

# Glossary of Video Terms

## **AGC (Automatic Gain Control)**

AGC increases the signal strength of security cameras when the light level decreases, and puts a cap on it during higher levels; this keeps the output signal consistent.

## **AI (Auto Iris)**

A useful feature to have in a video camera, an auto iris compensates for variations in light levels, from sunlight to shadows. Essentially, the auto iris opens and closes the lens iris as the light changes; this also prevents the camera from being damaged by very bright sunlight.

## **Alarm Input**

When attached to a security camera, an alarm input provides enhanced security in the form of a sensor device, often a door contact or a Passive Infra-red detector for motion detection. Alarm inputs can be self powered or can require external power (usually 12V).

## **ALC (Automatic Level Control)**

Some security cameras feature ALC, which means the camera can bring out detail in bright or dark areas of an image. If too much sunlight makes an image too dark, ALC can focus on the needed image.

## **Algorithms**

Its general definition means a set of mathematical instructions to solve a task. In the field of video technology, they enable digital compression of the video picture.

## **Ambient Light Level**

This is the amount of background light present at any specific time.

## **Analog Signal**

Analog signals are produced by most security cameras. Analog signals are continuously variable, and are greatly affected by 'noise' (disturbances) within the system, and recordings of analog information (such as videotapes) degrade over time. This doesn't occur with digital signals recorded on media like CDs, DVDs and computer hard drives.

## **Angle of view**

Also known as viewing angle, this refers to the angular range available within a certain image size. The smaller the focal length, the wider the angle of view is.

**Annunciator**

This is a signaling device, either visual or audio based. For example, wireless annunciators use infrared beams that trigger an audible signal when interrupted, and can be used for security or retail purposes.

**Aperture**

An aperture is a lens opening that controls how much light reaches the film or digital sensor. Iris adjustment controls aperture size, and a series of f-stop numbers dictate how much light passes through the lens. A smaller aperture allows for better focus on objects outside the camera's plane of focus.

**Aspect Ratio**

Aspect Ratio refers to the ratio between an image's height and width. Differing mediums such as television, HDTV, and film, use different aspect ratios. Within computer graphics, it refers to the shape of an individual pixel in a digital image.

**Attenuation**

A reduction in light strength or electrical signal, usually because of absorption or scattering, is called attenuation. The use of triaxial cables can minimize attenuation.

**AVC (Advanced Video Coding)**

Both the ITU and MPEG groups have agreed upon AVC as the current video compression standard. ITU calls it H.264, the MPEG group refers to it as MPEG-4, and the public calls it AVC.

**Biometrics**

Biometrics is the technology and science of authenticating individuals by measuring their physiological or behavioral features. In the field of security, they are technologies ('readers') used to analyze fingerprints, voice patterns, irises or retinas, etc.

**Blooming**

This refers to the defocusing and glow present around the bright areas of a picture when the brightness is increased. Some video cameras feature blooming suppression abilities to avoid this.

**BNC connector**

These are a type of RF connectors that interconnect two coaxial cables or connect a cable with CCTV components. They're used in Ethernet networks, video connections, network cards, and cable interconnections.

**bps (Bits Per Second)**

This unit is used to measure the speed data is moved between sources. For example, a 56kbps modem can move 56,000 bits per second.

**Bullet Camera**

Named in reference to its shape, a bullet camera is a type of security camera similar to a spot cam. Its limitation is a fixed focal lens (not zoom), but its small, narrow size makes it suitable for areas other cameras might not fit.

**Byte**

A unit of eight bits is known as a Byte.

**Candela**

A candela is a measurement of luminous intensity and is a replacement to the candle.

**CCTV (Closed Circuit Television)**

CCTV refers to the use of television cameras for surveillance purposes. Unlike broadcast television, all devices are linked directly, usually by cables. CCTV pictures are viewed and/or recorded, but are not broadcast. Usually involving analog cameras and recorders, CCTV is the precursor to digital network systems.

**CMOS**

The use of Complementary Metal-Oxide Semiconductors in imagers to sense images improves over CCD technology in resolution, dynamic range, and noise sensitivity.

**C-Mount**

This is a specific type of camera, as well as its corresponding lens mount. The C-mount lens is found in older versions of security cameras, and has a flange back distance of 17.5mm. In order to achieve a focused image, a 5mm ring must be inserted between the camera and lens.

