



CM9760 Series Matrix

MICROPROCESSOR-BASED SWITCHER/CONTROLLER, 2,048 INPUTS, 512 OUTPUTS

Product Features

- Microprocessor-Based, Full Cross-Point Video Matrix
- Single Node CPU Systems Control up to 2,048 Cameras and 512 Monitors
- Expand Beyond 2,048 Cameras Using Networked Nodes (up to 24 Nodes)
- Sixteen RS-422 COM Ports (Expandable to 120) and Two RS-232 Full-Duplex Ports Available on the CPU
- Logical Camera Selection
- Priority Level Operation
- Multiplexer, DVR, and VCR Control Via Keyboard
- Built-in Video Loss Detection
- Built-in System Diagnostics
- User-Friendly Windows®-Based System Management Software (Windows 98, NT® 4.0, 2000, XP)
- Factory Tested Prepackaged Systems
- ASCII Data Input to Interface Access Control and Other External Computer-Based Systems
- Step-Command Macro Programming
- Remote Viewing and Control over TCP/IP Networks Using PelcoNet™
- Alarm and Relay Interface to DX9000 Series DVR

Optional Accessories

- "Hot Switch" and Backup CPU Ensure Uninterrupted Operation
- Redundant Power Supplies for Switching Bays
- Coaxitron Translator Allows PTZ Communication Over Standard Coaxial Cable
- Responds to 5,000 Alarms
- Network Interface Unit Allows Multiple Systems to Share Video and Control
- Graphical User Interface (VMX200, VMX300) for Simplified Control from External PC
- DVR Management



System 9760® is a full-featured video matrix switching control system that allows users to view and control up to 2,048 cameras and 512 monitors on a single node. Up to 96 individual user-defined ID numbers can be assigned to allow or deny access to system functions.

The base configuration for this system is made up of a central processing unit (CC1), matrix switching bay(s) (MXBs) with video input/output modules, and keyboard controllers (KBDs). Optional components can be added to enhance system capabilities.

Powerful macro operation allows activation of commonly occurring events, either manually or automatically, based on time of day, day of week, day of year, and alarms. Macros may call system-wide sequences (tours); activate preset positions and auxiliaries on properly equipped cameras; automate VCR control; and activate external relays to turn lights on, lock doors, and control other auxiliary functions (additional equipment may be required).

System 9760 also includes built-in video loss detection and system diagnostic features. Video loss detection monitors incoming video signals to alert operators of a camera failure. Diagnostic monitor outputs are included to assist in set-up, programming, and troubleshooting.

Optional VCR management allows VCRs to be controlled directly from the system keyboards. Suitable VCRs can be monitored for operational conditions ensuring continuous recording.

Integration with the DX9000 Series digital video recorder allows **System 9760** to monitor and respond to the recorder's video motion detection capabilities. **System 9760** also monitors the operational status of DX9000 recorders on a network to provide fail-safe switchover to standby recorder(s) if a primary recorder(s) fails.

All CM9760 Series systems require installation by a Pelco Certified Dealer/Installer. This specification sheet may be used for purposes of information only and does not constitute approval or certification of the receiving party. Proof of certification must be provided prior to shipment of CM9760 systems contained herein.



SYSTEM COMPONENTS/TECHNICAL SPECIFICATIONS



CENTRAL PROCESSING UNIT (CC1)

The central processing unit communicates with external devices and accepts commands from external computers, keyboards, graphical user interfaces (GUIs), access control systems, casino data systems, programmable logic controllers (PLCs), and lighting and intercom systems.

An internal VGA card is included for displaying system diagnostics and for programming. RS-422 COM ports are provided for communication with external devices such as matrix switching bays, pan/tilt or dome receivers, and keyboards.

ELECTRICAL

Input Voltage	120 VAC, 60 Hz or 230 VAC, 50 Hz, autoranging
Power Consumption	57 watts
Processor	Pentium® class CPU
Clock Speed	733 MHz
Memory	64 MB RAM
Disk Drive	3.5-inch, 1.44 MB
Flash Disk Storage	32 MB solid-state flash memory
Diagnostic Monitor	
Output	One VGA
I/O Ports	Sixteen RS-422 ports (expandable to 32); total system capability is 120 ports.* Two RS-232 ports One parallel printer port One VGA output port Two PC-AT compatible keyboard ports (one front, one rear)

GENERAL

Operating Temperature	32° to 120°F (0° to 49°C)
Dimensions	7.0" H x 19.0" W x 19.5" D (17.78 x 48.26 x 49.53 cm)
Mounting	Fits 19-inch EIA Standard rack (4 RUs)
Unit Weight	29.7 lb (13.5 kg)
Shipping Weight	43 lb (19.5 kg)

CERTIFICATIONS

- CE, Class B
- UL Listed
- UL Listed to Canadian safety standards
- FCC, Class B

* The CM9700-CC1 is equipped with 16 RS-422 COM ports; total capacity can be expanded to 32 ports by adding two CM9700-SER serial communication cards (8 ports each).

