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TECHNOLOGY

CCTV SURVEILLANCE

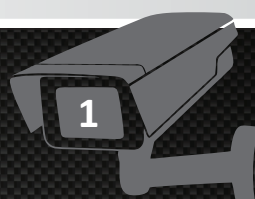


A PRACTICAL GUIDE TO CCTV

www.stafix.co.za

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CCTV SELECTION

Since your choice of CCTV system impacts on the quality of your security, it is unwise merely to purchase an off-the-shelf 'Kit'. Stafix Security Centres offer you the expertise and CCTV range of cameras to custom build your system and achieve your dedicated requirement.

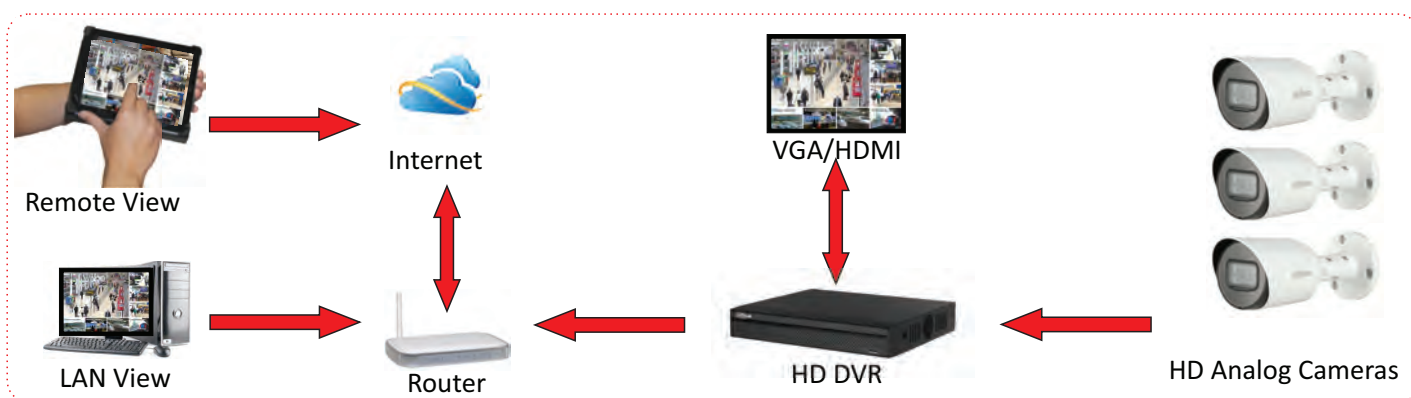
It is also not advisable to purchase your CCTV system on price alone. There is a wide variety of cameras on the market. By knowing what you want and what you are buying you are more likely to achieve an end result that is to your satisfaction.

TYPES OF SYSTEM SOLUTIONS

Analog HD CCTV System

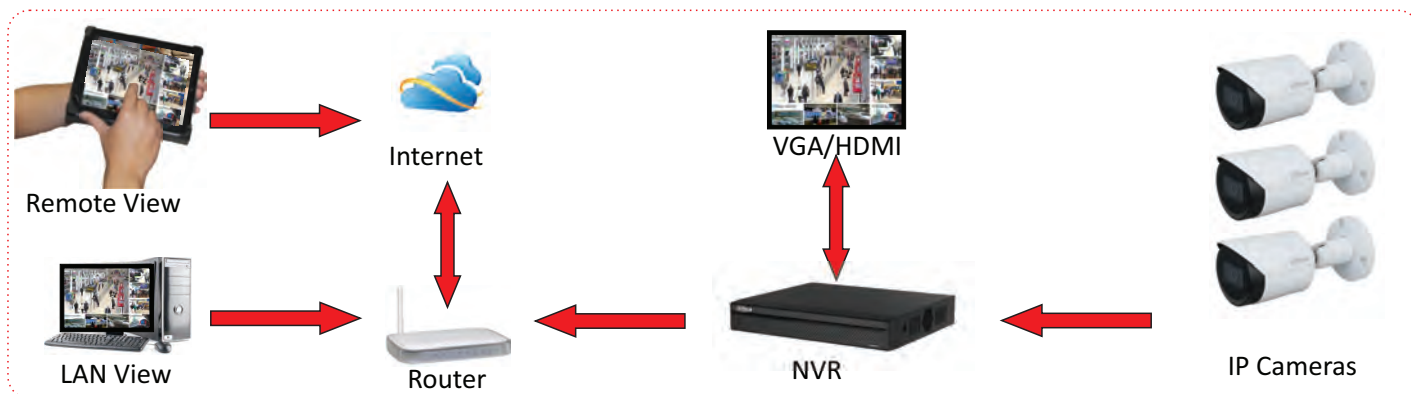
An HD Analog CCTV system is ideal for smaller domestic and industrial applications. Budget friendly and user friendly, these systems typically involve cameras transmitting an analog signal via a wired medium, such as RG59 Coaxial cable, to a dedicated and centralized Digital Video Recorder (DVR).

The DVR, once connected to the internet, will provide remote access to all cameras, from anywhere in the world using a Smartphone, Tablet, Desktop PC or Laptop.



IP CCTV

IP CCTV systems provide high quality megapixel images that are encoded into digital signals (binary), which allows compatibility and integration with most digitally based devices such as PC's, servers and routers. Utilizing a wired or wireless local area network (LAN), communication options are vast and can be applied to a wider range of solutions. An internet connection is only required to achieve remote viewing, without an internet connection, the system is able to operate locally.



TYPES OF CAMERAS



Bullet Cameras

Bullet cameras are encased in cylindrical, usually weather-resistant, housings. Their size, cost and integrated design make them a great choice for home and outdoor installations.



