Matrix Systems

The main purpose of a video matrix system is to have the possibility of routing images from any camera of a CCTV installation, to any monitor. The Ernitec SYSTEMS 500M and 1000M offer you these features plus a number of other options.

The Ernitec Systems are based on modern computer technology, together with Ernitec's more than 15 years' experience in designing video and control matrix products. Modern security philosophy requires that a CCTV system should not merely be able to display pictures on a monitor, but also handle alarms.

The alarms can be generated from any external alarm device such as Passive Infrared detectors, Video movement detectors, Access control systems etc.

The integrated alarm function provides the choice of using the system at unmanned sites with automatic alarm handling, or manually at manned sites.

Alarm generated pictures can be organised in different categories and with the combination of the integrated alarm text, ensures easy operator guidance.

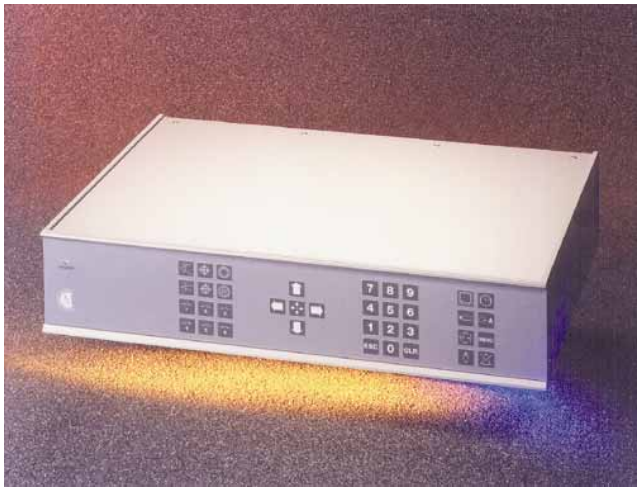
In addition to the built-in keyboard, external keyboards can be connected for multiple operators. Both the SYSTEMS 500M and 1000M allow controlling of PTZ cameras, including variable high speed pan/tilts such as the Ernitec MPT-5P, using the Ernitec joystick keyboards.

Full integration with the Adpro video movement detector and the Adpro Fast Scan video transmission system, makes a SYSTEM 500M/1000M the unique unit for the control of both local and remote sites. It is possible to configure a full matrix system consisting of a number of remotely placed sub-systems. Please see example on page 3.

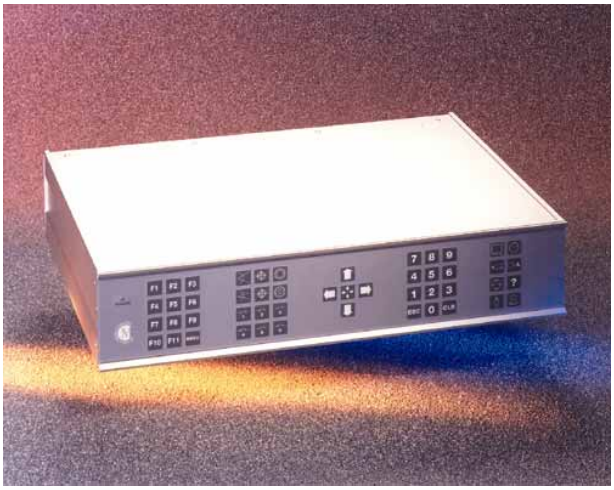
Matrix Systems from Ernitec proves that advanced technology can be combined with simple logic and user friendly programming and operation. EMC, safety approvals and high quality ensure high reliability.

SYSTEM 500M
Ernitec SYSTEM 500M Video and Control Matrix is designed as a comprehensive "stand alone system" for video applications and has advanced alarm handling.

SYSTEM 1000M
Ernitec SYSTEM 1000M is an advanced Video, Control and Alarm handling System to be used in CCTV applications either as a large stand alone system or as part of a larger surveillance installation with decentralised remote sites.



