



CATALOGUE
2005.2006

**Closed circuit
television**

ACI/FARFISA
S E C U R I T Y

Solutions
for security



2005.2006

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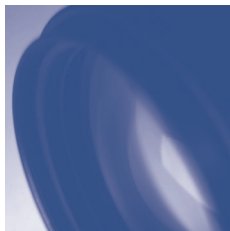
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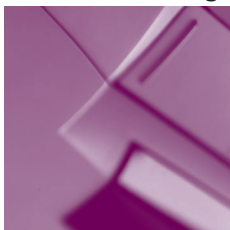
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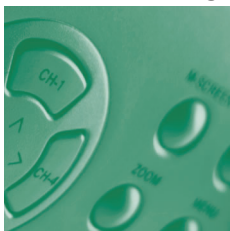
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ACI FARFISA

SECURITY

solutions for security



CCTV Product Range



ACI Farfisa

ACI Farfisa Intercoms starts as division, under the same name, of the famous company that operates in the electronic musical instrument field. Coming from solid enterprise tradition and continuous innovation, in 1993 ACI Farfisa is established as an independent Company and after few years successfully emerges on the main markets in the world in videointercom, telecommunication and CCTV fields.

Throughout continuous evolution and strong investments on R&D and experienced staff in AcI Farfisa, today the competitive and high-quality products meet all the requirements in Italy and in more than sixty export Countries. The wide distribution and technical service chain fulfils this rich company profile.

Security Products

ACI Farfisa meets specific video control requirements with high-quality materials and supreme technological standards:

- A complete range of products and solutions to ensure total reliability and absolute fidelity in the shooting, visualisation, recording and centralisation of images;
- Rational constructions for the realisation of efficient, comfortable and practical control stations;
- Demanding applications for special environments, standard and professional equipment characterised by rapid installation and easy use.

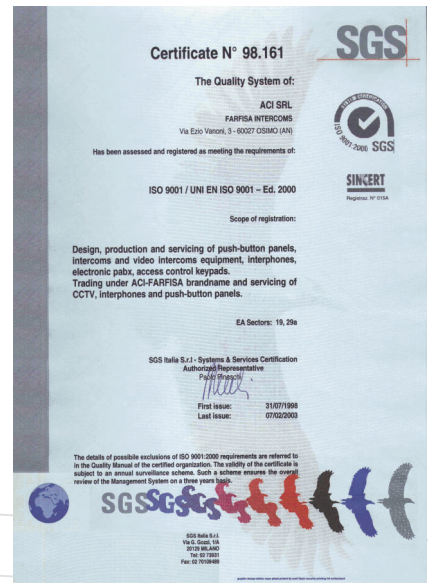
Also access control keypads are in Security field; the data are available on general catalogue and web site www.acifarfisa.it.



Quality

In September 2001 ISO 9001:2000 certification has been granted to ACI Farfisa, guaranteeing the efficient methods and the strict control of the production cycle, already confirmed in 1998 by ISO 9002 certification on Company Quality System.

ACI Farfisa provides solutions in compliance with the European regulations on Electromagnetic Compatibility and Safety in force, in particular power supplies comply with all safety specifications of the European standard.



ACI Farfisa is member of:



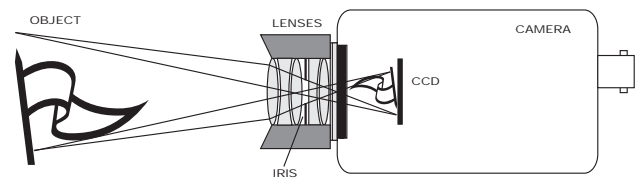
Introduction to CCTV

■ Closed Circuit Television is the application of television technology to the safety and surveillance sectors. The term refers to the situation in which a limited group of controlled areas is visually connected to a group of monitoring and control stations through direct communication channels of physical type, radio frequency or data network. CCTV makes use of dedicated systems for the generation, transmission, reception and vision of video signals that can be classified in 4 main groups:

- video signal generation and visualisation devices: cameras, optics and monitors;
- video signal processing devices: VCR's, cyclic switchers, quads, multiplexers, matrixes, video amplifiers, distributors;
- video signal transmission devices: cables and connectors;
- accessories: housings, brackets, power supplies.

These introduction pages are an easy reference guide for the application of the products presented in the ACI Farfisa CCTV catalogue.

perception of the light reflected by the surrounding space. The reflected components are projected on the retina through the "lens" formed by cornea and crystalline lens. The intensity is adjusted by the iris, which adjusts perception to light intensity. TV reproduction is a similar process, in which the devices in charge of the entire process are artificial and find their operation on the photoelectric effect.

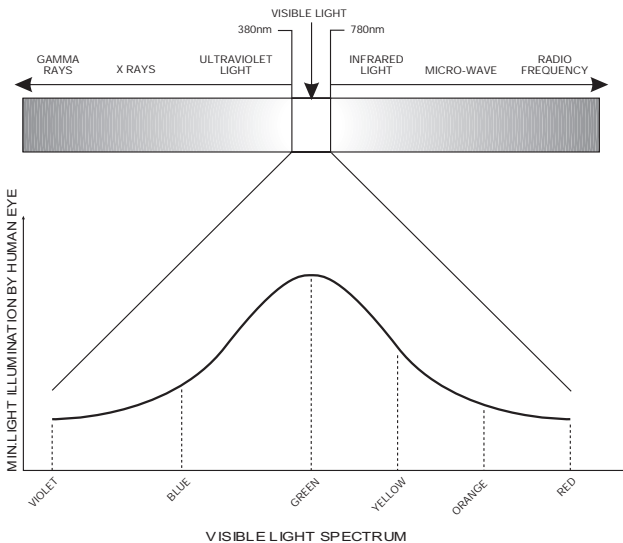


In cameras images go through the lens and focus on a sensitive element (CCD) that converts them into electrical signals. The monitor allows for re-transforming electrical signals in visible images.

The illumination of the scene is extremely important: it is defined as the flow of light per surface unit and measured in LUX. The following table shows the illumination levels of some common situations.

Basic technical principles: the light

■ Light is an electromagnetic radiation. The electromagnetic radiation range perceived by the human eye is normally defined as visible light. The visible spectrum ranges approximately from 400nm to 700nm, and the extreme values correspond to violet and red light. The range between the two values is covered by the various colour components, from blue to orange, passing through green and yellow.



The human eye perceives both single chromatic components (in this case we speak about "colours") and their combinations. The combination of all chromatic components is defined as "white light". Vision is the

Light condition	Average illumination (lux)
Night with no moon and overcast sky	0,0001 lux
Clear night with no moon	0,001 lux
Clear night with moon	0,01 lux
Full moon night	0,1 lux
Street lighting	1 ÷ 10 lux
Rooms lit with artificial light	100 ÷ 1000 lux
Day with overcast sky	100 ÷ 10.000 lux
Day with partially overcast sky	10.000 ÷ 100.000 lux
Full sunlight	over 100.000 lux

Colour temperature is an objective measurement of what is commonly defined as the "colour" of light and is expressed in Kelvin degrees.

Video signal theory

■ The television principle takes advantages of the persistence of static images on the retina: image scanning and reproduction at defined time intervals produces the sensation of continuously moving images. Two basic standards exist for TV reproduction of b/w images: CCIR (Comité Consultatif International des Radiocommunications), mainly diffused in Europe and Australia, and EIA (Electronic Industry Association), in the United States, Canada and Japan. Extensions for colour images



are PAL (Phase Alternate Line) for CCIR, and NTSC (National Television System Committee) for EIA. Both standards use 4:3 television ratio, but differ in terms of vertical resolution. In CCIR/PAL images are formed of 625 horizontal lines (approximately 570 lines are used for images), while EIA/NTSC only uses 525. Another difference lies in image acquisition frequency, which depends on the electrical distribution network frequency in the different countries: 25 images per second for CCIR/PAL, and 30 images per second for EIA/NTSC.

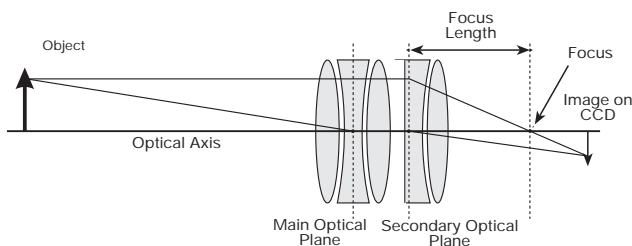
In order to reduce the video signal band and adjust vision to persistence time on TV tube phosphorous, images are acquired in two semi-fields, the first one formed of odd lines and the second one of even lines. This process is defined as "interlaced scanning" and allows for obtaining a complete TV image (TV frame) for CCIR/PAL every 1/25 of sec. through the superimposition of two semi-fields, one with odd and one with even lines (even/odd fields), each of them acquired in 1/50 of sec. The image persistence on the TV screen phosphorous and on retina allows for perceiving this process as a moving image (if not, the so-called "flickering" effect originates). The image formation from a line to the next one and from a field to the next one is regulated by synchronisation signals (H-sync and V-sync) included in the video signal. Horizontal resolution, expressed in TV lines, is the number of vertical lines that can be actually visualised multiplied by 0.75.

Optics and lenses

■ Lenses allow cameras to focus images on the sensitive element (CCD) and are formed of groups of lenses that, by taking advantage of refraction and reflection principles, deviate incident rays, thus forming the image taken by the camera. The main parameters that characterise lenses are:

Optical planes: these are the planes passing by the centres of the lens group.

Optical axis: this is the axis passing by the lens centre, perpendicular to optical planes;



Focus: this is the point where incident rays converge parallel to the optical axis;

Distance or focal length (f): this is the distance in millimetres between the optical plane of the lens and the focus. It is used to classify lenses, since it identifies the dimensions of the taken field. Lenses can have fixed or variable focal length (zoom).

Resolution: this is the capability of the lens to reproduce fine details. It is commonly expressed in lines/mm. It must be considered in function of the CCD dimensions.

