

## SECURITY CAMERA SYSTEMS:

### What is 4K CCTV?

Currently, 4K CCTV security cameras offer the highest resolution images on the market. 4K images contain pixel dimensions of around 4,096 x 2,160, a total of almost 9 million pixels.

Therefore, 4K CCTV has almost 1 million more pixels than an 8MP camera, meaning it can retain crystal clear detail, even whilst zooming in. Also, they produce crisp images up to 4 times the resolution of standard HD (1080p).

Notably, 4K security systems can capture videos containing key details that could lead to a conviction. These details could be hair colour, eye colour, clothing style or vehicle make and model.

### Enhanced Image Processing

4K CCTV technology provides many different editing options when processing the image. For example, you can increase brightness or saturation without damaging or pixelating it. In addition, you may zoom further into an image, post-recording.

Cameras of 4K quality are high end; therefore, they have better, more enhanced image processing options. Enhanced image processing creates a healthier relationship between your camera and its storage system, storing the image at optimum size and quality.

### Wide Angle Footage

4K CCTV systems cover a broader image area than a traditional CCTV camera, allowing you to use fewer cameras to cover the same territory. Also, if intruders leave the immediate centre of the frame, the camera will still capture them on film.

Therefore, although 4K security cameras are a substantial investment, they will pay back your business endlessly by offering secure protection for your employees and equipment. Also, as you will need less of them, you may pay more for cheaper cameras in larger quantities.

### What is 8MP CCTV?

While often labelled as 4K CCTV cameras, 8MP IP cameras have slightly lower resolution abilities.

However, the images and video files created are often smaller due to the lower quality. So, it will take less time to upload to external storage devices. In addition, the reduced quality and file size of the video will place less strain on local networks (both wired and wireless).

Therefore, if you run multiple devices using one internet connection, the 8MP CCTV video surveillance system is a great choice.

Additionally, it is far less likely to interfere or weaken your connection as it doesn't require the same level of detail as 4K.

### Moving Objects

Also, as 4K security camera systems are so focused on showcasing the sharper details of the scene, it doesn't perform too well when presented with fast-moving objects. It can sometimes blur out vital elements of moving vehicles such as colour, branding or number plates.

An 8MP camera will be better suited to changing speeds in the environment. It is not trying to maintain ultra-high-quality images whilst record, so it can efficiently document the moving object.

### Improved Remote Viewing

The resolution of a megapixel security camera is 'backward compatible'. Therefore, if its connection to the network weakens, it will automatically run at a lower resolution, e.g. 1080p or 720p.

Also, 8MP cameras offer excellent views during night time. You can expect the same high-quality detail, even in the dark.

This means you can easily identify potential criminals in the footage when remotely monitoring CCTV.

Which one is better?

At first sight, it seems like 4K CCTV should be everyone's choice. However, as you have seen, there are some drawbacks to 4K cameras to be noted. For example, if you want to install CCTV along a busy road in front of your business entrance, it may be wiser to use the 8MP model to capture fast-moving vehicles.

Nevertheless, 4K CCTV has much more to work with regarding pixels. It can record finely detailed footage and can display it with equal quality.

Ultimately, both 8 megapixel and 4K CCTV surveillance are excellent investments, capable of producing high-resolution images and video. They are sleek and easy to install. However, if you're looking for a security system that will give your business the power of crystal clear footage to protect your employees 24/7, 4K CCTV will give you the edge.

PERSON AND VEHICLE DETECTION is essential particularly if notification is turned on.

### COLOR NIGHT VISION

most cameras are equipped with IR leds. resulting images are in B&W.

Color night vision captures night images in color. Some brand names;

Hikvision (Colorview, Darkfighter),

UniView (Light hunter)

Dahua/Amcrest (Night Color)

Color night vision is accomplished by various tricks involving trade offs:

1. Lower resolution cameras give better night color images
  2. Higher FOV cameras capture more light for a better night color image
  3. Low resolution and high FOV are bad for Observation and Identification
- best solution is to have a single wide angle camera for night color to capture color of autos and clothes while a IR narrower FOV camera is used for Identification.

### MOUNTING CAMERAS:

#### ZONES:

D-O-R-I

D - Detection - reliably tell if a human is present

O - Observation - Differentiate clothing type and color -, what direction they are facing, what they are holding.

R - Recognition - identify a known person based on features, behaviors and manners

I - Identification - identify an individual beyond a reasonable doubt - This usually includes any place a person could potentially caused damage. Include entry points.

The main difference in the zones is how much physical area in the image each pixel represents: Aim for:

D - 25 pixels per meter

O - 100 pixels per meter

I - 200 pixels per meter

Five areas of consideration in mounting cameras:

#### 1. HEIGHT:

About 10' is a good height. It isn't so low that someone can reach up and grab it, but not so high that you are looking down on someone's head.

#### 2. FIELD OF VIEW FOV:

More is not necessarily better.

Cameras list FOV in degrees which are a result of sensor size, focal length and lens, geometry:

2.8mm camera gives 124 degrees FOV This is considered a wide angle lens

4.0mm camera gives 87 degrees FOV

NOTE: - A 2.8 mm camera gives a significantly smaller Identification image than a 4.0 mm camera.

Wide angle cameras are better for detection than identification.

#### 3. WASTED IMAGE RESOLUTION

Avoid aiming cameras at walls

Don't include the horizon in your view

Consider varifocal cameras with motorized zoom lens. Allows you to mount your camera where you need it and then dial in the zoom to the area you need to watch without looking at a wall or other obstructions.

#### 4. PROTECT YOUR CAMERAS Particularly on outside corners.

#### 5. CAMERA SELECTION;

POE sends power and data over ethernet cable.