MVS-8000G Series
DVS-9000 Series

SONY

The Perfect Answer to Creative Broadcasting Demands

Introduction

As broadcasting becomes ever more complex, the systems used to support customers' production needs have become increasingly more flexible.

In response to the growing demand for more sophisticated content, together with the challenges presented by High Definition and DTV agendas in live production operations, Sony offers the MVS-8000G and DVS-9000 Series of digital live production switchers.

The MVS-8000G inherits the same architecture as the highly acclaimed MVS-8000A Series and adds some powerful new features such as a Resizer function (internal 2D DME) and built-in format converter. The new MVS-8000G Series is available in Standard Definition (SD) configuration as standard and by an additional software purchase upgraded to full multi-format configuration to suit HD production in line with operational requirements.

While the DVS-9000 Series provides top-quality yet cost-effective SD programming, the MVS-8000G Series offers full multi-format operation across a variety of SD and HD formats.

The design philosophy behind both of these switcher systems has resulted from extensive customer feedback. The result is customisable 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-8000G and DVS-9000 Series switchers also share the same optional accessories, including control panels, remote panels and peripherals.

Their system control structure and set-up/effect data are also compatible, making it easy to establish a mixed MVS-8000G and DVS-9000 Series environment providing simultaneous SD and HD production. What's more, MVS-8000G and DVS-9000 Series switchers can be further enhanced by the addition of two powerful software packages for editing and system management applications.

With the MVS-8000G and DVS-9000 Series, broadcasters and post-production facilities around the world can realise high quality production and strong return on investment.

Flexibility for Today and Tomorrow

MVS-8000G Series Multi-Format Switchers

The MVS-8000G Series of production switchers are available in either Standard Definition (SD) or multi-format configurations. If they are initially supplied in an SD configuration, they can easily be upgraded to multi-format (SD/HD) configuration with the purchase of additional software (BZS-8500M/8510M/8520M/8530M). MVS-8000G Series switchers can operate in any of the following formats:

Multi-Format Configuration	1080i/60, 59.94, 50
	1080P/30, 29.97, 25, 24, 23.976
	720P/59.94, 50
SD Configuration	480i/59.94
	576i/50

DVS-9000 Series Standard Definition Switchers

The DVS-9000 Series of production switchers are designed exclusively for SD and offer 525/625 switchable operation. The DVS Series uses the same advanced technology and cutting-edge architecture of the MVS-8000G Series, thus offering a similar level of operational convenience and system flexibility. In addition, the system-control structure and set-up/effect data are compatible with MVS-8000G Series, enabling the user to configure a mixed DVS/MVS environment or interchange effects between the two systems.

Built-in Format Converter

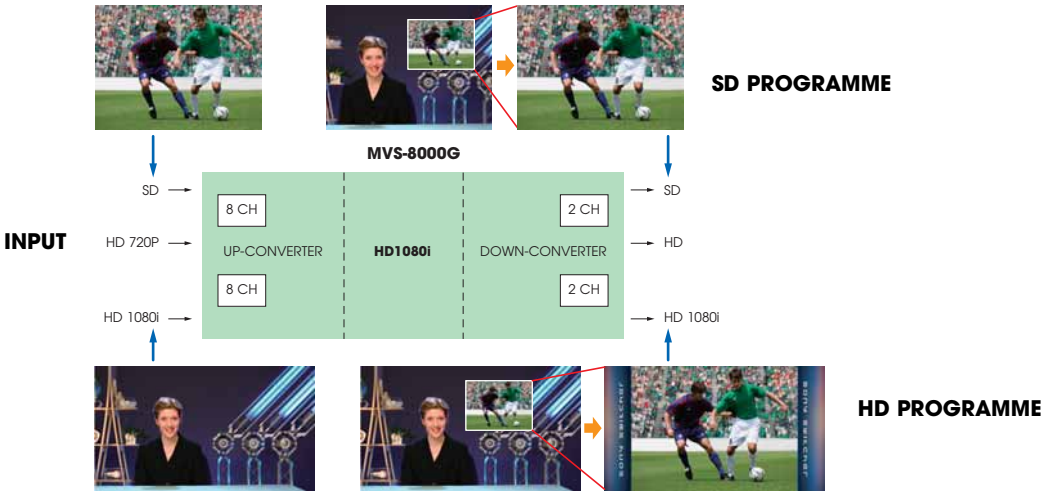
One of the unique and most powerful features of the MVS-8000G Series is the use of the optional MKS-8450G format converter board. This option provides up and down-conversion between HD (1080i and 720P) and SD (480i and 576i) and cross-conversion between 1080i and 720P at both inputs and outputs. By adding a single format converter board, conversion for eight inputs and two outputs is possible. Adding another board provides an additional eight input converters.