Iris or F-stop: it characterised the capability of the lens to let light

pass through it. Numerically, it is the ratio between the lens focal length (f) and the iris opening diameter. The rated value represents the maximum opening of the lens iris. The lower the value, the higher the capability of the camera to operate in poor lighting conditions will be. At the same focal length, the closing of the iris implies higher F-stop values and at the same F-stop value lenses with different focal length have different iris opening diameters.

Field depth: it is the distance range in which objects are clearly focused. It mainly depends on focal length and iris opening: the shorter the focal length, the higher the field depth will be; the higher the F-stop value (that is the lower the iris opening) the higher the field depth will be. In poor light conditions, focusing is more selective and critical than in full light conditions, due to the higher opening of the iris with consequent reduction of the field length. A frequent problem occurs when subjects that are correctly focused during the day become unfocused and illegible at night (that is when the automatic iris opens). This can be easily solved with fine focusing through the reference values on the lens, by simulating night conditions through special ND (Neutral Density) filters, or by focusing directly at night or in poor light conditions. A similar problem occurs when the night scene is lit with infrared floodlights, whose radiation has a different wave length from visible light.

Selecting the lens: optics and focal length.

The selection of the lens depends on shooting conditions and subjects. The correct focal length between MANUAL and AUTOMATIC iris lenses must be chosen according to shooting conditions.

MANUAL IRIS lenses: This category includes lenses with manually controlled iris opening through an external ring. The ring is provided with rotation reference for maximum iris opening or closing. Manual iris lenses are suitable for installations with constant light conditions, for example indoor settings with continuous artificial light. Situations with variable light conditions, for example outdoor locations, would request continuous compensation actions that are impossible to manage once the system has been installed. The iris must be adjusted so as to obtain good images in standard shooting conditions; the camera electronic circuits (AGC, BLC, ESC) should be temporarily deactivated during the operation.

AUTOMATIC IRIS (AUTO IRIS) lenses: This category includes lenses in which the iris is controlled by a motorised system integrated in the lens. The lenses can be of DC or VIDEO type: in the first case the motor is directly controlled by the camera according to light intensity; in the second case it is controlled by an electronic device integrated in the lens that operates according to the video signal from the CCD. In DC optics brightness and back-light (LEVEL and BLC) are adjusted on the camera, while in VIDEO optics controls are located on the lens body. Auto iris lenses are suitable for installations with variable light conditions, typically outdoors. Auto iris allows for adapting the quantity of incident light on the CCD according to a very wide range of lighting conditions. When setting up the system, the LEVEL control must be adjusted in order to provide the correct exposure value at the highest F-stop value. When using auto iris lenses, the camera automatic gain controls (AGC and ESC) should not be used to avoid the generation of oscillations in the image brightness (hunting effect). If this is not possible, you can adjust the LEVEL/BLC controls or replace the optics with a manual iris lens and activate the ESC control. Adjustment regulations are more complicated in this case.

Focal length: the correct focal length of the lens must be chosen according to the subject. A first selection criterion is based on simple formulas that relate approximate focal length with subject distance and dimensions:

$$f = \frac{4,8 \times D}{L}$$

$$f = \frac{3,6 \times D}{H}$$

L

H



The first formula is used to calculate the focal length "f" when the subject width "L" and distance "D" from the camera are known. The second formula is used when the height "H" is the main dimension of the subject. The application of the formulas will become evident through the examples below:

- the camera must shoot a 4-m wide gate and is installed at about 10 metres. The recommended focal length will be $f = (4.8 \times 10) / 4 = 12\text{mm}$;
- the camera must shoot an entrance door from a distance of 2.5 metres. The door height is 2 metres; the recommended focal length will be $f = (3.6 \times 2.5) / 2 = 4.5\text{mm}$ 4mm.

If these focal length values are not available on the market, you must choose the immediately lower value for a "complete" shooting of the subject, or the immediately higher value if a detail view is acceptable. As regards the selection of the lens according to the shooting area, you must evaluate the coverage capability of the lens, which is determined by the visual angle. This information characterises the focal length used and is indicated in the rating. Evaluations at planimetric level must be made, taking into consideration the capability of the lens to cover the framed area. This will also provide a general indication about the number of necessary cameras.

ZOOM optics: can continuously vary their focal length, and consequently the coverage angle. They offer higher versatility in terms of installation conditions. They have a more complex optical group than optics with fixed focal length, resulting in higher price at the same average focal length and brightness. Zooms are characterised by the magnifying power, which is calculated as the ratio between the maximum and minimum focal length (for example, the magnifying power of an 880mm optics is 10X). The F-stop value shown in the rating refers to the minimum focal length and increases with the focal length. The zoom function can be of manual (varifocal) or motorised type. In the first case the optics is adjusted according to framing during set-up. In the case of motorised zooms the focal length and focus can be adjusted by the operator through control units (generally associated with sweep devices). The optics is screwed onto the camera (C/CS mounting system). The back flange of the optics must be at a distance of about 17.5mm (standard C) or 12.5mm (standard CS) from the CCD plane. Today cameras are provided with an adapter that allows for both C or CS mounting systems. The adapter is a 5mm-thick threaded metal ring that is generally mounted on the camera or supplied in the package. In the case of C optics (ACI FARFISA TVKH04/TVKH06/TVKH08/TVKH12 codes) the ring must be screwed between the optics and the camera attachment. In the case of CS optics (that is all the other codes in the catalogue) the adapter ring must be removed and the optics directly mounted onto the camera body.

Cameras

■ Cameras convert images into video signals. They can be mainly classified according to sensor type, resolution and sensitivity.

Sensor type: the sensor is the photosensitive element that converts images into electrical signals, generating electrons by photoelectric effect according to the quantity of incident light. The most common sensors are CCD (Charged Coupled Device) sensors. They are character-

ised by low consumption, low power supply voltage, small footprint, low minimum illumination levels and long product life. Thanks to the improvement in production technologies, dimensions have been gradually reduced down to 1/3" and 1/4", equal to 4.8 x 3.6mm and 3.6 x 2.4mm, respectively. The CCD size must be taken into consideration when selecting the optics.

Sensitivity and minimum illumination: Camera sensitivity, normally confused with minimum illumination, is defined as the minimum iris opening that produces a 1Vpp (140 IRE) video signal when the camera shoots a test target with grey scale illuminated at 2,000 lx with 3200°K colour temperature. The test must be carried out after deactivating all camera controls (AGC, BLC, etc...). Minimum illumination, measured in lux, is a qualitative evaluation parameter defined as the minimum intensity of incident light that is necessary for the camera to generate an efficient video signal. B/w cameras usually have higher sensitivity and lower minimum illumination level than colour cameras, because of the filters applied to colour cameras to optimise the response to the visible spectrum.

Resolution: Camera resolution refers to the video signal and should not be confused with the CCD resolution measured as bi-dimensional pixel matrix. Vertical resolution is the maximum number of horizontal lines generated by the camera and is limited to the theoretical value of 625 lines (about 570 effective lines) for the PAL system. Horizontal resolution is the maximum number of vertical lines discriminated by the camera (TV lines).

Signal/Noise ratio (S/N): The signal/noise ratio, measured in dB, is used to indicate the quality of the video signal generated by the camera.

Camera dynamic range: This parameter measures the camera capability to reproduce high-contrast scenes (i.e. scenes with strong lights and dark areas) providing sufficient details in the complete image.

Camera controls: Cameras are provided with controls used to adjust settings in order to adapt to a wide range of shooting conditions. The main controls are:

AGC - (Automatic Gain Control) this device amplifies the video signal from the CCD, bringing it back within a predefined minimum level, if too low. The AGC should be used with manual iris optics to compensate small variations in lighting conditions.

BLC/ALC - (Back Light Compensation) this electronic control is used to compensate and reduce the back-light effect in high-contrast images.

ESC - (Electronic Shutter) the ESC reduces the image acquisition time from the CCD from 1/50 of sec. to 1/10000 seconds or less, to ensure higher image quality for rapidly moving subjects and avoid blurred images. Lower exposure, however, results in the reduction of the quantity of light detected by the CCD, also useful in areas with strong illumination or high reflection index.

LINE LOCK - It is a circuit that allows cameras to use power supply voltage frequency (if a.c.) for the generation of synchronisation references of the video signal in the place of internal oscillators; cameras powered by the same source can have synchronised video signals.

AWB - the white balance control is only available in colour cameras. It allows to continuously adjust the camera response to colour temperature to ensure correct chromatic tonalities.



Monitors

■ Monitors allow to visualize video signals. Most monitors use the Cathode Ray Tubes (CRT) of ordinary TV sets: they are projection screens covered by a phosphorous layer that emits light for each point hit by the projection ray. The phosphorous composition characterises luminous emission: phosphorous with neutral colour are used for b/w monitors, while colour CRT's use matrixes with three types of phosphorous based on primary colours (red, green and blue). Important characteristics of CRT's are persistence and efficiency. Persistence is the duration of phosphorous luminance after the bombing of electrons ends. It allows for minimising the flickering effect between video frames. However, duration should not be as high as to interfere with the image of the next frame. Efficiency is the ratio between the light flow produced by the CRT phosphorous and the power of the ray that excites them. This characteristic is particularly important for colour monitors, where phosphorous with different chromatic component must be driven with rays having different energy in order to avoid the dominance of some chromatic components.

The most important parameter of monitors is the dimension, expressed in inches and referred to the screen diagonal. The monitor (type and size) must be chosen according to the application and number of cameras to be visualised simultaneously.

Monitors are provided with contrast and brightness controls to optimise general image quality and vision also in relation to the lighting conditions of the room where monitor is installed. Contrast allows to change the dynamic range of the electronic ray that generates the image on the CRT, increasing or reducing the difference between areas with higher and lower brightness. Brightness allows to control the power of the electronic ray that generates the image, without changing the dynamic range. H-hold and V-hold controls are usually available for horizontal synchronisation (image horizontal centring) and vertical synchronisation (vertical centring and small synchronisation differences), respectively. Colour monitors are also provided with colour saturation control.

Many monitors are provided with both input and output video signal connectors (LOOP THRU) to transfer video signals to secondary devices. Signals can be transferred with suitable impedance adjustments, by means of impedance switchers or adapters if outputs are not automatically adjusted.

