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, PTZs, Multiplexers, and Other Devices
- Includes Multiple Language Menus and On-Screen Text
- Video Inputs 1-40 Individually Selectable for Terminating or Looping with Switches on Rear Panel
- Supports Coaxitron® and RS-422 Camera Control
- Password Protected Menu Programming
- Windows®-Based Manager Software
- System Partitioning Prevents Unauthorized Viewing and Control
- Wide Selection of Peripheral Components, Including Keyboards, Alarm Boxes, and Relay Boxes

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 programming 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 CM9740/CM9760 system, allowing the system to handle additional video, alarm, and relay inputs, as well as allowing for use of 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. Programming the system is easy using on-screen menus and a system keyboard or a Windows®-based system management software. The manager software allows for remote programming 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.

- Macro Programming and Event Timers Automate System Operation
- Multiple Built-in ASCII Communication Ports
- Remote Viewing and Control Over TCP/IP Networks Using PelcoNet™

The CM6800E supports powerful system macros and programmable sequences, 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’s 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.
**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 CM9740/CM9760 System. The CM6800 features menu-driven, password-protected programming either from the switcher or with the CM6800-MGR software package installed on a PC. Programming menus and onscreen 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**

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

**GENERAL**

- **Memory Protection**: Lithium battery provides 2 weeks of data protection.
- **Keyboards**: Eighteen: 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**: Eight individually programmable for N.O. or N.C. on rear panel.
- **External**: Up to four ALM2064, Alarm Interface Units can be connected to the CM6800E-48X8 (main unit only in a 96 x 16 system).

**Communication Ports**

- **CM6800E-48X8**: 96 x 16 System (10 total: eight data ports, two PTZ control ports; 2 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); 2 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.

- **Ambient Operating Temperature**: 20° to 120°F (-7° to 49°C)
- **Humidity**: 10% to 90%, non-condensing
- **Dimensions (switcher only)**: 5.25” H x 17.4” W x 12.25” D (13.34 x 44.20 x 31.12 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**: 11.6 lb (5.22 kg)
- **Shipping**: 18 lb (8.1 kg)

**ELECTRICAL**

- **Power Source**: 120V or 230V, 50/60Hz, auto-ranging
- **Power Consumption**: 25 watts
- **SWITCHER CHARACTERISTICS**
  - **Video Inputs**: BNC, terminating or looping (individually selectable per camera) 0.5 to 2 Vp-p composite video, video loss detection
  - **Alternate Video Inputs**: Forty
  - **Video Outputs**: BNC, terminating 0.5 to 2 Vp-p composite video, video loss detection
  - **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 6 MHz, ±1 dB to 13 MHz
- Adjacent Channel Crosstalk: -55 dB typical at 3.58 MHz
- Signal-to-Noise Ratio: -50 dB (peak-to-peak vs. RMS noise)
- Differential Gain: 0.03% typical
- Differential Phase: 0.24° typical
- 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

<table>
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<tr>
<th>Cable Type</th>
<th>Maximum Distance</th>
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<tr>
<td>RG59/U</td>
<td>750 ft (228 m)</td>
</tr>
<tr>
<td>RG6/U</td>
<td>1,000 ft (304 m)</td>
</tr>
<tr>
<td>RJ11/U1</td>
<td>1,500 ft (457 m)</td>
</tr>
</tbody>
</table>

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

**VIDEO INPUTS**
- 1-40, terminating or looping (individually selectable per camera)

**ALTERNATE VIDEO INPUTS**
- 41-48, terminating

**VIDEO OUTPUTS**
- (Monitor), 1-8

**RJ-45 DATA PORTS**
- COM 1-8 (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)

**PRIMARY COM 1 DATA PORT**
- (DB-9 connection; used to connect a PC or ASCII device)

**ALARM INPUTS**
- 1-8 (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 D or P protocol; up to four CM9760-CDU-T units can be connected to each port for additional receiver capacity)

**AUXILIARY CONTROL OUTPUTS**
- 1-2 and F3 (Two relay outputs, one open collector output; in addition, up to four REL2064 units can be connected using a data port)
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 CM9740/CM9760 system, allowing the system to handle additional video, alarm, and relay inputs, as well as allowing for use of 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, 120/230V, 50/60 Hz

CM6800E-48X8-X
Switcher/controller, 48 video inputs, 8 video outputs, PAL, 120/230V, 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, 120/230V, 50/60 Hz

CM6800-96X16-X
Expanded switcher/controller system; contains two CM6800E-48X9-X units and one CM6800E-KIT. 96 video inputs, 16 video outputs, PAL, 120/230V, 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 system variable-speed keyboard with 24 programmable soft keys. 120V, 60 Hz

KBD960-X
Same as KBD960 except 230V, 50 Hz

KBR960
Full-function 19-inch EIA rack mount keyboard (4 RU), 120V, 60 Hz

KBR960-X
Same as KBR960 except 230V, 50 Hz

KBD300A*
Desktop system keyboard with full switching and programming 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 KBD100/200A/300A Series 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. 100-240V, 50/60 Hz, auto-ranging. (1 RU)

REL2064
Relay interface unit provides 64 relays for operating peripheral equipment. 100-240V, 50/60 Hz, auto-ranging. (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 120V to 12V 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 KBD100/200A/300A Series keyboards).

NOTE: Required when wiring more than one keyboard to a single keyboard port.

KBDKIT-X
Same as KBDKIT except includes 230V to 12V transformer

PV130
Converter kit, RS-232/RS-422, with 12 VDC power supply.

PelcoNet™
Transmission system for PTZ functions, camera control, and remote site viewing.

VMX200 Series
Video management system; graphical map/icon-based user interface for mouse-driven operator control from external PC.

CERTIFICATIONS/RATINGS

- CE, Class B (CM6800E-48X8-X, KBD960/KBR960 Series, ALM2064, and REL2064)
- CE, Class A (CM6800-96X16-X)
- FCC, Class B (KBD960/KBR960 Series, ALM2064, and REL2064)
- FCC, Class A (CM6800-96X16)
- UL Listed (CM6800E-48X8 and CM6800-96X16)
- UL Listed to Canadian safety standards (CM6800E-48X8 and CM6800-96X16)

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