CM6800E Matrix Switcher/Controller

MICROPROCESSOR-BASED, CROSS-POINT VIDEO SWITCHER, 48 X 8, EXPANDABLE

Product Features

- 48 Video Inputs, 8 Video Outputs; Can Be Expanded to 96 x 16
- Inputs Allow for Viewing and Control of Cameras, Domes, Pan/Tilt/Zoom (PTZs), Multiplexers, and Other Devices
- Includes Multiple Language Menus and On-Screen Text
- Video Inputs 1 to 40 Individually Selectable for Terminating or Looping with Switches on Rear Panel
- Supports Coaxitron® and RS-422 Camera Control
- Password Protected Menu Configuration
- Windows®-Based Manager Software
- System Partitioning Prevents Unauthorized Viewing and Control
- Wide Selection of Peripheral Components, Including Keyboards, Alarm Boxes, and Relay Boxes

- Macro Configuration and Event Timers Automate System Operation
- Multiple Built-in ASCII Communication Ports

The **CM6800E** Matrix switcher/controller is a very affordable solution for medium-sized matrix switch applications. This fully integrated and highly versatile cross-point matrix switcher provides switching and control from any one of up to 18 keyboards. This switcher can also be used to control other devices, such as Genex® multiplexers. The **CM6800E** provides easy to use, password-protected, on-screen configuration menus. Eight languages are supported.

The **CM6800E-48X8** can be used in the following configurations:

- A single unit provides 48 inputs and eight outputs.
- Two **CM6800E-48X8** units can be combined, providing switching and control of up to 96 inputs and 16 outputs.
- The **CM6800E-48X8** can function as a remote satellite switcher in a CM9700 Series system, allowing the system to handle additional video, alarm, and relay inputs, as well as allowing for use of Pelco M protocol devices, such as external alarm and relay units.

The **CM6800E** is designed to be remotely operated from desktop keyboards or external computer systems. System configuration is easy using on-screen menus and a system keyboard or a Windows®-based system management software. The manager software allows for remote configuration and external storage of all user setups.

The user-enabled character display shows time and date, operation mode, camera number, and a 20-character title for quick, easy identification of the on-screen video.

The **CM6800E** supports powerful system macros (64) and configurable sequences (32), which allow activation of commonly occurring events based on time/calendar or alarms. Macros provide quick call-up of multiple cameras to multiple monitors. Macros may also activate preset positions and auxiliaries on suitably equipped (PTZ or dome) receivers; and activate external relays to turn on lights, lock doors, or control other auxiliary functions (additional equipment may be required).

Built-in video loss detection alerts operators or technicians. Logical camera numbering provides the ability to assign any camera number to the physical input. An integral color bar generator allows the user to adjust monitor settings.

With the **CM6800E** the system manager can select from a wide variety of alarm handling and display options. An alarm can trigger a macro, preset, or pattern, and alarmed cameras can be displayed on one or several monitors. There are also choices for the order in which alarms are displayed, alarm priorities, automatic or manual acknowledgement, and activation of auxiliaries.

Multiple ports are provided for PTZ control and keyboards. A single data line, using Pelco M protocol, can accommodate various types of equipment, such as keyboards and external alarm interface units. RS-232 ports allow for communication with a PC. Peripheral components allow for expansion of alarms, relay contacts, and keyboards.

SYSTEM COMPONENTS/TECHNICAL SPECIFICATIONS

MATRIX SWITCHER

The CM6800E matrix switcher/controller provides switching and control for up to 48 video inputs and eight monitor outputs from any one of up to 18 keyboards, PCs and other devices. Two CM6800E-48X8 units can be combined, providing switching and control of up to 96 inputs and 16 outputs. The CM6800 can be controlled from a local or remote keyboard, or from an external computer. Additionally, it can be used with Genex multiplexers to display multiple camera views on a monitor, or as a satellite device in a CM9700 Series System. The CM6800 features menu-driven, password-protected configuration either from the switcher or with the CM6800-MGR software package installed on a PC. Configuration menus and on-screen text are provided in eight languages: English, French, German, Italian, Polish, Portuguese, Russian, and Spanish. Multiple ports are provided for PTZ control, keyboards, and peripheral components.