Signal processors

■ Signal processors are used to manage one or more video signals. They allow the operator to choose and compose frames from the available ones for one or more control stations. Two families of signal processors can be identified: analogue and digital systems. Analogue systems comprise devices that manage video signals without intervening on the image contents (cyclic switchers, video matrixes, video distributors and video amplifiers); digital systems can manage video signals also through image processing (quads and multiplexers).

Sequential cyclic switcher: It is the simplest device used to address multiple video inputs to one output. Basic versions can generally manage 4 inputs that can be manually or automatically selected with predefined dwell time. An approximate dwell time of 3-5 seconds for each input is recommended for most applications; higher times can cause a loss

of information from non-visualised cameras, with higher loss according to the number of connected cameras. If the cyclic switcher video output is connected to a Time Lapse VCR, cyclic times compatible with recording time must be considered. Most cyclic switchers are provided with alarm inputs that, when activated, force the vision of the corresponding camera for a programmable time.

Matrixes: Similar to cyclic switchers, they are used to address video inputs to independent outputs. They allow for the realisation of complex systems with even physically distant control stations. Each station can operate the selection of input signals independently. Sequential vision, video recording and alarm functions operate just like in cyclic switchers.

Signal amplifiers: They are recommended when signal transmission over coaxial cable reaches a longer distance than the maximum recommended length (160-200 metres for RG59 cable). The signal is amplified and equalised so as to compensate cable resistance and capacity effects, and maintain the same level as the original one for vision. Video amplifiers should be installed immediately downstream cameras or video sources; in case of very long distances cables that can guarantee high transmission capacity (for example RG11 cables for 500-600 m distances without amplification stages) must be used.

Video distributors: They allow to distribute the same video signal to different users, after signal amplification and impedance adaptation. Two video distributors are available in the catalogue: the first one with one input for two video outputs, and the second one with four inputs for eight outputs, that is two outputs for each input.

Quads: They are digital processors that allow for the simultaneous visualisation of four video signals, with re-synchronisation and digitalisation of each signal. Quads are characterised by image resolution: the standard value is 512x512 pixels (256x256 pixels for each frame), with 256 grey levels for black/white, or 16.7 million colours for colour quads. Dual quads are quads provided with 8 inputs: images are composed in two frames that can be individually selected or alternated. Quads allow for the simultaneous recording of four video signals when the dedicated output is connected to a VCR. However, quality loss of recorded images must be taken into account, due to the reduced resolution of each frame and normal quality loss during recording. The use of alarm functions allows to reduce these problems, by recording full screen images.

Multiplexers (MUX's): They combine the cyclic switcher and quad function with advance video recording functions. Images are acquired and digitised, then sent to two independent video outputs, one for vision and one for recording. Multiplexers usually have 9 or 16 inputs. Both real time images and images from the VCR can be visualised on the monitor output, with the possibility of choosing between single input, sequence (cyclic function) and mosaics of 2x2, 3x3 or 4x4 simultaneously visualised images. Full screen images from connected cameras are sent to the VCR output in synchronised sequential mode. Instead of recording a sequence of frames from a single camera, the VCR will record a sequence of frames, each frame from a different video source. For this reason the VCR and multiplexer must be connected and synchronised through dedicated connectors and settings. Synchronisation must take into account both the number of cameras and recording speed. Recording with multiplexer can solve two crucial problems: the simultaneous recording of multiple video signals with time division and Time Lapse recording speed.

Table 2 shows the number of recorded frames per second and refresh time between images for single and multiplexed video signals (in this case time refers to two consecutive images from the same input).

As shown in the table, the higher the number of cameras and the recording speed is, the larger the loss of information is. Therefore the number of cameras and recording time should be reduced to values compatible with control requirements. If necessary, the following solutions



can be used: use two multiplexers with a lower number of channels and two separate TL-VCR's (one for each multiplexer), or use one multiplexer and two TL-VCR's in series (the second tape starts automatically at the end of the first tape) with lower recording time. In this case the image acquisition speed is higher, but the total recording time does not change. Only recorded frames are visualised during playback: delay time between images is proportioned to recording speed. The higher the number of cameras is, the higher the refresh time for each camera will be. The use of the alarm inputs available on multiplexers allows for recording optimisation (priority encoding).

Video Motion Detectors (VMD's): They are used to simultaneously analyse one or more video signals, generating alarms or events if the signal contents changes. They allow for identifying and activating different alarm areas in the image with different sensitivity levels.

VCR's

Two main video recording technologies are used in CCTV: analogue recording with VHS tape VCR's (TL-VCR's) and digital recording with digital recording VCR's (DVR's).

ANALOGUE VIDEO RECORDERS (TL-VCR's)

Analogue video recorders for CCTV (Time Lapse VCR's) are basically the same as VCR's for domestic use. However, they only operate on video signals in base band and are provided with special functions for application to CCTV systems. The first main characteristic is that they can vary recording time up to 960H of continuous recording on one E180 tape, with possible intermediate times (12, 24, 48, 72, 96, 120, 240, 480, and 720 hours). In Time Lapse mode the complete video signal is not recorded. Instantaneous images are played at regular time intervals, the longer the recording time, the longer the time interval will be. TL-VCR's are also provided with special functions that allow for continuous recording on the same tape (REPEAT REC MODE) or connection to multiple TL-VCR's in cascade, in such a way that the first VCR starts the next one at the end of the tape (SERIES REC MODE). Alarm inputs and outputs are also available to start event recording. In this case the recording capacity of the tape only depends on the number of alarm events. Time Lapse VCR's can also be programmed for timed or recurrent recording.

DIGITAL VIDEO RECORDERS (DVR'S)

Digital video recorders are used to record video signals in digital format. They are based on standardised data coding (MPEG) and use hard disks as main recording support. According to recording resolution, type of coding used for image saving and hard disk dimension, DVR's allow for same recording time as Time Lapse analogue video recorders, with higher writing capacity than magnetic tapes.

Digital video recording has important benefits compared to analogue recording: images saved in coded data sequences have higher traceability when searching; being in digital format, image processing is easier (i.e. transfer to other supports, graphic processing, digital print, etc.). Image quality is considerably higher, up to 720x560 pixels compared to the 240 TV lines of the VHS standard. Images can be reproduced with the same quality after a long period of time, and the security of recorded data is guaranteed with special software technologies (watermarking). The only limitation of digital video recording is represented by the type of supports, which are less practical and more expensive than the VHS tapes used for analogue recording. For this reason the use of DVR's is recommended when higher quality is required and recording can take place in continuous cycle mode or only as a consequence of alarms and motion recognition (built-in Motion Detectors). Some DVR's are provided with removable hard disks and the connection of the DVR to external data networks allows for extracting and transferring significant images or data to other archive systems.

Recording time	Frames per second	Single video signal refresh time	9 multiplexed channels refresh time	16 multiplexed channels refresh time
3H	25	0.04 s	0.36 s	0.64 s
12H	6.25	0.16 s	1.44 s	2.56 s
24H	3.13	0.32s	2.88 s	5.12 s
48H	1.56	0.64 s	5.76 s	10.24 s
72H	1.04	0.96 s	8.64 s	15.36 s
120H	0.63	1.60 s	14.40 s	25.60 s
168H	0.45	2.24 s	20.16 s	35.84 s
240H	0.31	3.20 s	28.80 s	51.20 s
360H	0.21	4.80 s	43.20 s	76.80 s
480H	0.16	6.40 s	57.60 s	102.40 s
720H	0.10	9.60 s	86.40 s	153.60 s
960H	0.08	12.80 s	115.20 s	204.80 s

CCD B/W Camera

Cameras

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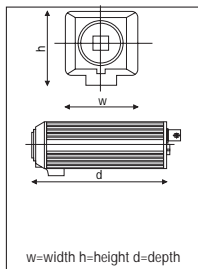
The completeness of the range allows to choose the camera module, depending on the different situations of installation, considering b/w or colour or day&night solutions, medium or high resolution, standard, fixed dome, motorised or antivandalic, mini or camouflaged, up to the highest level solutions with speed dome or on IP base.



■ TVT53

B/W STANDARD

1/3" CCD cameras with interchangeable lenses, including medium and high resolution units. Metal housings for installations requiring high performance. Cameras are provided with connector for amplified or non-amplified autoiris optics. Lens not included.



	TVT31K	TVT35	TVT53
Image sensor	CCD 1/3" - 270.000 pixel	CCD 1/3"	CCD 1/3"
Resolution	380 TVL	420 TVL	600 TVL
Real pixels	500x582	500 x 582	752x582
Scanning System	CCIR 2:1 interlaced	CCIR 2:1 interlaced	CCIR 2:1 interlaced
Video output	75 Ω 1 Vpp	75 Ω 1Vpp	75 Ω 1Vpp
S/N ratio	>45 dB	>48 dB	>48 dB
Gamma	0,45	0,45	0,45
Min. Light Illumination	0,1 Lux	0.05 lux/F1.2	0.1 lux/F1.2
Gain control	auto	auto	auto
Electronic shutter	1/50÷1/100.000 sec.	1/50÷1/110.000 sec.	1/50÷1/110.000 sec.
Operating temperature	-10°÷50°C	-10°÷50°C	-10°÷50°C
Power supply	12 Vdc	230 Vac	230 Vac
Power consumption	1,8 watt	2.75 watt	2.75 watt
Mounting system	C/CS	C/CS	C/CS
Auto-iris	DC/video	DC/Video	DC/Video
Dimensions in mm. (wxhxd)*	45 x 40 x 113,5	50x43x110	50x43x110
Back Light Control	on / off	on/off	on/off



■ TVT35VS

■ TVT35VSC

INTEGRATED WITH VARIFOCA LENS

Cameras integrated with varifocal lens available in b/w or colour versions equipped with 1/3" CCD sensor medium resolution and provided with good back light control. They are equipped with autoiris varifocal lens characterised by focal length from 3.5 and 8 mm that makes it ideal for most of the situations, that can be in steady illumination or changeable lighting conditions. Both are powered at 230 Vac.