Total system capability can be expanded to 120 RS-422 COM ports by adding three CM9700-SER-32 port expansion units (32 ports each) to the CC1.



MATRIX SWITCHING BAY

The matrix switching bay is a card cage with 16 available card slots for video input modules (VCCs) and one card slot for the video output module (VMC). Each bay includes a power supply and will support modules for up to 256 camera inputs and 16 monitor outputs. Multiple bays can be used to expand a single 9760 CPU system to a maximum of 2,048 camera inputs and 512 monitor outputs. An optional backup power supply module (MPS) can be installed in each bay to provide redundancy.

ELECTRICAL

Input Voltage	120 VAC, 60 Hz or 230 VAC, 50 Hz
Power Consumption	90 watts maximum (fully populated)
Communication	Full duplex RS-422 using an RJ-45 connector

VIDEO

Inputs	Sixteen input card slots for supporting 256 inputs per bay
Outputs	One output card slot for supporting 16 outputs per bay
Video Input Level	0.5 to 2 Vp-p, RS-170 composite video
Impedance	75 ohms terminating (looping versions available)
Crosstalk	-60 dB at 3.58 MHz

GENERAL

Operating Temperature	14° to 122°F (-10° to 50°C)
Dimensions	10.5" H x 19.0" W x 20.0" D (26.67 x 48.26 x 50.80 cm)
Mounting	Fits 19-inch EIA-standard rack (6 RUs)
Unit Weight	21.9 lb (9.93 kg)
	60.0 lb (27.22 kg), fully populated
Shipping Weight	35.0 lb (15.88 kg)
	73.0 lb (33.11 kg), fully populated

CERTIFICATIONS

- CE, Class A (CM9760-MXB-X)
- UL Listed (CM9760-MXB)
- UL Listed to Canadian safety standards (CM9760-MXB)
- FCC, Class A (CM9760-MXB)

SYSTEM COMPONENTS/TECHNICAL SPECIFICATIONS



KEYBOARD CONTROLLER

The CM9760 keyboard controller allows the user to control the system. Desktop (KBD) and rack-mount (KBR) models are available. The keyboard includes a variable speed, vector-solving joystick with zoom control knob for pan/tilt/zoom (PTZ) and dome control. From the keyboard, the user can control GPI-activated devices, receivers, camera/monitor switching, and multiplexer screen functions, and create single/dual patterns, zones, zone labels, presets and preset recalls. The user can also arm and disarm alarms as well as implement stand-alone, direct mode operation. Twenty-four programmable soft keys can be individually labeled with installation-specific titles allowing logical camera selection based on the camera's field of view rather than camera numbers.

ELECTRICAL

Input Voltage	12 VDC from 120 VAC, 60 Hz or 230 VAC, 50 Hz wall transformer (supplied)
Power Consumption	10 watts
Communication	RS-422, full duplex
Operating Distance	4,000 feet (1,219 m) on 24 AWG wire
Internal Relay Rating	1 A

GENERAL

Operating Temperature	32° to 120°F (0° to 49°C)
Dimensions	
CM9760-KBD	3.30" H x 15.53" W x 7.80" D (8.38 x 39.45 x 19.81 cm)
CM9760-KBR	7.00" H x 19.00" W x 1.75" D (17.78 x 48.26 x 4.45 cm) Fits 19-inch EIA Standard rack (4 RUs)
Unit Weight	
CM9760-KBD	4.6 lb (2.09 kg)
CM9760-KBR	6.4 lb (2.91 kg)
Shipping Weight	
CM9760-KBD	9 lb (4.09 kg)
CM9760-KBR	11 lb (5.00 kg)

CERTIFICATIONS/PATENTS

- CE, Class A (CM9760KBD-X) and Class B (CM9760-KBR-X)
- FCC, Class A (CM9760-KBD and CM9760-KBR)
- U.S. Patent D464,654

ADDITIONAL KEYBOARDS

The KBD200A and KBD300A keyboards have also been engineered for use with the CM9760 matrix switcher.

