

CHOOSING THE RIGHT DVR

DVRs are now the most popular way to manage and record CCTV cameras. They record directly on to Hard Drive and offer high resolution recording up to DVD quality (500+ TVL) and high frame rates up to 400 fps (no. of images being recorded a second) which is Real Time for 16 cameras. DVRs outperform equivalent time lapse video based systems which can only record 200 to 300 TVL (when connected to a quad/multiplexer) and a maximum of 6 fps. When choosing or specifying a DVR it is important to consider the following points:

1. Number of Cameras

The first step to choosing a DVR is to decide how many cameras you will need it to record. When deciding be sure to take in to consideration future requirements, for example if you require 4 cameras today, it may be worth buying an 8 camera rather than a 4 camera DVR so you have room for future expansion.

2. Picture Quality (Resolution)

The second step is to decide on what level of picture quality you need to record. This will depend very much on the choice and quality of the cameras and the type of application. For example watching your front door to see who is knocking at the door will not require high resolution. If however you are watching the entrance to a Bank then picture quality is very important.

We recommend the following resolutions as a guide (bear in mind the choice of camera/lens you make will also influence the picture quality):

Use	Description	Recording Resolution
Observation	General surveillance of a large area, such as a warehouse, car park or shop floor, means you can monitor activity on your premises	213 x 96 to 360 x 288
Recognition	Allows you to see and recognise people/objects that are known to you	640 x 272 to 720 x 288
Identification	Enables you to see individual faces/objects/vehicles clearly and identify them	720 x 576

3. Recording Speed

The recording speed of a DVR is measured in FPS (this is the number of frames/images being recorded from the cameras each second). For real time images (like those you see on TV) a camera must be recorded at 25 FPS. However in practice to see a criminal act it is not always necessary to record cameras at such a high FPS. For example to record somebody breaking in to an offices as little as 2 or 3 fps can be used, however to record an employee stealing from a cash register it may be necessary to record at up to 15 fps since they may do it in the blink of an eye.

Examples of FPS per camera and their recommended uses are as follows:

FPS Per Camera:	Recommended Use:
1 to 6 fps	Domestic premises and small business applications where it is the movement of people rather than their activities that is being monitored
6 to 12 fps	Medium to Large businesses, such as supermarkets, nightclubs, bars, hotels, stockrooms etc...
12 to 25 fps	For high risk and speed sensitive applications, such as production lines, large commercial premises, jewellers, car parks etc...

4. Compression

There are several different types of compression in use in the DVR industry.

As hard drive size increase and prices fall, for local recording purposes compression is not as much of an issue as it used to be unless you wish to record for very long periods over 1 month.

If the main purpose of the DVR is to provide Remote Viewing of cameras over the LAN or Internet then compression becomes very important, however bear in mind that the more compression that is used, the refresh speed of remote images will increase, however the picture quality will deteriorate.

Our DVRs are available with the following compression technologies, an explanation of each is shown below:

MJPEG - This type of compression offers the best picture quality for local recording but the highest file size making it perform worse than MPEG4 based DVRs for remote viewing over the internet.	
MPEG4 - This is the most popular type of DVR compression technology in the world right now. It offers the best balance of picture quality and file size for both local recording and remote viewing applications. There are 3 main types of MPEG4 compression being used by DVRs. These are:	Standard: This type of MPEG4 compression is the most popular for DVRs. It offers a good balance of picture quality and compression.
	ASP (MPEG4HQ): We call this version of MPEG4 compression MPEG4HQ, it has much wider range of bit rates than Standard MPEG4 and provides better depth and picture quality than standard MPEG4.
	PART 10 (H264): This is also known as AVC, it is the newest version and offers the smallest file size of all the different versions of MPEG4 available at present, while the file size is smaller the image quality is similar to ASP, however the encoding time (time taken to compress the image) is much slower than MPEG4, which is why early H264 DVRs offered only 320x288 pixel recording and were based on PC architecture, as the processor required was much larger than a standalone DVR would have. The latest units, such as those from Xvision, offer up to 720x576 recording of analogue CCTV cameras and Megapixel recording of IP cameras on the same powerful DVR.

For anybody looking for the perfect balance between, cost, picture quality, speed & performance, the best choice at present is ASP (MPEG4HQ). If you do want to use an H264 DVR then take a look at the new Xvision H264 Hybrid DVR, they will be available later this year and offer excellent performance.

5. Hard Drive Size and number of days recording

The choice of Hard Drive size is easy to determine once you have decided on the DVR you will be using, the resolution and the recording speed you wish to record at, and the number of days you wish to record for, see each DVR for recording times.

We recommend that you only record for as long as you need to, this is also recommended in the Data Protection Act, some premises/types of business may have to record for a specific period of time according to there licensing or insurance requirements, please check this is independently.

Generally the best way to decide how long to record for is to work out the maximum time you will leave your recordings before viewing them or before an incident is detected. For example if you are going to be recording events at you business premises while you are on holiday for 2 weeks, there is no point recording for just 2 or 3 days as the DVR will not have recorded everything that happened while you were away.

6. Additional Functions

These days DVRs do much more than just record. They offer additional functions such as Remote Viewing and Playback of cameras from a Remote PC or Mobile Phone using the internet, motion detection and automatic email alerts when this occurs, integration with POS systems such as Cash Registers and more. The extra functions you require will also influence the type of DVR you choose.