The Matrix System 500M



The Matrix System 1000M

Features

Camera Inputs
All CCTV systems require a certain number of cameras at the installation phase, but should also provide facilities for future expansion. Therefore the Ernitec systems are built on a modular base. SYSTEM 500M is available with max. 16 camera inputs, but can be part of a larger decentralised video matrix system.
SYSTEM 1000M can be configured from 16 - 160 camera inputs. Several single systems can be combined forming a matrix with more than a thousand cameras.

Camera ID
SYSTEM 1000M operates with a changeable 4 digit camera ID, SYSTEM 500M with a 3 digit camera ID, providing the operator with easy and logical camera identification for both local or remote cameras.

Camera Text
For easy identification of the camera location, site location etc. all SYSTEM 500M and 1000M units provide text information to the system monitors. For each camera in the system, it is possible to have a text string of up to 20 user programmable characters.
Camera text is located at the bottom of the monitor as standard, but can be moved to other positions.

PTZ Camera Control
The systems can activate telemetry receivers for controlling standard or high-speed pan/tilt and zoom cameras. Control of all cameras can be selected from any keyboard, or automatically in an alarm situation.
Pan/tilt and zoom cameras can also be sequenced between any or all of the pre-set positions, stopping at each position for a pre-programmed time.

Multiple Camera Sequences
As many as 8 different camera sequences can be defined. These sequences can be displayed on any monitor: Each camera sequence can contain up to 64 entries in any order and each entry can have an individual dwell time.

Monitor Outputs
The CCTV system of today integrates many operations, such as access control, fire alarms, burglar alarms etc. Visual identification of many alarms traditionally requires many monitors. By using the intelligent alarm handling in the Ernitec video systems, the number of monitors needed is reduced. SYSTEM 500M is available in a 4 or 8 monitor version.

SYSTEM 1000M is available in a 4 or 8 monitor version. By combining additional system units, the matrix SYSTEM 1000M can be expanded up to as many as 32 monitors.

Monitor Start-up
Each monitor can be set to start displaying a pre-defined camera picture, start a picture sequence, or simply a blank screen. The pre-defined start-up for all system monitors can be selected manually from the keyboard, for use in connection with, for example, a guard shift.

Keyboards
For the manual selection and control of the video system, the Ernitec systems provide a built-in keyboard with all necessary keys to fully operate all functions in the system, such as selection of camera pictures, PTZ control etc.

If required, external keyboards can be connected. The Ernitec series 1500M keyboards are available in 4 versions; with or without alphanumeric status display and with or without joystick. The keyboards can be placed in local or remote control rooms. A priority level can be programmed for each keyboard. This allows the high priority keyboard(s) to take control of the system at will.

Restrictions to keyboard access can be programmed to prevent selection of individual cameras, monitors, alarm reset, or programming. In this way, an operator only has access to the functions permitted by the security manager. If allowed, authorised programming can be made from any keyboard. Added security access to the programming of the system may only take place by using a four digit password. The keyboards contain a Macro function.

Alarm Text
Alarms can trigger a text to be displayed. The text can indicate the cause and location of an alarm and present instructions, time and date to the operator. For each alarm it is possible to have a text string of up to 20 user programmable characters.

Alarm Handling
A video system is often required to display alarm information, presented as camera pictures and text information on monitors. The alarms are received from Fire- , Access- , Burglar systems, - or even a combination of these.

The Ernitec systems provide facilities to display each alarm group on its own monitors. This makes the operator able to distinguish between the different alarm groups in an easy and fast way. It is possible to select which camera(s) will be displayed as the result of an alarm event and the relevant monitor(s).
Each alarm event can call up to 4 cameras, allowing the system to supplement the alarmed camera with pictures from the surrounding or important areas.

For more than one alarm at the same time, (multiple alarms) it is possible to set individual alarm priorities, display last/first incoming alarm, or sequence several pictures.

In alarm situations many activities are often required from the operator at the same time. To optimise or free the operator time in emergency situations, the use of Ernitec pre-position telemetry receivers, in combination with an alarm, can make a camera(s) automatically move to a preset position, pointing out the alarmed area. At the same time the system is able to display alarm information on the monitor(s) and trigger an audible device in case of an alarm.