Furthermore, when the MKS-8160G 24-output board set* is installed, two more format-conversion outputs are provided.

An MVS-8000G Series switcher can therefore be configured to seemlessly handle both SD and HD sources and provide independent SD and HD outputs, thus minimising system costs and complexity.

* The MVS-8000GSF cannot accept the optional MKS-8160G Board.

Example of format conversion



Scalable Processor Configurations

Both the MVS-8000G and DVS-9000 Series processors can be configured to suit the exact requirements of each particular user in terms of number of I/O, number of M/E banks and which processing options are supplied. Another great benefit is that these switchers can be upgraded as user needs grow, simply by installing the appropriate option board.

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

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

The optional half M/E (simple P/P) software (BZS-8250) adds simple mix/effect functionality including two keyers, background and key transitions. This software upgrades any 1, 2, or 3 M/E switcher processor to 1.5, 2.5 and 3.5 M/E, respectively.

Irrespective of which processor is chosen and with the exception of the half M/E software signals, all outputs are fully assignable and can be used for programme, preview, key preview, clean or auxiliary bus signals.

Features

Choose your definition

Switcher processors

	Multi-format	SDTV
2 to 4 M/E	**MVS-8000G** 8U 80 inputs and 48 outputs 8 monitor outputs Supports up to 8 (external) DME channels Resizer (simple 2D DME) per every keyer Up to 16 channels Input Format Converter Up to 4 channels Output Format Converter 	**DVS-9000** 8U 80 inputs and 48 outputs 8 monitor outputs 4 DME channels 
1 to 2.5 M/E	**MVS-8000GSF** 4U 34 inputs and 24 outputs Supports up to 4 (external) DME channels Resizer (simple 2D DME) per every keyer Up to 16 channels Input Format Converter Up to 2 channels Output Format Converter 	**DVS-9000SF** 4U 34 inputs and 24 outputs 4 DME channels 

Any CCP-8000 and CCP-9000 control panel can control any processor

Control panels

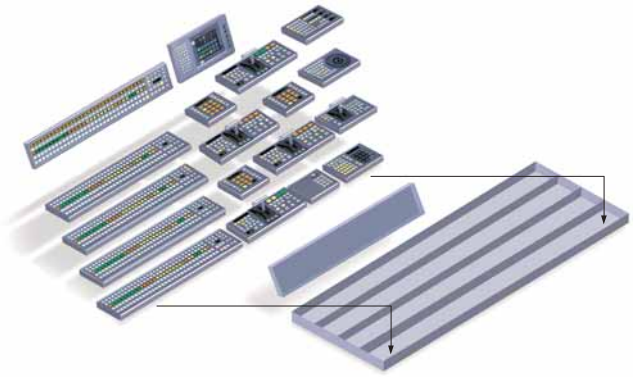
	CCP-8000 Customisable control panels	CCP-9000 Compact control panels	
3.5 or 4 M/E			
2.5 or 3 M/E			1.5 or 2 M/E
1.5 or 2 M/E			1 M/E

Customisable Control Panel

The MVS-8000G and DVS-9000 Series share the same control panels, which have been designed after extensive operational feedback. 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 panel starts as an empty chassis. Users can locate modules in the chassis according to their personal layout preferences. The base chassis is offered in various widths and depths to suit three sizes of crosspoint modules (16, 24, or 32 button), up to 4 M/E strips and various ancillary modules. There are three choices of transition and key control modules, covering simple to complex video-layering requirements and various other modules which can be supplied according to operational needs. A separate chassis can also be supplied with just a crosspoint and transition module fitted for remote M/E operation.

The compact CCP-9000 series are available in 1 or 2 M/E configurations with 12 crosspoint buttons. These control panels are well suited for standalone use in small-scale OB vehicles and edit suites, or in conjuction with a larger CCP-8000 panel for remote M/E control.



