CM6700 Series Matrix

MICROPROCESSOR-BASED SWITCHER/CONTROLLER, 16 X 2/4

Product Features

- 16 Video Inputs; 2 or 4 Video Outputs
- 20-Character Camera Title
- Time (24-Hour or AM/PM Formats); Date (4 Formats)
- Alarm Display Call-up from 18 Direct-Connect Alarm Inputs
- Video Inputs Individually Selectable for Terminating or Looping
- Coaxitron® Compatible
- Individual Monitor Sequential Switching with Preset Call
- Compatible with RS-422 Pelco D or Pelco P Protocol
- Camera Control Selection: Coaxitron® or RS-422; Individually Selectable per Camera
- Control Genex® Multiplexers
- Selectable Data Port: RS-232/RS-422/RS-485
- Password-Protected Menu Configuration
- User Partitioning to Prevent Unauthorized Viewing

CM6700-MXB SWITCHER/CONTROLLER

- Compatible Keyboards:
  - Switcher Only (KBD100)
  - Switcher Plus Multi-Speed Control, Presets, Patterns, Receiver Auxiliary (KBD200A)
  - Switcher Plus 3-Axis Joystick for Variable Speed PTZ Control, Presets, Patterns, Receiver Auxiliary (KBD300A)
- Optional CM6700-VMC Two-Monitor Expansion Card
- Includes Spanish-Language Menus

The **CM6700 Matrix** switcher/controller is a very affordable, highly versatile, full-featured cross-point matrix switcher. The **CM6700** provides switching and control for 16 video inputs and up to 4 monitor outputs from any one of up to 8 keyboards.

The **CM6700 Matrix** switching unit is designed to be remotely operated from desktop keyboards or external computer systems.

The versatile mounting system allows for a variety of installation options: either in a 19-inch rack (front or rear mount), wall, or shelf mount. This versatility allows the bulk of the video cables to be routed to a convenient area such as a telephone room instead of the operator location.

Straightforward on-screen menus make configuring the **CM6700** simple and easy. (The **CM6700** even lets you switch to Spanish-language configuration menus.) 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 display characters are white with black outline for viewing under varying lighting conditions. The display can be located anywhere on the viewing monitor and can be turned on or off.

The **CM6700** supports two system macros, or salvo sequences, to allow quick call-up of up to four cameras to four monitors simultaneously. Salvo sequences include preset call of suitably equipped (PTZ or dome) receivers.

When an alarm is received, the **CM6700** will switch the camera for that alarm to the selected monitors. If a PTZ function is being performed when an alarm is received, an alarm-pending message will appear. An alarm will automatically call a preset and pre-position a camera with suitable (PTZ or dome) receivers. Alarms are cleared either by keyboard acknowledgment or timeout after contact deactivation. Two extra alarm inputs allow for alarm-activated salvo sequence call-up. A Form C alarm relay output allows for automatic activation of an alarm event recorder or other device. In addition, this relay is manually controllable from the system keyboard.

SYSTEM KEYBOARDS

KBD100

The **KBD100, KBD200A,** and **KBD300A** keyboards have been engineered for use with the CM6700 matrix switcher. Each keyboard in the series offers a different level of control and functionality in order to provide maximum versatility in every application.

KBD100

Our most economical keyboard, the **KBD100** features limited CM6700 matrix control for operator locations where PTZ functions are not intended or not required. Features include configuration capabilities, camera and monitor call-up, operation of sequences and patterns, and three function keys to allow local auxiliary activation.

KBD200A/KBD300A STANDARD FEATURES

The **KBD200A** and **KBD300A** full-feature keyboards offer PTZ control, configuration capabilities, camera and monitor call-up, operation of sequences and patterns, and local auxiliary activation. Added function keys allow control of receiver auxiliaries. The function keys have dual selections to allow remote control of multiplexer functions when a Pelco MX4000 Series multiplexer is used in conjunction with the CM6700 matrix switcher.

These keyboards can be configured for Direct Mode operation; see below.

KBD200A

KBD200A/KBD300A EXCLUSIVE KEYBOARD FEATURES

This economical keyboard features "Touchspeed" multi-speed control of variable speed receivers.

The **KBD200A** additionally features an ASCII Mode, included specifically for phone line video applications. **KBD200A** ASCII Mode allows complete operational control of the CM6700 matrix switcher through the ASCII port (configuration not supported). When configured for ASCII Mode control, the **KBD200A** outputs RS-422 ASCII protocol at 9600 baud. This configuration requires the KBDKIT and, in some cases, the PV140 RS-232 to RS-422 converter.

The **KBD300A** keyboard features a 3-axis, vector-solving joystick that includes a twisting, return-to-center head for precise, single-hand control of PTZ functions.