MODELS

CM6800E-48X8	Switcher/controller, 48 video inputs, 8 video outputs, NTSC
CM6800E-48X8-X	Switcher/controller, 48 video inputs, 8 video outputs, PAL
CM6800-96X16	Expanded switcher/controller system; contains two CM6800E-48X8 units and one CM6800E-KIT. 96 video inputs, 16 video outputs, NTSC
CM6800-96X16-X	Expanded switcher/controller system; contains two CM6800E-48X8-X units and one CM6800E-KIT. 96 video inputs, 16 video outputs, PAL
CM6800E-KIT	Expansion kit containing cables and instructions needed to connect two CM6800E-48X8 units together to create a 96 x 16 system

GENERAL

Memory Protection	Lithium battery provides five years of data protection.
Keyboards	
CM6800E-48X8	18: sixteen KBD100/200A/300A Series keyboards and two KBD960 Series keyboards
Keyboard Power	Powers two KBD100/KBD200A/KBD300A Series keyboards. Additional keyboards require a remote power supply.
Receiver/Dome Control	Coaxitron® and RS-422
Alarm Inputs	
CM6800E-48X8	8 individually configurable for N.O. or N.C. on rear panel
96 x 16 System	16 total: eight on each CM6800E-48X8 unit
External	Up to four ALM2064, Alarm Interface Units can be connected to the CM6800E-48X8 (main unit only in a 96 x 16 system)
Control Outputs on Rear Panel	
Relay (SPDT)	
CM6800E-48X8	2; rated at 0.5 amp at 125 VAC, 1 A at 30 VDC, 60 milliohms contact resistance
96 x 16 System	4 total: two on each CM6800E-48X8 unit
Open collector (TTL)	
CM6800E-48X8	One; 15 VDC maximum, 25 mA maximum
96 x 16 System	2 total: one on each CM6800E-48X8 unit
Additional Outputs	Up to four REL2064, Relay Interface Units, may be connected to the CM6800E-48X8 (main unit only in a 96 x 16 system)
Communication Ports	
CM6800E-48X8	10 total: eight data ports, two PTZ control ports; two data ports powered for keyboards
96 x 16 System	12 total: eight data ports (main unit only), four PTZ control ports (two on each unit); two data ports powered for keyboards (main unit only)

Note: In a 96 x 16 system, all system accessories such as keyboards and alarm interface units, are connected to the communication ports on the main CM6800E unit. PTZ devices can be connected to the communication ports on either unit.

System Macros	64
Configurable Sequences	32
Ambient Operating Temperature	20° to 120°F (–7° to 49°C)
Humidity	10% to 90%, noncondensing
Dimensions (switcher only)	12.25" D x 17.40" W x 5.25" H (31.12 x 44.20 x 13.34 cm)
Mounting (switcher only)	Factory configured for EIA rack mount (3 RUs); rack ears can be removed for versatile wall mount or freestanding applications
Weight	(48 X 8 switcher only)
Unit	11.6 lb (5.22 kg)
Shipping	18 lb (8.1 kg)

ELECTRICAL

Power Source	120 VAC or 230 VAC, 50/60 Hz, autoranging
Power Consumption	
CM6800E-48X8	25 W
96 x 16 System	50 W

SWITCHER CHARACTERISTICS

Video Inputs	BNC, terminating or looping (individually selectable per camera) 0.5 to 2 Vp-p composite video, video loss detection
CM6800E-48X8	40
96 x 16 System	80
Alternate Video Inputs	BNC, terminating 0.5 to 2 Vp-p composite video, video loss detection
CM6800E-48X8	8
96 x 16 System	16
Video Outputs	BNC
CM6800E-48X8	8
96 x 16	16
Switching Type	Cross-point video matrix; NTSC and PAL compatible
Switching Method	Vertical interval switching
Switching Time	Less than 16 milliseconds (typical)

