

SONY®



Production Switcher Systems

MVS-8000A Series

DVS-9000 Series

Open Up Vast New Opportunities for Creative Requirements



The increased complexity of today's broadcasting demands calls for much quicker and reliable operability, and a higher level of system flexibility that can meet virtually every customer's specific production needs.

Demands for more sophisticated content, together with High Definition and DTV agendas, present even more challenges to live production operations.

Responding to this dramatic transition, Sony has developed the MVS-8000A and DVS-9000 Series of Digital Switchers, providing unique solutions to such emerging requirements in both live and post-production environments. The DVS-9000 Series squarely addresses top-

quality but cost-effective SD programming, while the MVS-8000A Series offers top quality multi-format operation across a variety of SD and HD formats.

The design philosophy behind these switcher systems was to build an architecture based on extensive feedback from prominent technical directors and experienced engineers. The result is customizable control panels with highly intelligible indicators and buttons, advanced networking with system peripherals, integrated control and maintenance, powerful M/E functions and effects, complete system scalability, and special considerations for use in mixed PC and AV environments.

Due to their common architecture, MVS-8000A and DVS-9000 Series Switchers also share the same optional accessories, including the control panel, remote panel, and peripherals. Their system control structure and setup/effect data are also compatible, making it easy to establish a mixed MVS-8000A and DVS-9000 Series environment that provides a smooth migration path from SD to HD operations. With the MVS-8000A and DVS-9000 Series, broadcasters and post-production facilities around the world will secure the optimal combination of high quality and return on investment.



Flexibility for Today and Tomorrow

MVS-8000A Series Multi-Format Switchers

MVS-8000A Series Digital Switchers are multi-format capable and can operate in any of the following formats:

- 1080i/60, 59.94, 50
- 1080p/30, 29.97, 25, 24, 23.976
- 720p/59.94
- 480i/59.94
- 576i/50

DVS-9000 Series Standard Definition Switchers

DVS-9000 Series Digital Switchers are designed exclusively for standard definition and offer 525/625 switchable operation. The DVS-9000 Series builds on the advanced technology and cutting-edge architecture of the MVS-8000A Series, thus offering the same level of operational convenience and system flexibility. In addition, the system-control structure and setup/effect data are compatible with MVS-8000A Series Switchers, enabling the user to configure a mixed DVS/MVS environment.

Scalable Processor Configurations

The processors of both the MVS Series and DVS Series can be configured to suit the exact needs of each particular user in terms of operation, resolution, frame rate, number of I/Os, number of M/E banks, and more. Another great benefit is that these switchers can be flexibly upgraded as user needs grow, simply by installing the appropriate option board.



The MVS Series and DVS Series both offer the choice of a full-size or compact processor, depending on user needs and scale of operation. The full-size MVS-8000A and DVS-9000 Switcher processors can be configured for 2-, 2.5-, 3-, 3.5-, or 4-M/E operation. The processors also support up to 80 inputs, plus 48 assignable and 8 monitor outputs - enough for the largest of program requirements.

The compact MVS-8000ASF and DVS-9000SF Switcher processors can be configured for 1-, 1.5-, 2-, or 2.5-M/E operation. Both units are available with up to 34 inputs and 24 outputs.

On both the full-size and compact processors, all outputs can be assigned for program, preview, key preview, clean, or auxiliary. The optional Simple P/P Software adds simple mix/effect functionality including two keyers, background, and key transitions. This software upgrades 1-, 2-, and 3-M/E switcher processors to 1.5-, 2.5-, and 3.5-M/E, respectively.




Choose your definition.


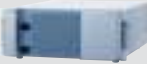
Switcher processors

	Multi-format
2 to 4 M/E	<p>MVS-8000A 8U 80 inputs and 48 outputs 8 monitor outputs Supports up to 8 (external) DME channels</p> 
1 to 2.5 M/E	<p>MVS-8000ASF 4U 34 inputs and 24 outputs Supports up to 8 (external) DME channels</p> 

Any CCP-8000 and CCP-9000 cont

Control panels

	CCP-8000 Customizable control panels
3.5 or 4 ME	
2.5 or 3 ME	
1.5 or 2 ME	

SDTV	
DVS-9000 8U 80 inputs and 48 outputs 8 monitor outputs 4 DME channels	
DVS-9000SF 4U 34 inputs and 24 outputs 4 DME channels	

Customizable Control Panel

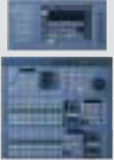

The MVS-8000A Series and DVS-9000 Series share the same control panels, which have been designed with special care and attention. Two control panel lineups are available: the customizable CCP-8000 Series and the compact CCP-9000 Series.