Alarm Interface
The system can handle ordinary, normally open or normally closed contacts, or any combination of these. Alarms can also be accepted via serial inputs from another security system, i.e. Access Control, Intruder Alarm System or Fire Alarm System. In total, as many as 512 alarms can be processed from the SYSTEM 1000M. (SYSTEM 500M max. 32 alarms).

Printer
A hard copy of all alarm activities, within a certain period, may be printed to a serial printer. It is possible to print out registration time, alarm location and alarm clearance time. The printer can be connected to the system or to any keyboard.

Time & Date
Time/Date can be displayed on any or all monitors. On SYSTEM 1000M the time and date is based on a real-time circuit with full battery back-up.

Peripheral Communication
With the use of the built-in communication ports RS-232C or RS-485, a system can communicate with most other computer based devices. A description of the Ernitec protocols is available on request.

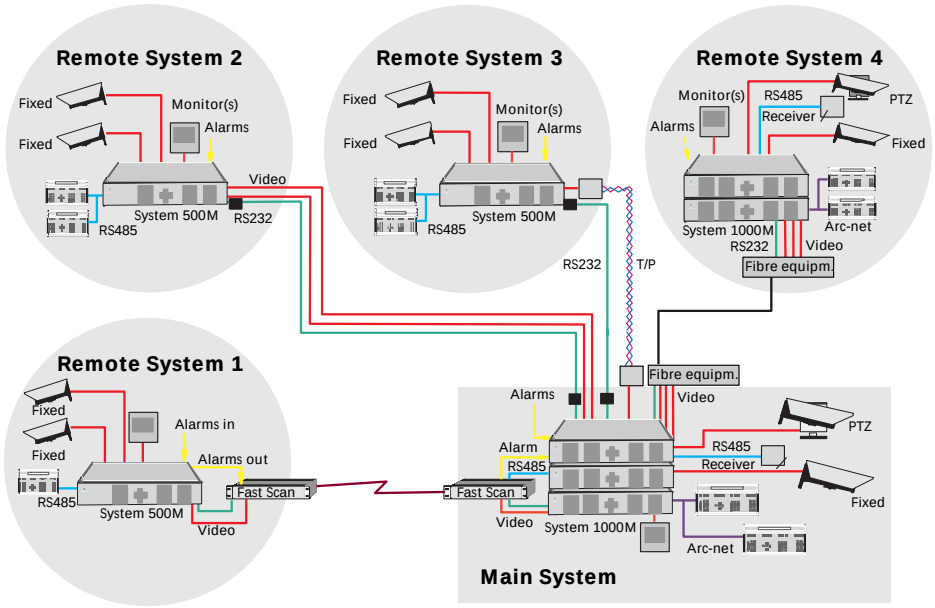
Video Recorder
Alarms may be used to activate video recorders, or to switch a time lapse recorder into real time mode.

Programming the Systems
The systems can be used as delivered - without making programme changes - because default values are supplied. This feature keeps installation and start up time to a minimum.

When using one or more of the many features provided in the system, the operation is set-up and defined from menus, which can be displayed on any monitor. An optional PC programme provides up and down load of system settings. The programme provides a graphic keyboard and an alarm simulator.

Video via Public Telephone Lines
If system applications require unmanned sites or supervised control of many remote sites from a central control room, this can be achieved by combining the Ernitec matrix systems and the Adpro Fast Scan. This combination makes it possible to operate one or several systems from any location, simply by using a standard public telephone or ISDN lines.

Matrix with Video Movement Detectors
With the Ernitec video matrix system, it is possible to fully operate and programme the Adpro video movement detectors. All functions are accessible from the external Matrix keyboard(s).



