

## MAKE IT EASY SHEET

### **GLOSSARY OF TERMS**

**ActiveX** ActiveX is a standard that enables software components to interact with one another in a networked environment. ActiveX controls are often downloaded and installed automatically as required. An Active X component is an optional download from a Mobotix camera to provide additional functionality.

**AF (Auto focus)** A system by which the camera lens automatically focuses on a selected part of the subject.

**Angle** The field of view, relative to a standard lens in a 35mm still camera. A wide-angle lens has a short focal length and covers a wider angle of view than standard or telephoto lenses, which have longer focal lengths.

**Autoiris (or DC-Iris)** An 'Autoiris' regulates automatically the amount of light allowed to enter through the camera's lens. It is controlled electronically by the camera.

**Bonjour** Also known as zero-configuration networking, Bonjour enables automatic discovery of computers, devices, and services on IP networks. Bonjour allows devices to automatically discover each other without the need to enter IP addresses or configure DNS servers.

**CCD (Charged Coupled Device)** This light-sensitive image device converts light energy into electronic signals. Its size is measured diagonally and can be 1/4" or 1/3" when used in CCTV cameras.

**CMOS (Complementary Metal Oxide Semiconductor)** CMOS image sensors are used in cameras in the same way as CCD sensors but offer the benefit of allowing processing circuits to be included on the same chip, an advantage not possible with CCD sensors. CMOS sensors also cost less to produce. Mobotix cameras use CMOS sensors in conjunction with a high performance CPU and software to produce images.

**Coaxial cable** Coaxial cable is the standard means of transmitting analog video in a CCTV system.

**Codec** Codecs are used in integrated circuits or chips that convert e.g. analog video and audio signals into a digital format for transmission.

**Control unit** A 'Control Unit' relative to an analogue CCTV system allows an operator to control the video signals from multiple cameras going to recorders and monitors – Multiplexers, Switch and Quad are types of Control Units.

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**DC-Iris** This special type of iris is electrically controlled by the camera, to automatically regulate the amount of light allowed to enter.

**DHCP (Dynamic Host Configuration Protocol)** DHCP is a protocol that lets network administrators automate and centrally manage the assignment of Internet Protocol (IP) addresses to network devices in a network. DHCP also supports static addresses for e.g. computers running web servers, which need a permanent IP address.

**DNS Server (Domain Name System)** A DNS server holds translation tables to allow an IP address (numeric's) to be associated with an easy-to-remember name e.g. it's easier to remember www.mayflex.com than it's Internet address of 84.234.0.89

**Firewall** A firewall, typically a stand-alone hardware device connected to the LAN, ensures that only authorised users can connect across different networks. Its an important device in relation to Internet connectivity to prevent hackers gaining access to the company network from outside.

**Focal length** Measured in millimetres, the focal length of a camera lens determines the width of the horizontal field of view, which in turn is measured in degrees.

**FTP (File Transfer Protocol)** FTP is an application protocol used to transfer files between computers / Servers / PCs. It is part of the TCP/IP family of protocols. A Mobotix camera can use its integrated application software to transfer images to an FTP server.

**Frame rate** The frame rate used to describe the frequency at which a video stream is updated is measured in frames per second (fps). A higher frame rate is advantageous when there is movement in the video stream, as it maintains image quality throughout.

**Image compression** Image compression reduces an image file size (in bytes). Two of the most common compressed image formats are JPEG and GIF.

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**IP (Internet Protocol)** 'IP' or Internet Protocol is the standard method for transmitting data over a LAN (Local Area Network) or WAN (Wide Area Network). The data is divided into individual 'packets' and each packet contains the sender's address and the receiver's address plus the data. The data could be text as in an email or a video image.

Once the data packets have arrived at the correct destination, another protocol - Transmission Control Protocol (TCP) – puts them in the right order.

It's the same method as sending a letter through the postal system. Data is the content of the letter, the sender's address would be on the document and the letter would be inserted into an envelope (packet). The sender's address is then written on the outside of the envelope and posted.

**IP address**

An IP address is an address on an IP network used by a computer/device connected to that network. IP addresses allow all the connected computers / devices to find each other and to pass data back and forth.

To avoid conflicts, each IP address on any given network must be unique. An IP address can be assigned as fixed, so that it does not change, or it can be assigned dynamically (and automatically) by DHCP.

**Infrared (IR)** Infrared is light radiated at a longer wavelength than visible light and as such can't be seen by the naked human eye. To enable a camera to 'see' in complete darkness an Infrared illuminator can be used to 'beam' an invisible light source for the camera to detect heat sources to show up against colder surroundings. Raytec manufacture IR illuminators.

As colour cameras can "see" infrared radiation as well as visible light, these cameras are equipped with an IR-cut filter, to prevent distortion of the colours the human eye can see. To use the camera in very dark locations or at night, this filter can be removed to allow infrared radiation to hit the image sensor and thus produce images.