Comprehensive Control System

Networking Functions

The MVS-8000G and DVS-9000 Series utilise sophisticated network capabilities to allow for an extremely efficient and innovative style of operation. Two Ethernet-based networks are provided: the Control LAN and the Data LAN. The former is a dedicated network that allows efficient resource sharing among MVS/DVS 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 programme in multiple formats. The latter network, the Data LAN, provides a connection across the MVS/DVS Series to all key components and Sony peripherals. This network is used for general switcher housekeeping control such a frame memory transfer as well as remote administrative tasks such as status monitoring, maintenance and facility management tasks. Keeping the real time control separate from the data LAN guarantees that there is always bandwith available to suit the on-air switcher operation. This second network can also extend, via a gateway, across an office LAN or WAN and even reach out over the Internet for remote switcher control.

System Management Software

The optional system management software running on a remote PC enables integrated management of all Sony live-production products configured around and networked to MVS-8000G/DVS-9000 Series switchers. This function enables centralised control of MVS/DVS Series switchers, PFV-SP Series signal processing units from a single user interface.

This system allows remote set-up, maintenance and operation of each device connected to the network, as well as efficient file management of set-up, effect and image data. In addition, remote control of the internal switcher frame memory is possible, allowing a second user to view and manipulate stored images.

Two types of system management software are available: server/client BZPS-8000 software and standalone BZPS-8000L software. BZPS-8000* software is suitable for large-scale systems and allows up to 10 client PCs to access the switchers via the server PC connected to the Data LAN. For smaller systems, where there is no need to integrate into an office network, the BZPS-8000L (server less) version is available. This software can be installed on just a single client PC, which can then be connected directly to the Data LAN, allowing for simple and cost-effective system integration. In addition to the BZPS-8000 system management software BZPS-8001 software is also available giving users complete remote control of all switcher functions via the remote client PC.

* A single BZPS-8000 Software license allows for installation on one server PC and multiple client PCs (see actual licenses for details).

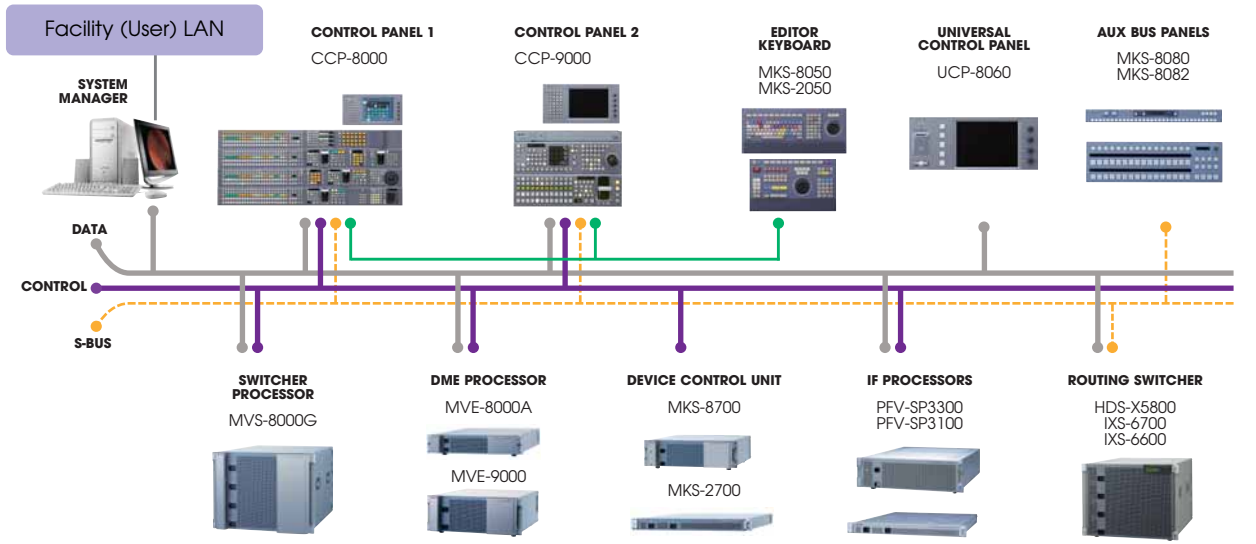
Powerful Device Control

External VTRs, DDRs and P-bus devices can all be controlled directly from the MVS-8000G/DVS-9000 Series control panel, giving the operator the ability to manually cue up any material. This data can then be stored as part of a switcher timeline which can be subsequently recalled as required. When integrating a 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 new MKS-8036A Device Control Module provides device controls such as a jog/shuttle dial, control buttons and timecode displays. This gives operators quick, intuitive and familiar control of connected VTRs and disk recorders. Playback control of internal frame memory clips is also possible with this module.