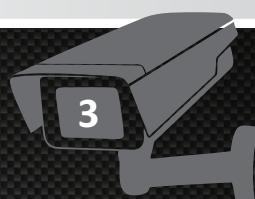
Dome Cameras

Dome cameras have the ability to blend in with their surroundings once installed on a ceiling. These cameras can be used in residential applications as well as public places such as convenience stores, offices and lobbies.



PTZ (Pan, Tilt, Zoom) Cameras

PTZ cameras are multi-functional cameras capable of changing direction and point of zoom using a Joystick Controller or software on a DVR, PC or smartphone. These cameras are used primarily when an operator is actively monitoring an area and needs to manipulate the camera. They are popular in department stores, casinos and government buildings.



TYPES OF LENSES

Constant improvement of the imaging sensor's quality and design, sharpens the detail and clarity of images. Dahua technology use mostly CMOS imaging sensors to produce high quality images with improved performance and energy efficiency. Picture quality is largely dependent on sensor resolution, while the lens is responsible for the field of view of a camera. The lens would determine the angle of view as well the distance a camera can detect, observe, recognize or identify. Cameras are fitted with either a fixed lens or a variable focal lens, the latter being able to adjust using a motorized or manual variable lens.

Lens Focal Length

The function of a CCTV Lens is to collect reflected light from a scene and focus it onto an imaging sensor (CCD or CMOS). A CCTV lens is distinguished by focal length which is measured in millimeters. Focal length is the distance from the centre of the lens to the sensor which directly influences field of view. The focal length of the lens chosen will determine at what distance the camera will monitor, detect, recognise and identify an object.



Detect



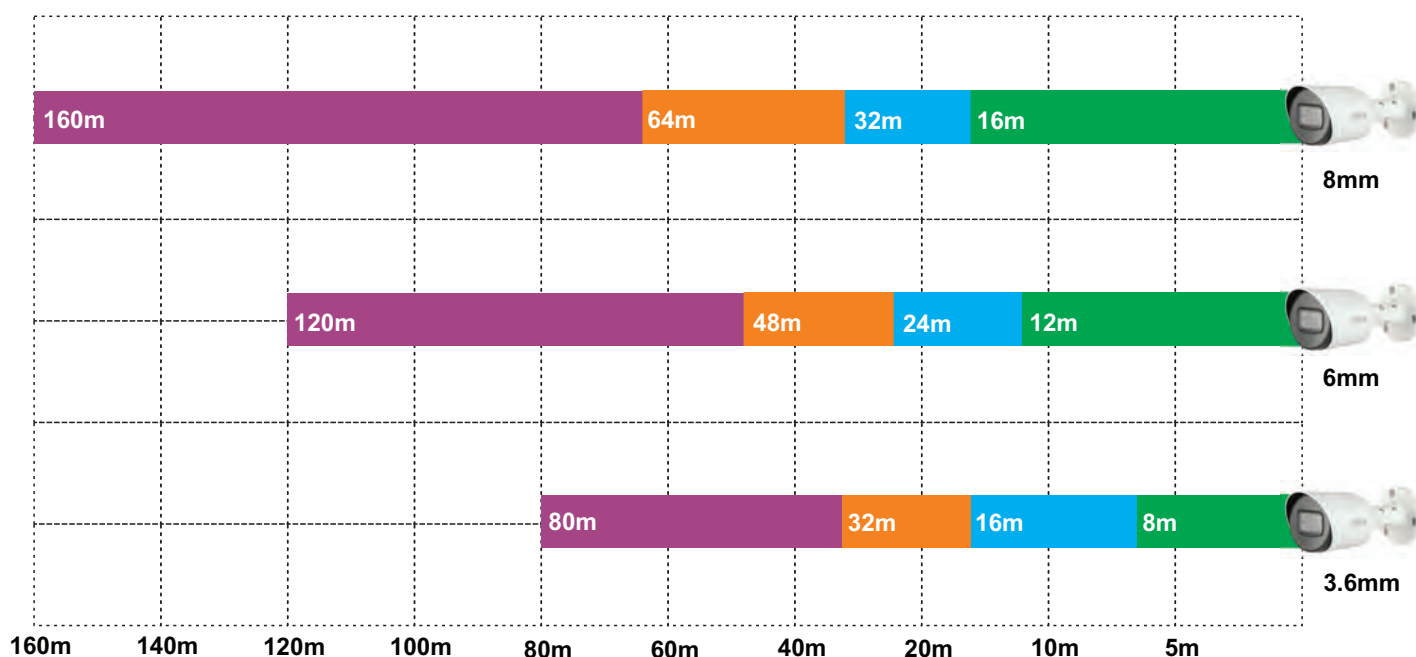
Observe



Recognize



Identify

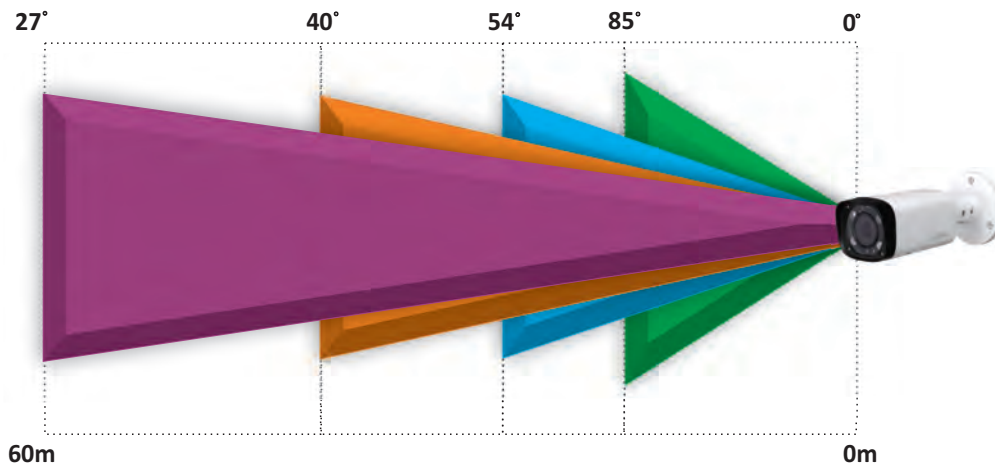


The higher the lens value, the further away an object can be accurately identified. The lower the lens value, the wider the angle of view and thus objects will be identifiable only at close range.