KBD200A

The KBD200A provides control of camera/monitor switching; preset, pattern, and sequence operation; local and receiver auxiliary operation; and multiplexer screen functions. The KBD200A also provides push-button control of PTZ functions. (A KBDKIT is required for power.)

KBD300A

The KBD300A provides control of camera/monitor switching; preset, pattern, and sequence operation; local and receiver auxiliary operation; and multiplexer screen functions. The KBD300A also provides joystick control of PTZ functions. (A KBDKIT is required for power.)

MODELS

CONTROLLER

CM9700-CC1	CPU controller. Operates on 120 VAC, 60 Hz or 230 VAC, 50 Hz. (4 RUs)
CM9700-SER	Serial communication card (RS-422 SERCOM) provides eight communications ports to interface peripheral equipment (four maximum per CPU).
CM9700-SER-32	Port expansion unit; 32 serial communication (SERCOM) ports per unit. Up to three units can be added to a CC1. (Check with Pelco Systems Applications Department before adding to an existing CM9700-CC1.) Includes interconnecting cables and adapters for DB9 and RJ45 connectors. Data interface can be RS-232 or RS-422. (4 RUs)

MATRIX BAY

CM9760-MXB	Video matrix bay equipped with CM9760-MPS power supply. 120 VAC, 60 Hz. (6 RUs).
CM9760-MXB-X	Same as CM9760-MXB except 230 VAC, 50 Hz.
CM9760-MXBL	Video matrix bay for use with downframe looping cards (CM9760-DFL). No power required. (6 RUs)
CM9760-MPS	Matrix bay power supply (spare). 120 VAC, 60 Hz.
CM9760-MPS-X	Matrix bay power supply (spare). 230 VAC, 50 Hz.
CM9760-DFC	Downframe card and cable assembly; connects multiple matrix bays for expansion purposes.
CM9760-DFL	Same as CM9760-DFC except has looping inputs.
CM9760-RPL	Double-wide rear panel card for single bay looping; maximum number of inputs per bay reduced to 128.
CM9760-VCC	Video camera card capable of accepting up to 16 camera inputs. Also requires a rear panel card (CM9760-DFC, CM9760-DFL, CM9760-RPC, or CM9760-RPL).
CM9760-RPC	Rear panel (BNC) card provides 16 BNC connectors used to connect camera inputs to matrix bay.
CM9760-VMC4	Video monitor card providing 4 monitor outputs; requires CM9760-RPM.
CM9760-VMC8	Video monitor card providing 8 monitor outputs; requires CM9760-RPM.
CM9760-VMC12	Video monitor card providing 12 monitor outputs; requires CM9760-RPM.
CM9760-VMC16	Video monitor card providing 16 monitor outputs; requires CM9760-RPM.
CM9760-VMM	Video monitor module; expands outputs of CM9760-VMC4, CM9760-VMC8 or CM9760-VMC12.
CM9760-RPM	Rear panel monitor card (BNC); provides 16 BNCs to connect monitor outputs to matrix bay; also interfaces video output signals from video output card.

KEYBOARDS

CM9760-KBD	Full-function desktop variable-speed keyboard. 120 VAC, 60 Hz.
CM9760-KBD-X	Same as CM9760-KBD except 230 VAC, 50 Hz.
CM9760-KBR	Full-function 19-inch EIA rack mount keyboard (4 RUs). 120 VAC, 60 Hz.
CM9760-KBR-X	Same as CM9760-KBR except 230 VAC, 50 Hz.
KBD200A	Desktop keyboard with full switching capabilities, plus push-button control of PTZ functions. 12 VAC or ±12 VDC. (Requires KBDKIT for power.)
KBD300A	Desktop keyboard with full switching capabilities, plus joystick control of PTZ functions. 12 VAC or ±12 VDC. (Requires KBDKIT for power.)