SYSTEM COMPONENTS/TECHNICAL SPECIFICATIONS

VIDEO

Bandwidth	15 MHz
Frequency Response	Flat to 8 MHz, ±1 dB to 13 MHz
Signal-to-Noise Ratio	–44.26 dB (peak-to-peak vs. RMS noise)
Adjacent Channel Crosstalk	–56.47 dB at 3.58 MHz
Differential Gain	0.11%
Differential Phase	0.06°
Line Tilt	0.20%
Field Tilt	0.56%
Gain	Unity (±1 dB)
DC Output	Zero volts
Video Cable Distances	Minimum cable requirements:

- 75-ohms impedance
- All-copper center conductor
- All-copper braided shield with 95% braid coverage

Cable Type	Maximum Distance	
RG59/U	750 ft	(228 m)
RG6/U	1,000 ft	(304 m)
RJ11/U1	1,500 ft	(457 m)

CHARACTER GENERATION

Character Type	White with black outline, adjustable brightness
Camera Identification	2 lines, 20 character title, plus camera number, monitor number, date (4 formats) and time (24-hour or AM/PM formats); each item user-selectable
Configurable	On-screen, menu driven

CM6800E-48X8 REAR PANEL

Video Inputs, 1 to 40, terminating or looping (individually selectable per camera)

ALT Alternate Video Inputs, 41 to 48, terminating

Video Outputs (Monitor), 1 to 8

010101 RJ-45 Data Ports, COM 1 to 8 (Used to connect keyboards, Genex, and other peripheral devices such as alarm interface units)

Bay-to-Bay Video Port (Used to connect the two CM6800E-48X8 units in a 96 x 16 system)

1 Primary COM 1 Data Port (DB-9 connection; used to connect a PC or ASCII device)

Alarm Inputs, 1 to 8 (N.C. or N.O.; in addition, up to four ALM2064 units can be connected using a data port)

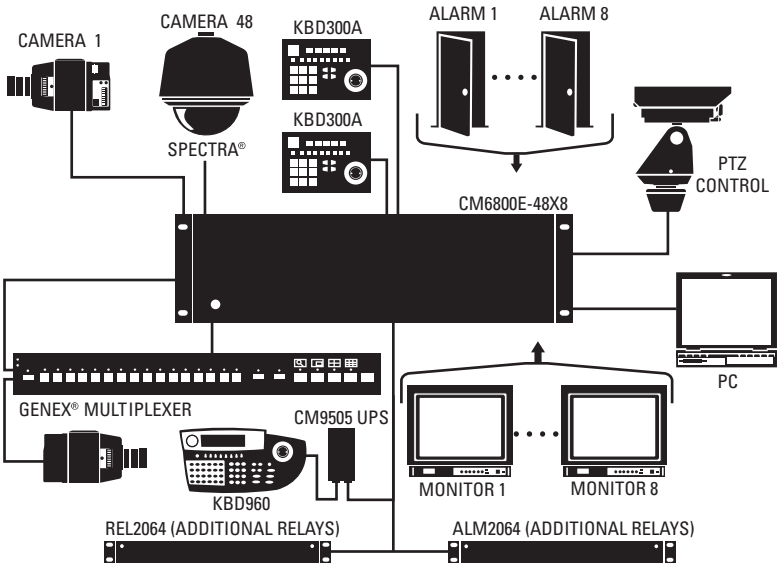
PTZ Control Ports, PTZ-A and PTZ-B (Two RS-422 outputs can control video sources using Pelco D or Pelco P protocol; up to four CM9760-CDU-T units can be connected to each port for additional receiver capacity)

Auxiliary Control Outputs, 1 to 2 and F3 (Two relay outputs, one open collector output; in addition, up to four REL2064 units can be connected using a data port)

