



2020VISION
TECHNOLOGY

CCTV GLOSSARY OF TERMS

AC

Alternating Current

A/D Converter

Analogue to Digital converter. An electronic device or circuit, which converts analogue electrical signals into digital (binary) values.

Activity Detection

Commonly used in video multiplexers as a means of improving recording efficiency. Cameras that have changes in programmed scene areas are recorded more frequently than cameras with no scene changes. Not to be confused with VMD (Video Motion Detection).

Address

Addressing provides a means of identifying individual items that are located on a network. In the Honeywell environment each Microsphere is given an address, the network is the RS485 twisted pair cabling.

AGC

Automatic Gain Control. A circuit that provides a method of keeping a signal at a constant level. Cameras use AGC to keep the video signal level high under low light conditions.

ALC

Automatic Level Control. This is found on auto iris lenses and is a means of 'fine tuning' the sensitivity of the lens. If set to 'peak', bright areas can show more detail and if set to 'average' dark areas will show more detail. The default setting is halfway on most lenses and will suit the majority of installations.

Ambient Light Level

The measurement of light intensity on a scene under a specified set of conditions, usually measured in LUX.

Angle of View

The maximum width of view available from a CCD imager, regardless of the lens fitted. The bigger the CCD imager format, the wider the angle of view.

Aperture

A means of adjusting the amount of light passing through a lens. In the CCTV environment the lens iris is the aperture control method.

Archive

This is the long-term removable storage of information, usually associated with digital recorder. They often take the form of removable disks, tapes, CD, DVD etc.

Artefacts

The unwanted additions that are sometimes seen in compressed digital images. They are a side effect of the compression process and tend to become more prevalent as greater degrees of compression are applied.

Aspherical Lens

A lens that uses non-spherical optics to reduce the effects of geometrical distortion. The effects of geometrical distortion increase as the lens angle becomes wider. Aspherical lenses are a good choice where a wide field of view is required.

Auto Iris

A facility built into lenses to control the amount of light allowed through the lens. The auto iris compensates for differing light levels, allowing the camera picture to be consistent under varying light conditions.

Auto White Balance

This is a facility provided on most colour cameras to adjust white levels relative to other colours.

Back Focus

The position of the imaging device in relation to the focal point of the lens, it is sometimes referred to as 'rack focus'. When setting up a zoom lens the back focus must be set to allow correct tracking of focus throughout the zoom range.

Balanced Signalling

A means of transmitting signals using two wires, also often referred to as differential transmission. It provides very high noise immunity because only the difference between the two noise signals is seen as valid information. In the CCTV environment RS485 and RS422 are examples of balanced signals.

Bandwidth

The frequency response capability of a device or communications medium. The greater the bandwidth, the larger the capacity of the system i.e. the more information carrying ability the CCTV or network system has.

Baud Rate

Defines the speed of data transmission of a device in terms of bits per second, where 'bit' can be defined as a piece of binary information or 'binary digit'.

Binary

This is the base two numbering system. A binary number can only be one of two values, 0 or 1. These individual values or 'bits' are lumped together into strings of data (see byte). Computers operate exclusively in Binary.

Blooming

An effect seen when the iris of a lens is set incorrectly and allows too much light through to the CCD imager. Bright areas of the scene lose definition and begin to merge with the surroundings.

BLC

Back Light Compensation. A feature found on some cameras that allows it to deal with different lighting levels in the scene of view, such as looking from a dark room into a doorway. BLC enables detail to be seen in otherwise dark or shadowed areas where silhouetting would otherwise occur.

BNC (Bayonet Neill Concelman)

Invented by the named after Amphenol Engineer Carl Concelman and Bell Labs Engineer Paul Neill and was developed in the late 1940s. Used for terminating coaxial cables, the main connector in the CCTV industry.

Byte

8 bits of data information. Also referred to as an octet. Generally a data byte represents a single character.

Cameo

This is the 1/16th of the total area of a full screen or a single area of a 16 way screen generated by a video multiplexer.

CCD

Charge Coupled Device. The solid state device that most CCTV cameras use to gather images. Often referred to as an imager.

CCIR

Comite Consultatif International des Radiocommunications. The European TV standard of 625 lines, 50 fields.

CCTV

Closed Circuit Television

Chrominance

The colour element of a video signal

C Mount

Lens mount used on some CCTV cameras where the distance between the lens flange and CCD is 12.5mm.

CS Mount Adaptor

A 5mm deep spacer ring that allows a C mount lens to be installed on a CS mount camera.

Coaxial Cable

A dual conductor cable where the outer conductor (screen / ground), is wound concentrically around an insulator, which houses the central conductor. In the CCTV environment coaxial cable is used to transmit video signals.

