
- Are the cameras waterproof to IP67 standards
- What warranty is there on the System, the hard-drive and the cameras
- Does the system come with a Free remote viewing APP.
- Does the installer provide a reasonably priced Preventative and Corrective Maintenance service?

Why choose Wilton Security Systems to install your CCTV system:

1. We provide a 1- year warranty on the installation and all workmanship
2. We provide a 2-year warranty on all cameras
3. We provide a 3 -year warranty on all Hard-Drives and they are 'Surveillance Standard'
4. We are inspected and approved by the Security Systems Alarms and Inspection Board (SSAIB) and a 'Certificate of Conformity' will be issued upon completion to provide you with the reassurance you have a professionally fitted system.
5. All of our equipment is professional standard and not as fitted by the D-I-Y market.
6. We provide a free remote viewing APP 'Hik Connect'
7. We provide TWO personalised metal CCTV warning signs.
8. We provide free no obligation quotes
9. We provide a 24-hour, 7 day a week, emergency response and have some of the best value maintenance contracts available.
10. We will beat any like for like quote under our Customer Price promise.

Contact us today for your Free, No-Obligation quote

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