**Coaxial Cable**

A cable with a central conductor that's surrounded by a shield sharing its same axis is called a coaxial cable. It's used primarily for carrying high frequency or broadband signals. RG59 video coaxial cable is used for digital video recorder (DVR) installations.

**Composite Video**

This type of video is a combination of different source video signals, usually YUV, field, line, blanking pedestal, color sync, and field equalizing pulses. The end result is one composite signal, allowing it to be modulated onto a RF carrier.

**Concave**

A concave optical lens has an inward curving surface, causing incoming light to diverge.

**Convex**

A convex lens curves outwards, and is sometimes known as converging. Light that passes through converges to a focal point.

**Covert**

A CCTV surveillance system that uses hidden cameras and lenses is considered to be covert.

**CRT (Cathode Ray Tube)**

The CRT is a tube found in most televisions, monitors, and video monitors. Once heated, it creates images by emitting a beam of electrons that hit a phosphor-coated surface. The glow of the surface is dependent on the beam's intensity. Each CRT uses deflection circuitry to control the beam's movement.

**CS Mount**

CS mount lenses offer a longer focal distance than their C mount predecessors. They have a flange back distance of 12.5mm. Because they are more practical for compact cameras, CS mounts are used in most modern cameras. A 5mm spacer ring (known as a C ring) enables CS cameras to also use a C mount lens.

**dB (Decibel)**

A decibel is a logarithmic unit that measures the loudness, power, or strength of a signal.

**DC (Direct Current)**

DC differs from AC (alternating current) in that electricity always flows thorough it in the same direction. A pair of wires has one positive wire and one negative. Many security cameras are 12 Volt DC, although some can operate at different voltages.

**Default Gateway**

In order to send data or video between networks, the IP Address of the Router is required. This address is known as the Default Gateway.

**De-multiplexing**

This refers to the procedure of separating different channels of video, audio, or data that were multiplexed at the source.

**Depth of field**

This is the difference between the nearest and furthest points in a scene that remain in sharp focus. Depth of field is dependent on the F-stop and focal length of the lens.

### **DHCP (Dynamic Host Configuration Protocol)**

A DHCP refers to the protocol used by a host computer to obtain an IP address so that it can communicate with other host computers. These addresses are usually dynamic, meaning they change periodically, so a connection cannot be obtained (or maintained) over the open Internet. Use of both static IP addresses and dynamic DNS helps establish a consistent connection.

### **Digital Signal**

A sequence of binary bits that represent ones and zeros makes up a digital signal.

### **Distribution Amplifier**

This device amplifies and distributes an audio or video signal to multiple outputs, such as several video monitors or recording devices. This device allows the maintenance of the original signal's output impedance to avoid mismatches which could reduce the power required to properly drive the signal's end point.

### **DivX**

DivX Networks created DivX, a MPEG-4 digital video technology. Among its benefits is compression technology, which allows DivX equipped network cameras to store a month of video on a 20'gigabyte hard drive.

### **DNS (Domain Name Service)**

DNS is the system that matches server IP addresses to web site domain names.

### **Dome Camera**

A common indoor security camera, dome cameras are mounted on the ceiling. Their two main advantages are a more appealing visual appearance and being easily movable. Their drawback is a lack of usefulness during low light situations (therefore not effective when the lights are off).

### **DSL (Digital Subscriber Line)**

DSL is a digital telecommunications protocol that allows existing copper phone lines to be used for high-speed transfer of data between home and business end-users. xDSL refers to the various types of Digital Subscriber Lines which include: ADSL (Asymmetric DSL), SDSL (Single-line DSL), HDSL (High-data-rate DSL) and VDSL (Very-high-data-rate DSL). In theory, ADSL (the most common of these types), allows for download speeds of up to 9 Mbps and upload speeds of up to 640 Kbps. In reality, commercial performance is normally up to 1.544 Mbps download and 128 Kbps upload.

### **DSP (Digital Signal Processing)**

These chips can compress video independent of the CPU, which avoids the need to draw processing power from the CPU, allowing it to focus on other applications and computing tasks.

### **DTMF (Dual Tone Multi-Frequency)**

The scientific term for the Touch Tone signal used on telephones, it is the existing standard for the use of twisted wire pairs to send signals. Some PTZ cameras use DTMF signals in the transferring of telemetry information to the camera. This allows users to move the camera by dialing the number for that camera and then pressing buttons on their phone.

