

CCTV Frequently Asked Questions

1. What is CCTV? Why is there a need for CCTV?

CCTV is the abbreviation for Closed Circuit Television. It is a visual surveillance technology system designed to monitor the desired surrounding environment and its activities. In recent years, the role of CCTV has grown to unprecedented levels. Originally used to deter crime and 'anti-social behavior' such as minor offenses like littering, urinating in public and etc, CCTV now plays a more important role, assisting the police and security organizations in their investigations.

Britain is currently the leading nation in implementing CCTV, most British towns and cities are moving to CCTV surveillance in public areas, housing estates, car parks and public facilities. Other countries are quickly following. North America, Australia and some European countries are installing the cameras in urban environments which a few years ago would most likely have rejected the technology

In Singapore, an extensive round-the-clock CCTV surveillance system covers majority of the highways and roads island wide, providing 24 hours visual surveillance on traffic situations. With the system, authorities are able to respond faster to traffic situations. In recent years, there is a vast increase in demand for CCTV applications. Thousands of cameras are installed island wide. They can be found in various places such as shopping malls, boutiques, bus terminals, MRT stations, underpasses, Automatic Teller Machines ATM, sensitive government buildings, private estates and even extending its application to red-light districts, in an attempt to monitor and deter illegal activities.

CCTV is fast becoming an integral plan for crime control policies and social behaviour control theory in an effort to maintain ethnical public behaviour and public order. It has become an icon for security and its presence is guaranteed to generate a sense of security and welcomed by many.

2. Can CCTV prevent crime?

CCTV acts as deterrence rather than prevention to crime. CCTV deters 'opportunistic' crime, where people take advantage of a situation on the spur of the moment.

The cameras are also creating a vastly increased rate of conviction after crimes are detected. Virtually everyone caught committing an offense on camera pleads guilty nowadays. Once people know they have been videotaped, they admit the offense immediately.

3. Will the Camera's work anywhere in the World?

The output of CCTV cameras is composite video. U.S, Japan and Canada uses NTSC system whereas most Asia and European countries uses PAL system

4. What is NTSC and PAL system?

NTSC stands for National Television Standards Committee. It is the colour video signal television standard: 525 lines, 60Hz

PAL stands for Phase Alternate Line. It is the colour video signal television standard: 625 lines, 50Hz

5. Which countries using NTSC and PAL system?

| | | | | | | | |
|----------------------------|-------|----------------------------|-----------|---------------------|-------|-----------------------------|-------|
| Albania | PAL | Germany (prev East) | SECAM/PAL | Morocco | SECAM | Trinidad | NTSC |
| Argentina | PAL-N | Gibraltar | PAL | Netherlands | PAL | Tunisia | SECAM |
| Australia | PAL | Greece | PAL | New Zealand | PAL | Turkey | PAL |
| Austria | PAL | Hong Kong | PAL | North Korea | SECAM | United Arab Emirates | PAL |
| Azores (Portugal) | PAL | Hungary | PAL | Norway | PAL | United Kingdom | PAL |
| Bahamas | NTSC | Iceland | PAL | Pakistan | PAL | Uruguay | PAL |
| Bahrain | PAL | India | PAL | Paraguay | PAL | USA | NTSC |
| Barbados | NTSC | Indonesia | PAL | Peru | NTSC | Venezuela | NTSC |
| Belgium | PAL | Iran | SECAM | Philippines | NTSC | Yugoslavia | PAL |
| Bermuda | NTSC | Ireland | PAL | Poland | PAL | Zimbabwe | PAL |
| Brazil | PAL-M | Israel | PAL | Portugal | PAL | | |
| Bulgaria | SECAM | Italy | PAL | Romania | PAL | | |
| Canada | NTSC | Jamaica | SECAM | Russia | SECAM | | |
| Canary Is | PAL | Japan | NTSC | Saudi Arabia | SECAM | | |
| China | PAL | Jordan | PAL | Seychelles | PAL | | |
| Colombia | NTSC | Kenya | PAL | Singapore | PAL | | |
| Cyprus | PAL | Korea | NTSC | South Africa | PAL | | |
| Czechslovakia (N.A) | SECAM | Luxembourg | PAL | South Korea | NTSC | | |
| Denmark | PAL | Madeira | PAL | Spain | PAL | | |
| Egypt | SECAM | Madagascar | SECAM | Sri Lanka | PAL | | |
| Faroe Islands (DK) | PAL | Malaysia | PAL | Sweden | PAL | | |
| Finland | PAL | Malta | PAL | Switzerland | PAL | | |
| France | SECAM | Mauritius | SECAM | Tahiti | SECAM | | |
| Gambia | PAL | Mexico | NTSC | Taiwan | NTSC | | |
| Germany | PAL | Monaco | SECAM/PAL | Thailand | PAL | | |