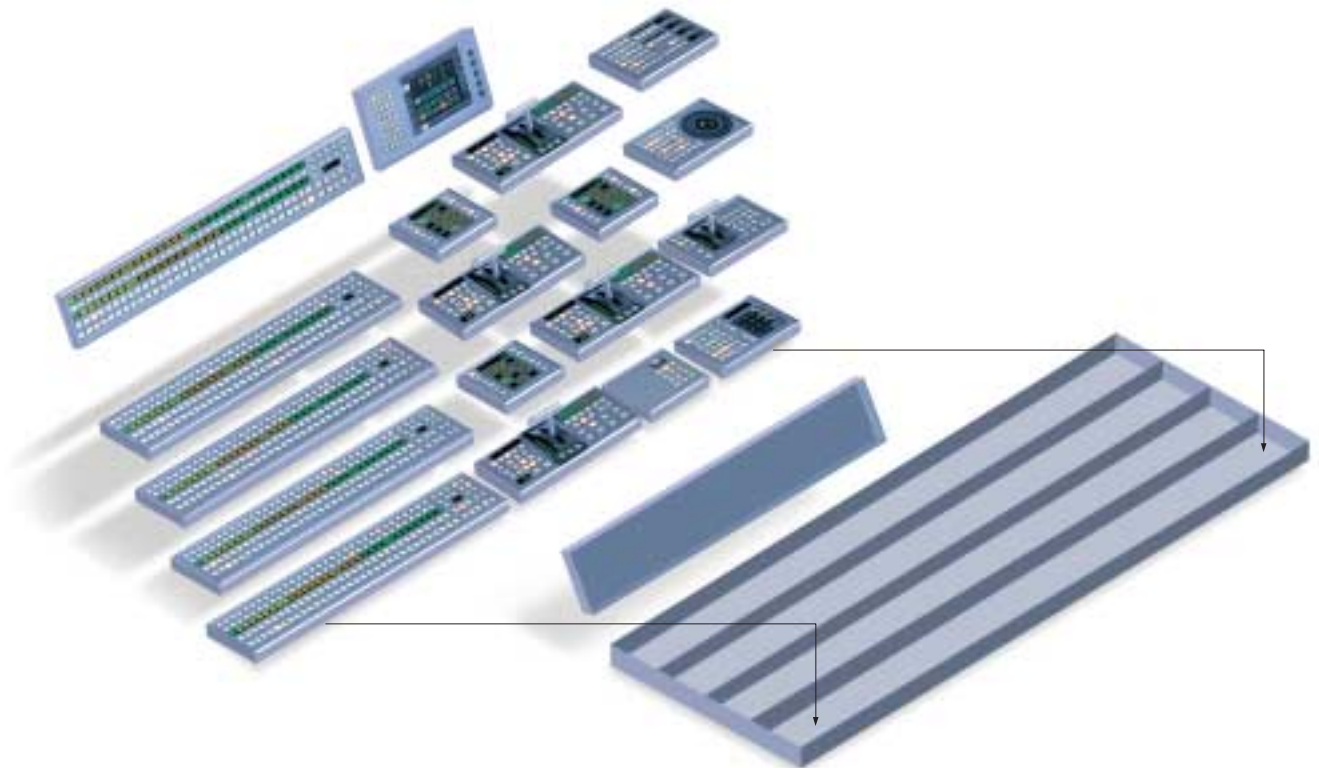
The CCP-8000 Series incorporates a modular design in which each control area is provided as a separate module. Users can locate modules in the M/E base chassis according to their personal layout preferences. The M/E base chassis is offered in 16-, 24-, or 32-

button styles, and M/E banks are available in 1.5-, 2-, 2.5-, 3-, 3.5-, or 4-M/E configurations. There are three choices of transition and key control modules, covering simple to complex video-layering requirements.

The CCP-9000 Series are compact control panels, available in 1-, 1.5-, or 2-M/E configurations with 12-crosspoint buttons and a built-in redundant power supply. These control panels are well suited for use in small-scale OB vehicles and edit suites, or as sub-M/E remote panels for the MVS/DVS Series.

Control panel can control any processor

CCP-9000 Compact control panels	
	1.5 or 2 ME
	1 ME



Comprehensive Control System

Networking Functions

The DVS and MVS Series provide sophisticated network capabilities to allow an extremely efficient and innovative style of operation. Two Ethernet-based networks are provided: the Control LAN and the Data LAN.

The Control LAN is a dedicated network that allows efficient resource sharing among DVS/MVS Series Switcher processors and CCP Series control panels. Using this network, multiple control panels can simultaneously share a single switcher processor on an M/E basis (for efficient multi-tasking). Conversely, a single control panel can simultaneously control multiple switcher processors to deliver the same program in multiple formats.

The second network, the Data LAN, provides a connection across the MVS/DVS Series to all key components and Sony peripherals. This network is used for remote administrative tasks such as status monitoring, software upgrades, and configuration, as well as maintenance and facility-management tasks. Image file transfers are also available for sharing graphics and titling resources. This second network can extend across a LAN or WAN and even reach out over the Internet via a gateway.

System Management Software

Sony System Management Software running on a PC enables integrated management of all Sony live-production products configured around and networked to the MVS/DVS Series Switchers. This function enables centralized control of MVS/DVS Series Switchers, PFV-SP Series Signal Processing Units, and other devices from a single user interface.