**Lux** A standard unit of illumination measurement.

**MAC address (Media Access Control address)** A MAC address is a unique identifier associated with a piece of networking equipment. Each manufacturer of Ethernet networking equipment is assigned a unique address by the IEEE committee in the US. Part of the address relates to the manufacturer while the second half changes incrementally per unit manufactured.

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**Manual Iris** This is the opposite of an autoiris, i.e. the camera iris must be adjusted manually to regulate the amount of light allowed to reach the image sensor.

**Motion JPEG** Motion JPEG is a means of compressing and decompressing images for transmitting network video. Image quality is controlled by adjusting the compression level i.e. by 50% to reduce the stored image size. Individual, high quality images can be extracted from the stream of images.

**MPEG-4** MPEG-4 is a group of audio and video coding standards and related technology.

The video standard MPEG4 was developed for compressing a single video stream (e.g. movie) and not for the compression, management and viewing of multiple high resolution cameras.

MPEG4 transmits moving objects at lower resolution and quality because the human eye does not take in all the detail of a moving object, therefore, it makes no difference when watching a movie. For this very reason MPEG4 is not particularly suitable for security systems because in a security situation, it is these moving objects that are of great importance and must be therefore highly detailed.

**Multicast** A technology used in TCP/IP networks to conserve bandwidth by simultaneously delivering a single stream of information to multiple network recipients.

**Multiplexer** A multiplexer is a high-speed switch that provides full-screen images from up to 16 analogue cameras. Multiplexers can playback everything that happened on any one camera with no interference from the other cameras on the system.

**PoE (Power over Ethernet)** Power over Ethernet provides power to a network device via the same cable as used for the network connection. This is very useful for IP-Surveillance and remote monitoring applications in places where it may be too impractical or expensive to power the device from a power outlet.

**Progressive scan** Progressive scan technology, as used by a Mobotix camera, scans the entire picture at 1/16 of a second – line by line. Captured images therefore are not split into separate 'fields' as in a traditional analogue CCTV camera which interlaces the video signal at a 2:1 ratio.

In a surveillance application, this can be critical when viewing detail within a moving image, such as a person running. A high-quality monitor is required to get the best from progressive scan.

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<b><u>(QoS) Quality of Service</u></b>	QoS provides the means to guarantee a specified level of network bandwidth to a particular device. This could guarantee that voice conversations could be carried over a LAN or WAN without breaking up (VoIP or Voice-over-IP) or video be transmitted in a continuous stream.
<b><u>Resolution</u></b>	Resolution refers to how much detail can be retained in a digital image – the higher the resolution equates to a greater level of detail in the image.
<b><u>Router</u></b>	A device that utilises Layer 3 protocol of the ISO 7 Layer protocol stack to determine the next network point to which a packet should be forwarded on its way to its final destination. A router creates and/or maintains a special routing table that stores information on how best to reach certain destinations. Static routing tables can be input into a Broadband Router for instance to allow external viewing of IP surveillance cameras over a wireless mesh network.
<b><u>Switch</u></b>	A switch is a network device that operates at Layer 2 or Layer 3 of the ISO Layer 7 protocol stack and connects network segments together. By maintaining a table of MAC addresses associated to each device on the network, data packets can be passed to their intended destination(s).
<b><u>UTP video transmission</u></b>	Traditional analogue CCTV systems use coaxial cable (RG59) to carry the video signal. Recent developments have allowed the analogue signals to be carried over UTP cable (Cat5e/Cat6) via analogue to UTP converters – either single cameras point-to-point or multiple cameras over a single 8-core UTP cable. This enables installation costs to be reduced significantly.
<b><u>Varifocal lens</u></b>	A varifocal lens provides a wide range of focal lengths, as opposed to a lens with a fixed focal length, which only provides one.
<b><u>Video Server</u></b>	A video server converts an analogue CCTV camera to a device addressable on the LAN by assigning an IP address to the 'camera'. The analogue camera can then be viewed and controlled remotely over the Internet or for instance over a wireless LAN (See Wireless MESH).
<b><u>Wireless LAN</u></b>	A wireless LAN is a means by which data can be transmitted 'over-the-air' as opposed to wired networks that would transmit data packets via copper (Cat5e/Cat6 UTP cable) or fibre.

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**Wireless MESH**

A wireless LAN configured in a 'mesh' topology to provide redundancy. Each wireless AP (Access Point) is installed within line-of-sight of two or more AP's in the same mesh system. This enables the system to remain active and able to transmit information should an individual AP go 'off-line' due to a fault or routine maintenance.

A wireless mesh system incorporating IP surveillance cameras can be a cost effective alternative to the traditional method of installing CCTV cameras in cities, towns and villages.