

CCTV GUIDE

Selecting the right type of CCTV system can seem confusing at first. However this guide should answer most of your questions.

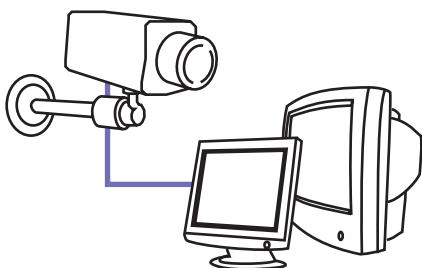
Remember that our experienced advisors are on hand FREE on 0844 412 4503

1	System objective	See below
2	CCTV Cameras	GO TO p5
3	Control & recording equipment	GO TO p4
4	Monitors	GO TO p7
5	Accessories	GO TO p8

1. Decide on the **objective** of your CCTV system

Monitoring Only

You just need to monitor one or more cameras on a screen.



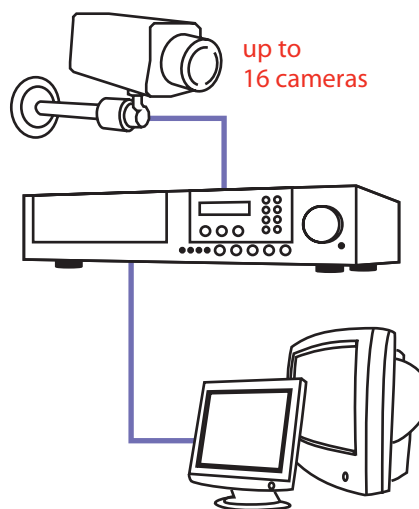
Mrs Brown is 68 years old and lives alone. She needs a CCTV system to see who is at the door downstairs.

Mr and Mrs Dale enjoy bird-watching. They set up a bird house at the end of their garden and need CCTV to watch the types of bird that eat from it.

Susan needs a wireless CCTV system to watch her children in the garden. She needs to watch from a portable monitor or her TV.

Monitoring & Recording

You need to monitor one or more cameras AND record them.

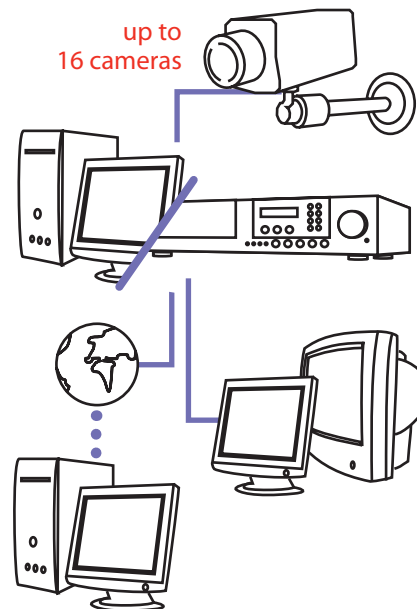


Richard runs a hardware shop and he needs CCTV to watch customers. He needs to be able hand over evidence to the police if a crime is committed.

Sean and his wife own a car each. Recently the cars have been vandalised while they have been parked in the driveway. They need CCTV to catch potential thieves and vandals if they are not there.

Monitoring, Recording & Remote Viewing

You need to monitor one or more cameras, record them AND access them over the internet remotely.



Amy runs a chain of salons in Leeds & Bradford. She needs CCTV to monitor each site to keep track of how clients are being served while she is away.

Mr Kurn travels to Spain quite often. He wants security for his home so he can be alerted if his house broken into.

Now select your **camera(s)**

2 Select your camera(s)

iViewCameras has an extensive range of cameras for all different requirements. It is important that you select the right camera for it to achieve its individual job. These are the factors you will need to consider to help you choose the right CCTV camera.

To monitor and control



Detection



Recognition



Identification



Your CCTV requirement will determine what sort of performance you require from your cameras.

The most common complaints for the disappointing performance of many CCTV systems include:

- the subject was too small, or not in view long enough
- the images were out of focus or moving subjects were blurred
- cameras were not covering the relevant area

Go for the traditional analogue or the newer digital network (IP) cameras that connect directly into your network.

Picture Format

The most popular picture format is in Colour, to give you pictures as you are used to on TV.

You should consider Black/White cameras if your budget is limited, light conditions are low or variable.

Day/Night Cameras are ideal for seeing in full colour during the day and in B/W at night. They use Infra-Red LEDs to see at night and can see varied distances when dark.

Ask yourself:

Do you need to see at night?
Do the light conditions vary a lot?
What type of light is there (if any)?
(ie. strip lighting, light bulb etc)

a Purpose

What will the camera see?