The System Management Software allows remote setup,

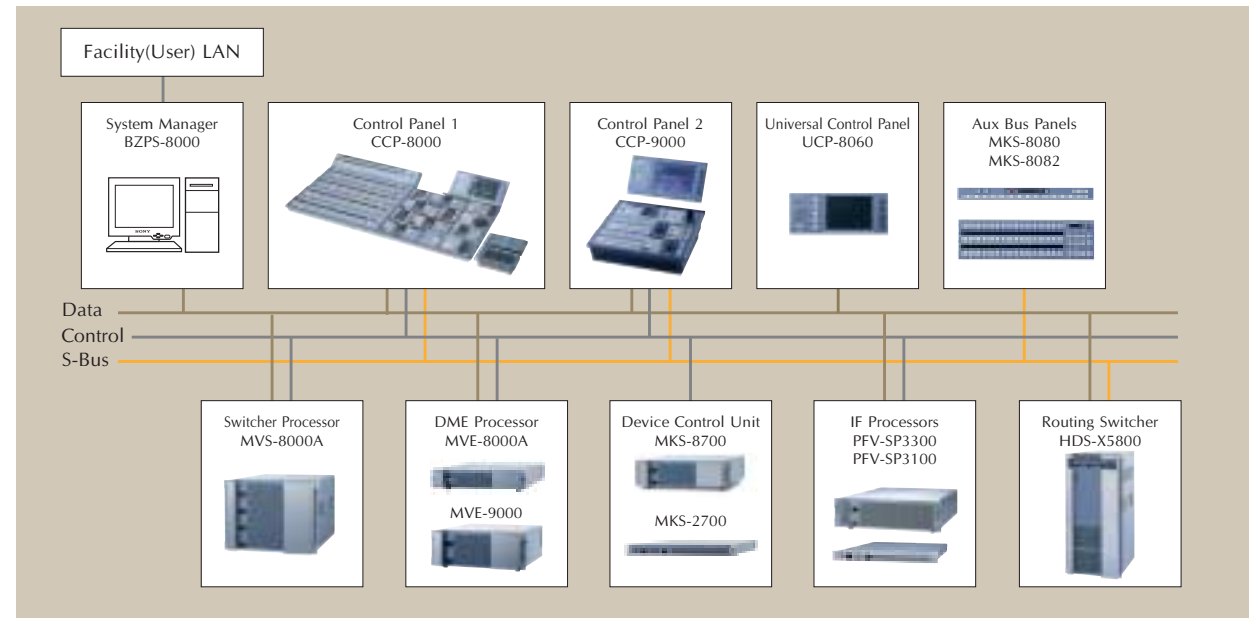
maintenance, and operation of each device connected to the network, as well as efficient file management of setup, effect, and image data. Overall, the software enables extremely efficient system operation.

Powerful Device Control

External VTRs, DDRs, and PII devices can all be controlled directly from the MVS/DVS Series control panel using the Device Control Unit (MKS-8700 or MKS-2700). Each unit connects to the control panel and provides control of such external devices via RS-422A, PII bus, or GPI. The MKS-8700 can have up to 30 RS-422A control ports or up to 270 GPIs, while the

MKS-2700 has 6 RS-422A ports and 34 GPIs as standard. Moreover, device control is provided on the same timeline as switcher events. When integrating a Sony disc protocol or VDCP-controlled disk recorder, clip management is provided allowing different server clips to be recalled and played back as part of a switcher timeline. The MVS/DVS Series can also control Sony DVS and HDS-X Series Routers via an S-BUS connection. This enables re-assignment of router crosspoints without distracting attention from the switcher control panel. The router's source names can be shown on the source name displays of the MVS/DVS Series control panel.

Efficient Control System



Intelligent Tally Functions

MVS/DVS Series Switcher systems provide an intelligent and multi-functional tally system, which seamlessly integrates the switcher and router tally functions. Multiple on-air and recording tallies can easily be programmed on the switcher system - so that even complex tally requirements are catered to - and extra parallel tally ports can be obtained simply by adding tally boards to the MKS-8700 or by using the MKS-2700. Using the S-BUS interface, the MVS/DVS Series Switcher systems can provide tally outputs to router control panels via a simple coaxial cable connection.



Explore Your Imagination

Independent M/E Architecture

Each M/E, including the PGM/PST bus, is equipped with powerful functionality. Snapshot settings, keyframe settings, and various setups such as crosspoint assignments, 4:3/16:9 modes, and bus toggle on/off can be independently designated per M/E. This architecture allows the user to efficiently assign multiple tasks to a single MVS/DVS Series processor when required.

Enhanced Frame Memory System

The high-capacity frame memory systems of MVS/DVS Series Switchers each have eight simultaneous outputs. The MVS-8000A Series can store 58 frames of HD images*, while the DVS-9000 Series can store 444 frames of SD images. Images can either be stored separately or paired for video/key operation.

An internal hard disk drive in the control panel provides additional storage for a greater number of frames. The memory buffer can sequentially recall frames at frame rate so that short logo animations can be played. Stored video or graphics frames can easily be exchanged between the MVS/DVS Series Switcher and external PCs or graphic workstations via an Ethernet network or removable media.

*Planned to be available in the future is the capability to store a remarkable 1740 frames of HD images (which translates into approximately 58 seconds at 1080i/59.94). This is to be accomplished by installing two Frame Memory boards and upgrading the software.

Creative M/E Functionality

The MVS/DVS Series inherits many of the features of the well-proven DVS-7000 Series, but with significant enhancements. Each M/E on the MVS/DVS Series is equipped with four keys, allowing sophisticated layering from a single M/E. Separate from the main fader, each keyer has its own auto-transition controls, which allow users to insert or remove keys on an individual basis with independent wipes, DME wipes, and dissolves. For further flexibility, each keyer in every M/E also offers chroma keying and color vector keying, eliminating restrictions of selectable key types. These fully featured M/Es allow total interoperability of effects on all M/Es.

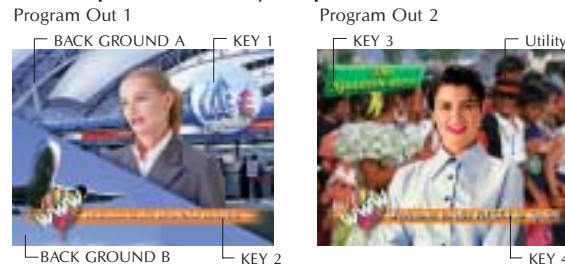
The market-acclaimed Finekey™ technology allows fine adjustments of key position and border widths on a sub-pixel level within the range of 8H.

