CM8500 Series Matrix
MICROPROCESSOR-BASED CROSS-POINT VIDEO SWITCHER, 32 X 16

Product Features

- 32 Inputs x 16 Outputs (Fully Configured)
- Compatible with Coaxitron® and Legacy® Receivers
- 16 Programmable Sequences (32 Steps Each, Including Presets)
- All Programming Done Via Easy-To-Use On-Screen Programming Windows
- Preset, Pattern and Zone Capability Standard
- Easy-Access Windows Provide Quick Camera and Monitor Selection
- Single Compact CPU, Card Cage and Power Supply Requires 5.25 Inches (13.33 cm) of Rack Space
- Supports up to 8 Keyboards
- Password Protection Prevents Unauthorized Access
- Up to 32 Alarm Inputs and 32 Relay Outputs
- 8 Tours, Event Scheduling

CM8502A-1 CPU/CARD CAGE AND CM8505D KEYBOARD CONTROL

CM8505R KEYBOARD CONTROL

The **CM8500 Series Matrix System** is a microprocessor-based cross-point video switcher designed for use in small to medium-sized facilities. Powerful and flexible, the **CM8500** can meet the needs of any complex CCTV system.

The **CM8500 Series** matrix is available with 32 video inputs and up to 16 monitor outputs depending on the model selected. Each system is capable of supporting up to 8 independent keyboards (ordered separately) and is configured with 32 alarm inputs and 1 relay output; additional relay outputs can be added.

The **CM8500 Series** is completely compatible with all Coaxitron and Legacy receivers for single coaxial control of pan & tilts and motorized lens functions.

All system programming is accomplished via the easy-to-use keyboard and on-screen programming windows. Individuals with a valid user identification can access the system from any keyboard, with access to specific programming windows being defined by each individual's user profile.

Up to 16 different user profiles may be defined, with each profile containing information such as the user's password, priority level and camera access. Additional standard features such as presets, sequencing, pattern scanning and zone definitions are also user programmable and accessed via the keyboard.

MATRIX SWITCHERS

CM8500 MATRIX

TECHNICAL SPECIFICATIONS

COAXITRON RECEIVER

CM8502-1/CM8503-1 CPU/CRD CAGE

or

RS-422 RX WITH CM8507

CM8505 SERIES KEYBOARDS

MONITORS

COAX CABLE	——————
2 TWISTED PAIR	— — — — —
MULTI-CONDUCTER CABLE	– - – - – - – -
1 TWISTED PAIR	– - – - – - –
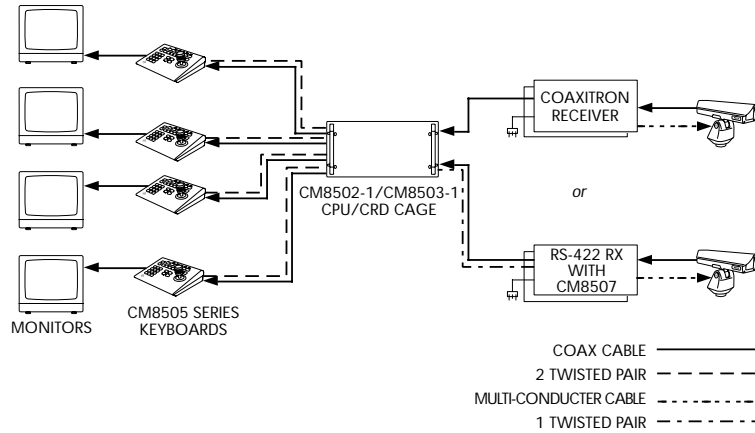
Note: Up to eight remote keyboards can be installed in a CM8500 system. Use a CM9505UPS universal power supply for remote keyboard power.
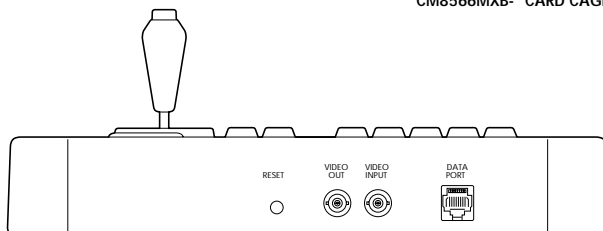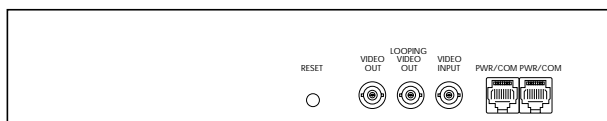
BASIC SYSTEM BLOCK DIAGRAM