KBD300A

DIRECT MODE RECEIVER CONTROL

The **KBD200A** and **KBD300A** keyboards can be alternately configured for Direct Mode operation. Each keyboard requires a remote keyboard wiring kit (KBDKIT) for Direct Mode operation.

Direct Mode control is a feature that allows 2-wire control of up to 16 daisy-chained receivers directly from the keyboard.

When configured for Direct Mode control, keyboards output Pelco P protocol at 4800 baud.

Direct Mode control features include configuration and call-up of presets, full PTZ control of variable speed receivers, and activation of receiver auxiliaries.

The **KBD300A** automatically recognizes the configured mode (Direct or CM6700).

TECHNICAL SPECIFICATIONS

SWITCHER

GENERAL

Memory Protection	Replaceable lithium battery provides data protection for ten years
Keyboard Capacity	8
Receiver/Dome Control	Coaxitron® and RS-422
Alarm Inputs	18, configurable (includes presets and N.O./N.C. device)
Alarm Relay Outputs	1, DPST
Rating	0.5 A at 125 VAC
General Purpose Outputs	2, open collector; 32 VDC max., 25 mA max.
Data Ports	2
Receiver	RS-422, Pelco D protocol 2400 baud, Pelco P protocol 2400 to 9600 baud
Data (Computer)	RS-232/RS-422/RS-485, 1200 to 19.2K baud
Keyboard Ports	2
Local Port	Provides data and 12 VAC power for one keyboard
Remote Port	Data only port for all additional or remote keyboards; each keyboard connected to this port requires a KBDKIT
Dimensions (switcher only)	10.5" D x 17.0" W x 3.5" H (26.67 x 43.18 x 8.89 x cm)
Mounting (switcher only)	Factory configured for EIA rack mount (2 RUs); rack ears can be removed for wall mount or freestanding applications

Weight	Unit	Shipping
CM6700-MXB2	9.46 lb (4.28 kg)	13 lb (5.88 kg)
CM6700-MXB4	10.22 lb (4.62 kg)	14 lb (6.34 kg)

ELECTRICAL

Power Source	120 V or 230 V, 50/60 Hz
Power Consumption	10 W

SWITCHER CHARACTERISTICS

Video Inputs	16 inputs, BNC, terminating or looping (jumper selectable) 0.5 to 2.0 Vp-p composite video
Video Outputs	2 or 4 outputs, BNC
Switching Type	Cross-point video matrix, RS-170, NTSC, CCIR and PAL compatible
Switching Method	Vertical interval switching
Switching Time	Less than 16 milliseconds (typical)

VIDEO

Bandwidth	15 MHz
Frequency Response	Flat to 8 MHz, ±1dB to 15 MHz
Signal-to-Noise Ratio	–60 dB (peak-to-peak vs. RMS noise)
Adjacent Channel Crosstalk	–49.6 dB at 3.58 MHz
Differential Gain	1.03%
Differential Phase	1.02°
Line Tilt	0.6%
Field Tilt	1.2%
Gain	Unity (±1dB)
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/U	1,500 ft (457 m)

CHARACTER GENERATION

Character Type	White with black outline
Camera Identification	1 line, 20-characters plus camera number
Date/Time	1 line
Configurable	On-screen, menu driven
Character Set	80 ASCII characters

KEYBOARDS

ELECTRICAL

Input Voltage	12 VAC or ±12 VDC
Power Consumption	5 W
Connector Type	RJ-45, 8-pin modular (female)
Communication Type	RS-485*

*Maximum cable distance for RS-485 communication over 24-gauge wire is 4,000 feet (1,219 m). Pelco recommends using shielded twisted pairs, such as Belden 9843 or similar cable that meets or exceeds the basic requirements for EIA RS-485 applications.

KEYBOARD COMMUNICATION

6700 Mode	**(KBD100/200A/300A)**
Interface	RS-485
Protocol	Pelco ASCII
Baud Rate	9600
Communication Parameters	8 data bits, odd parity, 1 stop bit
Direct Mode	**(KBD200A/KBD300A)**
Interface	RS-422
Protocol	Pelco P
Baud Rate	4800
Communication Parameters	8 data bits, no parity, 1 stop bit
ASCII Mode	**(KBD200A)**
Interface	RS-422
Protocol	Pelco P
Baud Rate	9600
Communication Parameters	8 data bits, odd parity, 1 stop bit

GENERAL

Keyboard Keypad	Electromechanical
Joystick (KBD300A)	3-axis, vector solving, twisting, return-to-center head
Display	
KBD100	7-segment digital display: Red LED, 1 cell
KBD200A/KBD300A	7-segment digital display: Red LED, 2 cells Multiplexer mode indicator: Green LED
Ambient Operating Temperature	20° to 120°F (–7° to 49°C)
Humidity	10% to 90%, noncondensing
Dimensions	
KBD100	7.125" L x 6.00" W x 2.25" H (18.10 x 15.24 x 5.72 cm)
KBD200A	7.125" L x 8.125" W x 2.25" H (18.10 x 20.64 x 5.72 cm)
KDB300A	7.125" L x 9.50" W x 2.25" H (24.13 x 18.10 x 5.72 cm)