Sony's unique Processed Key mode and DME-Link™ function are also provided, with additional power and convenience. Up to four video signals composed on the background can be processed through the DME within a single keyer, allowing for even greater operational flexibility. Multi-Program Mode, available on each M/E, enables four independent PGM outputs. Each output can contain any combination of the four M/E keyers over either the main M/E PGM or a utility bus background signal. This allows the user to perform "versioning" of the same program without the need to purchase an external keyer.

<For Multiple Language Applications>



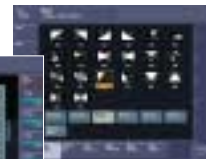
<For Independent Secondary Composition>



Easy and Efficient Operation

MVS/DVS Series Switchers have a large color touch-screen menu for efficient and intuitive system control. Button indications have also been greatly enhanced over previous generation switchers. Crosspoint source-name displays, FlexiPad™, and Shot Box™ buttons all incorporate a backlit three-color LCD indicator to which preset pattern icons or text can be imported and displayed. These indicators help to keep the operator informed of crosspoint and button assignments at all times.

Optional remote-control panels, such as AUX Bus Remote, Keyer Remote (Universal Control Panel), and M/E Remote panels, allow convenient operating environments for live use.



Wipe selection



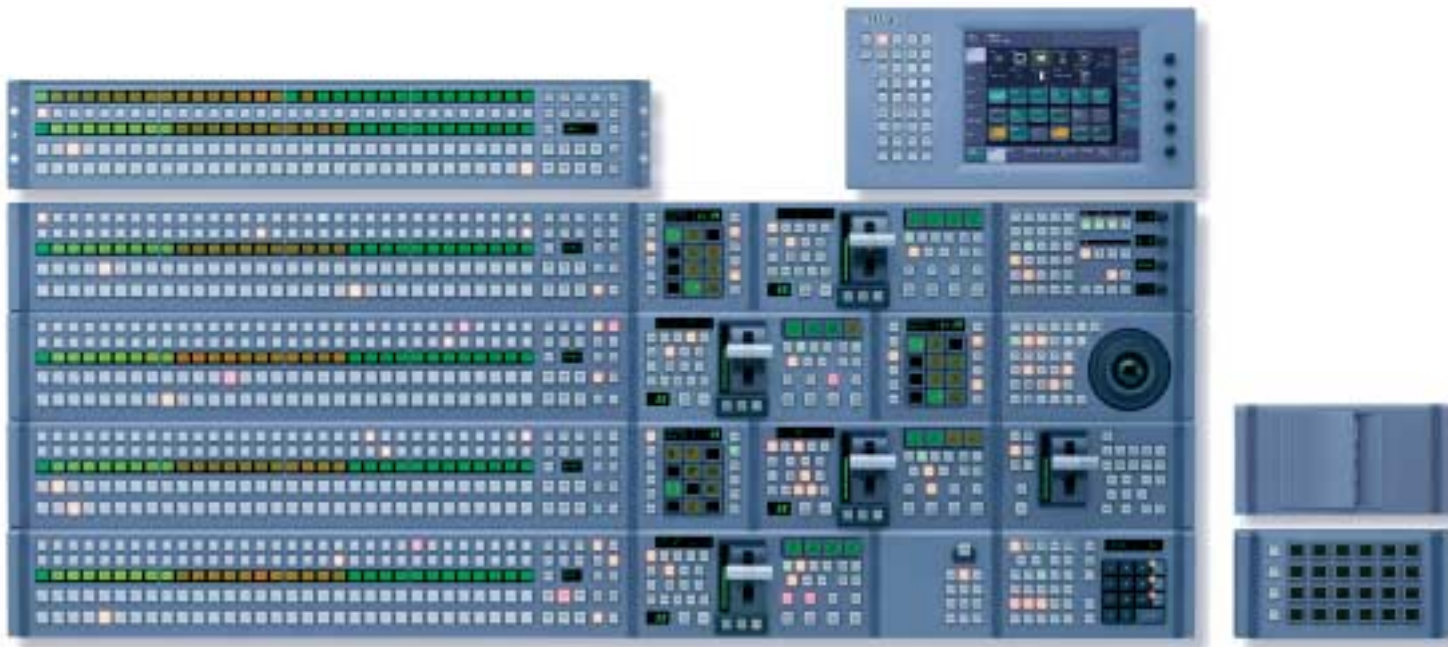
Key type with 10-key pad



Key priority

Programmable Macros

Having a dedicated button for each function on the MVS/DVS Series is handy, but MVS/DVS Series Switchers take operational convenience a step further. The MVS/DVS Series makes it easy to program macros. Using the FlexiPad or 10-key pad, users can simply record operational sequences, then store and assign them to any desired button. Macros are extremely useful in live environments when time is critical and there is no tolerance for making operational mistakes.



Sophisticated Digital Multi-Effects (DME)

MVS-8000A

The MVE-8000A DME processor is integrated with the MVS-8000A Series Switcher processor via a dedicated video interface that avoids sacrificing the switcher's input and output capability. This integrated DME processor supports the same multiple frame rates as the MVS Switcher, and all resolutions and frame rates are supported without board swapping. Up to eight channels of integrated DME can be fitted when two DME processors are connected. Each channel is freely assignable to any key or transition in the MVS Switcher.