FUSE 3AG (5X20) 250V 2A

RELAYS OUT 1-16

RELAYS OUT 17-32

ALARMS IN 1-16

ALARMS IN 17-32

⚠ 220-240 V A
USE ONLY WITH 250V
FUSES / EMPLOYER
UNIQUEMENT AVEC
DES FUSIBLES DE 250V
110 - 120V ▼

KEYBOARDS

TWO WIRE CONTROL 1-16

TWO WIRE CONTROL 17-32

VIDEO INPUTS

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32

EXTERNAL VIDEO IN

VIDEO OUTPUTS

1 3 5 7 9 11 13 15
2 4 6 8 10 12 14 16
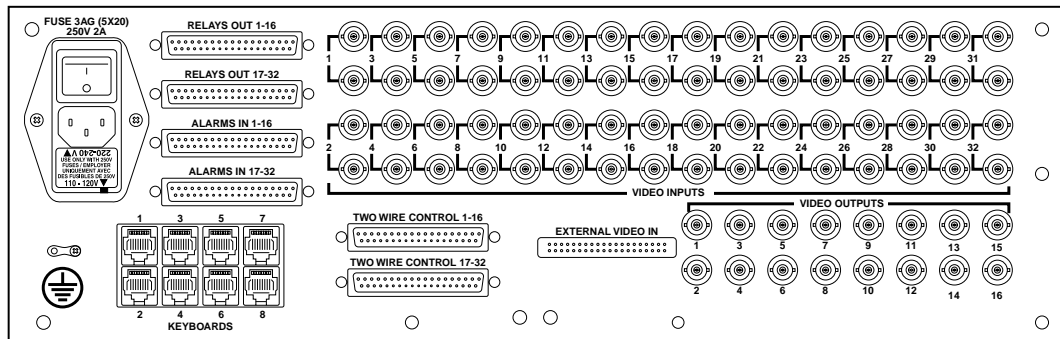
CM8566MXB-* CARD CAGE (REAR)

(Note: CM8560MXB-* Card Cage is identical except there are only 8 video ouputs.)

RESET **VIDEO OUT** **VIDEO INPUT** **DATA PORT**

CM8505D KEYBOARD (REAR)

RESET **VIDEO OUT** **LOOPING VIDEO OUT** **VIDEO INPUT** **PWR/COM PWR/COM**

CM8505R KEYBOARD (REAR)

TECHNICAL SPECIFICATIONS

CARD CAGE
GENERAL
Programmable
Switching Duration	Min. 1 second; Max. 99 seconds
Programmable Number of Steps/Sequence	32
Maximum Number of Sequences	16

VIDEO INPUTS
Number of Inputs	1-32
Type	75-ohm unbalanced terminating or looping; jumper selectable
Level	1V peak-to-peak (+6 dB)
Connector Type	Panel-mount BNC

VIDEO OUTPUTS
Number	1-8 or 1-16
Type	75-ohm unbalanced
Level	1V peak-to-peak nominal
Video Fail Detection	
Type	Vertical sync detector
Action	Switch to back up sync generator
Connector Type	Panel-mount BNC

VIDEO SPECIFICATIONS
Frequency Response	± 3 dB 20 Hz - 10 MHz
Gain	Zero dB (± 0.5 dB)
Differential Gain	Typical 0.5% - Max. <1.0%
Differential Phase	Typical 0.5° - Max. <1.0°
Field Tilt	Typical 0.3% - Max. <0.5%
Line Tilt	Typical 0.25% - Max. <0.5%
Hum	<-60 dB (Below <1V p-p)
Signal-to-Noise Ratio	> 60 dB
Crosstalk (input-to-input)	>-60 dB @ 10 MHz
Feedthrough (input-to-output)	> 60 dB @ 10 MHz

CHARACTER GENERATOR
Display	White with black border
Programmable Label Descriptions	20 Alphanumeric characters max.