What do you want it to capture?

b Performance

Monitor and control general situation

Detection of person

Recognition of person

Identification of person

Number Plate Recognition

c Type

Analogue

IP (Internet Protocol)

d Environment

Indoor dry and reasonable temperatures

External wet and varied temperatures

Vandal Resistant potential for damage quite high

e Camera Mount

Wall

Ceiling

Other _____

f Picture Format

Colour

Black/White

Day/Night:

Max. viewing distance needed in the dark (m) _____

g Camera Format

Body Camera

Dome

Pan/Tilt Dome

Pan/Tilt/Zoom Dome

h Lens Type/Picture View

Fixed Lens

Varifocal Lens

Lens Size needed:

Max. width needed (m) _____

Max. view distance (m) _____

i Camera Visibility

Overt/Deterrent

Covert/Hidden

Small/Discreet

i Picture Quality

Standard under 420 TVL

High over 420 TVL

k Cabling

Wireless (2.4 GHz)

Wired:

DIY Cabling

RG59

Cat 5 / LAN

Cabling Distance to control equipment?

(ie. to TV or DVR) _____

Lens Type

The smaller the lens size, the wider the camera view. The larger the lens size, the narrower the view.

ie. 3.6mm lens = wide angle
12mm lens = narrow angle

The wider the angle the smaller things will appear. The narrower the angle, the bigger things will appear.

Ask yourself:

What will be the maximum viewing distance I need to focus on?
What is the maximum width of that view at that point?

Camera Visibility

Overt/Derrent styles of CCTV cameras usually are bigger and have a visual presence in the environment.

Covert/Hidden styles of camera tend to be very small or disguised as another object (ie. smoke alarm).

Small and discreet styles of CCTV cameras have a contemporary design and are usually small to medium in size. These are normally ideal for residential or small business purposes.

Ask yourself:

Where will the camera be mounted?
Do I need it to be hidden for surveillance purposes?

Picture Quality

TVL (Television Lines) are the number of horizontal lines produced by a security camera and is a measure of picture resolution or sharpness. The higher the TVL, the better the image quality.

Ask yourself:

What sort of image quality do I need for the purpose of this camera?
Does the purpose require a good image or a general overview of the environment?
Is it required for evidential purposes?

Cabling

There are 3 main ways to connect a CCTV camera.

Wireless via a 2.4 GHz analogue or Local Area Network. This method can be prone to interference and can only work for up to four cameras.

Using traditional copper wire - the most common way of connecting a CCTV camera. Usually DIY cabling that is pre-terminated and ready to use or RG59 which will need to be crimped at the ends.

Or finally using Cat 5 network cabling to transmit data over a Local Area Network/Internet

Ask yourself:

What is the ease of running the cable?
Will visible wiring be a problem?

Now select your control/recording equipment on page 4

3 Select your control/recording equipment

single camera set-up

multiple camera set-up

Control equipment is required when you want to monitor **more than one camera** or **record live footage produced by the camera**. See the following sections to find out more about recording using:

- | | | |
|---|------------------------|-----------|
| 1 | Video/DVD Recorder | See below |
| 2 | Digital Video Recorder | GO TO p5 |
| 3 | PC Based Software | GO TO p6 |
| 4 | IP Camera Software | GO TO p7 |

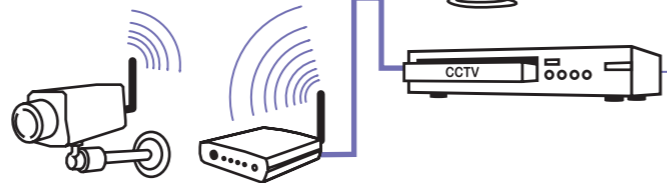
One camera

You can simply connect your camera (wired or wirelessly) to a video or DVD recorder and/or television. Nothing more required.

Wired set-up



Wireless set-up



NOTE: You can actually view up to 4 cameras with this type of wireless set-up shown above. Each camera will have to be manually switched in order to view all four screens.

3.1 Using a Video/DVD Recorder set-up

Using a Video/DVD Recorder or time lapse video recorder

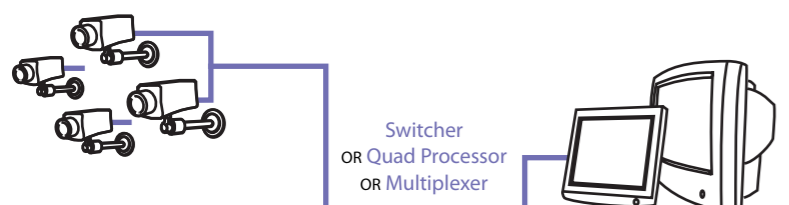
As video or DVD recording devices only record one 'feed', a method of combining the multiple feeds to the recorder is required. A control device such as a switcher, quad processor or multiplexer is required.