4:3/16:9 mode selection, global axis control, and multiple-timeline capability are independently supported for each DME channel. In addition to providing the same variety of standard effects commonly used today, the functionality and operability of this DME has been especially refined for live production. This new level of close integration between switcher and DME, results in creative preset patterns. Sony proudly introduces its highly advanced MVE-9000 Multi-Format DME Processor, which provides superior picture quality and abundant features for creating some of the most impressive special effects in live events and post-production. A variety of effects are provided, such as Beveled Edge, Glow, Digital SKETCH™, Metal, and Mask. Its multi-format capabilities make it equally suited to content creation in high-end production and post-production.

DVS-9000

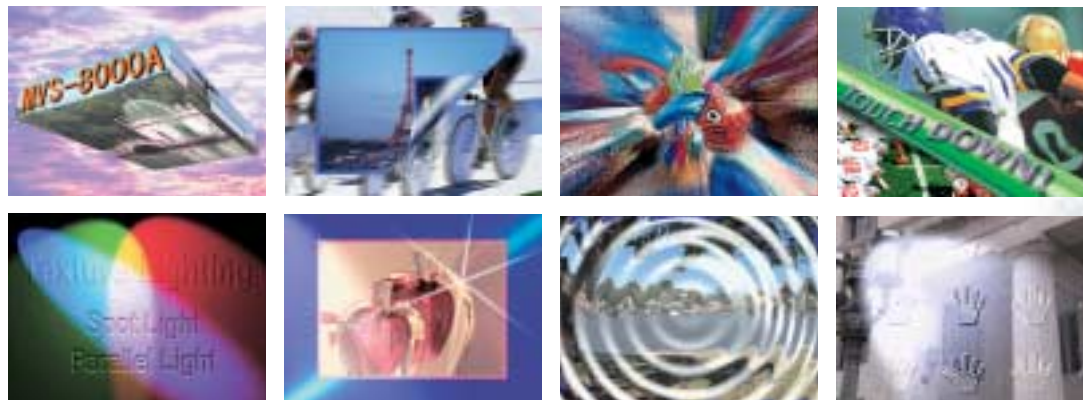
The DVS-9000 Series Switcher processor offers four channels of high-quality DME by installing the BKDS-9470 DME Board Set. Each DME channel provides external video input for use as the background or border/trail source. The four SDI monitor outputs on the DME board allow monitoring of either the video with graphic, the video without graphic, or the key. This DME board can perform 2D, 3D, and nonlinear effects including Digital SKETCH, Digital SPARKLE™, and up to four channels of Intersect Combine. Also, powerful lighting effects can be added to nonlinear and 3D-effect patterns, with easy setup of the color and shape for the light source.

Texture Lighting Software

The optional Texture Lighting Software is supported for both the MVE-9000 Multi-Format DME processor and the DVS-9000 Series Switcher processor with the optional BKDS-9470 DME board set installed.

This software adds a texture lighting function that enables the user to map a texture pattern onto a DME effect using the spotlight function. The Real Lighting Function can add realistic lighting to several nonlinear effect patterns. Up to four light sources are available per DME channel. With its Test Sphere Function, the position and brightness of light sources can be confirmed with ease.

It's the advent of a new generation in creative programming for broadcast stations and post-production facilities.



System Configuration

Center Control Panel



32 XPT MODULE MKS-8017



24 XPT MODULE MKS-8018



16 XPT MODULE MKS-8019



32 AUX BUS MODULE MKS-8013



24 AUX BUS MODULE MKS-8014



16 AUX BUS MODULE MKS-8015



STANDARD TRANSITION MODULE
MKS-8020



SIMPLE TRANSITION RIGHT MODULE
MKS-8021



SIMPLE TRANSITION LEFT MODULE
MKS-8022



COMPACT TRANSITION RIGHT MODULE
MKS-8027



COMPACT TRANSITION LEFT MODULE
MKS-8028



MEMORY STICK™/USB MODULE
MKS-8025MS



10-KEY PAD MODULE
MKS-8026



KEY FRAME MODULE
MKS-8030



JOYSTICK MODULE
MKS-8031JS



TRACK BALL MODULE
MKS-8031TB

Remote Panel



DSK FADER MODULE
MKS-8032



COMPACT KEY
TRANSITION MODULE
MKS-8023



MENU PANEL
MKS-8011



UNIVERSAL CONTROL PANEL (*)
UCP-8060



AUX BUS REMOTE PANEL (*)
MKS-8080



AUX BUS REMOTE PANEL (*)
MKS-8082

(*)Rack-mount brackets for these panels are included.



UTILITY/SHOT BOX MODULE
MKS-8033



FLEXIPAD MODULE
MKS-8024



SYSTEM CONTROL UNIT MKS-8010A

BACKUP POWER SUPPLY UNIT HK-PSU02

PANEL CABLE SWC-5002/5005/5010

EXTENSION ADAPTOR MKS-8075

MEMORY CARD/USB ADAPTOR MKS-8076

Switcher Processors

MULTI-FORMAT SWITCHER PROCESSOR

PRODUCTION SWITCHER PROCESSOR



KEY CONTROL MODULE
MKS-8035



DSK/FTB MODULE
MKS-8034DK



BLANK PANEL
MKS-8041



FTB MODULE
MKS-8034FTB



BLANK PANEL
MKS-8040



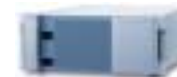
MVS-8000A



DVS-9000



MVS-8000ASF



DVS-9000SF

MKS-8110M 17-INPUT BOARD
MKS-8111M ADDITIONAL 12-INPUT BOARD ^{(*)1}
MKS-8160A 24-OUTPUT BOARD SET ^{(*)1}
MKS-8161M 8-MONITOR OUTPUT BOARD ^{(*)1}
MKS-8162A 12-OUTPUT CONNECTOR BOARD ^{(*)2}
MKS-8170M DME INTERFACE BOARD
MKS-8210A MIX/EFFECT BOARD
MKS-8440A FRAME MEMORY BOARD
BZS-8250 SIMPLE P/P SOFTWARE
HK-PSU04 POWER SUPPLY UNIT