### **Duplex**

A type of multiplexer that allows you to simultaneously record images to tape and display live multiple-picture (or single picture) screen images of security cameras. Another capability that is provided is the ability to record images on one VCR while at the same time playing back previously recorded images on a second VCR. Compare with a simplex multiplexer which provides less features and capabilities.

### **DVR (Digital Video Recorder)**

This device transforms analog video signals from security cameras into digital format, suitable for storage on a hard drive. It also helps the user manage the stored video files, as well as providing motion detection settings and PTZ security camera control. DVRs can often be remotely accessed over the Internet.

### **Dwell Time**

The time a multiplexer or DVR stays on an individual camera before moving onto the next one in the sequence is known as dwell time.

### **Dynamic IP address**

This is the rotation of IP addresses such that every time a user logs onto the Internet, their IP address changes. This is done for Internet security purposes, either by the user or by their ISP. This process can interfere with the use of networked devices such as Network IP Cameras because they normally require a static IP address to function properly.

### **Dynamic Range**

A camera with a wide dynamic range is able to operate in variable light conditions (known as lux levels), especially those of low light. A "dB" is usually the unit used to measure the dynamic range of security cameras, with more being better. A camera with a 60 dB dynamic range would be well suited to clearly record a scene in low or high light levels.

### **EI (Electronic Iris)**

Certain CCD security cameras utilize an electronic iris to electronically mimic a traditional auto iris. One drawback of an EI is that excessive light damages it over the long term.

**EIA (Electronic Industries Association)**

EIA is both an electronics trade organization that develops industry standards and a term associated with serial communications applicable to digital video recorders.

**Electronic Shuttering**

This term applies to video cameras that compensate for moderate indoor changes in light without use of auto iris lenses.

**E-mail notification**

This is a feature of certain motion detecting Network IP Cameras. When activity is detected, they can email authorized users images or video. Griffid is one example of camera management software that accomplishes this.

**Embedded operating system**

Cameras with this can also operate as computers. With an OS like Linux installed, they can perform other tasks such as sending images to a web site via FTP, email notification, and being simultaneously accessible by multiple users.

**EMI (Electro Magnetic Interference)**

If improperly shielded, most electronic equipment causes EMI. The FCC sets the standards for electronic equipment shielding.

**Ethernet**

Ethernet can send information either wirelessly (known as WiFi) or, more commonly, over wires. It runs at 10mbps, and all terminals connect to a single common bus (sometimes called a highway). It serves as the IEEE (Institute of Electrical and Electronics Engineers) 802.3 standard, which ensures that networks adhere to a particular set of technical standards. A new type, known as Fast Ethernet, or 100Base-T, runs at 100Mbps, and the newest type, Gigabit Ethernet, runs at 1gigabit per second.

**Event recorder**

This type of recorder is kept in pause mode, and only records if activated by an alarm.

**Fence disturbance sensor**

The perimeter fence around a site may have one of these installed around it for intrusion detection. These sensors can be interfaced with a CCTV switcher so that specific cameras are activated in an area where the disturbance is detected.

**FI (Fixed Iris)**

These widely used fixed focal length iris lenses are inexpensive and are found in smaller types of fixed CCTV security cameras, usually small case or dome cameras.

## **Fiber Optics**

These high-speed computer-networking cables transmit data using light instead of copper.

## **Field**

A field is one half of a frame, with 262.5 lines in the NTSC standard. Interlaced television monitors display their images in two steps. The first step paints every other line, while the second paints the remaining ones. Progressive monitors present a complete field with each frame. Sixty fields are transmitted each second.

## **Field of view**

This is the total height and width of the view seen through the lens.

## **Firewall**

A firewall is a software or hardware application installed on a home or office computer that is intended to prevent unauthorized users from accessing that computer. With hacking and network intrusions on the rise, they are becoming essential in protecting private information. Four popular types of firewall are packet filtering, application gateways, circuit-level gateways, and proxy servers. Although they can be difficult to configure correctly, they are a critical component to protect unauthorized access and hacking of IP based surveillance systems that are LAN based.

## **f-number**

This is used to indicate image brightness as formed by the lens and controlled by the iris. The smaller the f-number, the brighter the image is.

## **Focal Length**

Focal length is measured in mm or inches, and is the distance between the optical center of the lens and the point on which it focuses. A lower focal length results in less magnification with a greater field of view, and vice versa for longer focal lengths. Security cameras usually have a focal length of  $\frac{1}{8}$ ",  $\frac{1}{3}$ ", or  $\frac{1}{2}$ ".