A Switcher device will allow you to *automatically* switch between feeds so each camera can be viewed/recorded for a few seconds. Some models allow you to adjust the dwell time between screen changes and some will even switch to a camera when movement is detected.

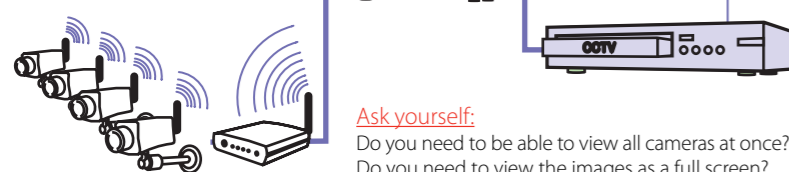
Quad processors simply split a single screen into quarters so up to four cameras can be viewed/recorded simultaneously as a 'quad' image.

Multiplexers allow each camera feed to be viewed as single or split screen. Multiplexers can allow each camera to be recorded as a *full screen* image no matter what live viewing option is selected.

Wired set-up



Wireless set-up



Ask yourself:
Do you need to be able to view all cameras at once?
Do you need to view the images as a full screen?

- Simple set-up
- Ideal for low cost set-up

a Control device needed

- Switcher
- Quad Processor
- Multiplexer

b Cabling

Cabling Distance required (total between devices) _____

3.2 Using a Digital Video Recorder set-up

- All-in-one solution
- Record multiple cameras
- Monitor cameras live
- Playback footage easily

a No. of camera inputs

- Up to 4
- Maximum for wireless set-up
- Up to 8
- Up to 9
- Up to 12
- Up to 16

b Recording time required

Have you considered:

- Hard Drive size
- Number of cameras
- Frame rate for DVR
- Resolution
- Quality of recording Usually 5 levels
- Compression method used

c Extra Features

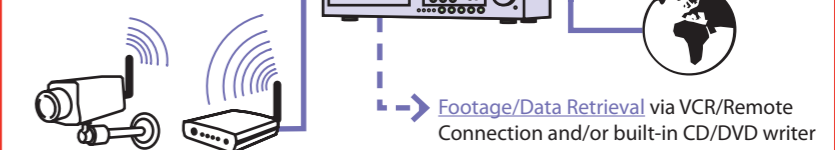
- Motion Detection Only records when DVR software detects motion
- Footage removal options
 - Connect DVR to Video
 - USB connection to PC
 - Built-in CD/DVD writer
 - Networkable
 - Removable Pen-drive
- Remote Viewing
- Alarm Inputs/Outputs

DVR set-up with optional viewing connection to TV and/or Internet/LAN

Wired set-up



Wireless set-up



Note: You can also view your DVR on a standard LCD or PC monitor by using a BNC to VGA Converter, available from iViewCameras.

Recording Time required

The length of time you can record for is affected by:

Hard Drive size: 120/160GB standard, 250GB, 500GB, and 1000GB options. DVRs store recordings directly onto a Hard Drive. Once storage space has run out, most DVRs can be set to automatically erase old footage as new footage is recorded. Choosing a Hard Drive size can depend on how long you wish to keep footage stored for.

Number of cameras: Most DVR units come in 4, 8/9, and 16 camera varieties

Frame Rate (fps - frames per second): 25 fps per camera is 'real time' as you would normally see on TV. 4-6 fps per camera is suitable for most situations. The fps rate is split between the total number of cameras connected to the DVR unit. So, a 100fps DVR with 4 cameras inputs will record at 25 fps per camera. Reducing the frame rate can save HD space.

Resolution and the Quality of recording: The better or bigger the image, the larger the size of the recording will be as more 'image data' is stored.

Compression methods: JPEG, MPEG and MPEG4 are all different types of image compression, all giving varying file sizes.

Ask yourself:
How long do I need to keep footage available for in order to retrieve footage later?
Will I be away for long periods of time while my CCTV system will need to be operating?

Remote Viewing

Viewing your camera images over the internet or over a Local Area Network (LAN) is possible with DVRs which have an ethernet (RJ45) connection. TeleEye units are particularly good for this.