Weight	Unit	Shipping
KBD100	1.9 lb (0.86 kg)	3 lb (1.35 kg)
KBD200A	2.1 lb (0.97 kg)	3 lb (1.35 kg)
KBD300A	2.5 lb (1.12 kg)	5 lb (2.26 kg)

TECHNICAL SPECIFICATIONS

MODELS

Matrix Bay

CM6700-MXB2	Switcher/controller. 16 inputs, 2 outputs, NTSC, 120 V, 50/60 Hz
CM6700-MXB2-X	Switcher/controller. 16 inputs, 2 outputs, PAL, 230 V, 50/60 Hz
CM6700-MXB4	Switcher/controller. 16 inputs, 4 outputs, NTSC, 120 V, 50/60 Hz
CM6700-MXB4-X	Switcher/controller. 16 Inputs, 4 outputs, PAL, 230 V, 50/60 Hz

Keyboards

KBD100*	Desktop keyboard, switcher only (25-foot cable supplied)
KBD200A*	Desktop keyboard, multi-speed PTZ, (25-foot cable supplied)
KBD300A*	Desktop keyboard, variable-speed PTZ, (25-foot cable supplied)

*If distance between switcher and keyboard exceeds 25 feet, use KBDKIT/KBDKIT-X.

Note: In addition, the KBD200A and KBD300A keyboards provide control capabilities for Pelco multiplexers. The function key icons shown are active only when used in conjunction with an appropriate Pelco multiplexer.

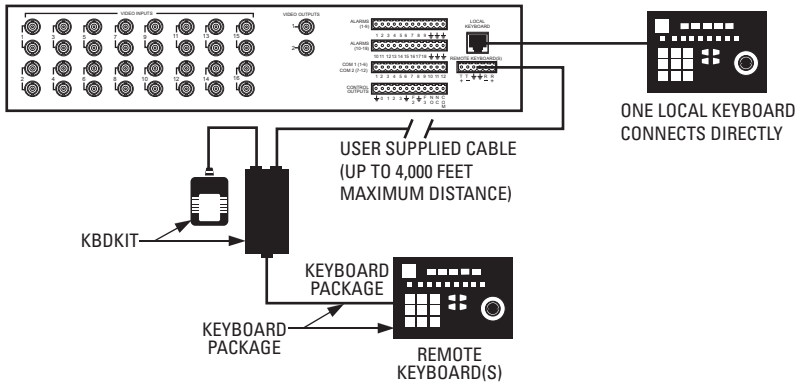
CERTIFICATIONS/RATINGS

- CE compliant (CM6700-MXB2-X, CM6700-MXB4-X, CM6700-VMC2-X, KDB100, KDB200A, KDB300A, and KBDKIT-X)
- FCC, Class A (CM6700-MXB2, CM6700-MXB4, CM6700-VMC2, KBD100, KBD200A, and KBD300A)
- UL/cUL Listed (CM6700-MXB2, CM6700-MXB4, KBD100, KBD200A, and KBD300A)
- Meets NEMA Type 1 standards

OPTIONAL ACCESSORIES

CM9760-CDU-T	Code distribution unit; 16-channel RS-422 transmit only (2 data wires and ground) distributor. Primarily used for configuring up to 16 pan/tilt/zoom receivers in a "star" configuration.
CM6700-VMC2	2-monitor output expansion card (NTSC). Expands a CM6700-MXB2 to a four-monitor system and features easy installation and plug-and-play functionality.
CM6700-VMC2-X	2-monitor output expansion card (PAL). Use with CM6700-MXB2-X.
KBDKIT	Remote keyboard wiring kit. Required if connecting KBD200A or KBD300A keyboards to the Remote Keyboard Port on the SCU (6700 Mode) or when using a single keyboard in Direct or ASCII Mode applications. Includes two RJ-45 wall blocks and one 120 VAC to 12 VAC transformer. Maximum cable distance for RS-422/RS-485 communication over 24-gauge wire is 4,000 feet (1,219 m). Use shielded twisted pairs cable that meets basic requirements for RS-422/RS-485 applications. (One wall block and transformer required for each keyboard.)
KBDKIT-X	Same as KBDKIT except includes 230 VAC to 12 VAC transformer
PV140	RS-422 to RS-232 interface converter and power supply

SAMPLE CM6700 KEYBOARD WIRING DIAGRAM



IMPORTANT NOTE. PLEASE READ. The network implementation is shown as a general representation only and is not intended to show a detailed network topology. Your actual network will differ, requiring changes or perhaps additional network equipment to accommodate the system as illustrated. Please contact your local Pelco Representative to discuss your specific requirements.

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