## **fps (Frames Per Second)**

In the field of video surveillance, fps means the number of frames a DVR is able to capture per second. Three steps are required: video capture, compression, and storage. Each step affects a DVR's true fps number. The use of DSP chips in both IP cameras and DVRs can assist in the optimization of fps.

## **Frame**

One complete picture is called a frame, and it contains 525 lines (NTSC) or 625 lines (PAL).

**f-stop**

The light gathering ability of a lens (known as a camera lens aperture setting) is indicated by an f-stop. Using a smaller f-stop number results in a greater amount of light passing through the lens, as well as a shallower depth of field.

**FTP (File Transfer Protocol)**

FTP is a client/server protocol used for the exchange of data between computers. Network cameras with an embedded operating system use FTP to send camera images to an authorized user's computer or web site.

**Gamma correction**

This refers to an automated correction installed into surveillance cameras that adjusts for the brightness characteristic of the monitor, with the range being from .6 to 1.

**Ghost**

Also known as ghosting, this is when an image moved across a computer screen leaves a brief lingering shadow of itself where it had just been, creating a kind of smear or blur. Lower quality computer screens often leave ghosts. Technically, the secondary visual signal has been created and received either earlier or later than the primary signal itself.

**Ground Loop**

This type of picture interference is caused when the ends of a video cable have differing ground potential, causing an AC current. This is either a black shadow bar onscreen or a tearing in the top corner of the picture results. The use of ground loop insulators prevents this problem.

**GUI (Graphical User Interface)**

Pronounced 'goeey', this is the interface between the computer and the matrix switcher. Active areas of the computer screen are programmable, feature menus, icons, are clickable, and able to activate devices such as VCRs and matrix switchers. Essentially, the GUI makes the CCTV system easier to use.

**Hertz**

A Hertz (Hz) is the unit used to measure frequency, with 1 Hz equal to 1 cycle per second.

**Horizontal hum bars**

Sometimes called Venetian blinds because they are horizontal bars (either black or white) that extend across an entire picture. They're either moving or stationary, and are the result of roughly a 60 Hz interfering frequency (usually from a 60 Hz AC power source).

**Horizontal resolution**

This measures the maximum amount of individual picture elements recognizable in a single scanning line.

**HTML (HyperText Markup Language)**

HTML is the language used in the creation of WWW pages, with use of hyperlinks and markup for text formatting.

**HTTP (HyperText Transfer Protocol)**

This is the protocol utilized to transmit and request information from WWW servers to browsers, either online or over networks.

**Hub**

Networks rely on devices called hubs to connect multiple computers together into a LAN. Standard hubs share the bandwidth across all ports (so an eight port 100 Mps hub allocates this 100 Mps among the eight ports), while switching hubs are able to give each individual port a dedicated bandwidth amount (so these same eight ports could conceivably each receive a full 100 Mps of bandwidth on a switching hub).

**Impedance**

Measured in ohms, impedance describes the input and output characteristic of an electrical system. For the best signal quality, both input and output impedances should be equal, with CCTV systems having 75-ohm impedance throughout.

**Infrared camera**

These cameras are well suited for surveillance of low light areas or areas with no light at all. Infrared LEDs surround the lens and shine infrared light, illuminating the scene. They usually have a fixed focal length lens, and present b/w images during low light (though some offer color in the day and b/w at night).

**Infrared detector**

This is an alarm that uses infrared light to detect nearby movement.

**Infrared illuminator**

A light source working in the infrared frequency range is called an infrared illuminator.

**Infrared radiation**

Invisible to the human eye, this electromagnetic radiation has a wavelength of greater than 750 nanometers.

**Insertion loss**

If the inclusion of an electronic device into a line diminishes the signal's strength, it's called insertion loss.

**IP (Internet Protocol)**

This is the protocol used to route a packet of data from source to destination over the Internet. Every computer on the Internet has a different IP address that identifies it from other computers.

**IP address**

This is a numeric address that is then translated into a domain name by the DNS (domain name server). When we type in a website's name, the computer translates this into its IP address, which is a unique 32-bit number. The TCP/IP protocol then uses it for routing the data packets to their destinations. Each host has a unique IP address.