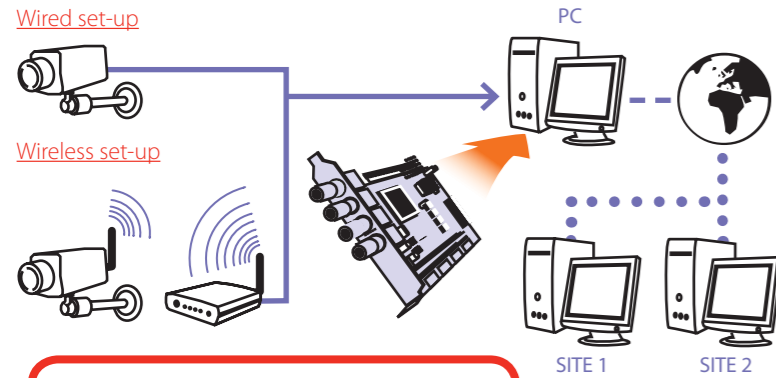


Note: Software is normally provided to view your cameras using Windows based software. Some DVRs will allow you to download footage via remote connection at another site.

PC Based Software set-up with optional connection to Internet/LAN

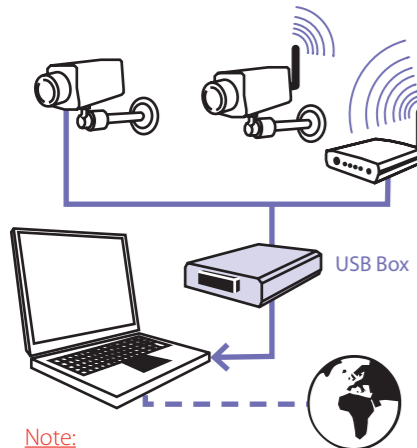
You can view and record your CCTV footage using an existing PC. The PCI Card is slotted inside the 'tower' of your PC and the CD is used to install the CCTV software.

You can then view your images on the PC screen, record to the hard drive and remote view the footage



Using a Laptop to view/record footage

For laptop viewing and recording, a USB Box is available to connect your cameras without having to install any hardware.



Note:
USB Box & Software works with up to 4 cameras
Software is still required to operate the CCTV viewer and or recorder.
The USB Box can also be used for standard PC if PC card option is not required.

Additional features

PC Based software features vary from brand to brand. These are the features available on the AVerMedia PC recording system:

- Hybrid system: Unique feature to support both analogue & IP
- Adjustable frame rate and resolution on each camera
- Motion Detection
- Complete control during playback: forward, rewind, speed up, slow down and digital zoom of any area
- Auto Scan
- Pan/Tilt/Zoom control
- Intelligent Pre-motion recording
- Multiple masking zones
- Auto recycling of storage space
- Central management controls
- Remote Recording and Playback
- Full control of footage
- PDA and mobile device viewing
- Simultaneous real-time playback, recording & networking
- Intelligent Search
- Visual Search by the second - not available on any other system
- Till POS integration
- E-Map
- Email and voice call out on alarmed alert
- Easy to use graphical user interface
- Software Update online and more...

3.3 Using PC Based Software

- All-in-one solution
- Record multiple cameras
- Monitor cameras live
- Playback footage easily
- Use an existing PC or laptop to record footage
- Inexpensive installation
- Powerful functionality

a System set-up

Via Desktop PC

Via Laptop PC

b No. of camera inputs

- Up to 4
Max. for wireless set-up or Laptop connection
- Up to 8
- Up to 12
- Up to 16

c Version required

- Have you considered:
- Number of cameras
 - Frame rate required
For more information, see p5
 - Audio requirements
 - Software features

d Additional considerations

- Have you checked your PC/Laptop for:
- Minimum system requirements
 - Hard Drive Size & Capacity for recording
 - CD/DVD writer
 - Network capability

3.4 Using IP Software

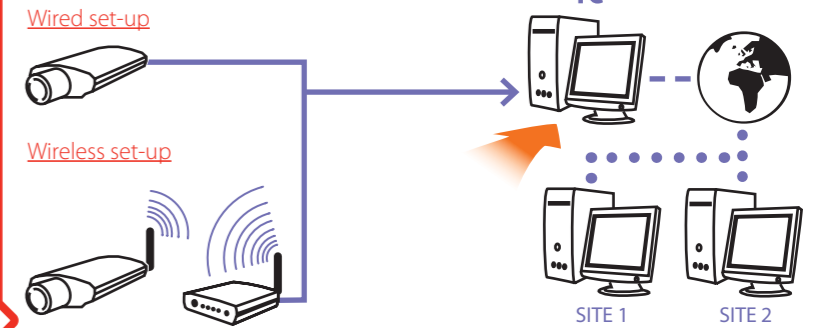
- All-in-one solution
- Record multiple cameras
- Monitor cameras live
- Playback footage easily
- Use an existing PC or laptop to record footage
- Excellent functionality

a No. of cameras in network

No. of cameras to be recorded using software _____

IP Camera set-up

When using IP cameras, control software needs to be installed onto your PC which allows you to use different cameras.