A 3.6mm lens is ideal for monitoring a wide variety of objects close to the camera, while an 8mm lens would be used for monitoring a gate, passage or perimeter when the camera mounting point is far away from the target area.

- Detect
- Observe
- Recognize
- Identify

Variable Focal Lens



A variable focal lens has a focal length that can be manually or automatically adjusted. A manual lens requires the user to open the camera and adjust the lens, while an automatic/motorized lens can be used to adjust the lens using the Guided User Interface found on DVR's, NVR's, Smartphones and PC's. This flexibility gives an all-round solution for a single application which saves time on planning and installation. This flexibility also allows you to adjust the camera to your specific need when required, while on site or at a later stage.



3.6mm lens



6mm lens



8mm lens



12mm lens

Camera Resolution

Resolution can be defined as the fineness of detail that can be distinguished in an image. Camera resolutions are measured by the amount of pixels a sensor can compress into a single image, which is commonly expressed as Megapixel (MP). Any image with less than 1MP is then measured in TV Lines (TVL). It is the capability of a sensor to observe and capture the smallest object clearly, with distinct boundaries. Resolution is dependent on the amount and size of the pixels. Images with higher amounts of smaller sized pixels, will create a higher resolution. However, higher resolutions require more storage space and consume more bandwidth on a network.

Below is a comparison of different resolutions.



700TVL



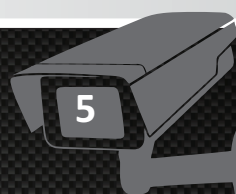
1000TVL



1MP/720P



2MP/1080P



Day/Night Cameras



Camera with Infra-Red Illumination



Camera without Infra-Red Illumination

Infra-Red

Infra-Red (IR) enabled cameras have the ability to capture video in low light or no light conditions. IR LED's are built into most camera casings, coupled with a day/night sensor that will switch on the IR LED's when the ambient lighting has dropped too low. Infra-Red cameras can capture acceptable video in total darkness with better results using ambient lighting. Even a small amount of ambient light significantly increases the overall capability of IR technology.

Smart Infra-Red

Recent developments have seen the invention of Smart IR. This technology allows an IR camera to adjust the intensity of the IR LED's according to the real-time scene.

If there is overexposure caused by the IR LED's being too bright, Smart IR will then decrease the intensity output of the LED's to produce a clearer picture at night.



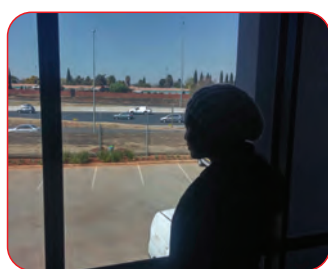
Normal IR



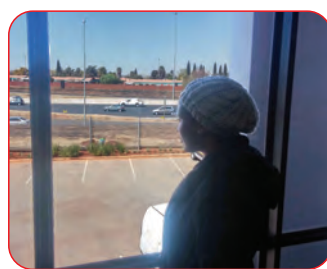
Smart IR

Back Light Compensation (BLC)

BLC is a function that allows a camera to balance the lighting in a scene where there is a brighter background than the intended target area. BLC is useful near windows and small doorways.



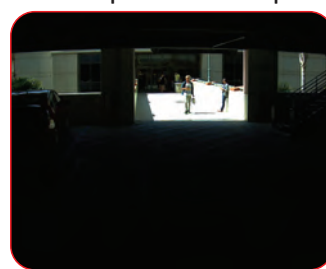
BLC Off



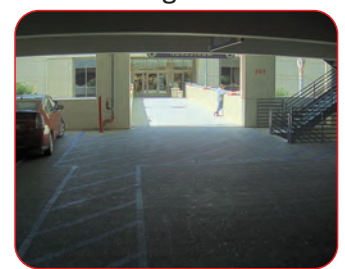
BLC On

Wide Dynamic Range (WDR)

WDR is a function that can be utilized if the background brightness is too bright for BLC to handle, such as direct sunlight. WDR will assist a camera with balancing overexposed and underexposed areas present in the image.



WDR Off



WDR On

Frame Rate

Frame rate is measured in Frames Per Second (FPS). It is the number of images shown per second ranging typically from 1—30. The more FPS, the higher the quality and the more fluid the video feed. Frame rate also directly influences Real Time Monitoring.

IP Rating

Ingress Protection (IP) ratings were developed to specify the level of protection from environmental and human factors, pertaining to the enclosure or casing for any electronic device. Most Dahua cameras are IP66 or IP67 rated, thus the casings are dust proof, water-proof, and in some cases, can handle temporary submersion in water up to 1.5m



Artificial Intelligence (AI)

Deep-learning algorithms are 'taught' to recognize objects within an image and provide classification of the objects into *human* or *vehicle* while ignoring vegetation and animals. Added features such as Metadata allow the system to further classify details based on attributes of the objects such as colour and type of clothing a human is wearing or shape and colour of a vehicle.

Perimeter Protection

Perimeter Protection, also known as Deep IVS (Intelligent Video System), allows a user to set up tripwires or intrusion blocks to achieve a Virtual Barrier before a boundary or within an area. The virtual barrier will provide alarms when a human or vehicle enters the pre-determined virtual barrier, ensuring minimal time for intruders to find a way through the physical boundary.



