

CM9760 Series Matrix

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

Product Features

- Microprocessor-Based, Full Cross-Point Video Matrix
- Control up to 2,048 Cameras and 512 Monitors in a Single Node, or Expand Camera Capacity with a Multi-Node System (up to 24 Nodes).
- Full System Reports From CM9700-MGR Provide System Wiring and Configuration Details
- 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 and DVR Control Via Keyboard
- Built-in Video Loss Detection and System Diagnostics
- Windows®-Based System Management Software (Windows 2000, XP) Includes Multilanguage Menus and On-Screen Help
- 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™



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 (VMX300) for Simplified Control from External PC
- DVR Management

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 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.

Preconfigured, prepackaged systems make installation fast and simple. System 9760 features a user-friendly Windows-based management system, which allows for easy system programming and maintenance.

Macros allow activation of events based on schedule or alarm. Macros may call system-wide sequences (tours); activate preset positions on properly equipped cameras; and activate external relays to control auxiliary functions such as locking doors (additional equipment may be required).

System 9760 also includes built-in video loss detection and system diagnostic features. Optional DVR management allows DVRs to be controlled directly from the system keyboards. Suitable DVRs can be monitored for operational conditions ensuring continuous recording.



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

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|--------------------|---|
| Input Voltage | 120 VAC, 60 Hz or 230 VAC, 50 Hz, autoranging |
| Power Consumption | 57 W |
| 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 | 19.50" D x 19.00" W x 7.00" H (49.53 x 48.26 x 17.78 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 A
- FCC, Class A
- UL/cUL Listed

* 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 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 W maximum (fully populated) |
| Communication | Full duplex RS-422 using an RJ-45 connector |

VIDEO

| | |
|----------------------------|--|
| Bandwidth | 15 MHz |
| Signal-to-Noise | -61.1 dB |
| Adjacent Channel Crosstalk | -54.4 dB at 3.58 MHz |
| Differential Gain | 0.52% |
| Differential Phase | 2.02 degrees |
| Line Tilt | 0.41% |
| Field Tilt | 0.21% |
| Switching Time | 16 mS |
| 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) |

GENERAL

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|-----------------------|--|
| Operating Temperature | 14° to 122°F (-10° to 50°C) |
| Dimensions | 20.00" D x 19.00" W x 10.50" H (50.80 x 48.26 x 26.67 cm) |
| Mounting | Fits 19-inch EIA-standard rack (6 RUs) |
| Unit Weight | 21.9 lb (9.93 kg) |
| Shipping Weight | 60.0 lb (27.22 kg), fully populated 35.0 lb (15.88 kg) 73.0 lb (33.11 kg), fully populated |

CERTIFICATIONS

- CE, Class A (CM9760-MXB-X)
- FCC, Class A (CM9760-MXB)
- UL/cUL Listed (CM9760-MXB)

SYSTEM COMPONENTS AND ACCESSORIES

MODELS

CONTROLLER

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|---------------|---|
| 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; provides 16 BNCs to connect monitor outputs to matrix bay; also interfaces video output signals from video output card. |

OPTIONAL COMPONENTS

The following components are compatible with the 9760 System:

KEYBOARDS

CM9760 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.

| | |
|--------------|---|
| CM9760-KBD | Full-function desktop variable speed keyboard, white finish. 100-240 VAC, 50/60 Hz. |
| CM9760-KBD-B | Full-function desktop variable speed keyboard, black finish. 100-240 VAC, 50/60 Hz. |
| CM9760-KBR | Full-function 19 inch EIA rack mount keyboard (4 RUs); available in black finish only. 100-240 VAC, 50/60 Hz. |

A suffix of -US, -UK, -AU, or -EU, designating a region-specific power cord, is added to the above model numbers when ordering. For example, a CM9760-KBD-US is a desktop keyboard (white finish) with a power cord for use in the United States.

KBD200A Keyboard Controller

The KBD200A provides control of camera/monitor switching; reset, 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.)

| | |
|---------|--|
| KBD200A | Desktop keyboard with full switching capabilities, plus push-button control of PTZ functions. 12 VAC or ± 12 VDC. (Requires KBDKIT for power.) |
|---------|--|

KBD300A Keyboard Controller

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.)

| | |
|---------|---|
| 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

The CM9700-NW1 network interface unit allows multiple systems to share video and control.

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| CM9700-NW1 | Network interface unit; network CPU and software necessary for joining two or more independent systems together. (4 RUs). |
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SYSTEM COMPONENTS AND ACCESSORIES

MISCELLANEOUS

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|-------------------------------|---|
| 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 VMX300 Series | Same as CM9760-DMR except 230 VAC, 50 Hz. Video management system; 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; 8.80" D x 5.50" W x 1.75" H (22.35 x 13.97 x 4.44 cm). |
| 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. |
| CM9700MDD-EVS | Matrix digital decoder (NET5301R optimized for use with matrix) that converts digital video streams from Endura products into analog video to be viewed and controlled on a Pelco CM9700 Series matrix switcher. |
| 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). |
| CM6800E-48X8 | Satellite video matrix switcher. Allows the user to distribute switching capability around a facility, reducing the number of coaxial cable runs to the matrix and allowing local monitoring at the satellite switch location. 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

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|------------------|---|
| 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. |
| ExSite® | Integrated explosionproof positioning system. |

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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