	TVT35VS	TVT35VSC
Image sensor	CCD b/w 1/3"	CCD Colour 1/3"
Resolution	420 lines TV	380 lines TV
Real pixels	500x582	500x582
Scanning system	CCIR 2:1 interlaced	PAL 2:1 interlaced
Video output	75 Ω 1Vpp	75 Ω 1Vpp
S/N ratio	>48dB	>48dB
Gamma	0.45	0.45
Min.Light Illumination	0.1 lux	0.2 lux
Gain Control	yes	yes
Electronic Shutter	1/50-1/110.000 sec.	1/50-1/110.000 sec.
Lens	3.5÷8mm autoiris	3.5÷8mm autoiris
Operating Temperature	-10°÷50°C	-10°÷50°C
Power supply	230Vac	230Vac
Power consumption	3.1W	3.3W
Dimensions in mm (wxhxd)*	50x46x140.5	50x46x140.5
Back Light control	On/off	On/off





■ TVT13C

230Vac STANDARD COLOUR

1/3" CCD cameras with interchangeable lenses, with medium and high resolution. Both are 230 Vac powered, they are contained in metal housings for installations requiring high performances. All units are suitable for autoiris amplified or non-amplified lens, they are provided with Back Light Control (BLC) Systems. Lens not included.

	TVT13C	TVT53C
Image sensor	CCD 1/3"	CCD 1/3"
Resolution	380 TVL	470 TVL
Real pixels	500x582	752x582
Scanning system	PAL 2:1 interlaced	PAL 2:1 interlaced
Video output	75 Ω 1Vpp	75 Ω 1Vpp
S/N ratio	>48dB	>48dB
Gamma	0,45	0,45
Min.Light Illumination	0.1 lux/F1.2	0.2 lux/F1.2
Gain control	auto	auto
Back Light Control	on/off	on/off
White balance	auto	auto
Electronic shutter	1/50÷1/110.000 sec.	1/50÷1/110.000 sec.
Operating temperature	-10°÷50°C	-10°÷50°C
Power supply	230 Vac	230 Vac
Power consumption	3.2 watt	3.2 watt
Synchronism	internal	internal
Lens mounting	C/CS	C/CS
Autoiris	DC / Video	DC / Video
Dimensions in mm. (wxhxd)	50x43x110	50x43x157



■ TVT33C

■ TVT34C

12 Vdc STANDARD COLOUR

1/3" CCD cameras with interchangeable lenses, they have medium or high CCD resolution. Both are powered at 12 Vdc, they are contained in metal housings for installations requiring high performances. All units are suitable for autoiris amplified or non-amplified lens, they are provided with Back Light Control (BLC) systems which working is selectable. Lens not included.

	TVT33C	TVT34C
Image sensor	CCD 1/3"	CCD 1/3"
Resolution	330 TVL	460 lines TV
Real pixels	500 x 582	752 x 582
Scanning system	PAL 2:1 interlaced	PAL 2:1 interlaced
Video output	75 Ω 1 Vpp	75 Ω 1 Vpp
S/N ratio	>55dB	>55dB
Gamma	0,45	0,45
Min.Light Illumination	0,7 lux F/1,2	0,7 lux F/1,2
Gain control	ON/OFF selectable	ON/OFF selectable
Back Light Control	on/off	on/off
White balance	ATW/MWB	ATW/MWB
Electronic shutter	1/50÷1/100.000 sec.	1/50÷1/100.000 sec.
Operating temperature	-10°÷50 °C	-10°÷50 °C
Power supply	12 Vdc	12 Vdc
Power consumption	3,3 watt	3,6 watt
Synchronism	Internal	Internal
Lens mounting	C/CS	C/CS
Autoiris	DC / VIDEO	DC / VIDEO
Dimensions in mm. (wxhxd)	55 x 50 x 136	55 x 50 x 136





■ TVT35DN

DAY & NIGHT COLOUR

1/3" CCD colour Day&Night camera that provides a colour picture during the day and when the sun light goes down under a fixed level, the camera automatically switches and provides a b/w picture. In this way it is possible to reach illuminating minimum levels as the b/w cameras, being also IR sensitive. Directly 230 Vac powered, it allows to use manual or autoiris lens, amplified or not. Lens not included.

	TVT35DN
Image sensor	CCD 1/3"
Resolution	380 lines TV
Real pixels	500x582
Scanning system	PAL 2:1 interlaced
Video output	75 Ω 1Vpp
S/N Ratio	>48dB
Gamma	0.45
Min.Light Illumination	0.1 lux F1.2
B/W Switching	Illumination < 3 lux
Gain control	High/Low
Back Light Control	on/off
White balance	ATW / MWB
Electronic shutter	1/50-1/100.000 sec.
Operating temperature	-10÷50°C
Power supply	230Vac
Power consumption	4 watt
Synchronism	Internal/ Line Lock
Lens mounting	C/CS
Auto iris	DC/Video
Dimensions in mm (wxhxd)	61x51x144



■ TVT74D

MOTORISED DOME

Dome B/W medium-resolution motorised camera for internal applications, especially designed for camouflaged use. Possibility of horizontal and vertical rotation by AT7 remote control that can be used to manage up to 99 DOME units.

	TVT74D
Image sensor	CCD 1/3" 270.000 pixel
Resolution	400 TV lines
Scanning System	CCIR interlaced 2:1
Video output	75Ω 1Vpp BNC
S/N ratio	>45dB
Gamma	0.45
Min. Light Illumination	0.1 lux F/1.2
Transmission line	RS-485
Pre-set	64
Other functions	Automatic pre-set scanning
Rotations angles	Horizontal: 0°÷350° Vertical: 5°÷90°
Rotation speed	9°/sec – 93°/sec adjustable
Lens	Fixed 3.6 mm
Electronic shutter	1/50-1/100.000 sec.
Operating temperature	-10°÷50°C
Power supply	12Vdc – 500mA (jack)
Dimensions in mm. (øxh)*	120.5x106



■ TVT72D



■ TVT73D

**FIXED DOME**

Cameras specifically suitable for situations where easy installation and reduced dimensions are needed. Moreover the dome shape allows to be camouflaged in the surroundings. The b/w TVT72D and the colour TVT72DC are for internal use, while TVT73D, anti-vandal protected can be for external use also (IP68). All the cameras can be manually adjusted in horizontal or vertical way.

	TVT72D	TVT72DC	TVT73D
Image sensor	CCD 1/3" b/w	CCD 1/4" colour	CCD 1/3" b/w
Resolution	380 lines TV	330 lines TV	420 lines TV
Real pixels	500x582	500x582	500x582
Scanning system	CCIR 2:1 interlaced	PAL 2:1 interlaced	CCIR 2:1 interlaced
Video output	75 Ω 1Vpp (BNC)	75 Ω 1Vpp (BNC)	75 Ω 1Vpp (BNC)
S/N ratio	>48dB	>48dB	>48dB
Gamma	0.45	0.45	0.45
Min. Light Illumination	0.2 lux	0.5 lux	0.1 lux
Gain control	Auto	Auto	Auto
Electronic shutter	1/50-1/110.000 sec.	1/50-1/110.000 sec.	1/50-1/110.000 sec.
Lens	Fixed 3.6mm	Fixed 3.6mm	Fixed 3.6mm
Operating temperature	-10°÷+50°C	-10°÷+50°C	-10°÷+50°C
Power supply	12Vdc (jack)	12Vdc (jack)	12Vdc (jack)
Power consumption	110mA	120mA	150mA
Protection degree	-	-	IP68
Dimensions in mm (øxh)	87.5x56.5	87.5x56.5	140x95.8

■ TVT83MIC

■ TVT83MI

**MINI-CAMERAS**

Miniaturised cameras with 1/3" CCD medium resolution. Provided with fixing bracket for easy orientation during installation. Ideal for applications requiring compact or camouflaged cameras.

	TVT83MI	TVT83MIC
Type	B/w	colour
Image sensor	1/3" CCD 270.000 pixel	1/3" CCD 270.000 pixel
Resolution	400 lines TV	330 lines TV
Scanning system	CCIR 2:1 interlaced	PAL 2:1 interlaced
Video output	75 Ω 1 Vpp	75 Ω 1 Vpp
S/N Ratio	≥45 dB	≥45 dB
Min. light illumination	0,1 Lux	3 Lux
Gain control	auto	auto
Electronic shutter	1/50÷1/100.000 sec.	1/50÷1/100.000 sec.
Operating temperature	-10÷50°C	-10÷50°C
Power supply	12 Vdc	12 Vdc
Power consumption	110 mA	130 mA
Lens	3,6 mm fixed	3,6 mm fixed
Dimensions in mm. (wxhxd)*	31 x 39 x 45,5	37 x 44,5 x 49,6



- TVT82MEC
- TVT82ME



- TVT85MEC



MINIATURISED BULLET

Compact with medium resolution they are available in b/w or colour version. All the cameras are equipped with CCD 1/3" sensor. TVT82MEC is equipped with 6 white visible LED's: their range is around 3-4 mt. TVT82ME has 8 illuminating IR LED's, while art. TVT85MEC, even if it is colour version, is provided with invisible IR light LED's. In this case it turns on by managing a photo-cell. All the cameras can be installed outdoor.

	TVT82ME	TVT82MEC	TVT85MEC
Type	Black and white	Colour	Colour
Image sensor	CCD 1/3" 290.000 pixel	CCD 1/3" 290.000 pixel	CCD 1/3" 290.000 pixel
Resolution	400 lines TV	330 lines TV	380 lines TV
Scanning system	CCIR 2:1 interlaced	PAL 2:1 interlaced	PAL 2:1 interlaced
Video output	75 Ω 1 Vpp (BNC)	75 Ω 1 Vpp (BNC)	75 Ω 1Vpp (BNC)
Min. light illumination	0,1 lux	3 lux	0.2 lux/F2.0
Gain control	auto	auto	auto
Electronic shutter	1/50÷1/100.000 sec.	1/50÷1/100.000 sec.	1/50÷1/110.000 sec.
Operating temperature	-10÷50°C	-10÷50°C	-10°÷50°C
S/N Ratio	>45dB	>45dB	>48dB
Power supply	12 Vdc (jack)	12 Vdc (jack)	12Vdc (jack)
Power consumption	150mA	180mA	3.5 watt
Lens	3,6mm fixed	3,6mm fixed	3,6mm fixed
Illuminator	8 IR LED	6 white LED	12 LED
Protection degree	IP68	IP68	IP67
Dimensions in mm (dxp)	35,5 x 48	26,4 x 86	67.6x70.5

IN PIR SENSOR

Black and white miniaturised cameras camouflaged inside a IR sensor. Therefore they are particularly suitable where an internal discrete videosurveillance is necessary. Available in versions with not-working sensor (TVT84) or with working sensor (TVT84IR) provided with relay output for alarm or additional systems activation. They are provided with bracket for wall fixing.