**IP Camera (or Network Camera)**

This signal from an IP camera is delivered over an IP network. The camera digitizes the images, compresses them, and then sends them over the network (if this sounds similar to a webcam, that's because there is digital webcam technology contained within a network camera). But a typical IP network camera is much more advanced as compared to a consumer web camera which needs to be attached to a computer to operate. IP enabled security cameras usually offer a browser interface so that the user can operate and view the video remotely over the Internet. A DVR system is often comprised of an IP camera and a NVR.

**Iris**

The section of the lens adjusted to control how much light passes through it and onto the CCD chip is called an iris.

**ISDN (Integrated Services Digital Network)**

ISDNs are digital telecommunications lines that transmit voice and digital network services. Many telephone companies provide them, due to their superior reliability and speed (up to 128K) over analog modems. The ISDN standard improves compatibility for the integrated digital transmission of voice, video, and data over normal copper telephone wires, which allows for better quality and speeds. There are two primary types of ISDN: BRI (Basic Rate Interface) and PRI (Primary Rate Interface). PRI is faster, with speeds on par with T-1 circuits.

**ITU (International Telecommunications Union)**

Currently, 113 countries participate in the ITU, which is an agency of the United Nations. Existent since 1865, the ITU is responsible for developing international telecommunications for networked telecommunications. The ITU-R is a subchapter, and is responsible for managing radio frequency spectrum (including television and video) standards.

**Joystick**

PTZ controllers utilize this stick as a control device for pan and tilt movement of a PTZ security camera's pan and tilt head.

**JPEG (Joint Photographic Experts Group)**

This is one of the most common file formats for compressed photo images. A small amount of data, though not noticeable enough to be significant, is lost in the compression process, making JPEGs a lossy compression algorithm.

**LAN (Local Area Network)**

A LAN is a high-speed network connecting computers that are nearby (probably in the same building), and offers differing connection protocol options.

**Latency**

The speed of a network is dependent on both latency and bandwidth, with latency referring to the time needed for an IP packet to travel from source to destination. Wide bandwidth and low latency are preferable.

**LED (Light Emitting Device)**

Monochrome surveillance cameras use LEDs to provide infrared light. An LED creates an infrared light frequency when stimulated by an electric charge.

**Lens**

This is the device responsible for focusing the image on the CCD, and most offer adjustable focal length and aperture.

**Level control**

Level control is control of the main iris, and sets the auto-iris circuit to a specific video level of the user's choice. The iris is therefore set to maintain this video level no matter what the light condition may be. A high level opens the iris; a low level closes it.

**Light sensor**

Often used to turn infrared illuminators on or off, this device is triggered when it detects a pre-set amount of light, and helps cope with low (or no) level light conditions.

**Limit switch**

A security camera's pan and tilt head with one of these devices installed (either inside or outside it) is limited in the angles it can move.

**Linux**

Linux is an open source UNIX implementation, and a popular alternative to the Windows operating system. It is often used in embedded operating systems found in advanced Network IP Cameras. Linux is freeware.

## **Lumen**

A lumen (abbreviated as lm) is a unit that measures the visible power output of a light. While watts measure the power the bulb needs, lumens measure the visible light that the bulb generates.

## **Lux**

Used more often than lumens when discussing security cameras, a lux is a unit of illumination. It measures the amount of uniform light that falls on one square meter (expressed in one lumen per square meter). Security camera specs use the lux to indicate how much light they require to operate, with lower lux levels indicating a camera as more effective in lower ambient light. Look for 0.2 lux or less when choosing a low-light camera, and 2 lux or higher for daylight cameras.

## **Matrix switcher**

When a CCTV system needs to route one camera input to many monitor outputs, it utilizes a device called a matrix switcher.

## **Mimic panel**

This panel displays a site's layout, including the location of surveillance cameras. When the panel is interfaced with a switcher, it can be used to switch any specific camera to the monitors.

## **Minimum scene illumination**

This information (found on a camera's data sheet) displays the minimum light level the particular camera needs in order to provide an acceptable monitor picture.

## **MJPEG (Motion JPEG)**

Even though it's not as efficient as MPEG-4, the MJPEG is still an effective way of creating video from the sequencing of JPEG images. The video from store security cameras often uses this method when being formatted.

## **MOD (Minimum Object Distance)**

This refers to the closest an object can be to the vertex of the lens and still be in focus. The wider the lens angle, the smaller the MOD.

## **Monochrome**

Monochrome means having a single color, or black and white for television.