KEYBOARD INTERFACE
Protocol	Balanced RS-422
Number of Ports	8
Number of Independent Keyboards	8 max.
Baud Rate	9600
Connector Type	RJ-45 8-pin modular (female)
Cable Type (supplied)	25-ft (7.62 m) flat unshielded (may be shielded)
Programmable	Yes; on-screen, menu-driven

ALARM INTERFACE INPUTS
Number of Inputs	32
Connector Type	Two 37-pin "D" type female
Sensing	Normally open

RELAY FOLLOW OUTPUTS
Number of Outputs	32
Connector Type	Two 50-pin "D" type female
Contact Configuration	Double pole, normally open or normally closed
Contact Rating	1A @ 24 VDC, 0.5A @ 120 VAC

POWER SUPPLY
Input Voltage	120/230 VAC, 50/60 Hz
Power Consumption	100 W
Operating Temperature	20° to 120°F (-6.67° to 48.89°C)
Humidity	80% maximum
Fusing	
120 VAC models	2A @ 250 VAC, 5 x 20 mm
230 VAC models	1A @ 250 VAC, 5 x 20 mm
Power On/Off Switch	Rocker type

PHYSICAL SPECIFICATIONS
Dimensions	(CPU card cage without rack ears) 17.07" W x 5.25" H x 20.06" D (43.36 x 13.34 x 50.95 cm)
Mounting (switcher only)	Factory configured for EIA rack mount; rack ears can be removed for wall mount or free standing applications
Shipping Weight	
Card Cage Only	27 lb (12.3 kg)
Fully-Configured	37 lb (16.8 kg)
Construction (Cover)	Steel, gray polyester powder coat

KEYBOARD
GENERAL
Numeric Keypad	12 key; 0-9, CLEAR, SELECT
Function Keypad	12 key; ESCAPE, SEQ, TOUR, FLIP, NEXT, CAM, MON, ALARM ACK, RELAY TRIGGER, PREV, PATTERN, PRESET
Lens Function Switch Block	6 momentary switches; ZOOM WIDE, ZOOM TELE, FOCUS NEAR, FOCUS FAR, IRIS CLOSE, IRIS OPEN
Joystick	Vector-solving, variable-speed

KEYBOARD ELECTRICAL SPECIFICATIONS
Input Voltage	±12 VDC
Power Consumption	7W
Operating Temperature	20° to 120°F (-6.67° to 48.89°C)
Humidity	80% maximum
Connector Type	RJ-45 8-pin modular (female)

KEYBOARD COMMUNICATIONS
Protocol	Balanced RS-422
Number of Ports	1
Baud Rate	9600 baud
Connector Type	RJ-45 8-pin modular (female)

PHYSICAL SPECIFICATIONS
Dimensions	
CM8505D and	4.10" H x 11.82" W x 8.86" D
CM8505D-PAL	(10.41 x 30.02 x 22.50 cm)
CM8505R	3.45" H x 19.0" W x 7.10" D (8.76 x 48.26 x 18.03 cm)
Shipping Weight	
CM8505D	6 lb (2.7 kg)
CM8505D-PAL	6 lb (2.7 kg)
CM8505R	9 lb (4.1 kg)
Construction	Injection-molded plastic
Shielding	EMI and RFI shielded

CERTIFICATIONS
◆ CE, Class A (CM8500-DT-X, CM8502A-1-PAL, CM8503A-1-PAL, CM8504, CM8507, CM8532, CM8505D-PAL, CM8505R-PAL, CM8532, CM9505UPS-X and CM9505UPS-422X and all PAL systems)
◆ UL listed to Standard 2044 (CM8502A-1 and CM8503A-1)
◆ FCC, Class A (CM8502A-1, CM8503A-1, CM8504, CM8505D, CM8505R, CM8507, CM8532, and CM9505UPS-422)

SYSTEM MODEL NUMBERS

32 Video Inputs, 1-8 Monitor Outputs

Model	Description	Inputs	Outputs
CM8560MXB-2	32x2 Matrix, 120 VAC	32	2
CM8560MXB-3	32x3 Matrix, 120 VAC	32	3
CM8560MXB-4	32x4 Matrix, 120 VAC	32	4
CM8560MXB-5	32x5 Matrix, 120 VAC	32	5
CM8560MXB-6	32x6 Matrix, 120 VAC	32	6
CM8560MXB-7	32x7 Matrix, 120 VAC	32	7
CM8560MXB-8	32x8 Matrix, 120 VAC	32	8