	TVT84	TVT84IR
Image sensor	CCD b/w 1/3"	CCD b/w 1/3"
Resolution	420 lines TV	420 lines TV
Real pixels	500x582	500x582
Scanning system	CCIR 2:1 interlaced	CCIR 2:1 interlaced
Video output	75 Ω 1Vpp	75 Ω 1Vpp
S/N Ratio	>48dB	>48dB
Gamma	0.45	0.45
Min. Light Illumination	0.2 lux	0.2 lux
Gain control	Auto	Auto
Electronic shutter	1/50-1/110.000 sec.	1/50-1/110.000 sec.
Audio	-	Yes
Min. Light Illumination	-	Horizontal: 100°
PIR sensor angle	-	Vertical: 45°
Max detecting distance	-	9 m
Relay contacts	-	1A/125Vac, 2A/30Vdc
Alarm Time	-	Adjustable 2 - 40sec.
Power supply	12Vdc	12Vdc
Power consumption	110mA	140mA
Lens	3.7mm F/2.0 pin hole	3.7mm F/2.0 pin hole
Dimensions in mm (wxhxd)	70x120x120	70x120x120
Operating temperature	-10°÷50°C	-10°÷50°C



- TVT84
- TVT84IR

LAN

This colour camera, further to the standard composed video output, is provided also with a RJ-45 port to be connected to TCP/IP networks. So the installation is extremely easy if a data network already cabled is provided (commercial or industrial places). Through the provided software it is possible to make all the compression settings, recording on a remote PC according to different modes, visualising the pictures or sending e-mails on movement detection.

	TVT62WEB
Image sensor	CCD 1/3" colour PAL
Horizontal resolution	480 lines TV
Min. Light Illumination	0.15 lux/F1.2
Electronic shutter	1/50÷1/100.000 sec.
S/N Ratio	>50dB
Iris lens	DC/Video
Lens mounting	C/CS
Back light compensation	on/off
White balance	on/off
Auto gain control	on/off
Compression	MPEG4 format CIF
Network output	10/100 base-T LAN/WAN
Protocols	TCP/IP, HTTP, PPPoE, DDNS, DHCP
Composite video output	1Vpp – 75 Ω BNC
Interface	RS-485
Alarms	1 in / 1 out
Power supply	12Vdc – 750 mA
Dimensions in mm (wxhxd)	63x52x120



- TVT62WEB





TCP/IP TRANSMISSION

TXWEB/1

TXWEB/1 transmitter is provided with the same functions and technical features mentioned for the camera, but it is also available a composed video input where any CCTV apparatus (even an existing one) can be connected. In this way it is possible to visualise the pictures through remote PC by using the software provided. Complete with power supply.



■ TXWEB/1



■ TVT76SDC

■ TVT76SDND

SPEED DOME

These cameras, technologically extremely evolved and provided with very good colour yield and laying precision, are suitable for all the cases where the videosurveillance of wide places is necessary, thanks to the function Pre-set, Group and Tour manageable and programmable through AT6SD keyboard. They are available in colour version and Day&Night version, both high resolution, equipped with zoom lens (digital and optical) that can be installed in internal or external through the provided bracket. Power supply included

	TVT76SDC	TVT76SDND
Image sensor	CCD colour 1/4"	CCD colour Day&Night 1/4"
Resolution	470 lines TV	460 lines TV
Real pixels	750x582	750x582
Scanning system	PAL 2:1 interlaced	PAL 2:1 interlaced
Video output	75 Ω 1Vpp	75 Ω 1Vpp
S/N Ratio	>49dB	>50dB
Min.Light Illumination	1 lux	0.003 lux with active DSS
Gain control	Adjustable	Adjustable
BLC - AWB - WDR	Adjustable	Adjustable
Zoom	23x optical 10x digital	27x optical 10x digital
Rotation angles	Horizontal 0-350° Vertical 0,7°-90°	Horizontal 360° continuous Vertical 0°-90°
PAN speed	Manual 0,7°-90°/sec Preset 90°/sec	Manual 0,1°-250°/sec Preset 360°/sec
TILT speed	Manual 0,7°-90°/sec Preset 200°/sec	Manual 0,1°-90°/sec Preset 200°/sec
Control line	RS-485 / RS-422	RS-485 / RS-422
Programming OSD	Yes	Yes
Preset/Swing/Group/Tour	64/2/6/1	64/2/6/1
Privacy Masking Zone	-	6
Alarms	-	4 in/1 out
Power supply	24 Vac	24 Vac
Power consumption	2A max	2A max
Protection degree	IP66	IP66
Internal environmental control	Fan and heater	Fan and heater
Dimensions in mm (øxh)	216x302	216x302
Operating temperature	-10°±50°C	-10°±50°C

CONSOLE

AT6SD keyboard allows to program and easily manage all the functions of the Speed Dome, control the movements PAN/TILT/ZOOM/FOCUS through the 3-axis joystick or the programming buttons. The console is provided with power supply and interface box for the connection of RD-485 data line.

	AT6SD
Managed cameras	Max. 255
Power supply	9Vdc 500mA through interface box
Communication protocol	RS422 / RS485
Working temperature	0°±40°C
Dimensions in mm (wxhxd)	338x180x45

■ AT6SD





Lenses

ACI/FARFISA

A wide selection of optics to provide the best solution to any framing requirement. The top-quality, highly reliable range includes manual optics, autoiris with or without drive in order to guarantee the correct shooting in many situations and applications. Motorised zoom are also available.

**2.6 mm FIXED LENS**

2,6 mm Fixed lenses that allow to get a wide field of shooting, available with manual or auto iris (with or without drive).

	H26M	H26C	H26S
Mounting system	CS	CS	CS
Focal length	2,6 mm	2,6 mm	2,6 mm
Max.aperture ratio	F 1,6	F 1,6	F 1,6
Visual angle α (°)	87°	87°	87°
Lens format	1/3"	1/3"	1/3"
Iris	manual	auto with drive	auto without drive

**3.5÷8 mm VARIFOCAL**

Lenses with changeable focal length that allow to choose the ideal shooting in most of appliances. All the formats are available in version with manual iris and auto iris (with or without drive).

	H358VME	H358VCE	H358VSE
Mounting system	CS	CS	CS
Focal length	3,5÷8,0 mm	3,5÷8,0 mm	3,5÷8,0 mm
Max aperture ratio	F 1,4	F 1,4	F 1,4
Visual angle α (°)	70°÷35°	70°÷35°	70°÷35°
Lens format	1/3"	1/3"	1/3"
Iris	manual	Auto with drive	Auto without drive

**VARIFOCAL 6÷15 mm**

	H615VM	H615VC	H615VS
Mounting system	CS	CS	CS
Focal length	6÷15 mm	6÷15 mm	6÷15 mm
Max aperture ratio	F 1,4	F 1,4	F 1,4
Visual angle α (*)	43,6°±18°	43,6°±18°	43,6°±18°
Lens format	1/3"	1/3"	1/2"
Iris	manual	Auto with drive	Auto without drive

**VARIFOCAL 12÷30 mm**

	H1230VM	H1230VC	H1230VS
Mounting system	CS	CS	CS
Focal length	12÷30 mm	12÷30 mm	12÷30 mm
Max aperture ratio	F 1,6	F 1,6	F 1,6
Visual angle α (*)	22,60°±9°	22,60°±9°	22,60°±9°
Lens format	1/3"	1/3"	1/3"
Iris	manual	Auto with drive	Auto without drive

VARIFOCAL 6÷60 mm

Lens with changeable focal length, with extremely wide range. It allows to choose the most proper shooting by changing the focal length from 6 mm to 60 mm. Seen that it is equipped with an automatic iris without drive (DC), it can be installed even in changeable light conditions.

	H660VS
Mounting system	CS
Focal length	6÷60 mm
Max aperture ratio	F 1,6
Visual angle α (*)	43,6°±4,5°
Lens format	1/3"
Iris	Auto without drive



(*) - Visual angle refers to lenses mounted on 1/3" CCD sensor.



MOTORISED ZOOM

Motorised zoom with focal length 8÷80 mm, auto iris DC type. AT4 keyboard allows the control of zoom and focus functions.

	H80Z
Mounting system	C
Focal length	8÷80 mm
Max. aperture ratio	F 1,2
Visual angle α^*	33,4°÷3,4° on 1/3"
Lens format	1/2"
Iris	automatic

ANL01

5 mm adjustment ring for lens type C to be mounted on cameras type CS.

SELECTING LENSES

Some elements, such as focal length, scene lighting and shooting field, must be taken into consideration before selecting the most appropriate lens. Focal length determines the visual angle: the higher the focal length, the smaller the visual angle. As regards lighting and focusing, our offer includes models with manual or automatic iris (with or without drive): the latter must be preferred in the presence of variable lighting conditions. In the case of focusing, also the preset depth of field of the lens must be considered, that is the area in which the subject is optimally focused: the wider the shooting angle, the deeper the depth of field. The depth of field is affected by factor F, which indicates the lens opening to transmit light to the sensor. The higher this factor is, the less light enters between the lenses and the deeper the shooting field is. A lens with a high F value is recommended for good light conditions to obtain high depth of field and excellent focusing. In case autoiris lens is used, it is advisable to focus in low lighting conditions. The following table indicates the focal length to be selected, knowing the distance between the subject and the lens and the shooting conditions. Data refer to optics

mounted on 1/3" cameras. Length in meters must be multiplied by the multiplication factor for distances higher than 10 mt.

A wide range of lenses satisfies any focusing requirement, including manual lenses, autoiris (with or without drive), varifocal and motorised zoom.