Codec

Coder / Decoder. Is an electronic device, which compresses and decompresses digital signals (Binary). Codecs usually perform A to D or D to A conversion.

Composite Video

A complete video signal, in which the Luminance (brightness) and Chrominance (colour) information is combined using one of the international coding standards NTSC, PAL etc.

Conditional Refresh

A technique used by some digital video transmission products. Only the parts of the picture that change are updated. Occasional complete images are transmitted according to the rules of the standard or when changes in the scene are too great for the conditional technique to manage. MPEG and H261 are typical conditional refresh coding standards.

Crosstalk

Undesirable interaction between signals. Typically seen as interference on screen, which takes the form of noise, patterning or a whole host of other effects.

DAT

Digital Audio Tape. Often wrongly referred to as an archive media for digital recorders. DAT is in fact a bespoke format designed for the audio environment, and is not suitable for CCTV data storage.

Data Compression

A series of techniques that are designed to reduce the size of data in order to save space or transmission time.

DCT

Discreet Cosine Transfer. This limits the AGC range in an image allowing increased compensation on a digital recording.

DDS

Digital Data Storage. Suitable as a long term archive method for compatible digital recorders. Available in a number of formats and capacities from DDS2 (4Gb per tape) through DDS3 (12Gb per tape) to DDS4 (20Gb per tape).

Digital Zoom

A facility provided on some video multiplexers and CCTV cameras, which allows the image to be 'zoomed into', the higher the zoom ration the more 'blocky' the image can become.

Dropout

A temporary reduction or loss of a signal.

DSP

Digital Signal Processing. A system supported by some CCTV cameras, which allows intelligent manipulation of the video signal in the camera for features such as backlight compensation.

DTMF

Dual Tone Multi Frequency. Used as an analogue dialling method by telephones and modems. In telephone this is also referred to as 'touch tone dialling' and is also used as a telemetry signalling method by some CCTV manufacturers.

Duplex

In electronic terms this means the ability to simultaneously send and receive signals. In CCTV, this term is associated with video multiplexers that have 2 frame stores. A duplex multiplexer can display multiple live images whilst recording all cameras to tap. It can also simultaneously play and record if 2 VCR's are used.

DVD

Digital Versatile Disk. Very similar to a CD in appearance but with a larger storage capacity. Used as removable archive media in some DVR's. Available in both single and double sided media.

Dwell

The time period in which a switcher will remain on one camera input before switching to the next in the sequence. It can also refer to the time spent by a device at a preset position when in tour mode.

Distribution Amplifier

A device designed to feed a single video it audio signal to several pieces of equipment. It can reduce the possibility of losses and crosstalk when looping a signal through multiple pieces of equipment.

EI

Electronic Iris. This is a system within CCTV cameras where an electronic shutter is built into the camera. It allows a normal fixed iris lens to be fitted in a wider range of applications. It should not be assumed that EI would negate the need for an auto iris lens.

EIA

Electronic Industry Association. The USA television standard. Also known as NTSC (525 lines to a single frame of a video).

Ethernet

Ethernet is the most widely utilised network technology. Specified in a standard, IEEE 802.3, Ethernet was originally developed by Xerox and then developed further by Xerox, DEC, and Intel. It is now a popular means of distributing data and / or video.

Exwave / Exview

Are terms relating to an enhanced CCD imager that features improved light gathering techniques, which give improved low light sensitivity, particularly near the IR end of the spectrum.

Fibre Optics

Transmission of signals via fibre optic cable. Signals via the fibre optic cable are transmitted as light. Specialised interfaces are used at each end of the fibre optic cable to convert the video and telemetry data signals. Fibre interfaces are available in two types, single mode that allows one signal type down one fibre cable and multimode that allows two or more signals via a single fibre cable.

Field

A field is one half of a complete TV picture and can comprise of all odd lines or all even lines.

Flow Control

This is a means of controlling the flow of data via hardware and or / software on asynchronous communications links, including networks.

Focal Length

This is a distance from the centre of the lens to a point at which images come into focus. The CCD imager is usually set at this point to ensure image clarity. This value is what denotes the angle of view and size of the target image.

Frame

A complete TV picture comprising of two fields, one odd and one even.

Frame Integration

A technique used by some CCTV cameras, which allows for extreme low light sensitivity. Exposure times are increased as light levels drop, allowing good images when most conventional cameras can no longer give a picture. It has the side effect of reducing video updates (video appears delayed on screen), reducing as levels of integration get higher.

Frame Store

Is digital memory capable of containing a frame of video in digital format.

F-Stop

In photography, this is a term used to indicate the speed of a lens in terms of exposure. It directly relates to the iris setting of the lens and thus the amount of light allowed through. The smaller the f-stop setting, the more light is allowed through.