6. How to choose a suitable CCTV camera for your needs.

Choosing the correct CCTV Camera that fits your digital surveillance requirements is very important. Below is a simplified set of guidelines when choosing the correct CCTV camera for you application.

- a) Location: Indoor or outdoor application
- b) Requirement for day and night surveillance
- c) The angle of view requirement. Wide angle coverage or a narrow field of view is required.
- d) Budget

7. How does focal length affect angle of view?

Focal length is measured in mm. A short focal length (e.g. 3.6mm) represents a wide angle of view while a long focal length (16mm) represents a narrow angle of view.

8. What is Auto and Manual Iris?

Auto Iris lenses are lenses that are able to change the size of their iris in accordance to its surrounding light condition. When the camera mechanism detect that there is insufficient light, the lens will automatically enlarge its iris to accommodate more light in so it could focus properly and produce images that are not too bright or too dark to see. It will do the reverse when it's too bright. For outdoor applications, where the light conditions are constantly changing, auto iris lenses are needed.

For indoor applications, where light conditions are constant most of the time, a manual Iris lens would be sufficient for the application. Manual iris lenses provide an effective solution for applications where the surrounding environment and its lighting conditions are relatively stable. It gives the best performance when used with cameras that are equipped with electronic shutters.

8. What is the difference between video driver and a DC driver in an auto iris lens?

Auto iris lenses need a driving circuit to control and operate a motor to adjust the aperture range in accordance to varying light conditions. The driving circuit can be placed on either the camera lens or inside the camera itself.

For video driver function, the control circuit is found on the camera lens. DC driver function camera has the control circuit built-in in the camera itself.

Depending on the type of lens and camera you are using, you should always set it to the correct setting in order for the auto iris function to operate correctly

9. What is Day and Night Camera?

Day and night cameras are cameras that are able to provide video surveillance even at low levels of illumination. A day and night camera displays a full colour image during the daytime but produces monochrome (Black and white) video images at times when the lighting is poor. The camera has a device that is sensitive to the surrounding light conditions and switches the camera between colour and black & white modes automatically. It is designed to increase its light sensitivity in poor lighting conditions and at the same time reduce noise level in the images. However, the day and night camera will fail if the illumination (Lux) level is too low.

10. What is IR camera?

IR is the abbreviation for Infrared. IR cameras have image sensors that are designed to sense and process infrared light emitted from IR LEDs. Similar to Day & Night cameras, IR cameras turned to monochrome mode when illumination falls below a certain Lux. An IR camera differs from a Day & Night camera in which an IR camera is able to capture video images in absolute darkness with the help of infrared light source.

11. What is C and CS mounts?

It refers to the 2 different standards of CCTV camera lens mount. The difference between the two is the distance between the lens and the image sensor. C mount: 17.5mm, CS mount: 12.5mm. Cameras and lenses nowadays are generally CS mount rather than C mount. With CS mount cameras, both types of lenses can be used. However, the C mount lens requires an additional 5mm ring to be fitted between the camera and lens to achieve a focused image. With C mount cameras it is not possible to use CS mount lenses as it is not physically possible to mount the lens close enough to the image sensor to achieve a focused image.