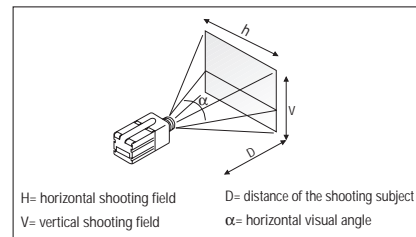


TABLE FOR THE SELECTION OF THE LENSES WITH DIMENSIONS

FOCAL LENGTH mm	VISUAL ANGLE		DISTANCE mt										MULT. factor
			1	2	3	4	5	6	7	9	8	10	
2,6	87,0	H	1,9	3,8	7,6	7,6	9,5	11,4	13,3	17,1	15,2	19,0	1,90
	65,2	V	1,4	2,8	5,7	5,7	7,1	8,5	10,0	12,8	11,4	14,2	1,42
3,5	70	H	1,3	2,7	4,1	5,5	6,9	8,2	9,6	11	12,3	13,7	1,37
	54,4	V	1	2	3	4,1	5,1	6,2	7,2	8,2	9,3	10,3	1,03
6	44,7	H	0,8	1,6	3,3	3,3	4,1	4,9	5,8	7,4	6,6	8,2	0,82
	33,5	V	0,6	1,2	2,5	2,5	3,1	3,7	4,3	5,6	4,9	6,2	0,62
8	34,3	H	0,6	1,2	2,5	2,5	3,1	3,7	4,3	5,6	4,9	6,2	0,62
	25,7	V	0,5	0,9	1,9	1,9	2,3	2,8	3,2	4,2	3,7	4,6	0,46
12	23,2	H	0,4	0,8	1,6	1,6	2,1	2,5	2,9	3,7	3,3	4,1	0,41
	17,4	V	0,3	0,6	1,2	1,2	1,5	1,9	2,2	2,8	2,5	3,1	0,31
16	17,5	H	0,3	0,6	1,2	1,2	1,5	1,9	2,2	2,8	2,5	3,1	0,31
	13,1	V	0,2	0,5	0,9	0,9	1,2	1,4	1,6	2,1	1,2	2,3	0,23
18	15,6	H	0,3	0,5	1,1	1,1	1,4	1,6	1,9	2,5	2,2	2,7	0,27
	11,7	V	0,2	0,4	0,8	0,8	1,0	1,2	1,4	1,9	1,6	2,1	0,21
25	11,3	H	0,20	0,39	0,79	0,79	0,99	1,18	1,38	1,78	1,58	1,97	0,20
	8,5	V	0,15	0,30	0,59	0,59	0,74	0,89	1,04	1,33	1,18	1,48	0,15
30	9	H	0,2	0,3	0,5	0,6	0,8	1	1,1	1,3	1,4	1,6	0,16
	6,9	V	0,1	0,2	0,3	0,5	0,6	0,7	0,8	1	1,1	1,2	0,12

Monitors

ACI FARFISA

The range includes b/w and colour monitors manufactured with reliable components for continuous operation to guarantee total reliability and reproduction quality over time. The ideal solution for professional installations, they are provided with contrast, brightness, horizontal and vertical frequency controls on the front panel. The metal case gives strength, solidity and elegance. The LCD offers are suitable for all the applications where further to performances, also the good aesthetic is needed.



■ TVM09

B/W

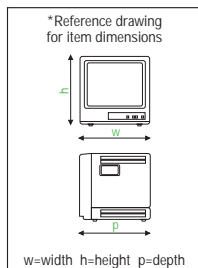
Professional series of CCTV B/W monitors with high resolution for guaranteed performance. Painted metal housing characterised by high mechanical resistance and careful finishes. On/off switch, brightness and contrast buttons on the front panel.

	TVM09
Picture tube	9"
Input signal	CCIR
Input connector	BNC (with LOOP)
Input impedance	75 Ω / Hi (selectable)
Resolution	>900 lines
Band width	10 MHz
Power supply	100 \pm 250 Vac (free voltage)
Consumption	25 watt
Operating temperature	-10 \pm 50°C
Dimensions in mm. (wxhxd)*	220 x 235 x 250
Weight in kg	5,8



■ TVM12

■ TVM14



	TVM12	TVM14
Picture tube	12"	14"
Input signal	CCIR	CCIR
Input connector	BNC (with LOOP)	BNC
Input impedance	75 Ω / Hi (selectable)	75 Ω / Hi (selectable)
Resolution	>1000 lines	>1000 lines
Band width	10 MHz	10 MHz
Power supply	90 \pm 250 Vac (free voltage)	100 \pm 240 Vac (free voltage)
Consumption	35 watt	35 watt
Operating temperature	-10 \pm 50°C	-10 \pm 50°C
Dimensions in mm. (wxhxd)*	307 x 300 x 300	346 x 330 x 364
Weight in kg	8,6	9,5



■ TVM20

	TVM20
Picture tube	20"
Input signal	CCIR
Input connector	BNC with LOOP
Input impedance	75 Ω /Hi (selectable)
Resolution	>900 lines
Power supply	90 \pm 240 Vac (free voltage)
Consumption	53 watt
Operating temperature	-10 \pm 50°C
Dimensions in mm. (wxhxd)*	460 x 430 x 366
Weight in kg	18,8



■ TVM14C

COLOUR

Professional series of CCTV colour monitors with medium resolution for guaranteed performance. Painted metal housing characterised by high mechanical resistance and careful finishes. On/off switch, brightness, contrast and colour buttons on the front panel.

	TVM14C	TVM21C
Picture tube	14"	21"
Input signal	PAL / NTSC	PAL/NTSC
Channels	1 video composite/1Y/C	1 video composite/1Y/C
Input connectors	BNC/mini din 4 PIN	BNC/mini din 4 PIN
Input impedance	75 Ω / Hi (selectable)	75 Ω / Hi (selectable)
Audio inputs	2 (RCA)	-
Resolution	420 lines	420 lines
Power supply	100÷240 Vac	100÷240 Vac
Consumption	70 watt	74 watt
Operating temperature	-10÷50°C	-10°÷50°C
Dimensions in mm. (w×h×d)*	346 x 330 x 364	490x450x470
Weight in kg	12.5	28



■ TVM15LCD

LCD

The LCD colour monitors, besides for dimensions and reduced weight, are specific for the extremely careful aesthetic. Therefore they are particularly suitable for all the applications where high performance and also perfect combination with the surroundings are needed. The three video input kinds (composed, S-VIDEO, VGA) and audio stereo, together with technical data, put them in a medium-high product level.

	TVM15LCD	TVM17LCD
Display	15" TFT LCD active matrix	17" TFT LCD active matrix
Pixel Pitch	0.297 (H) x 0.297 (V)	0.264 (H) x 0.264 (V)
Resolution	1024x768	1280x1024
Visualisation image area (mm)	306 x 230	337x270
Contrast ratio	400:1	350:1
Brightness	250 cd/m ²	250 cd/m ²
Colour visualisation	16.7 millions	16.7 millions
Minimum visualisation angle	130° horizontal –100° vertical	170° horizontal –170° vertical
Response time	Tr: 15ms, Tf: 20ms	Tr: 25ms, Tf: 25ms
Video input	1vpp – 75 Ω (RCA)	1vpp – 75 Ω (RCA)
VGA input	RGB D-sub 15 poles	RGB D-sub 15 poles
S-VIDEO input	Y/C mini-din 4 poles	Y/C mini-din 4 poles
Audio input	RCA (right/left)	RCA (right/left)
OSD	yes	yes
Power supply	12 Vdc-3.0 A (power supply provided)	12 Vdc - 3.0 A (power supply provided)
Weight	3.55 kg	5.13Kg
Dimensions base (mm)	255 x 190	255 x 205



Signal processors

ACI FAFISA

Signal processors for the correct distribution of video signals with good signal quality and level. Cyclic switchers and quads, although with different approaches, can manage images from multiple cameras on one or more monitors. Also transmitters and receivers for the transmission of video signal are also available, by mean of twisted pair instead of coaxial cable.

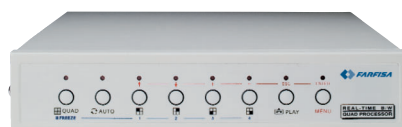


S82A

CYCLIC SWITCHERS

Cyclic switchers are designed to display several cameras in a sequence with programmable scanning and duration time. They are provided with alarm interface for the eventual auto visualisation of the channel with the event.

	S42A	S82A
Video input signal	4	8
Video output signal	2	2
Power supply (provided)	110/220 Vac	110/220 Vac
Video connectors	BNC	BNC
Switching time	3÷100 sec	3÷100 sec
Video input skip	Programmable	Programmable
Alarm interface	Yes	Yes
Dimensions in mm. (wxhxd)	440 x 45 x 270	440 x 45 x 270

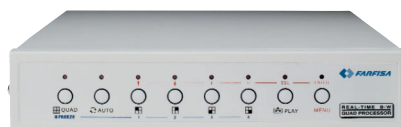


Q41B

B/W QUAD

B/w quad allows simultaneous display of 4 cameras on the same monitor. Quad includes also cyclic function. APS121 power supply suggested.

	Q41B
Video input	4 B/W CCIR/EIA
Impedance	75 Ω
Video output	1+1 for VCR
Vcr input	1
Resolution	640x576 pixels
Refresh frequency	25 Frame/sec
Motion Detection	Yes
Alarm output	NA/NC
Freeze, PIP	Yes/Yes
Power supply	12Vdc (power supply not prov.)
Title setting	8 types + date + time
Dimensions in mm (wxhxd)	218x44x204



Q42CB

COLOUR QUADS

Colour quads allow simultaneous display of 4 or 8 cameras on the same monitor, depending on the model. APS121 power supply suggested.