## **Motion Detectors**

These devices are used to detect motion on security cameras. Simple motion detection triggers the camera to either record or set an alarm. Motion detection by frame region instructs the camera to respond only if a certain area of the screen/frame detects motion. Finally, advanced motion detection analyzes the type of motion to see if it warrants alarm (such as crossing into a secure area). One benefit of motion detectors is that cameras only record when motion has been sensed, which saves disk space.

### **MPEG (Moving Picture Experts Group)**

One of the most common coding standards for internet transferable video images, the MPEG format is playable on nearly all free and payware video players. MPEGs use lossy data compression. MPEGs first predict the initial picture content, and then code differences between that and the copy, as well as any extra information.

### **MPEG-4**

MPEG4 has a newer codec and supports 3D content, low bit rate encoding, and support for Digital Rights Management, which controls the use of copyrighted digital work. MPEG4 is used for web streaming media, broadcast television, videophones, and CD distribution. MPEG-4 is widely used in video surveillance, and has recently been improved to the AVC standard.

### **Multicast (or Multicasting)**

This term refers to the Internet protocol that allows a single IP address (the host) to send a packet to multiple destinations at once with a single, local transmit operation. It also is used in video streaming to enable the broadcasting of video to multiple recipients at once.

### **Multiplexer**

A video surveillance device with multiple video inputs and one video output is called a multiplexer. Multiple security cameras are connected to it and their images can be presented on one monitor. A front panel displays the buttons that toggle each camera, and the signal from one camera or a combination thereof can be displayed. Multiplexers are simpler to use as compared with similar procedures on a DVR which normally requires a system login, operating a keyboard and controlling a mouse.

### **Network Camera**

Also known as a Network IP Camera, this is a stand-alone camera that uses a standard web-browser to view live, full motion video from a computer network, including over the Internet. They often feature an embedded OS (operating system) and features like: FTP of images, web server capability, and built-in motion detection.

### **NVR (Network Video Recorder)**

Functionally similar to a DVR, a NVR also accepts IP camera inputs. NVRs can be software based, making them suitable only for accepting IP camera streams over the Internet.

### **Ohms**

These are units that measure the impedance or resistance of an electrical device.

### **Optical Filters**

These filters selectively allow for different frequency light to pass through.

### **Outdoor Camera Housing**

A protective shell for security cameras to be placed in outdoor environmental conditions, these housings typically include cooling fans for summer use and heaters for winter use. The heaters also eliminate fogging of the glass anytime this occurs.

### **Outdoor Dome Housing**

This housing is dome shaped for insertion of dome security cameras, is very tamper resistant, and allows for PTZ.

### **Pelco-D**

This Pelco created protocol is used to control PTZ security camera movement.

### **Photon**

A photon is the basic unit of light.

### **Pinhole Camera**

Perfect for covert surveillance, this quarter sized camera is nearly impossible to detect. With it's small size comes limited abilities though, primarily a small lens and limited zoom capabilities.

### **Pixel (Picture Element)**

Pixels are the smallest possible display unit of visual information available for building a graphical image. It is also the basic unit of a CCD chip, with most CCD chips being comprised of over 300,000 pixels.

### **Power supply**

Most security cameras utilize 24V AC or 12V DC power supplies. A power supply is usually plugged into a regular electrical outlet or part of a centralized power supply.

### **Progressive**

Since it scans all lines onscreen at once, 60 times per second, this type of scanning is used by computer monitors to minimize flickering. It is also better able to show movement, offering more detail and less ghosting than interlaced scanning.

### **PTZ Camera**

PTZ stands for Pan, Tilt, and Zoom. These cameras are usually remotely controlled by software or a joystick. PTZ cameras are used when active real time monitoring with the ability to point the camera's viewing area to a specific action or event is desired.

### **PTZ controller**

The controller used to control PTZ camera movement, usually software or a joystick.

**Quad**

Utilizing digital video, this piece of equipment displays signals from four surveillance cameras on one monitor.

**Raster**

A raster is a rectangular scan pattern of lines that the picture is created upon. It also refers to an active TV monitor that has no video information displayed.

**Real time video**

Any picture having 24 or more frames per second appears continuous, or in real time.

**Reed switch**

This type of alarm activating device becomes active when contact is either opened or closed, as in a door or window being opened or closed. They are also capable of switcher activation to activate the relevant security camera.

**Regulated power supply**

A DC power supply with a minimal ripple factor is considered to be regulated.

**Remote monitoring**

This allows an off site user to monitor surveillance camera feeds, so a user can survey a site regardless of their location from it. The transfer of data from camera to user can be either over the Internet or the Ethernet, with IP cameras being suited to the task.