The remote machine interface is provided by either the MKS-8700 or MKS-2700 device control units. Each unit provides connectivity to the external devices via RS-422A, P-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.

Efficient Control System



Plug-in Editing Control Software

To further enhance the machine control interface a non-linear editing system can easily be added to the switcher system. The plug-in editor software (BZS-8050) utilises the in-built machine control functions to add powerful linear editing capabilities to any MVS-8000G, DVS-9000, or MFS-2000 Series switcher.

This unique solution offers a similar level of functionality to the popular BVE-2000 editor, plus some key functions available on the BVE-9100 editor. Furthermore, this software provides a variety of beneficial new features that include direct keys for source selection and direct device control of the connected VTRs. Two types of editing keyboards are available to suit individual operational preferences (MKS-8050 and MKS-2050). These keyboards make the editing control software suitable for operations ranging from small-scale editing systems to large-scale post-production mastering. A character superimpose function including Timecode and Recorder/Player status is also available from the edit O/P of the switcher (MVS-8000G/GSF only).

With the addition of this editing capability, Sony switchers are truly maximised for effectiveness in broadcast stations and post-production facilities.

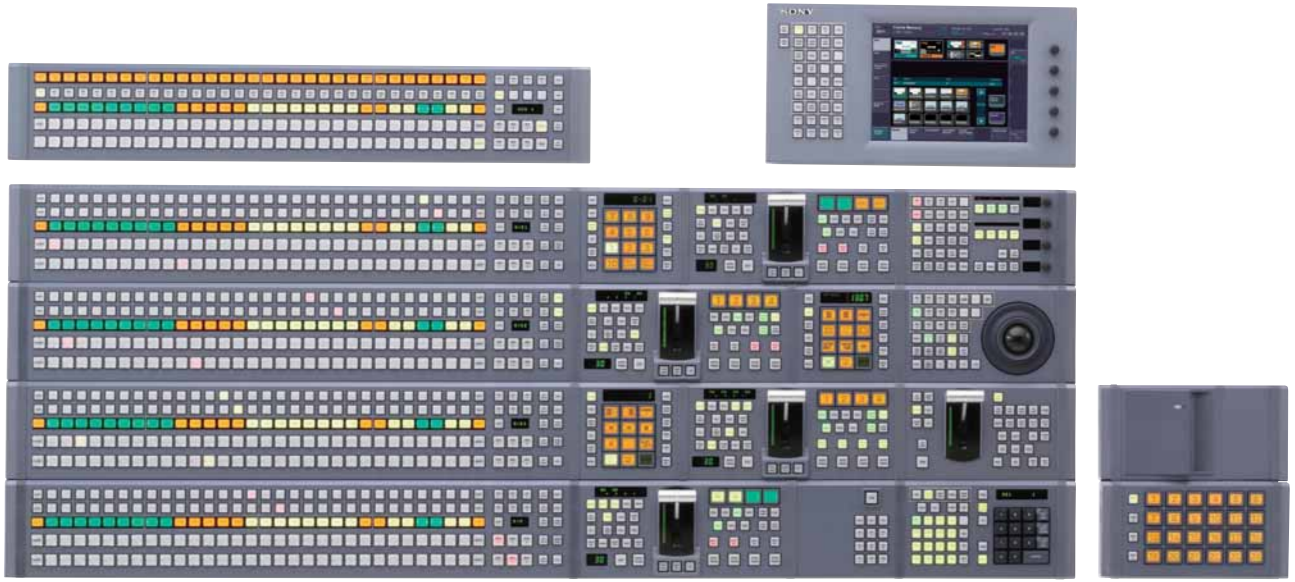
Combining Sony Switchers with Sony Routing Systems

The integration of MVS-8000G and DVS-9000 Series switchers with S-bus-controlled routers, such as IXS-6000 Series routing systems, brings a number of great benefits such as two-way operational control, source name exchange and tally management. Crosspoints of the IXS-6000 Series can be controlled via the AUX BUS module panel of the CCP-8000 Series control panel. These can then be memorised and recalled as a router snapshot or timeline event.