	Q42CB	Q82CB
Video input	4 colour	8 b/w and colour
Impedance	75 Ω	75 Ω
Video output	1+1 for VCR	1+1 for VCR
Vcr input	1	1
Resolution	680x625 pixels	860 x 625 pixels
Refresh frequency	25 frame/sec.	25 frame/sec
Motion Detection	Yes	-
Alarm input	-	8
Alarm output	NA/NC	NA/NC
Freeze, PIP/POP	Yes/Yes/Yes	Yes/-/-
Power supply	12 Vdc (power supply not prov.)	12 Vdc (power supply not prov.)
Title setting	8 types+date+time	8 types+date+time
Dimensions in mm (wxhxd)	220x44x210	313x44x232



VIDEO DISTRIBUTOR

AD28



AD28

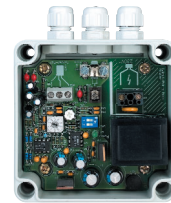
Video distributor with 4 inputs and 8 outputs for applications requiring the distribution of the video signal to several stations. It can be programmed

in different configurations: from 2 In-4 OUT for each input, to 1IN and 8 OUT. Adjustable gain output.

TXTW



RXTW



TRANSMISSION ON TWISTED PAIR

This pair transmitter-receiver allows to use a twisted pair line for the transmission of the video signal on long distances (up to 1000m) without having to use further amplification apparatus. This special receiver is provided with adjustments that allow to compensate the losses and equalise the line.

	TXTW	RXTW
Input signal	1Vpp 75 ohm unbalanced	$\pm 0.5Vpp$ 100 ohm balanced
Output signal	$\pm 0.5Vpp$ 100 ohm balanced	1Vpp 75 ohm unbalanced
Power supply	220 Vac - 4.5W	220 Vac - 4.5W
Dimensions in mm	94 x 94 x 57	94 x 94 x 57
Protection degree	IP66	IP66



POWER

STOP/EJECT

Analog video recording

ACI/FARFISA

Time Lapse video recorders are suitable for use in professional systems thanks to their versatility, reliability over time, resistant construction and easy use. They allow to record b/w and colour pictures and they can be programmed in different recording modes for ideal event recording based on specific requirements, while optimising the use of magnetic recording supports.

VCR960J



VCR TIME LAPSE

Series of B/W or colour time-lapse videorecorders. Programmable recording mode from 3 to 960 hours. Resistant and easy-to-use thanks to their modularity, they perfectly integrate in CCTV systems when event recording is required.

	VR24	VCR960J
Videorecording system	4 rotating heads	4 rotating heads
Tape format	VHS	VHS
Recording speed	23,39 mm/sec. (3-hour mode)	11,2 mm/sec. (6-hour mode)
Recording time	3H, 12H, 18H, 24H, 36H	6H, 18H, 30H, 72H, 96H, 120H, 168H, 240H, 480H, 960H
TV system	CCIR/PAL	CCIR/PAL
Resolution	350 lines b/w, 300 lines colour	350 lines b/w, 300 lines colour
Video input	1 BNC 75 Ω	1 BNC 75 Ω
Video output	1 BNC 75 Ω	1 BNC 75 Ω
Audio input	1 RCA	1 - RCA
Audio output	1 RCA	1 - RCA
Alarm input	1	1
Alarm output	1	1
Recording mode	Alarm, programmed, cyclic	Alarm, programmed, cyclic
OSD menu	English, French, Spanish	Italian, English, French, German, Spanish, Polish
Search through jog/shuttle	-	Yes
Power supply	90÷230 Vac	90÷230 Vac
Weight in kg	about 4	about 4
Dimensions in mm (wxhxd)	360x94x289	360x94x273

MX162C



MULTIPLEXER

Multiplexers allow the advanced management of the b/w or colour video signal when images must be recorded. Actually multiplexers have the typical functions of cyclic selector and quad and also have the evolved functions of video recorders.

	MX92C	MX162C
Video input	9 colour	16 colour
Alarm input	9	16
Video output	2	2
Synchronism input	Yes	Yes
Title setting	8 types + date + time	8 types + date + time
On screen menu	Yes	Yes
Operation	Duplex	Duplex
Remote control	RS232	RS232
Picture reproduction	full screen, QUAD, 9°	full screen, QUAD, 9° o 16°
Freeze function	Yes	Yes
Video loss signal	Yes	Yes
Power supply	230 Vac	230 Vac
Dimensions in mm. (wxhxd)	430 x 44 x 285	430 x 44 x 285



Digital video recording

ACI/FARFISA

The use of modern data memorisation systems and compression algorithms allows for the implementation of the typical properties and controls of analogue video recorders. In addition DVR's integrate video recording, quad, motion detector, and multiplexer functions. Data security, versatility in image searching, immediate access to image sequences and mechanical reliability are the main benefits of digital video recording over analog video recording.

DVR

These Digital Video recorders allow quality, compactness and a series of evolved functions for a modern surveillance system without to renounce to easiness for the installation. They allow to reach similar or better recording time than time lapse recorder putting also the Motion Detector function at user's disposal. All the DVR are provided with installed HDD and software for image displaying through TCP/IP network (only DVR42SMX).

DVR42SMX



DVR42SMX	DVR42SMX
Recording type	Digital
Operating system	Embedded
Coding	MJPEG
TV Standard	PAL/NTSC
Video input	4 with loop
Video output	1 monitor + 1 VCR + 1 S-Video
Connector	BNC
Video signal	1Vpp 75Ω
Resolution	> 480 TV line
Colours	16.7 million
PIP	Yes
Zoom	Available in live and in playback mode
HDD capacity	80GB
Additional HDD	Max 1
Recording speed	Adjustable 0.1 f/s - 50 f/s
Recording length	About 2 months at 1 f/s about 21H at Real Time 50f/s
Recording mode	Continuous, Motion Detector, External sensors, Programmed
Input multiplexing	Simplex
Alarm input	4
Alarm output	1 (NA/NC)
LAN interface	TCP/IP (software provided)
Motion Detector	Sensitive area adjustable
Ports	RS-232, RS-485
Power supply	12Vdc - 4.5A (adaptor included)
Consumption	50W
Weight	about 5Kg
Dimensions(wxhxd) in mm	330x44x360

DVR41E



DVR41E	DVR41E
Recording type	Digital
Operating system	Embedded
Coding	MJPEG
Tv standard	PAL/NTSC
Video input	4
Video output	1
Connector	BNC
Video signal	1Vpp 75 Ω
Video resolution	720x576
Recording resolution	320x136 640x272
HDD capacity	80GB (removable)
Recording mode	Continuous, Manual, Event or Programmed
Input multiplexing	Simplex
Alarm input	4
Alarm output	1 (NA)
Power supply	12 Vdc - 4A power supply includ.
Consumption	18W
Weight	About 5Kg
Dimensions (WxHxD) in mm	380x65x285



Digital video recording

■ DVR92WTX



	DVR92WTX
Recording type	Digital
Operating system	Linux Embedded
Coding	WAVELET
Tv standard	PAL/NTSC
Video input	9 with loop
Audio input	1
Video output	1 monitor + 1 Spot + 1 S-Video + 1 VGA
Audio output	1
Connector	BNC IN – BNC OUT
Video signal	1Vpp 75Ω
Recording resolution	360x288 – 720x288 pixels
Picture quality	Adjustable on 7 levels
HDD capacity	120GB
Additional internal HDD	Max 3 (1 removable) o 2 + CD-RW
Auxilliary ports	USB 1.0 e IEEE1394 (Firewire)
Max. recording speed	100F/s (360x288) o 50F/s (720x288)
Recording length (HDD 120GB)	34 hours at 6 F/sec 203 hours at 1 F/sec (*)
Recording mode	Continuous, Motion Detector, External sensors
Multiplexing input	Triplex
Alarm input	9
Alarm output	4 programmable
Network interface	LAN Ethernet 10/100baseT
Movement sensor	Motion Detector with sensitive areas programmable by areas
Other functions	Communications of events by e-mail
Power supply	110-230Vac
Consumption	51-55 watt
Weight	8.5Kg
Dimensions (WxHxD) in mm	432x88x480

(*) – Recording mode of all 9 inputs, 720x288 resolution, without audio

■ DVR162SMX



	DVR162SMX
Recording type	Digital
Operating system	Embedded
Coding	MJPEG
Tv standard	PAL/NTSC
Video input	16 with loop
Video output	1 monitor + 1 VCR + 1 S-Video
Connector	BNC
Video signal	1Vpp 75Ω
Resolution	> 480 lines TV
Colours	16.7 Millions
PIP	Yes
Zoom	Available in live and playback mode
HDD capacity	80GB
Other supports	CD-RW for backup
Recording speed	Adjust. between 0.1 fps and 50 fps
Recording mode	Continuous, Motion Detector, External sensors
Multiplexing input	Simplex
Alarm input	16
Alarm output	1 (NA/NC)
Lan interface	TCP/IP software provided
Motion Detection	Sensitive area adjustable
Other ports	RS-232, RS-485
Power supply	12 Vdc – 4.5A power sup. provided
Consumption	50W
Weight	Approximately 5Kg
Dimensions (WxHxD) in mm	434x67x360





CCTV Kit

ACI FARFISA

An exhaustive videosurveillance kit designed to satisfy medium complexity video control needs, compact and complete for performances, easy to install and to use, it can manage up to 4 cameras in cyclic switching. Simple video and audio station, it allows for powerful flexible solutions for a wide range of applications. The ideal solution for residential use, parking lots, department stores and shops.



CCTV Kits



KIT WITH CYCLIC SWITCHER

B/W videosurveillance kit designed to satisfy a wide range of CCTV requirements. Complete with a 10" 4-input monitor with cyclic switcher, one compact camera with interchangeable lens, fixing wall bracket and connection cable. Possibility of adding up to 3 cameras and establishing a bi-directional audio communication with the controlled area. Programmable sequence and scanning time of connected cameras. Moreover the monitor has audio-video input and output, so that it can be connected to VCR system.

TK10T

Monitor	10" B/W
System	CCIR 297.000 pixels
Power supply	90-240Vac 50/60Hz
Resolution	800 lines at centre
Input	4 mini-din
Auxiliary RCA input/output	1/1
Audio	Bi-directional
CCD sensor	1/3"
Lens	4 mm
Lens mounting	C/CS
Iris	Auto
Operating temperature	-10°+50°C
Min. light illumination	0.1 lux

CAMERA



TKT2T

B/W additional camera for TK10T with interchangeable lens c/cs mounting system (not included).



HOUSINGS · CABLES

TVKC2

External housing for TVKT2T cameras. Power supply 230 Vac. IP66 protection degree.

TKP15T

15 m. extension cable with adapter.