**RF (Radio Frequency)**

In order to be broadcast across a wireless network, video signals must be modulated into a RF signal.

**RG-11**

Having a thick center core, this type of coaxial cable is used to transmit video signals of up to 550m.

**RG-59**

More commonly used than RG-11 for CCTV, this coaxial cable transmits video signals of up to 230m.

**RGB (Red Green Blue)**

These are the three primary colors of light. All other colors are derived from their mixture.

## **Router**

A router is a piece of equipment facilitating the exchange of packets throughout LAN or WAN networks. It moves packets across a predetermined path to their destination by storing and forwarding the packets, and then determining their optimal path along the network. A router is hardware based, but can also include software.

## **RS232 (or RS-232)**

This is the communication standard that applies to PC serial communications. RS232 is commonly used as the mechanism for sending instructions that control PTZ security camera movement.

## **RTP (Real-time Transport Protocol)**

The Internet Engineering Task Force (IETF) developed RTPs to specify audio and video signal management. It standardizes the packet formatting for both for easy synchronization and Internet delivery. Streaming media systems and video conferencing systems use RTP, while DVR systems rely on this protocol in the implementation of the remote view feature. Since it doesn't specify how video surveillance playback is implemented, the data from different RTP based surveillance systems usually cannot interoperate.

## **RTSP (Real Time Streaming Protocol)**

This open standard for Internet streaming of audio and video is popular among DVR makers for remote viewing of live or stored security camera video over the Internet. RTSP controls the transmission of the data stream much the way a television remote controls the television. Like RTP, interoperability problems exist between different DVR systems.

## **Scanning**

Applied to the field of video surveillance, scanning is the panning of a camera across the horizontal field of view.

## **Security Camera**

The traditional CCTV camera is a multipurpose device capable of numerous configurations and superb quality. They usually don't include a lens, mount, or enclosure. They also can be expensive to configure in comparison to cameras designed for a specific purpose.

## **Sensitivity of a surveillance camera**

This term refers to the minimum level of light the CCD chip needs to generate an acceptable video picture, and is measured in lux.

## **Sequential switcher**

A sequential switcher enables the simultaneous display or recording of multiple surveillance cameras.

**Shutter speed**

This is the speed which the CCD chip can read out the charge. Using either dials or a surveillance camera's menu (if one has been built in), the default setting of 1/50 sec (PAL) or 1/60 sec (NTSC) can be increased up to 1/100,000.

**Simplex**

A type of multiplexer that allows you to simultaneously record images to tape and display the live, full screen image of any individual security camera (compare this to the duplex type which can also display multiple-picture screen images while recording). A simplex multiplexer can display multiple-picture screen images, but it cannot record at the same time. Also unlike a duplex multiplexer, it is unable to record and playback recorded tapes simultaneously.

**SMS (Short Message Service)**

Some of the more advanced Network cameras feature software that sends notifications via the Cellular network to authorized users after programmed events. Griffid is one example of SMS being implemented in network surveillance software.

**SMTP (Simple Mail Transfer Protocol)**

This is the standard server-to-server protocol for the delivery of electronic mail, either via Internet or on other TCP/IP networks.

**SNR (Signal-to-Noise Ratio)**

SNR measures the ratio between the usable video signal and noise or interference.

**Static IP address**

This is an IP address that doesn't change. Any computer can connect to it, thereby making video surveillance systems with static IP addresses remotely accessible from any location on the Internet.

**S-Video**

Representing an improvement in quality over composite video, S-Video separates chrominance and luminance onto two different signal wires, resulting in better picture quality.

**Synchronization**

Frame formation in multi surveillance camera systems is started simultaneously by the process of synchronization, and there are differing ways this process can be achieved.

**TBC (Time Base Corrector)**

Multiplexers and quad splitters rely on a TBC circuit to align unsynchronized video signal before the signal processing begins.

**TCP/IP (Transmission Control Protocol/Internet Protocol)**

These protocols enable communication between differing computer and computer networks. The IP is a connectionless protocol that provides the packet routing, while the TCP is connection based to provide reliability in communication and multiplexing.

**Telephoto lens**

In order to make distant objects appear larger, cameras require a telephoto lens.

**Time lapse VCR**

Used primarily by CCTV systems, this VCR enables increased recording time on a videocassette by not recording all the frames.