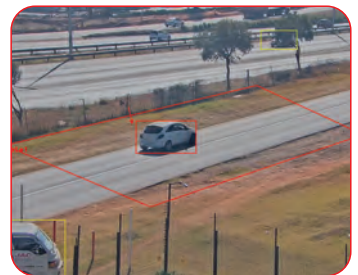
Tripwire



Blocked Intrusion



Tripwire Human Alarm



Intrusion Vehicle Alarm

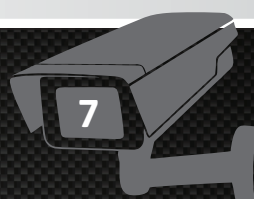
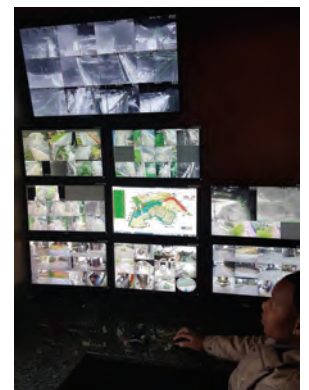
Smart Motion Detection (SMD)

SMD is similar to Perimeter Protection, in that the technology can classify detection of humans and vehicles, however, metadata attributes of the objects are not collected. SMD works as a *whole region* function, meaning the user does not draw tripwires or intrusion blocks, instead the system looks at the entire image and provides alarms, classification and smart searching of stored footage based on human or vehicle detection. Minimized setup time as configuration is just a simple click of a button. This technology is available on HD Analog and IP CCTV Systems.

Metadata

Metadata searching of footage vastly speeds up the process of finding evidence. If there has been an incident and the witnesses remember only certain details, such as a red sedan that was involved, a user can search all the files on the system that have red and sedan shaped cars within the footage. This helps to narrow down the search time to find the evidence required. Here are some of the attributes that can be collected:

- Human Face Attributes: Gender, Age, Glasses, Mask, Expression, Beard
- Human Body Attributes: Gender, Age, Shirt Colour, Shirt Type, Pants Colour, Pants Type, Hat, Bag, Umbrella
- Vehicle Attributes: Plate Colour, Car Colour, Car Type



Active Deterrence

Active Deterrence is achieved with a camera that has a built-in speaker and strobe light. Using Perimeter Protection in conjunction with Active Deterrence, a user is able to receive alarms for Human detection while visually and audibly informing the intruder that they have been detected, which decreases the probability of an incident happening.

Full-Colour

Colour images assist an Artificial Intelligence system with identifying metadata at night or in areas with very low lighting. Gathering metadata reduces time in finding evidence and, in a public monitoring situation, can help identify a target within a crowd. Full-Colour technology is widely available across our CCTV range. Ambient lighting is important for Full-Colour to work; floodlights or spotlights should be utilized to create more ambient lighting or a user can utilize the built-in white light LED on the camera.

Three-In-One Camera (TiOC)

TiOC cameras utilize three main types of technology that can work together to offer proactive protection to the user. When utilizing these three functions, the user can receive push notification alarms while the camera has actively warned off an intruder with all video being captured in full colour, even at night. The three functions are:

- AI Technology: Perimeter Protection and SMD are supported for human/vehicle detection
- Active Deterrence: Built-In Speaker & Strobe to actively warn intruders of the detection
- Full-Colour: Built-In White LED to provide light and full colour images day and night

Due to the built-in speaker and a built-in microphone, 2-Way communication is possible while using a smartphone.



Human Detection



Active Deterrence



Push Notifications

Facial Recognition

Facial Recognition, sometimes abbreviated to FR, is a type of technology that can accurately identify a person's face by comparing images that are pre-loaded onto an internal database. The system compares live images of faces to the database, to identify known or unknown faces. There is a wide range of solutions that can be provided using this technology:

- Access Control: No more fingerprints – simply allow the system to capture a known face to open a secure door
- Staff Control: Keep staff out of restricted areas – fully track staff movements within a controlled environment
- Retail: Improved people counting and customer traffic statistics for retail centers and shopping malls
- Business: Provide VIP services to key clients that walk into a business – receive an alarm that the VIP has arrived
- Government: Creation of national facial databases and camera deployment to detect criminals in public areas.



VIDEO RECORDERS

Video recorders enable video feeds from cameras to be displayed in real-time on a monitor while also recording and saving the video data to a mass storage device such as a Hard Disk Drive (HDD), Solid State Drive (SSD) or External Video Servers (EVS). Video recorders can be Digital Video Recorders (DVR's) or Network Video Recorders (NVR's). NVR recorders are distinct from DVR's as their inputs are from a network rather than a direct connection to a DVR.

Digital Video Recorders (DVR)



Cooper DVR 4/8/16 Channel



AI DVR 8/16/32 Channel



Mobile DVR 4/8 Channel

DVR's are utilized within an HD Analog system. The DVR plays an essential role within the system as the DVR is responsible for encoding, decoding, compressing and storing the video feeds received by HD analog cameras. DVR's have a single processor which is able to encode images into a video format, decode the video onto a live view monitor, then compress the files and ensure that they are saved to the on-board storage device, all while the user is changing settings or reviewing footage. This architecture provides reliable operation over a longer period of time, especially when compared with PC-Based systems.

- Cooper DVR's are cost-effective with limited added features and have a 2-year warranty
- AI DVR's have added Artificial Intelligence features to detect humans and vehicles, and a 3-year warranty
- Mobile DVR's are required for use in vehicles; vibration resistance is key for use in vehicles

Network Video Recorders



4 Series NVR 8/16 Channel



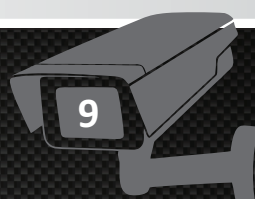
5 Series NVR 16/32/64 Channel



AI NVR 16 Channel

NVR's are utilized within an IP CCTV system. IP cameras are capable of encoding, compressing and even storing video feeds if the camera supports a Micro SD card. As a result, a user is able to connect an IP camera to a router and utilize a stand-alone system. NVR's, in short, are not required to allow an IP system to operate. However, NVR's do provide convenience as a centralized device which will grant access to multiple IP cameras at once and can also allow mass storage for longer periods of footage. Bandwidth limitations have been noted on our range of NVR's, meaning clients can comfortably run 4MP IP cameras on all channels, with support up to 12MP.