SYSTEM APPLICATIONS

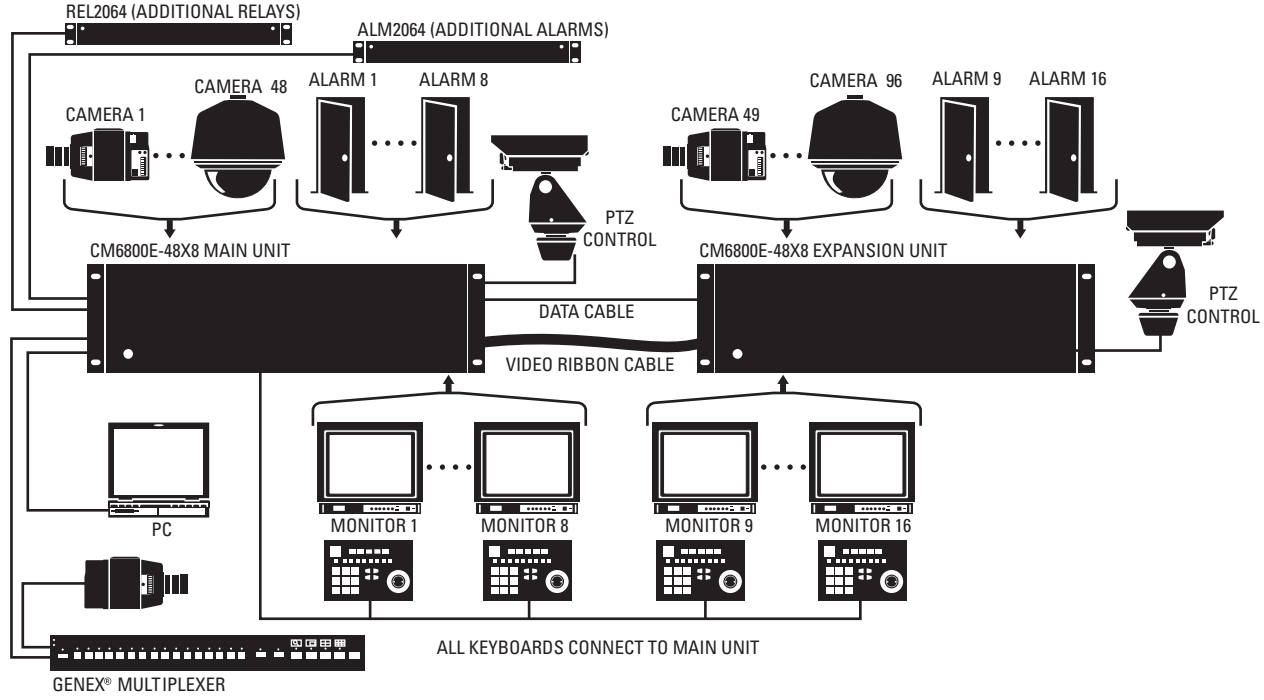
IMPORTANT NOTE. PLEASE READ. The network implementations in this document are shown as general representations only and are not intended to show detailed network topologies. Your actual network will differ, requiring changes or perhaps additional network equipment to accommodate the systems as illustrated. Please contact your local Pelco Representative to discuss your specific requirements.

1



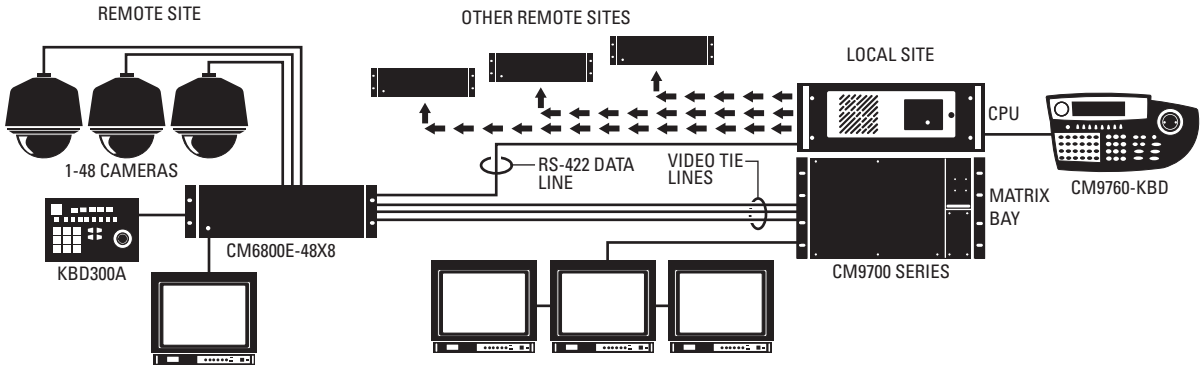
SAMPLE CM6800E-48X8 SYSTEM

2



SAMPLE CM6800E-96X16 SYSTEM

3



SAMPLE CM9700 SYSTEM WITH CM6800E-48X8 AS A SATELLITE SWITCHER

The CM6800E-48X8 can be used in the following configurations:

1. A single unit provides up to 48 inputs and eight outputs.

2. Two CM6800E-48X8 units can be combined into a “bay-to-bay” 96 x 16 system, providing switching and control of up to 96 inputs and 16 outputs from the main unit.

3. The CM6800E-48X8 can function as a remote satellite switcher in a CM9700 Series system, allowing the system to handle additional video, alarm, and relay inputs, as well as allowing for use of Pelco M protocol devices, such as external alarm and relay units.

SYSTEM COMPONENTS AND ACCESSORIES

MODELS

Matrix Switcher

CM6800E-48X8	Switcher/controller, 48 video inputs, 8 video outputs, NTSC, 120/230 VAC, 50/60 Hz
CM6800E-48X8-X	Switcher/controller, 48 video inputs, 8 video outputs, PAL, 120/230 VAC, 50/60 Hz
CM6800-96X16	Expanded switcher/controller system; contains two CM6800E-48X8 units and one CM6800E-KIT. 96 video inputs, 16 video outputs, NTSC, 120/230 VAC, 50/60 Hz
CM6800-96X16-X	Expanded switcher/controller system; contains two CM6800E-48X8-X units and one CM6800E-KIT. 96 video inputs, 16 video outputs, PAL, 120/230 VAC, 50/60 Hz
CM6800E-KIT	Expansion Kit containing cables and instructions needed to connect two CM6800E-48X8 units together to create a 96 x 16 system

Keyboards

KBD960	Full-function desktop variable-speed keyboard; white finish; 100 to 240 VAC, 50/60 Hz
KBR960	Full-function 19-inch EIA rack mount keyboard (4 RUs); black finish; 100 to 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 KBD960-US is a desktop keyboard with a power cord for use in the United States.

KBD300A*	Desktop system keyboard with full switching and configuration capabilities, plus joystick control of PTZ functions
KBD200A*	Desktop keyboard, multi-speed PTZ
KBD100*	Desktop keyboard, no PTZ

* 25-foot cable supplied. If distance between switcher and keyboard exceeds 25 feet or if using more keyboards than the switcher can power, use KBDKIT/KBDKIT-X (CM6800E-48X8 can provide power for two KBD100/KBD200A/KBD300A keyboards). KBDKIT/KBDKIT-X required when wiring more than one keyboard to a single keyboard port.

Interface Units

ALM2064	Alarm interface unit, provides alarm monitoring capabilities for up to 64 alarm inputs; 100 to 240 VAC, 50/60 Hz, autoranging; (1 RU)
REL2064	Relay interface unit provides 64 relays for operating peripheral equipment; 100 to 240 VAC, 50/60 Hz, autoranging; (1 RU) **Note:** Cannot be controlled from KBD100.

OPTIONAL ACCESSORIES

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.
KBDKIT	Remote keyboard wiring kit; includes two RJ-45 wall blocks and one 120 VAC to 12 VAC transformer. Use when distance between switcher and keyboard exceeds 25 feet or if using more keyboards than the switcher can power (CM6800E-48X8 can provide power for two KBD100/KBD200A/KBD300A keyboards). Required when wiring more than one keyboard to a single keyboard port.
KBDKIT-X	Same as KBDKIT except includes 230 VAC to 12 VAC transformer.
PV140	Converter kit, RS-232/RS-422, with 12 VDC power supply.

CERTIFICATIONS/RATINGS

- CE, Class B (CM6800E-48X8-X, CM6800-96X16-X, and KBD960/KBR960 Series)
- FCC, Class B (CM6800-48X8, CM6800-96X16, and KBD960/KBR960 Series)
- UL/cUL Listed (CM6800E-48X8 and CM6800-96X16)
- C-Tick

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