Full Frame Refresh

A technique used by some video transmission systems where a full picture is transmitted each refresh / update, regardless of the amount of scene changes. JPEG is a full frame capture standard.

Ghosting

Phenomena seen when multiple image outlines appear on the same picture, generally caused by incorrect video termination or cable faults.

Gigabyte

1024 Megabytes = 1 Gigabyte.

Ground loop

Is a condition caused when multiple earth points on a system cause currents to flow via the screening on the cable. Causes picture disturbance, normally in the form of black bars across the picture.

H.261

Coding standard used for conditional refresh capture and transmission of digital video images. Represents the video part of the H.323 specification for videoconferencing protocols.

Half duplex

This refers to communications links that are capable of running in either transmit or receive mode, but not both modes currently. To achieve half-duplex operation the mode of the communications link is effectively 'turned round' between transmit to receive modes when necessary.

Home position

A preset position that is defined as a 'home return' point. Usually related to a timer based on keyboard activity, when the timer expires the camera will be driven to home preset position.

IDE

Integrated drive electronics. Common hard disk and internal peripherals interface.

Infrared

Frequency range within the spectrum of light that is invisible to the human eye. CCTV illumination is usually designed around the infrared range of 730 – 815 nanometres.

IP rating

A system of rating a piece of equipment against dust and water ingress.

ISDN

Integrated Services Digital Network. Infrastructure of digital telephone services worldwide. Most commonly used to transmit remote digital video signals.

JPEG

Joint Photographic Experts Group. Standard used for full frame capture and transmission of digitalised video images.

Kilobyte

1024 Bytes = 1 Kilobyte.

Launch amp

A video amplifier that allows the video signal to be transmitted over long distances via normal coaxial cable. This is achieved by increasing the amplitude of the video signal at the camera, and in most cases, also the high frequency (HF) content of the signal. Featured as standard on Honeywell Microspheres.

LAN

Local area network, usually within the same building or series of buildings.

Leased line

An analogue or digital telephone line that is available at all times and does not require any call set up procedures. These lines are generally used as a permanent data trunk connection. Most commonly found as a permanently connected means of delivering remote digital video.

Looping

Also referred to as loop through. Refers to equipment that will allow a video signal to pass through by providing a video in and also a video out connector for every camera input. Most looping equipment allows easy selection and de-selection of the video termination.

Luminance

The brightness element of a video signal.

LUX

Measurement used to express light intensity.

Matrix switcher

A video switcher that allows any camera to be selected on any monitor.

Megabyte

1024 Kilobytes = 1 Megabyte.

Memory

Digital information storage device.

Microwave transmission

Free space link commonly used in CCTV where normal cables cannot be used. The frequency range is usually between 1 to 30 gigahertz

Modem

Modulator/demodulator. It provides an analogue to digital interface to allow computers and other devices to transmit and receive digital information via analogue telephone lines.

Monochrome

Black and white CCTV equipment.

MPEG

Motion Picture Experts Group. Standard user for conditional refresh capture and transition of digital video images.

Multicast

Networking term, which describes data that is sent from a single user that can be received by multiple users on the network. Commonly used for video transmission on LANs and WANs.

Multiplexer

A piece of equipment that processes multiple camera inputs and organises the identification, Recording and playback of all cameras to and from video tape. Also capable in most cases of generating multiple camera displays.

Noise

Unwanted elements that are present on a signal.

NTSC

National Television System Committee. The colour TV system used in the US, Canada, Japan and parts of South America. 525 lines, 60 fields per sec.

Opto isolator

A component or piece of equipment that provides electrical isolation between circuits or data communications media.

PAL

Phase Alternating Line. The colour TV system used in the UK, Europe and some other parts of the world, 625 lines, 50 fields per sec.

Pan

Camera movement on the horizontal plane.

Peak to peak

The measurement of a signal from the lowest negative value to the highest positive value. This is most commonly found when specifying video signal levels as 1 volt peak to peak.

Pedestal

The area of a video signal that lies between the top of sync level and the bottom of black level.

Pinhole lens

A lens that features a very small opening ideally suited to covert applications where the camera can be concealed.

Pixel

Term used for a single picture element. A monitor or TV has a display that comprises millions of pixels; each pixel is illuminated with varying intensity to create the picture display.

PPP

Point-to-Point Protocol. One of the suites of TCP/IP protocols that are primarily used in serial point to point communications such as null modem, dial up type PSTN and ISDN connections.

Presets

Functionally that is supported by some telemetry equipment. Position related feedback is provided by the zoom lens and pan/tilt head. Either the telemetry receiver or matrix stores this feedback whenever a position is stored as a preset. The system operator can recall preset positions very quickly with the minimum of key presses.