^{(*)1} For MVS-8000A only

^{(*)2} For MVS-8000ASF only

BKDS-9160 24-OUTPUT BOARD SET ^{(*)3}
BKDS-9161 8-MONITOR OUTPUT BOARD ^{(*)3}
BKDS-9162 12-OUTPUT BOARD ^{(*)4}
BKDS-9210 MIX/EFFECT BOARD
BKDS-9470 DME BOARD SET
MKS-8110SD 17-INPUT BOARD
MKS-8111SD ADDITIONAL 12-INPUT BOARD ^{(*)3}
BZS-9250 SIMPLE P/P SOFTWARE
HK-PSU04 POWER SUPPLY UNIT

^{(*)3} For DVS-9000 only

^{(*)4} For DVS-9000SF only

Note: The MVS-8000A is supplied with one 17-input board, one 24-output board, two mix/effect board sets, and two power supply units. The MVS-8000ASF is supplied with one 17-input board, one 12-output board, one mix/effect board set, and one power supply unit.

Note: The DVS-9000 is supplied with one 17-input board, one 24-output board, two mix/effect board sets, one frame memory board set, and two power supply units. The DVS-9000SF is supplied with one 17-input board, one 12-output board, one mix/effect board set, one frame memory board set, and one power supply unit.

DME Processor



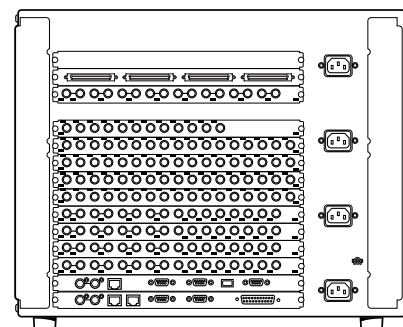
MULTI FORMAT DME PROCESSOR MVE-8000A

MVS INTERFACE BOARD MKE-8020A

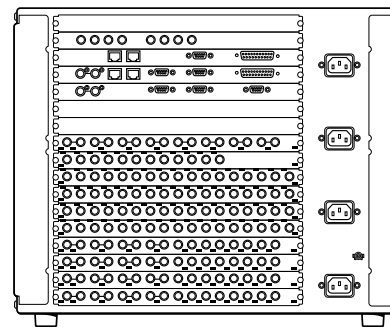
INPUT/OUTPUT BOARD (for SDI) MKE-8021A

EFFECTS BOARD MKE-8040A

POWER SUPPLY UNIT HK-PSU02



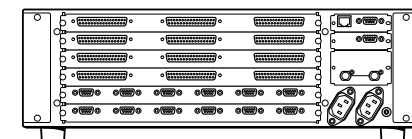
MVS-8000A



DVS-9000



MKS-8010A



MKS-8700

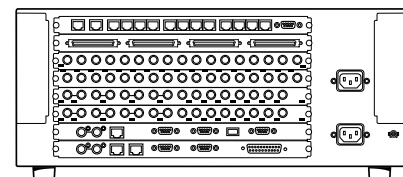


MULTI FORMAT DME PROCESSOR MVE-9000

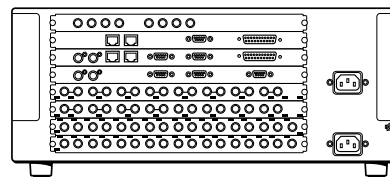
MVS INTERFACE BOARD MKE-9020M

INPUT/OUTPUT BOARD MKE-9021M

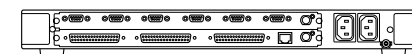
ADVANCED EFFECTS BOARD MKE-9040M



MVS-8000ASF



DVS-9000SF



MKS-2700

Device Control Unit

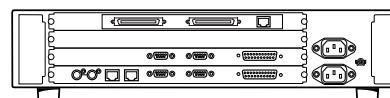


DEVICE CONTROL UNIT MKS-8700

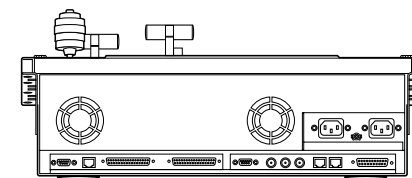
TALLY/GPI OUTPUT BOARD MKS-8701

SERIAL INTERFACE BOARD MKS-8702

BACKUP POWER SUPPLY UNIT HK-PSU03



MVE-8000A

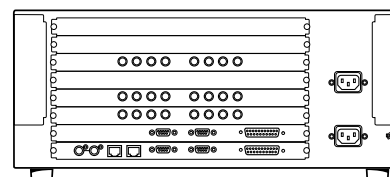


MKS-9011/9012



DEVICE CONTROL UNIT MKS-2700

BACKUP POWER SUPPLY UNIT HK-PSU01



MVE-9000

Specifications

General	
Power requirement	AC 100 to 240 V, ± 10% 50/60 Hz
Power consumption	
MVS-8000A	15 to 6.25 A
MVS-8000ASF	7.5 to 3.1 A
DVS-9000	8.6 to 4.2 A
DVS-9000SF	5.5 to 2.5 A
CCP-8000 Series	2.5 to 1.1 A
CCP-9000 Series	1.1 to 0.5 A
MVE-8000A	2.5 to 1.0 A
MVE-9000	6.0 to 2.5 A
MKS-8700	1.4 to 0.8 A
MKS-2700	5.0 to 2.1 A*
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	-20°C to +60°C (-4°F to +140°F)
Operating humidity	10% to 90% (Non-condensing)