12. What camera housing to use in outdoors and at what IP rating?

Camera housings are of various shape and sizes. Different housing comes with different IP rating, from dust proof to all weather rating. This system is governed by a number of European and British standards

IP55

- Protected against dust – limited ingress
- Protection against low pressure jets of water from all directions – limited ingress permitted

IP65

- Protected against dust – limited ingress
- Protection against low pressure jets of water from all directions – limited ingress permitted
- Protection against high pressure water from all directions – limited ingress permitted

12. What is CCTV DVR?

DVR is abbreviation for Digital Video Recorder, its main function is to compress images recorded from the cameras into a particular image compression format and store them.

13. What is the difference between a PC-based DVR and an Embedded DVR?

A PC-based digital video recorder is basically a personal computer that has been modified with hardware and software to work as a DVR. An embedded digital video recorder is a video recording machine that has been manufactured specifically to record video input from CCTV cameras. In embedded DVRs there is typically one circuit board with software burned into its processor chip.

There used to be significant differences in features between the PC-based and the embedded machines. But with recent advancements in the embedded DVR technologies the differences are becoming less. The advantage of an embedded digital video recorder is that they are extremely stable and reliable as they consist of fewer circuitry parts. The software is often written in basic machine code or Linux code which tends to be more stable.

The advantages of the PC-based digital video recorders is that they are easier to interact with because you use the on-screen menus and a mouse (as opposed to embedded which you interact with more like a VCR - via buttons). And you tend to have more features and options on the PC-based machines.

14. What features should I look for in a CCTV DVR?

All DVRs are different. There are various factors to consider when purchasing a DVR besides price comparison. The basic and most important factors to consider are

- i) Number of cameras supported, i.e. number of video inputs
- ii) Recording at how many frames per second (fps)
- iii) Compression technology used
- iv) Hard disk space, number of hard disk it can support
- v) Network connection / remote viewing capability
- vi) Motion detection or scheduling recording functions
- vii) Video backup means, by USB, CD, DVD or other means.
- viii) Easy and comprehensive search capabilities

15. What is the term frames per second (fps)?

Frames per second (fps) relates to how many pictures the DVR can record in a second. Real time recording is about 30 fps. To calculate the fps per camera, take the total fps that the system could offer and divide it by the number of video inputs. For example, a 100 fps DVR with 4 video inputs would give u $100/4$, 25fps per camera.

16. What is image compression and what are the types of compression formats used?

CCTV DVR converts analog images to digital and save them in hard disk. Image compression plays an important role of improving transmission as well as reducing storage size. There are various formats of image compression in the market. Among which, JPEG and MPEG format of compression are the most widely used formats in the market currently. The major difference between JPEG and MPEG is in compression techniques. JPEG processes images by compressing one by one still pictures but MJPEG compresses images sequence by sequence.

JPEG compression method can be divided into JPEG, M-JPEG, wavelet and etc.

MPEG compression method can be divided into H.263, MPEG, MPEG-II and MPEG-IV.

17. Do I need 30 frames per second (fps) recording on all security cameras?

CCTV surveillance systems are generally intended to capture images and not to make movie quality videos. Recording rates of as low as 1 or 2 frames will be sufficient to capture critical moments for example, a criminal act in progress. Even at low frame rates, recording on motion, the compressed video files produced per day are huge in size. Therefore, it is not advisable to set all cameras to be recording at a high frames per second rate.

18. How many days/weeks of recording can I store?

This depends on the size of your hard drive, the number of cameras, which recording mode (on motion, on alarm, continuously, etc.), what type of video compression you are using, quality of resolution used. Please contact our technical support directly for assistance on the calculation.

19. What is the difference between a simplex DVR and a duplex DVR?

A simplex DVR only performs one task at a time. The DVR cannot playback recorded videos when it is recording, it can only do so when the recording is stopped.

A duplex DVR is able to playback recorded footages without having to stop recording. Recording is uninterrupted and taking place concurrently as you playback the recorded videos.

20. What is the maximum length I can pull my cameras away from the DVR?

Using RG59 Coaxial cable, the maximum distance is approx 600 feet away from the DVR and up to 1,000 feet using RG6 Coax. For longer distances, a video amplifier should be used.