Privacy zone

A feature present on some CCTV equipment to comply with the data protection act. The feature allows sensitive areas of a PTZ camera's view to be blanked out so that they cannot be viewed. Good implementations of privacy allow the privacy areas to be scaled according to the zoom ratio of the camera, so they are small on wide angle views and grow larger if an operator tries to zoom in on a privacy area.

Protocol

A set of rules that govern how elements of a system inter-communicate.

PSTN

Public Switched Telephone Network. Standard analogue telephone system.

Quad

Either a 4 way video processing unit or the 4 way screen generated by a video multiplexer.

Rack mount

A recognised standard mounting system. All equipment is 19" wide and a number of units high. The unit of height is known as 'U' 1U= 1.75"

RAID

Redundant array of independent drives commonly used as extended storage on DVRs in the CCTV environment. A purpose built series of hard disk drives that appear to the host as a single large disk, this is achieved by a RAID controller card that is built into the unit. RAID arrays are normally SCSI based.

RAM

Random Access Memory. Digital memory that can be both written to and read.

Resolution

A measurement of the ability of a piece of CCTV equipment or system to display Detail. Measured in TV lines.

ROM

Read Only Memory. Digital memory that can only be read.

RS232

Data transmission presentation used in many short distance serial data applications.

RS422

4 wire balanced, party line multi-drop data transmission presentation, used in many telemetry and matrix switcher networks. One pair is used for data transmission on the other pair for data reception.

RS485

2 wire balanced, party line multi-drop data transmission presentation, used in many telemetry and matrix switcher networks. Can run in simplex or half-duplex mode.

SCSI

Small Computer System Interface. A fast parallel data interface commonly found as an external interface on digital recorders.

Simplex

In electronic terms a device that can either send or receive, but not both simultaneously. In the CCTV environment this refers to a video multiplexer that has one frame store, which can record all cameras to tape or generate multi-screen displays.

S video/SVHS

A method of transmitting video signals in their two component parts, chroma and luma. It provides higher resolution than composite signalling but can only be used over very short distances. Also known as Y/C.

Sync

The timing information element of a video signal.

Termination

System used to create an ideal matched set of conditions on a transmission link. Correct termination keeps signal levels within specification and prevents reflections and standing waves on the link. In CCTV correct termination of the video signal is extremely important so that optimum picture quality without distortion is achieved.

T1

Digital communications link that is most commonly found in the USA and Canada. T1 supports a data rate of 1.544 megabits per second.

TCP/IP

Transmission control protocol/Internet protocol. Title given to suite of protocols that are used on computer networks, without which the Internet signal would be not possible.

Telemetry

A system that provides camera control via coding. The coding is either sent with the video signal or is transmitted as data via a network.

Terabyte

1024 Gigabytes = 1 Terabyte.

Terminal adaptor

A device that is the ISDN equivalent of a modem. The terminal adaptor provides an interface between the host and the ISDN network termination box and provides call set up and answering.

Termination

A method of matching electrical signals to the transmission medium. In the CCTV environment termination is important for the video signals and also any data networks using RS485 or RS422.

Time lapse VCR

A VCR that achieves extended recording periods by slowing the tape motion across the recording heads.

Tour

Facility provided by some CCTV control systems where a PTZ camera or dome can be programmed to tour between a specified series of presets. It is usually possible to program a dwell time to stay at each preset and also a speed value at which the camera will travel between presents.

Twisted pair

Refers to a generic cable type, originally from the telecommunications industry where internal cable pairs are twisted together equally for the entire cable length. This type of cable is ideal for balanced data transmission.

Varifocal lens.

A lens that has an adjustable focal length.

VDA

Video distribution amplifier. A device that gives multiple video outputs from a single video input. Generally used where a single video has to feed multiple pieces of equipment. Co axial telemetry will not be passed through a VDA.

VMD

Video Motion Detection. A specialised piece of equipment that is capable of detecting changes in video images, then creating a physical output and in some cases and audible output. True VMD units can manage to discern between weather, light changes and even movement of the tower or pole without alarming.

WAN

Wide area network. Geographically dispersed network.

Worm

Write Once Read Many. Refers to digital storage media that can be written to once only.

Zoom ratio

A rating used to express the zoom capability of a lens from wide angle to narrow angle; it is calculated by dividing the wide-angle value in mm by the narrow angle value in mm. For example, a lens that has an 8 mm wide angle and a 64mm narrow angle will be rated as 8:1

10 base T

Terminology used to describe network specification. In this case it literally means 10 megabits per second, baseband signalling, twisted pair cabling.

The above material has been kindly provided by Honeywell International with whom copyright resides. All the above information is given without prejudice and for guide purposes only.