Dimensions (W x H x D)	
MVS-8000A	482 x 354 x 520 mm (19 x 14 x 20 1/2 inches)
MVS-8000ASF	482 x 177 x 520 mm (19 x 7 x 20 1/2 inches)
DVS-9000	482 x 354 x 520 mm (19 x 14 x 20 1/2 inches)
DVS-9000SF	482 x 177 x 520 mm (19 x 7 x 20 1/2 inches)
CCP-8000 Series	
Main Panel	4M/E, 32-crosspoint buttons: 1443 (with mount bracket) x 98.5 x 528 mm (56 7/8 x 4 x 20 7/8 inches) 3M/E, 24-crosspoint buttons: 1291 (with mount bracket) x 98.5 x 528 mm (50 7/8 x 4 x 20 7/8 inches) 2M/E, 16-crosspoint buttons: 1139 (with mount bracket) x 98.5 x 396 mm (44 7/8 x 4 x 15 5/8 inches)
Auxiliary Bus Panel	32-crosspoint buttons: 782 (with mount bracket) x 132 x 80 mm (30 7/8 x 5 1/4 x 3 1/4 inches) 24-crosspoint buttons: 630 (with mount bracket) x 132 x 80 mm (24 7/8 x 5 1/4 x 3 1/4 inches) 16-crosspoint buttons: 478 (with mount bracket) x 132 x 80 mm (18 7/8 x 5 1/4 x 3 1/4 inches)
Menu Panel	424 x 220 x 46 mm (16 3/4 x 8 3/4 x 1 13/16 inches)
System Control Unit	482 x 43.6 x 520 mm (19 x 1 3/4 x 20 1/2 inches)
CCP-9000 Series	
Main Panel	2M/E, 12-crosspoint buttons/1M/E, 12-crosspoint buttons: 478 (with mount bracket) x 208 x 442 mm (18 7/8 x 8 1/4 x 17 1/2 inches)
Menu Panel	424 x 220 x 46 mm (16 3/4 x 8 3/4 x 1 13/16 inches)
MKS-8700	482 x 132 x 520 mm (19 x 5 1/4 x 20 1/2 inches)
MKS-2700	440 x 43.6 x 520 mm (17 3/8 x 1 3/4 x 20 1/2 inches)
MVE-8000A	440 x 87.5 x 520 mm (17 3/8 x 3 1/2 x 20 1/2 inches)
MVE-9000	482 x 194 x 520 mm (19 x 7 3/4 x 20 1/2 inches)
Memory Card/USB Adaptor	263 (with mount bracket) x 132 x 78.5 mm (10 3/8 x 5 1/4 x 3 1/8 inches)
Extension Adaptor	263 (with mount bracket) x 132 x 78.5 mm (10 3/8 x 5 1/4 x 3 1/8 inches)
Mass (Approx.)	
MVS-8000A	51 kg (112 lb 7 oz) (fully loaded)
MVS-8000ASF	28 kg (61 lb 12 oz) (fully loaded)
DVS-9000	43 kg (94 lb 13 oz)
DVS-9000SF	25 kg (55 lb 8 oz)
CCP-8000 Series	
Main Panel	4M/E, 32-crosspoint buttons: 30 kg (66 lb 2 oz)
Auxiliary Bus Panel	32-crosspoint buttons: 3.7 kg (8 lb 2 oz)
Menu Panel	2.2 kg (4 lb 13 oz)
System Control Unit	11.5 kg (25 lb 6 oz)
CCP-9000 Series	
Main Panel	2M/E, 12-crosspoint buttons: 12.5 kg (27 lb 9 oz) 1M/E, 12-crosspoint buttons: 11.5 kg (25 lb 6 oz)
Menu Panel	2.2 kg (4 lb 13 oz)
MKS-8700	8 kg (39 lb 10 oz) (fully loaded)
MKS-2700	9.8 kg (21 lb 10 oz)*
MVE-8000A	16 kg (35 lb 4 oz) (fully loaded)
MVE-9000	27 kg (59 lb 8 oz) (fully loaded)
Memory Card/USB Adaptor	1.2 kg (2 lb 10 oz) (with module)
Extension Adaptor	1.5 kg (3 lb 4 oz) (with module)