- 4 Series NVR's are cost-effective with limited capabilities and features
- 5 Series NVR's are required for more complex solutions and provide full compatibility with IP camera features
- AI NVR's have the ability to add Artificial Intelligence features to any IP camera



Video Compression

For camera feeds to be stored easily and streamed off-site to devices such as smartphones, the data needs to be compressed to ensure that it does not consume too much space. Higher video resolutions demand more bandwidth (Mbps). Thus compression plays an important role in allowing feasible storage space and easy off-site access.

Video feeds are typically processed at 25 frames per second. Video is achieved by piecing together these images into a video format, giving the illusion of movement. Due to the images being so closely linked, not everything in the image moves from frame to frame (such as walls and floors), compression thus stores the changes in the frames as opposed to storing entire new frames.

MP4 and H.264 are very common compression codec's. Until recently, these compression types, known as codec's were regarded as the best possible option to compress video files. Recent developments saw the invention of H.265 technology which keeps the quality of the video the same as H.264, while consuming half the required space. H.266 technology will be available within a few years. This development is being driven by the telecommunication industry to make 4K streaming commercially viable. Once H.266 technology is adapted to CCTV technology, 4K cameras will become a more feasible option to allow reasonable storage and bandwidth on a network. **All Dahua DVR's, NVR's and IP cameras support H.265 and H.265+ technology*



Remote Viewing (Off-site)

Remote viewing provides remote access to any recorder or IP camera connected to the internet. Dahua Technology offers free-to-use PC-based or Smartphone-based software to access live feeds, playback recorded footage as well as fully adjust configurations. The Dahua software supports Windows, MAC, Android and iPhone devices.

Dahua Technology utilizes a Plug-2-Play or Peer-to-peer (P2P) connection type service. There is no complicated online registration required, simply enable, scan the QR code and connect. This service is offered for free of charge, however reasonable internet connections are required.

Free Technical Support

Stafix have specialist local and head office branch staff dedicated to CCTV sales, training and support. As long as your Recorder is connected to the internet, we can help you set up and program your DVR from any location in the world. (0861 STAFIX)



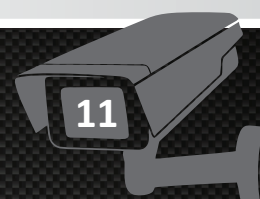
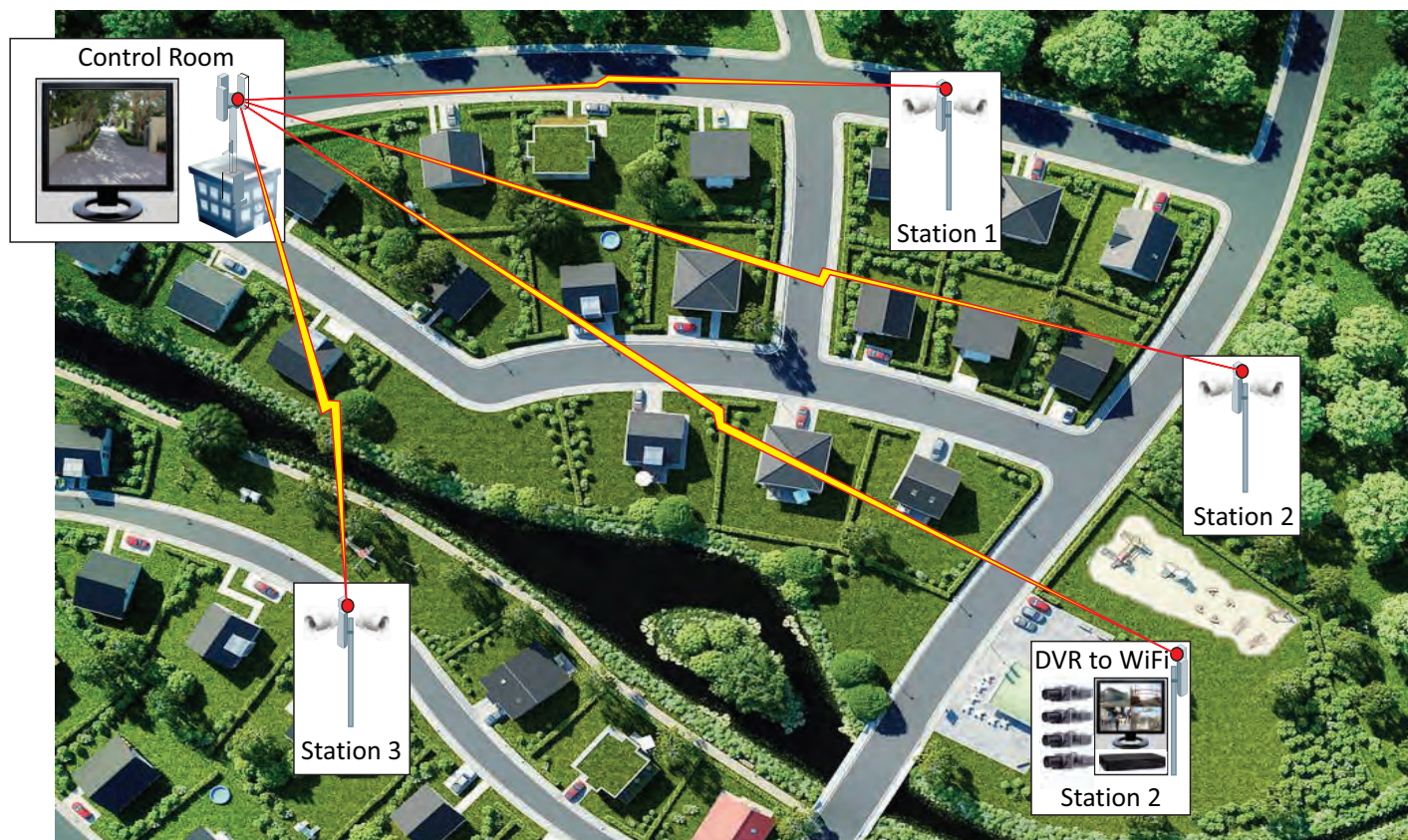
WIRELESS

Wireless communication enables transfer of information between DVRs, NVRs and IP Cameras without the need for hard wiring. The wireless transceivers operate on unlicensed frequencies of 2.4 and 5.8 Ghz.