Note: See DVR set-up on page 5 to find out more about the factors which will affect recording times. The same principles of recording CCTV footage will apply when using IP cameras.

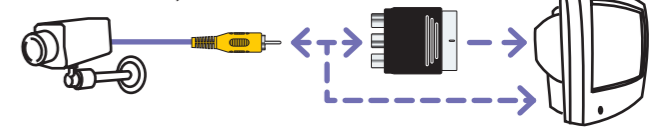
4 Select your monitor

a Options

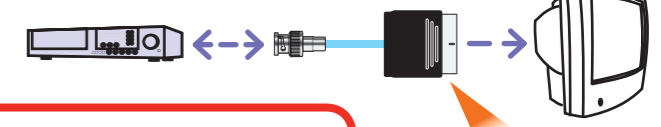
- Television
- CCTV Monitor
- PC LCD Monitor

Television monitor

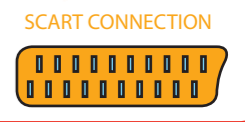
A single camera can be connected to the RCA or Scart connectors on your Television.



Multiple cameras can be connected to a TV via a Switcher, Quad Processor, Multiplexer or DVR by using a BNC to Scart Converter.



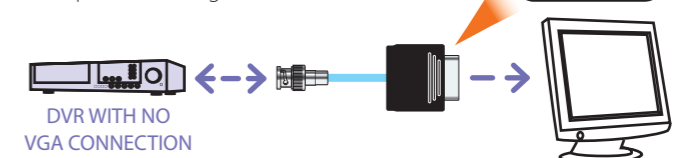
If the monitor is always on it is recommended to use a CCTV Monitor (CRD or LCD), as the screen are designed to last longer with reduced boom out.



PC LCD monitor

If the DVR has a VGA output, then it can be directly connected to a PC Monitor.

If no VGA output is available from the DVR then a BNC to VGA Converter is required. See diagram.



Ask yourself:

- What size screen do you require?
- What resolution does the screen need to be?
- What inputs will be required from the recording device or camera(s)? (ie. BNC, VGA, Scart etc)
- Will you require any additional devices/connections for viewing your cameras on the monitor? (ie. BNC to Scart lead etc)

Now select your accessories next

5 Select the right accessories



a Cabling for system

Wireless system (2.4 GHz)
Only required power cabling

Wired:

DIY Cabling
18m or 36m lengths available

RG59

Cat 5 / LAN

Cabling Distance

Cameras to control recording equipment

Control/recording equipment to monitor

b Power supplies

Individual

Multiple

c Brackets

Alternative required?
Cameras are supplied with a standard bracket

Housing required?
For outdoor use

General external type

Heated housing

Warning Signs

Quantity required

Dummy Cameras

Standard version

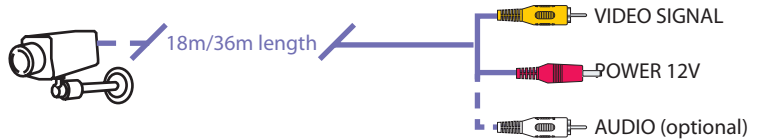
Dome version

External version

Power supplies

Wireless systems require no cabling to transmit the video signal. (The cameras must be powered)

DIY Cabling is pre-terminated & ready to use. It will feed video, audio (if required) and power back to the monitoring/control point.



RG59 cabling is professional standard cable and can be bought in 100m reels which will need to be 'crimped' with BNC connectors. RG59 shotgun cable also includes the power cable.

Cat 5/LAN Cable is used for IP network camera connection.

Power supplies

Individual power adaptors can be supplied for each camera, where each will plug into the mains power supply. Remember DIY cabling will allow you to power the camera through the length of the cabling rather than powering it locally.

Multiple cameras can be powered from a single power unit (up to 16 cameras) which will plug into just one mains power socket. This will usually need to be fitted by an electrician.

Ask yourself:

Is it possible to run/extend each camera's power cable back to its own mains power supply?

Note:

Wireless cameras must be powered locally

Warning Signs

Under the Data Protection Act, warning signs should be displayed in public places,

Dummy Cameras

Dummy cameras are often a low cost method of providing a further deterrent.

For more information about selecting the right CCTV system for you.

contact our team at iViewCameras on **0844 412 4503** or visit www.iviewcameras.co.uk



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