NETWORK INTERFACE UNIT

CM9700-NW1	The CM9700-NW1 network interface unit allows multiple systems to share video and control.
CM9700-NW1	Network interface unit; network CPU and software necessary for joining two or more independent systems together. (4 RUs)

SYSTEM COMPONENTS AND ACCESSORIES

VCR CONTROLLERS

CM9760-VCRC-P	VCR controller; controls Pelco TLR2096, TLR2168, TLR3096, or TLR3168 VCRs. (1 RU)
CM9760-VCRC	VCR controller; controls Sanyo and Sony model VCRs that support resistive ladder remote control and Sony "S-Link" remote control. (64 VCRs per controller.) (1 RU)
CM9760-VCRC-PTX	VCR control cable; 50-foot cable for use with CM9760-VCRC-P.
CM9760-VCRC-TX	VCR control cable; 15-foot control cable (1/8-inch jack on one end and bare leads on other end) for connecting VCR to controller.
CM9760-VCRC-C20	Same as CM9760-VCRC-TX except 20-foot (6.1 m) length
CM9760-VCRC-C50	Same as CM9760-VCRC-TX except 50-foot (15.2 m) length

(Please consult Pelco to verify compatibility with selected VCRs.)

MISCELLANEOUS

CM9760-ALM	Alarm interface unit; connects directly to each system; each unit can monitor up to 64 alarms and up to four units can be daisy-chained off one SERCOM port. (1 RU)
CM9760-CDU-T	Code distribution unit; 16-channel RS-422 transmit only (two data wires and ground) distributor. Primarily used for wiring up to 16 pan/tilt/zoom receivers in a "star" configuration. (1 RU)
CM9760-CXTA	Coaxitron® translator; generates coaxitron signals for Pelco Coaxitron receivers; each translator supports up to 16 receivers. (1 RU)
CM9760-DMR	Data merger and port expander unit; this unit allows multiple CM9760-CC1 units to control multiple pan/tilt/zoom cameras and allows multiple keyboards to communicate through one CC1 port. (1 RU)
CM9760-DMR-X	Same as CM9760-DMR except 230 VAC, 50 Hz.
VMX200 and VMX300 Series	Video management systems; graphical map/icon-based user interface for mouse-driven operator control from external PC.
CM9760-DT	ASCII translator; translates programmed ASCII messages sent from an access control device or device capable of sending valid ASCII messages. 120 VAC, 60 Hz. Desktop model; 1.75" H x 5.50" W x 8.80" D.
CM9760-DT-X	Same as CM9760-DT except 230 VAC, 50 Hz.

CM9760-DT4	Same as CM9760-DT except used to interface ACD devices to RS-422 COM ports on CM9700-CC1.
CM9760-DT4-X	Same as CM9760-DT4 except 230 VAC, 50 Hz.
CM9760-HS	Hot switch interface unit; changeover unit that monitors the status of a primary CC1 in a 9760 system. (three components, 1 RU each)
CM9760-MDA	Master distribution amplifier; inserts master time and date from the CM9760-CC1 and a programmable title of up to twenty-four characters on one to sixteen video signals. (3 RUs)
CM9760-MDA-X	Same as CM9760-MDA except 230 VAC, 50 Hz.
CM9760-REL	Relay interface unit; connects directly to each system and provides dry contact switching for direct or automatic control of peripheral equipment; each unit provides up to 64 SPST contact outputs. (1 RU)
CM9760-RKIT	Eight RJ-45 to DB9 converters for retrofitting CM9760-CC1 with CM9750 peripherals.
CM9760-SAT	Satellite video matrix switcher with 16 inputs; allows the user to distribute switching capability around a facility, reducing the number of coaxial cable runs to the 9760 and allowing local monitoring at the satellite switch locations. (2 RUs)
CM6800E-48X8	Satellite video matrix switcher; same functionality as CM9760-SAT except supports up to 48 inputs, or up to 96 inputs in a 96X16 configuration.
Genex Multiplexer	Genex® Series MX4009 (9-channel) and MX4016 (16-channel) multiplexers. (1 RU)

COMPATIBLE RECEIVERS

Spectra® Series	Spectra dome multiple protocol receiver.
ERD97P21-U	Pelco P protocol receiver.
LRD41C21-1/-2/-3	Legacy®, fixed speed receiver with presets.
LRD41C22-1/-2/-3	Same as LRD41C21 Series except variable speed receiver.
Esprit®	Integrated pan/tilt positioning receiver.
Coaxitron	Coaxitron translator allows Coaxitron control of PTZ cameras.

RU = Rack Unit. One RU is equivalent to 1.75 inches (4.45 cm) of vertical space. Identifies number of rack units required to mount component in a 19-inch EIA-standard rack mount.



Pelco Worldwide Headquarters:

3500 Pelco Way, Clovis, California 93612-5699 USA
USA & Canada Tel: (800) 289-9100 • FAX (800) 289-9150
International Tel: (559) 292-1981 • FAX (559) 348-1120
www.pelco.com

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