DVRs, NVRs and Cameras are connected via TCP/IP which is then connected to the Wireless transceiver via cat 5 cable. This creates a Wireless TCP/IP network which can be used to stream Video feeds to software located in a control room or on a laptop, smartphone or tablet. This also enables remote monitoring of the camera system from anywhere in the world.

The use of Wireless Repeaters and Omni Directional 90 and 120 Sector Aerials, enables you to create point-to-multi-point communications that will cover a wide variety of applications. Wireless TCP/IP Networks offer further benefits, namely the addition of IP Energizers which enable you to view and monitor the electric fence system on the same wireless back bone using JVA Perimeter Patrol Software.

The flexibility of wireless communications allows connectivity over long distances with the use of repeaters. Wireless communication is a very cost effective solution. It also reduces the likelihood of lightning damage to the entire system as the strike impact is isolated to the electronic equipment in the strike region only, and there is no physical cable conductor for the surge to pass through to reach the entire network.



ACCESSORIES

Cables



RG59 Cable



RG59 + Power Cable



Cat5e Cable

Video signals are transmitted from the camera to the DVR via RG59 or Cat5e cable. **RG59** cable is used for low-power video and RF signal connections (Analog Systems). **Cat5e cable** is a twisted pair cable for carrying video signal and can also be used in HD analog or IP CCTV Systems.

Connectors, Adaptors and Tools



BNC Crimp On



BNC Screw On



Rj45 Connectors
+ Boots



Single Channel
Balun Pair



Crimping Tool



Camera Testers

Any CCTV installation will require various connectors, adapters and tools. *Connectors* are components used to conduct and transfer signals from one cable or device to another. *Adapters* may be necessary to convert one type or gender of a connector to another. A *Crimping Tool* is required to crimp and join a RG59 cable with a BNC Connector. Baluns are used to adapt HD Analog cameras to Cat5e Cable for user-friendliness and no crimping required. A camera tester is the ideal tool for a professional installer to test cameras as well as to assist with positioning.

HDD



HDD

A hard disk drive (HDD) is a data storage device used for storing and retrieving digital information. The bigger the memory, the more video will be stored on the hard drive.

Screen



19" LED Screen

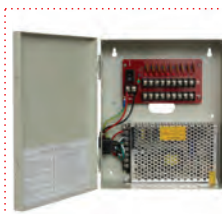
The LED monitor displays the picture feed from the DVR or NVR. The larger the screen the easier it is to view the picture.

POWER SUPPLIES



2.5Amp Transformer

A 2.5amp transformer can supply power to 12v CCTV devices using 220V, offering the convenience of a 'plug and play' power solution.



10Amp 9-Way Power Supply Unit (Optional Battery backup)

A 10amp 9-Way PSU is used to distribute 12vDC power to multiple devices at once, which offers a central power supply point for a single basic application.



Solar Panel

Where there is no 220V supply, solar panels can be used to charge battery systems to provide the 12V requirements of the CCTV system. The Solar panels and battery size have to be tailored to cope with the current draw of the cameras and DVR installed at the specific site.



CASE STUDIES

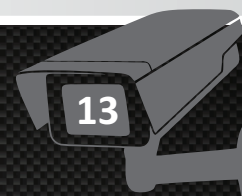
CCTV Home Systems

Stafix Security Centres can help to design a tailored CCTV system to provide observation of key areas in a home. Home systems are generally more budget orientated utilising reasonably priced, yet quality products that provide general surveillance and peace of mind. Key areas normally monitored are: main gate, entrances, garage areas, internal rooms if required, as well as back yard areas with pools and perimeter entrances or possible perimeter weaknesses. Cameras should be carefully placed to counteract possible tampering and inside the property is advisable.



Monitor Screen

A 3.6mm lens will provide monitoring of the entrance area while a 6-8mm lens will provide recognition of the driver. Inside the house, dome cameras are ideal with bullet cameras covering areas such as the garden and pool. Covert cameras are ideal where suspicious activity is suspected.



CCTV Estate Systems

Estates normally have two key areas to monitor: access points and a perimeter fence. At the entrance you would require a number of varied cameras to cover access points: 3.6mm Domes to see facial features easily; ANPR Cameras to clearly identify number plates; Vari-Focal Cameras with IR to see approaching vehicles; various Bullets to cover all points at the guard house. As many as eight to sixteen cameras could be positioned at a single entrance. High quality products should be used to monitor vital access points. On the perimeter fence Vari-Focal Bullet Cameras with longer IR distance abilities will help monitor tampering or intrusions on the perimeter. PTZs can be integrated with perimeter monitoring systems to trigger preset tours and patterns. Wireless devices are often used effectively to transmit camera video feeds back to a centralized control room.