32 Video Inputs, 1-16 Monitor Outputs

Model	Description	Inputs	Outputs
CM8566MXB-2	32x2 Matrix, 120 VAC	32	2
CM8566MXB-3	32x3 Matrix, 120 VAC	32	3
CM8566MXB-4	32x4 Matrix, 120 VAC	32	4
CM8566MXB-5	32x5 Matrix, 120 VAC	32	5
CM8566MXB-6	32x6 Matrix, 120 VAC	32	6
CM8566MXB-7	32x7 Matrix, 120 VAC	32	7
CM8566MXB-8	32x8 Matrix, 120 VAC	32	8
CM8566MXB-9	32x9 Matrix, 120 VAC	32	9
CM8566MXB-10	32x10 Matrix, 120 VAC	32	10
CM8566MXB-11	32x11 Matrix, 120 VAC	32	11
CM8566MXB-12	32x12 Matrix, 120 VAC	32	12
CM8566MXB-13	32x13 Matrix, 120 VAC	32	13
CM8566MXB-14	32x14 Matrix, 120 VAC	32	14
CM8566MXB-15	32x15 Matrix, 120 VAC	32	15
CM8566MXB-16	32x16 Matrix, 120 VAC	32	16

- Each system includes 32 alarm inputs and 1 relay output.
- For PAL models add "-X" suffix to model number.
- If more than 1 relay output is required, add "R" suffix to model number.

    Example: CM8566-MXB-2**R** or CM8566-MXB-2**R**-X

- Keyboards must be ordered separately.

KEYBOARDS AND ACCESSORIES

CM8505D	Full-function desktop keyboard. Variable speed joystick with turbo model controls pan & tilts and integrated dome units, lens control switches , auxiliary control switches and numeric keypad. Includes 25-foot (7.62 m) cable. Power supplied from card cage; 120 VAC.
CM8505D-PAL	Same as CM8505D except for use with 230 VAC (PAL) system
CM8505R	Same as CM8505D except rack mount keyboard.
CM8505R-PAL	Same a CM8505D-PAL except rack mount keyboard
CM9505IC	25-foot (7.62 m) RJ-45 keyboard interconnect cable for keyboard to CPU
CM9505IC-50	50-foot (15.24 m) RJ-45 keyboard interconnect cable for keyboard to CPU
CM9505UPS	Remote keyboard power supply. Necessary when using three or more keyboards or when distances prohibit direct connection to the CPU. 120 VAC
CM9505UPS-X	Same as CM9505UPS except 230 VAC
CM9505UPS-422	Same as CM9505UPS except has RS-422 repeater
CM9505UPS-422X	Same as CM9505UPS-422 except 230 VAC
CM9505J	Junction box set to adapt keyboard RJ-45 8-pin male modular cord/ connector to multi-conductor cable. Set of two. Barrier strip to RJ-45 8-pin female modular connector. Includes pre-assembled 25-foot (7.62 m) cable for CPU

COMPONENT MODELS

CM8502A-1	Coaxitron card cage capable of 32 inputs and 1 monitor output, expandable up to 8 monitor outputs. Order one CM8504 card for each additional monitor output. CPU can power up to two keyboards. 120 VAC
CM8502A-1-PAL	Same as CM8502A-1 except 230 VAC
CM8503A-1	Same as CM8502A-1 except expandable up to 16 monitor outputs
CM8503A-1-PAL	Same as CM8503A-1 except 230 VAC
CM8504	Monitor output expansion card. Adds one monitor output. Expansion of base model (CM8560MXB-* or CM8566MXB-*) requires one CM8504 for each additional output
CM8507	Communication circuit card to allow communication with receivers using twisted pair RS-422 "D" protocol
CM8532	Replacement 32-alarm circuit card with 32 relays for CM8502A-1 or CM8503A-1 matrix bays only (not required for CM8560MXB-* or CM8566MXB-* systems)

OPTIONAL ACCESSORIES

CM8500-DT	ASCII data translator; translates programmed ASCII messages from an access control device or device capable of sending valid ASCII messages. 120 VAC input
CX8500-DT-X	Same as CM8500-DT, 230 VAC input
CM8500-RPNL-10	Relay breakout panel for up to 16 outputs/panel. Connects to rear panel "D" connectors and provides removable barrier strip connectors for each output. 10-foot (3.05 m) ribbon cable supplied
CM8500-RPNL-2	Same as CM8500-RPNL-10 except supplied with 2-foot (.61 m) cable

RECOMMENDED RECEIVERS

ERD2200	Outdoor, fixed speed, Coaxitron receiver *(See C1506spec)*
IRD2024	Indoor, fixed speed, Coaxitron receiver *(See C1506 spec)*
CX9000RX Series	Outdoor fixed speed Coaxitron with presets *(See C554 spec)*
LRD41A11 Series	Legacy fixed speed receiver *with presets (See C553 spec)*
LRD41C21 Series	Legacy fixed speed receiver with presets *(See C557 spec)*
LRD41C22 Series	Legacy variable speed receiver with presets *(See C557 spec)*

Indicates change or addition since last revision.