* Tentative

Video inputs/outputs	
MVS-8000A/8000ASF	
Primary inputs	MVS-8000A: Max. 80/MVS-8000ASF: Max. 34, BNC x 1 each SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Assignable outputs	MVS-8000A: Max. 48/MVS-8000ASF: Max. 24, OUT 1 to 4, 13 to 16, 25 to 28, 37 to 40: BNC x 2 each OUT 5 to 12, 17 to 24, 29 to 36, 41 to 48: BNC x 1 each SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Monitor outputs	MVS-8000A: Max. 8, BNC x 2 each SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Integrated DME I/O	68-pin x 4, LVDS
DVS-9000/9000SF	
Primary inputs	DVS-9000: Max. 80/DVS-9000SF: Max. 34, BNC x 1 each SMPTE259M-C (SDTV)
Assignable outputs	DVS-9000: Max. 48/DVS-9000SF: Max. 24, OUT 1 to 4, 13 to 16, 25 to 28, 37 to 40: BNC x 2 each OUT 5 to 12, 17 to 24, 29 to 36, 41 to 48: BNC x 1 each SMPTE259M-C (SDTV)
Monitor outputs	DVS-9000: Max. 8, BNC x 2 each SMPTE259M-C (SDTV)
Built-in DME	
External inputs	BNC x 4 SMPTE259M-C (SDTV)
Monitor outputs	BNC x 4 SMPTE259M-C (SDTV)
MVE-8000A	
MKE-8020A	
Video inputs/Video outputs	
MVS interface	MDR 68-pin x 2 (inputs/outputs: 2 CH x 2), LVDS
MKE-8021A	
Video inputs	
Video/Key	BNC x 8, SDI
Video outputs	
Video/Key	BNC x 8, SDI
Monitor outputs	BNC x 4, SDI
MVE-9000	
MKE-9020M	
Video inputs/Video outputs	
MVS interface	MDR 68-pin x 2 (inputs/outputs: 2 CH x 2), LVDS
MKE-9021M	
Video inputs	
Video/Key	BNC x 8, SDI
Video outputs	
Video/Key	BNC x 8, SDI
Ext Video In	BNC x 4, SDI
Monitor outputs	BNC x 4, SDI

Reference	
MVS-8000A/8000ASF, DVS-9000/9000SF, Device Control Unit, DME Processor, System Control Unit	
Reference inputs	BNC x 2, 75 Ω with loop-through output HDTV systems: HD tri-level sync/SDTV analog sync SDTV systems: Analog black burst/analog sync
MVS-8000A/8000ASF, DVS-9000/9000SF	
Reference outputs	BNC x 1, 75 Ω HDTV systems: HD tri-level sync SDTV systems: Analog sync
MVE-8000A	
Reference inputs	BNC x 2, 75 Ω with loop-through output Analog black burst or HD tri-level sync
MVE-9000	
Reference inputs	BNC x 2, 75 Ω with loop-through output Analog black burst or HD tri-level sync

Control	
MVS-8000A/8000ASF	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
Remote 1 to 4	D-sub 9-pin, RS-422A
Terminal	D-sub 9-pin, RS-232C
GPI	D-sub 25-pin, TTL level inputs x 8, relay contact outputs x 4, open collector outputs x 4
Extension	BNC x 1
DVS-9000/9000SF	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
Remote 1 to 4	D-sub 9-pin, RS-422A
Terminal	D-sub 9-pin, RS-232C
GPI	D-sub 25-pin, TTL level inputs x 8, relay contact outputs x 4, open collector outputs x 4
Extension	BNC x 1
Built-in DME	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
Editor 1 to 4	D-sub 9-pin, RS-422A
GPI	D-sub 25-pin, TTL level inputs x 8, relay contact outputs x 4, open collector outputs x 4
CCP-8000 Series (System Control Unit)	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
Peripheral LAN	RJ-45 x 1, 100BASE-TX
GPI	D-sub 25-pin, TTL level inputs x 8, relay contact outputs x 4, open collector outputs x 4
REMOTE	BNC x 1, S-BUS
LTC input	BNC x 1
Device	USB-type A
Main Panel	D-sub 50-pin
Menu Panel	D-sub 50-pin
Ext Panel 1 to 3	D-sub 50-pin
CCP-9000 Series	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
Peripheral LAN	RJ-45 x 1, 100BASE-TX
GPI	D-sub 25-pin, TTL level inputs x 8, relay contact outputs x 4, open collector outputs x 4
REMOTE	BNC x 1, S-BUS
Device	USB-type A
Main Panel	D-sub 50-pin
Menu Panel	D-sub 50-pin
Ext Panel	D-sub 50-pin
MVE-8000A (DME Processor)	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
REMOTE	D-sub 9-pin x 4, RS-422A
GPI	D-sub 25-pin, TTL level inputs x 8, relay contact outputs x 4, open collector outputs x 4
MVE-9000 (DME Processor)	
Control LAN	RJ-45 x 1, 100BASE-TX
Data LAN	RJ-45 x 1, 100BASE-TX
REMOTE	D-sub 9-pin x 4, RS-422A
GPI	D-sub 25-pin x 2, dry contact or open collector inputs x 16, relay contact outputs x 8, open collector outputs x 8
MKS-8700 (Device Control Unit)	
Peripheral LAN	RJ-45 x 1, 100BASE-TX
Serial tally 1 to 2	D-sub 9-pin, RS-422A
TALLY/GPI inputs	D-sub 37-pin x 3, TTL level inputs x 34 each
TALLY/GPI outputs *	D-sub 37-pin, relay contact outputs 18ch, up to 270 ch in step of 5 ch in a frame
REMOTE *	D-sub 9-pin, RS-422A, various protocols, up to 30 ports in steps of 6 ports in a frame
MKS-2700 (Device Control Unit)	
Peripheral LAN	RJ-45 x 1, 100BASE-TX
TALLY/GPI inputs	D-sub 37-pin x 1, TTL level inputs x 34
TALLY/GPI outputs	D-sub 37-pin x 2, TTL level inputs x 18 each
REMOTE	D-sub 9-pin x 6, RS-422A, various protocols

*TALLY/GPI and REMOTE ports are alternatively installed. Mixed configuration of TALLY/GPI and REMOTE ports is supported.

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