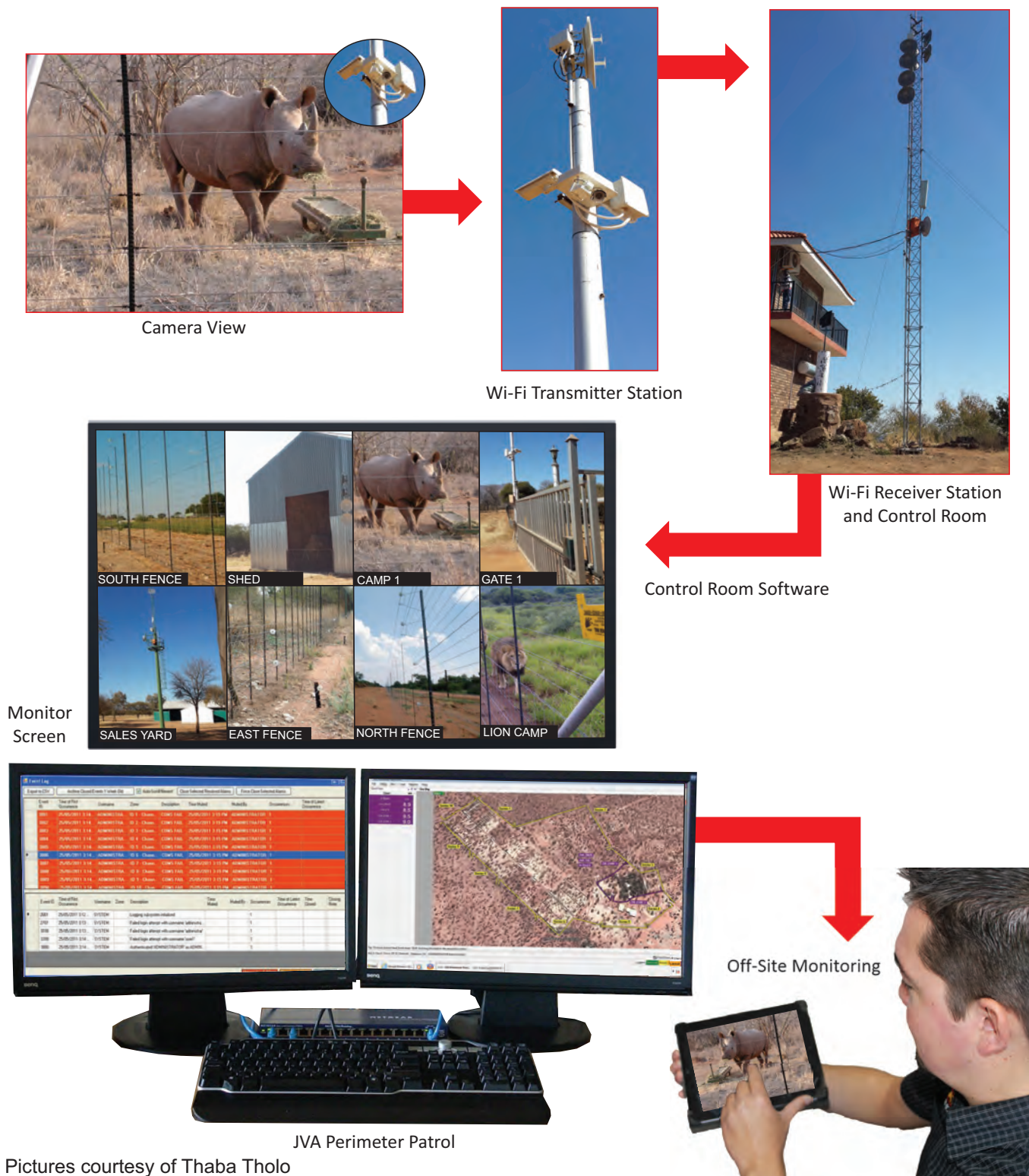
Monitor Screen



CCTV Game Farm Systems

Wireless transmission becomes an important tool on large sites such as game farms where applications require video signals to be transmitted back to a central control room. Stafix Security Centres can help you design a wireless network, integrating CCTV and perimeter patrol software to allow you to monitor fence conditions as well as CCTV feeds from different locations all over the farm.

The Complete Integration System would enable you to monitor visually the perimeters of your game farm and all your key areas such as lodges, water holes, fence lines and camps from a centralized control room or off-site monitoring device such as a PC, tablet or smartphone.



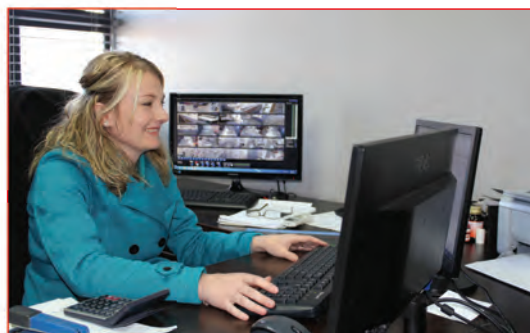
CCTV Industrial Systems

These systems will generally consist of a variety of cameras which would *Monitor* an area, *Detect* an object, *Recognise* the type of object or clearly *Identify* a person. This will directly influence the lens size and quality of resolution required. Areas such as shelving-rack passages would require Bullet Cameras monitoring aisles, while areas such as show rooms should require 3.6mm Dome Cameras to monitor general activities. Vari-Focal or PTZ cameras could be used to focus on and identify specific and detailed stock movement.

Dome Cameras should be mounted close to key areas to recognize exact actions such as on tills and PCs. Quality Vari-Focal Cameras are ideal where focal points are not always known as they can be changed on site. PTZ Cameras are convenient additions if control over the cameras' positions and points of zoom are required. For night observation in large dark warehouses it is important to make sure that the chosen camera has sufficient IR to monitor the required area. Large numbers of cameras in a busy warehouse will require larger storage capacity to maintain recorded footage for a pre-determined period.



Monitor Screen



On-Site Monitoring



Off-Site Monitoring

AFTER SALES SERVICE, REPAIRS & CONSULTANCY

With regard to security, product reliability and fast and efficient backup service is paramount. An installation is only as good as the security company's ability to provide sound products and service. Stafix Security Centres also offer a 3-year warranty on almost all Dahua products. Stafix is also proud to be able to offer a warranty swop-out policy at their in-house repair and service facilities at any one of our Security Centres nationwide.