Specifications

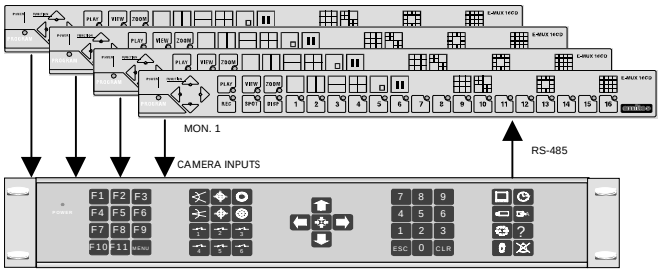
Description	Type	504M	508M	514M	518M	1004M	1008M	1104M	1108M	1204M	1208M	1208MH
Video	Camera inputs	8	8	16	16	16	16	24	24	32	32	32
	Monitor outputs	4	8	4	8	4	8	4	8	4	8	8

Description	Type:	Specifications for both System 500M and 1000M:
Video (PAL/NTSC)	Input level/input impedance (all except 1208MH)	1.0 Vpp/75 Ohm
	Input level/input impedance (1208MH)	1.0 Vpp/Hi-Z
	Output level/output impedance	1.0 Vpp/75 Ohm
Video performance	Frequency response	10 Hz – 12 MHz – 3 dB
	Chrominance delay/gain	< 6 nsec/< 110%
	K-rating (2T pulse/bar)	< 0.5%
	Differential phase/gain	< 1.25° / < 0.4%
	Luminance non linearity	< 0.8%
	Noise (weighted)/(unweighted)	Better than –80 dB/ -75 dB
	Crosstalk (at 4.43 Mhz, input to input)	Better than –60 dB
Text insertion	Max. 9 lines:	Each up to 20 characters
Serial ports	Number/Interface	2 pcs./RS232 – RS485
RS232C	Baud rate/transmission distance	1200 – 19200 Baud/max. 50 meters
RS485	Baud rate/transmission distance	1200 – 19200 Baud/max 1200 meters
ARC-net	Transmission speed/transmission distance – ONLY ON 1000M	312 Kbps/max. 1700 meters
Power requirements	Voltage/consumption (max.)/frequency	207-264 VAC/25 VA/45-55 Hz (115 VAC on request)
Dimensions/weight	Standard 19” Hu rack frame to DIN 4194	482 mm (W) x 88.8 mm (H) x 320 mm (L) / 4 kg
Operating conditions	Temperature/humidity (non-condensing)	0 - 50°C/90%
External keyboards	1000M; max. 9 external keyboards	
	500M; max. 5 external keyboards	
Camera control dist.	BED 108, 1 in/8 out – optional	
Alarms	32 input alarm module, included in 1000M, optional for 500M	
Approvals	Emission/immunity (EMC)/safety	EN50081-1/EN50082-2/IEC 950, EN60950

Integrating the E-MUX with System 500M/1000M

Software versions (please see table below) for the 500M/1000M E-MUX provide integration between the matrixes and the Ernitec range of E-MUX multiplexers. The software will allow an operator to control one or more E-MUXs from the same keyboard as used to control the matrix. This offers the possibility of achieving, for example, quad displays on a matrix monitor output.

Product Type	Description
System 500M, with E-MUX Integration	
504M E-MUX	8 X 4 video matrix, 230 VAC, with E-MUX integration
508M E-MUX	8 X 8 video matrix, 230 VAC, with E-MUX integration
514M E-MUX	16 X 4 video matrix, 230 VAC, with E-MUX integration
518M E-MUX	16 X 8 video matrix, 230 VAC, with E-MUX integration
System 1000M, with E-MUX Integration	
1004M E-MUX	16 X 4 video matrix, 230 VAC, with E-MUX integration
1008M E-MUX	16 X 8 video matrix, 230 VAC, with E-MUX integration
1104M E-MUX	24 X 4 video matrix, 230 VAC, with E-MUX integration
1108M E-MUX	24 X 8 video matrix, 230 VAC, with E-MUX integration
1204M E-MUX	32 X 4 video matrix, 230 VAC, with E-MUX integration
1208M E-MUX	32 X 8 video matrix, 230 VAC, with E-MUX integration
1208MH E-MUX	32 X 8 video matrix, 230 VAC, Hi-Z video input, with E-MUX integration



One or more E-MUXs can easily be integrated with the 500M or 1000M video matrixes.

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THE ONE TO WATCH

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