TKP50T

50 m. extension cable with adapter.



LENSES

	TVKH04	TVKH06	TVKH08	TVKH12
Mounting system	C	C	C	C
Focal length	4 mm	6 mm	8 mm	12 mm
Max aperture ratio	F 1,2	F 1,2	F 1,2	F 1,2
Angular vision of view	69°	48,7°	31°	21°
Lens format	1/3"	1/3"	1/3"	1/3"

CABLES

TVKPA

Cable for audio and video connection with RCA connectors.

TVKPC

Cable for audio and video connection with a BNC male video and RCA audio terminal at one side and at the other a RCA both video and audio. It can be used for the connection of the monitors of the kit to the VCR (2 cables are necessary).





Accessories

ACI/FARFISA

The product range is integrated with a full line of accessories for complete videosurveillance installations, which includes cameras with sweeps for larger shooting field, fixing brackets and housings to ensure correct operation and assembly, especially outdoors. Power supplies for multiple configurations, cables and connectors for correct cabling and signal distribution are also available.

HOUSINGS

CU300

CU320



■ CU300

In extruded aluminium for outdoor cameras. Provided with heating unit, anti-condense thermostat. IP 66 protection. Power supply: 230 Vac. Dim: 70 x 65 x 300.

In extruded aluminium for outdoor ZOOM or varifocal lenses cameras. Provided with heating unit, anti-condense thermostat. IP 66 protection. 230 Vac. Dim: 90 x 85 x 320.

HOUSING

CU260



■ CU260

External housing especially for cameras powered by 230 Vac. With a modern design it's entirely made of aluminium. It is provided of wall bracket, thermostat heating unit, rain shelter. IP66 protection rate. Power 230 Vac, 30 Watt. Available internal dimensions 80x72x260 mm.

BRACKETS

AST11

AST03

AST02



■ AST03

Wall bracket in aluminium for external sweep B11. Load capacity: 35 Kg.

Bracket for CU300 and CU320 housings. Length in mm: 265.5.

Internal bracket for cameras. Dimensions in mm (DxH): 145 x 36.

SWEEPS

B11

B02



■ B11

Sweep in aluminium for outdoor use. Horizontal 6°/sec., vertical 3°/sec. Load capacity 12 Kg. Managed by AT4 keyboard. Power supply 24 Vac - 30Va.

Sweep for internal use, horizontal (350°) 6°/sec. and vertical (90°) 3°/sec.. Load capacity: 5 kg. Power supply: 24 Vac. This is optional. Managed by AT4 keypad.



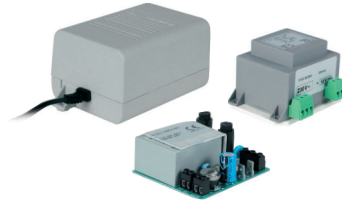
POWER SUPPLIES | **APS 121** | **APS 122** | **APS 123** | **APS 129**

12 Vdc/1A power supply for all cameras.

12 Vdc/400mA power supply for cameras with CU300 housing.

12 Vdc/400 mA power supply for cameras with CU320 housing.

12 Vdc/3.12 A power supply for IR101 illuminator, provided with photocell. Even a 24Vac output for sweeps available.



APS 241 | **APS 242** | **APS 243**

24 Vac/400mA transformer for all cameras.

24 Vac/400 mA transformer for cameras with CU300 housing.

24 Vac/400mA transformer for cameras with CU320 housings.

CONTROLS | **AT4** | **AT7**



■ AT4



■ AT7

Board for remote control of cameras and sweeps (up / down, left / right, autopan, focus, zoom, iris). Power supply: 24 Vac / 30VA (not supplied).

Control keyboard for TVT74D dome cameras. It is provided with display and it allows to control up to 99 cameras and all their functions: rotating speed, Pre-set storing and automatic Pre-set scan. The control line is based on RS-485 standard. Power supply: 12Vdc – 300mA.

IR ILLUMINATOR | **IR101**



■ IR101

Die-cast alluminium with 100 watt illuminating power, with lamp and 850 nm optical filter. Power supply through APS129. Consumption: 70 watt. Weight: Kg. 1,2
Dimensions (WxHxD): 95x120x176 mm

- A ■ **AGC**
Automatic Gain Control: A section in an electronic circuit that has feedback and regulates a certain voltage level to fall within predetermined margins.
- **ALC**
Automatic Light Control: A part of the electronics of an automatic iris lens that has a function similar to backlight compensation in photography.
- **Aperture**
The opening of a lens. The value is indicated by F-stop number.
- **AWB**
Electronic process in colour cameras that adjusts the true colours depending on the basis of a white object in the picture.
- B ■ **Back focus**
A procedure of adjusting the physical position of the CCD-chips/lens to achieve the correct focus for all focal length settings.
- **BLC**
Back Light Compensation: Internal circuit that compensates back light effects
- **BNC**
Bayonet-Neil-Concelman: The most popular connector for coaxial cables.
- C ■ **C/CS**
Standard mounting system for lens on the cameras.
- **Coaxial cable RG-11**
75 ohm impedance coaxial cable and outdoor 12 mm diameter. It allows to transmit video signal up to distances longer than RG-59 ones.
- **Coaxial cable RG-59**
75 ohm impedance coaxial cable and outdoor 6 mm diameter. It allows to transmit video signal up to distances from 150 to 200 mt.
- **CCD**
Charge-Coupled Device: Solid state technology for camera sensors.
- **CCIR**
Comitee Consultatif International des Radiocommuniq : European standard for b/w video signal.
- **Cyclic switcher**
Electronic element to select and to show cyclically different pictures coming from different cameras.
- **Chrominance**
Colour information inside video signal Y/C (S-video).
- D ■ **DC lenses**
Automatic iris lenses driven directly by the camera.
- **DVR**
It records video motion pictures in digital format.
- E ■ **EIA**
Video signal standard for television transmission used in USA, Japan and Canada.
- **Electronic shutter**
Autoshutter: Camera circuit that acts on the CCD sensor exposing time adjusting the min.light illumination depending on the light on the scene.
- **ESC**
Electronic Shutter Control: Electronic device controlling picture exposure time on CCD sensor.
- F ■ **Flicker**
An annoying picture distortion mainly related to vertical syncs and video fields display. Mainly due to frame interlacing.
- **F-stop**
In lenses with adjustable iris the max. iris opening is expressed as a ratio (focal length/max.diameter of aperture). This max. iris will be engraved on the front ring of the lenses.
- I ■ **Impedance**
Parameter measuring in ohm conductive capability of a circuit or electric cable.
- **IP**
Index of protection. A numbering system that describes the quality of protection of an enclosure from outside influences such as moisture, dust and impact.
- **IR**
Infrared light, invisible to the human eye. It usually refers to wavelengths longer than 700 nm. B/w cameras have extremely high sensitivity in the infrared region of the light spectrum.
- **IRE**
Institute of Radio Engineers: Unit of measurements dividing the area from the bottom of sync to peak white level into 140 equal unit. 140 IRE equals 1Vpp. The range of active video is 100 IRE.
- **Iris**
A means of controlling the size of lens aperture and therefore the amount of light passing through the lens.
- J ■ **JPEG**
Joint Photographic Experts Group: Recommended compression algorithm for still digital images that can compress with rations of over 10:1.
- L ■ **LAN**
Local Area Network: Data communication network for short distances.
- **Line Lock**
Circuit linking camera sync to the powering frequency.
- **Lux**
Light unit for measuring illumination. It is defined as the illumination of the surface when luminous flux of one lumen falls an area of 1 square meter.
- M ■ **Matrix switcher**
A device for switching more than one camera, VCR, video printer and similar to more than one monitor, VCR: video printer and similar.
- **MB/GB**
Measurement unit for digital data storing devices.
- **MPEG**
Motion Picture Experts Group: ISO group of experts that has recommended manipulation of digital motion images.
- **Multiplexers**
Unit to process the images in order to compose in different ways the displaying. It allows also advanced functions for video recording.
- N ■ **NTSC**
National Television System Committee: American committee that sets the standard for colour television as used today in USA, Canada and Japan and parts of South America.
- P ■ **Pair cable**
Cable composed by two parallel cores used for transmitting video balanced signal. Very often they are twisted.
- **PAL**
European standard for colour video signal.
- **PIP**
It allows showing a second video signal inside a main video signal picture.
- **Pixel**
The smallest visual unit that is handled in a raster file, generally a single cell in a grid of numbers describing an image.
- **Playback**
Recorded video signal playback.
- **Preset**
Value of the horizontal/vertical co-ordinates and/or zoom about a specific position of a sweep or a Speed Dome camera.
- Q ■ **Quad**
Equipment that simultaneously displays part or more than one image on a single monitor. It usually refers to four quadrant displays.
- R ■ **Radio frequency**
In CCTV it is the technology allowing to transmit a video signal by a radio frequency carrier, hence with no using physical transmission means (i.e. coaxial cable or twisted pair).
- **Resolution**
A measure of ability of a camera or television system to reproduce video detail
- S ■ **Scanning**
Interlaced scanning, a technique of combining two television fields in order to produce a full frame, the two fields are composed of only odd and only even lines, which are displayed one after the other.
- **Sweep**
Motorised system for camera shooting that can be controlled by remote station.
- T ■ **TCP/IP**
Transmission Control Protocol/Internet Protocol: Communication protocol used for transmission of information via Internet.
- **Title setting**
Function allowing to insert texts and information on the screen.
- **Tracking**
The angle and speed at which the tape passes the video heads.
- V ■ **Video frame**
In CCTV it is the complete television image formed by the odd and even field lines. CCIR sets 25 fields per second each composed by 625 lines.
- **Video lens**
Automatic iris lenses using signal video coming from CCD camera.
- **Video signal**
Electrical signal carrying picture produced by a video source.
- **VCR timelapse**
Video recorder according to VHS standard specific for CCTV system. It can reach up to 960 hours of recording on a 3-hour cassette and to record in time sharing several video sources on the same tape (in this case a multiplexer is required).
- **VHS**
Video Home System: Video Recording standard for domestic use used also in CCTV.
- Z ■ **Zoom lens**
A camera lens that can modify the focal length while keeping the object in focus.



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