TRAINING

In addition to having trained sales personnel and in-house service technicians at all our distribution outlets, Stafix also has fully equipped training facilities with trained facilitators where training courses, range from a basic theory introductory course on CCTV to installation techniques, practical training and advanced technical training on our wide range of products. Practical training is provided with the use of practical stations, allowing delegates to work actively with CCTV technology and understand, first hand, what is involved in installation and configuration of a CCTV system. We also include live product demonstrations using our fully-equipped CCTV Control Room to showcase the latest in technology and the parameters required to set up and configure a functioning control room. We also run in-house customized training courses for specialized groups at locations such as venues serving security associations, farmers' security forums, schools, neighbourhood watch groups and game reserves. Training enables our clients to keep abreast with the latest international trends, developments, and requirements. The 2-Day course includes a comprehensive manual, refreshments and lunch as well as certificates to certify attendance at the course.



BUILD YOUR OWN HD ANALOG CCTV KIT

Pick the DVR

4CH DVR 	8CH DVR 	16CH DVR 
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Pick the Cameras

HD Bullet 	HD Dome 	HD Veri-Focal Bullet 	HD Veri-Focal Dome 
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Pick the Accessories

2.5amp Transformer 	BNC Crimp On 	RG59 Cable 	HDD 1TB 	19" LED Screen 
10A 9-Way PSU 	BNC Screw On 	RG59 + Power 	HDD 2TB 	32" LED Screen 
10A 9-Way PSU + Battery Backup 		Single Channel Balun Pair 	100m Cat5 OR 300m Cat5 	

BUILD YOUR OWN IP CCTV KIT

Pick the NVR

8CH NVR 	16CH NVR 	32H NVR 
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Pick the Cameras

IP Bullet 	IP Dome 	IP Variable Focal Bullet 	IP Variable Focal Dome 	Indoor Wi-Fi Pan/Tilt 
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Pick the Accessories

RJ45 Crimping Tool 	RJ45 Connectors + Boots 	100m Cat5 OR 300m Cat5 	HDD 1TB 	19" LED Screen 
4 Port POE Switch 	8 Port POE Switch 	5 Port Access Switch 	HDD 2TB 	32" LED Screen 

CCTV SURVEILLANCE

A PRACTICAL GUIDE TO CCTV

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GAUTENG BRANCHES	Johannesburg East (H.Q)	219 Jet Park Road, Aerostar Business Park	011 397 3507
	Johannesburg North	174 Bernie Street, Kya Sand, Randburg	011 708 6442
	Johannesburg South	12 Dante Street, Alberton	010 157 1161
	Johannesburg West	599 Ontdekkers Road, Florida, Roodepoort	011 472 8823
	Centurion	74 Cantonments Road, Cnr. Botha Ave, Lyttelton	012 880 0222
	Pretoria	1185 Steve Biko Road, Wonderboom South	012 335 4290
	Vanderbijlpark	4 Prime Business Park, 6 Rabie Street	016 931 0408
	Johannesburg Training Centre	80 Herman Road, Harmelia, Ext. 2	011 397 3507
KZN BRANCHES	Durban North	Unit B, 213 Kenneth Kaunda Road	031 563 0274
	Newcastle	12A Harding Street	034 880 0330
	Pietermaritzburg	51 Winston Road	033 342 6722
	Pinetown	Unit 1, Suffert Industria Park, 7 Suffert Street	031 702 6351
	Vryheid	Unit F, 153 President Street, Cnr Hlobane Street	034 981 0318
WESTERN CAPE BRANCHES	Cape Town (Epping)	Unit 15, Viking Business Park, 7B Park Road, Epping Industria	021 534 5056
	Cape Town (Diep River)	Shop 2, Tramways Village, 89 Main Road	010 880 8281
	Cape Town (Brackenfell)	Unit 17B, Brackenfell Business Park, Old Paarl Road	021 879 1978
	Cape Town (Montague Gardens)	16 Montague Drive	021 879 3102
	George	No 8, C.J. Langenhoven Road, George Central	044 874 0669
	Paarl	Shop 2, Huguenot Park, Cnr.Klein Drakenstein Road	021 862 0886
	Somerset West	Shop 1, Broadway Centre, 11 Urtel Crescent	021 851 1978
NORTHERN CAPE BRANCHES	Kimberley	27A Schmidtsdrift Road, Rhodesdene	053 861 5631
	Upington	67 Schroeder Street	054 332 1458
EASTERN CAPE BRANCHES	East London	Shop 5B, Paphos Park, 9 Devereaux Avenue	043 880 0830
	Port Elizabeth	No 35 Third Avenue, Newton Park	041 365 7178
MPUMALANGA BRANCHES	Nelspruit	Unit 4, 20 Rapid Street, Riverside Industrial Park	013 752 7152
	Ermelo	22 Kerk Street	017 880 0888
FREE STATE BRANCHES	Bloemfontein	18 Kolbe Lane, Oranjesig	051 448 6695
	Bethlehem	Shop 8 & 9, River Walk Centre, 4 Muller Street	058 050 1090
LIMPOPO BRANCH	Polokwane	Cnr. Zune and Veldspaat Street, Extension 42	015 292 6273
NORTH WEST BRANCHES	Klerksdorp	72 Central Avenue, Flamwood	018 468 8273
	Potchefstroom	Havenga Building, 35 Dr. James Moroka Avenue	018 297 1488
	Rustenburg	Shop 8, Waterfall Mall, 1 Howick Avenue	014 537 2884
INTERNATIONAL BRANCHES	JVA Australia	55-57 Kabi Circuit, PO Box 527, Deception Bay QLD	+61 499 000 455
	JVA USA	4838 FM2001, Lockhart, Texas	+1 512 413 8661