



# CM9740 Series Matrix

## MICROPROCESSOR-BASED, SWITCHER/CONTROLLER, 256 X 32

### Product Features

- Modular System Expandable to 256 Inputs and 32 Outputs
- Microprocessor-Based, Full Cross-Point Video Matrix
- Sixteen RS-422 COM Ports and Two RS-232 Full-Duplex Ports Available on the CPU
- Logical Camera Selection
- Priority Level Operation
- Multiplexer and VCR Control Via a Keyboard Controller
- Built-in Video Loss Detection
- Built-in System Diagnostics
- Windows®-Based System Management Software (Windows 98, 2000, XP)
- Factory Tested Pre-Packaged Systems
- ASCII Data Input to Interface Access Control Systems and Other External Systems
- Step-Command Macro Programming
- Remote Viewing and Control Over TCP/IP Networks Using PelcoNet™
- Network Compatibility Allows 9740 Systems in Remote Locations to Communicate with a Centralized, Master 9760 System
- Alarm and Relay Interface to DX9000 Series Digital Video Recorder (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
- Graphical User Interface (VMX200, VMX300) for Simplified Control from External PC
- DVR Management



**System 9740™** is a full-featured video matrix switching control system for use in medium-sized CCTV installations. This system allows users to control a maximum of 256 cameras to 32 video monitors.

The base configuration for this system is made up of a central processing unit (CC1), a matrix switching bay (MXB), and a keyboard controller (KBD). Optional components may 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 9740** 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 output (VGA) is included to assist in set-up, programming, and troubleshooting.

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

Integration with the DX9000 Series Digital Video Recorder allows **System 9740** to monitor and respond to the recorder’s video motion detection capabilities. **System 9740** 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 CM9740 matrix systems require installation by a Pelco Certified Dealer/Installer. This spec 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 CM9740 matrix systems contained herein.*



DataFAX  
SPEC: 21508  
MANUAL: Not Available through DataFAX

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International Organization  
for Standardization;  
Registered ISO 9001



# SYSTEM COMPONENTS/TECHNICAL SPECIFICATIONS



## CENTRAL PROCESSING UNIT (CC1)

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

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

### ELECTRICAL

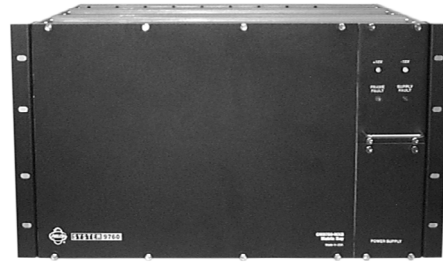
Input Voltage	120 VAC, 60 Hz or 230 VAC, 50 Hz, auto-ranging
Power Consumption	35 watts
Processor	Pentium® class CPU
Clock Speed	133 MHz or better
Memory	16 MB RAM
Disk Drive	3.5-inch, 1.44 MB
Flash Storage	16 MB solid-state flash memory
I/O Ports	Sixteen RS-422 communication ports Two RS-232 communication ports One printer port One VGA/SVGA monitor output port One PS/2 mouse port One PS/2-compatible keyboard port

### GENERAL

Operating Temperature	32° to 120°F (0° to 49°C)
Dimensions	5.25" H x 19.00" W x 14.25" D (13.34 x 48.26 x 36.20 cm)
Mounting	Fits 19-inch EIA Standard rack (3 RUs)
Unit Weight	13.6 lb (6.18 kg)
Shipping Weight	37 lb (16.82 kg)

### CERTIFICATIONS

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



## MATRIX SWITCHING BAY

The matrix switching bay is a card cage with 16 available card slots for video input modules and one card slot for a video output module (CM9740-VMC series). Each bay includes a power supply and will support modules for up to 256 camera inputs and 16 monitor outputs. A single matrix bay can be configured for up to 256 non-looping video inputs and 16 monitors (standard models) or 128 looping video inputs and 16 monitors ('S' models). A dual bay system can be configured for up to 256 non-looping inputs and 32 monitors (standard models) or 256 looping video inputs and 32 monitors ('L' models).

### 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
Inputs	Sixteen input card slots for supporting 256 inputs per bay
Outputs	One output card slot for supporting up to 16 outputs per bay

### VIDEO

Video Input Level	0.5 to 2 Vp-p, RS-170 composite video
Impedance	75 ohms terminating (looping versions available; add "L" or "S" suffix to model number when ordering)
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 (CM9740-MXB-X)
- FCC, Class A (CM9740-MXB, CM9740-MXBL)
- UL Listed (CM9740-MXB)
- UL Listed to Canadian safety standards (CM9740-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 GP-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 (CM9760-KBD-X)
- CE, Class B (CM9760-KBR-X)
- FCC, Class A (CM9760-KBD and CM9760-KBR)
- U.S. Patent D-464,654

### ADDITIONAL KEYBOARDS

The KBD200A and KBD300A keyboards have also been engineered for use with the CM9740 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

CM9740-CC1 CPU controller. Operates on 120 VAC, 60 Hz or 230 VAC, 50 Hz. (3 RUs)

### MATRIX BAY

CM9740-MXB

Video matrix bay equipped with CM9760-MPS power supply. 120 VAC, 60 Hz. (6 RUs). Same as CM9760-MXB except 230 VAC, 50 Hz.

CM9740-MXB-X

CM9740-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.

CM9740-VMC4

Video monitor card providing 4 monitor outputs; requires CM9760-RPM.

CM9740-VMC8

Video monitor card providing 8 monitor outputs; requires CM9760-RPM.

CM9740-VMC12

Video monitor card providing 12 monitor outputs; requires CM9760-RPM.

CM9740-VMC16

Video monitor card providing 16 monitor outputs; requires CM9760-RPM.

CM9740-VMM

Video monitor module; expands outputs of CM9740-VMC4, CM9740-VMC8 or CM9740-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  
KBD200A

Same as CM9760-KBR except 230 VAC, 50 Hz. 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.)

# 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)
CM9760P-IRC-JVC	VCR control card for controlling up to 32 JVC brand VCRs.
CM9760P-IRC-MIT	VCR control card for controlling up to 32 Mitsubishi brand VCRs.
CM9760P-IRC-PAN	VCR control card for controlling up to 32 Panasonic brand VCRs.
CM9760-IRC-TX	VCR control cable (1 per VCR required).
CM9760-VCRC-PTX	VCR control cable; 50-foot cable. 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 (2 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 CM9740-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 CM9740-CC1. 120 VAC, 60 Hz.
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 9740 or 9760 system. (3 components, 1 RU each)

CM9760-MDA	Master distribution amplifier; inserts master time and date from the CM9740-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-NW1	Network interface unit; network CPU and software necessary for joining two or more independent systems together. (3 RUs)
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-SAT	16 input satellite video matrix switcher; allows the user to distribute switching capability around a facility, reducing the number of coaxial cable runs to the 9740 and allowing local monitoring at the satellite switch locations. (2 RUs)
CM6800E-48X8	48 input satellite video matrix switcher; same functionality as CM9760-SAT except supports up to 48 inputs. (3 RUs)

## 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.



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