**Touch Screen**

Advances in monitor technology have enabled touch sensitive monitors that can perform specific actions by responding to a user touching relevant screen areas.

**Tracking**

A zoom lens that can stay in focus while zooming from wide angle to telephoto position is said to be tracking.

**UPS (Uninterruptible Power Supply)**

Justifiably popular with many electronics users, a UPS stores electricity in a battery and supplies power to a system (allowing a user to shut down w/out losing data or continue for a specific time period) during a power failure.

**URL (Uniform Resource Locator)**

The URL is the Internet address that a software browser requires in order to find that Internet resource.

**UTP (Unshielded Twisted Pair)**

This type of cable is used to transmit video signals across distances greater than a coaxial cable can handle. The RG59 standard of UTP cable is roughly 600 ft. In conjunction with video baluns, they can stretch over 1200 ft. for full color video. UDP is cost effective too, mainly due to lower costs than coaxial cable, being easily terminated, and being capable to carrying data, video, and audio signals across the same cable with little interference.

**Variofocal lens**

This type of lens has the capability of varying its focal length in order to zoom in on images. An auto iris feature is required in order to achieve this. Variofocal lenses are contrasted with fixed focal lenses, which are less expensive and often allows more light to pass through them at their set length, enabling better detection in low light circumstances.

**Vertical resolution**

The number of horizontal lines resolved in a picture is called the vertical resolution, and is determined by the television scanning method, be it NTSC, PAL, or some other format.

**Vibration sensor**

A device that activates when it detects vibrations in its detection zone, and then activates a specific surveillance camera is known as a vibration sensor.

**Video amplifier**

This device boosts the strength of a video signal.

**Video compression**

This technique (often a MPEG format) compresses video into lower bit rates for easier Internet transmission, often along narrower bandwidths. Video or audio is compressed to shrink file size, ensuring acceptable transfer speed. Compressed video can sometimes be of a noticeably lower quality, but still clear enough to be useful. AVC is the successor to MPEG as the new video compression standard.

**Video distribution amplifier**

This amplifier is able to boost signal strength and also to create multiple video signal outputs.

**Video intercom**

Used at door entryways, this system utilizes audio and video for communication or movement control of people.

**Video server**

This enables an analog camera to be converted into an IP camera, able to stream digital video over an office network, phone, or ISDN connection. Therefore, an analog based surveillance system can be upgraded and networked to function as an IP surveillance system.

**Video streaming**

Streaming video delivers compressed multimedia content over the Internet in a stream of packets. Viewers view the file as it downloads, instead of downloading the entire file first. Streaming video first initializes the transfer, and then buffers it. Bandwidth determines both picture quality and whether or not the viewed video catches up with the downloading content, which causes the video to stop. RealPlayer is one of the most popular free streaming video players available. Video streaming is commonly used for viewing live feeds from security cameras, with RTSP/RTP being the main streaming technology currently in use.

**WAN (Wide Area Network)**

A WAN is a communications network serving a geographically large area using satellite communications or telephone lines. The Internet is a WAN. Network IP Cameras are capable of utilizing WAN systems.

**Wavelength**

Wavelength is how far an electro magnetic wave travels during one cycle. When discussing DVR, the term refers to the color of light, which every color having a different wavelength.

**WDM (Wavelength Division Multiplexing)**

This economical procedure enables data from different sources to be simultaneously transmitted over the same fiber optic link. It achieves this by assigning a unique wavelength to each data channel, resulting in many possible wavelengths traveling across one link, which allows one fiber link to do the same work as two or more.

**Webcam**

Webcams are cameras that connect to the Internet, either via PC or directly, and that allow remote user access. An IP camera is a popular webcam for video surveillance that does not need a PC connection.

**White balance**

CCD security cameras feature this adjustment to compensate for ambient light color. Since there's a color difference between standard light bulb light and sunlight, white balance adjusts to ensure a more realistic picture. This feature may be set by manual adjustment, or it may have preset settings for the most common situations.

**Wide angle lens**

This lens enables a wide view of the scene, with a magnification ratio less than 1.

**Wireless**

The wireless transmission of video signals can be carried out over both short and long ranges, with 2.4 to 5 GHz devices for short distances and high-power line dedicated site solutions for several miles or more.

**Zoom lens**

A zoom lens has the advantage of offering a variable focal length to view both wide angle to telephoto scenes.

**Zoom ratio**

This measures the ratio between the maximum and minimum focal length that a zoom length is capable of.