Intelligent Tally Functions

MVS-8000G/DVS-9000 Series switchers 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 and even the most complex of tally requirements can be easily accommodated. Tally information is provided either as standard (RS-422A) serial tally data directly from the control panels or via GPI connections on either the MKS-8700 or MKS-2700 device control units.



Expand Your Creativity

Creative M/E Functionality

The MVS-8000G/DVS-9000 Series inherits many of the features of the well-proven DVS-7000 Series, but with significant enhancements. Each M/E on the MVS-8000G/DVS-9000 is equipped with four keyers, 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 colour vector keying, eliminating restrictions of selectable key types. These fully featured M/Es allow total interoperability of effects on all M/Es.

Market-acclaimed Finekey technology allows fine adjustment of key position and border widths on a subpixel level within the range of 8H on the MVS-8000G and DVS-9000 Series. Sony's unique processed key mode and DME-link function are also provided, with additional power and convenience. Up to four video signals composed in the background can be processed through the DME within a single keyer, allowing for even greater operational flexibility.

Each M/E bus also includes an enhanced wipe pattern generator with over 100 preset patterns, sub wipe generator, transition PVW ability, individual matt generators and two utility busses for video in borders and effects. With all these facilities included, on every M/E as standard, the programme O/P is only limited by the creational ability of the individual operator.

Independent M/E Architecture

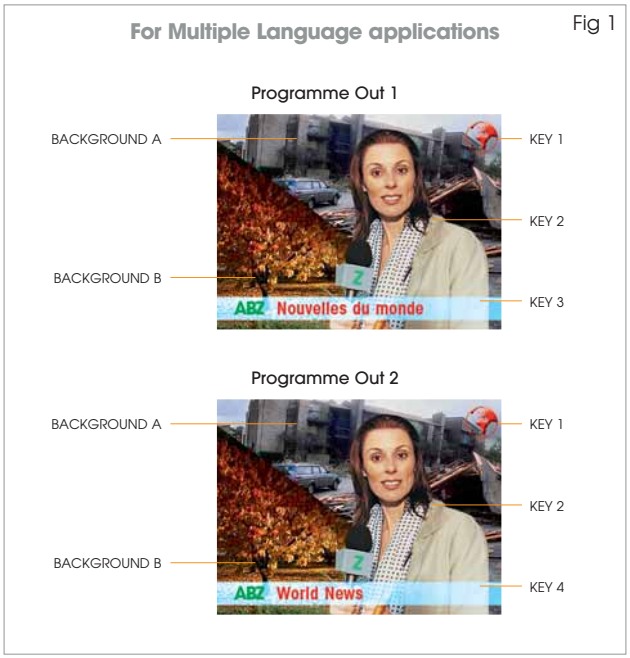
Each M/E of the MVS-8000G and DVS-9000 Series switchers, including the PGM/PST bus, are equipped with powerful functions to customise the operation for individual events. Snapshot and keyframe settings, various set-ups such as crosspoint assignments, 4:3/16:9 modes and bus toggle on/off can all be independently set for each M/E. This architecture allows the user to efficiently programme the MVS-8000G/DVS-9000 system to suit the operation required.

Multi-Programme Mode

Multi-Programme mode, available on each M/E of the MVS-8000G/DVS-9000, enables four independent PGM outputs to be generated inside each M/E bus. 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 regional versioning of the same programme, without the need to purchase an external keyer (Fig.1).

Multi-Programme 2* mode, which is an extended function of Multi-Programme mode, is also beneficial for expanding the use of the system mix effects banks.

This function allows one M/E to be separated into two sections – a main and a sub M/E – each half having their own background transition generator. Keyers can be inserted into both the main and sub programmes as required and as shown below. (Fig 2) This function enables the user to create two completely independent programmes within a single M/E.



The two M/E banks can then either be layered above each other or split onto two separate rows on the switcher control panel.

This is convenient especially when simultaneously broadcasting sports such as baseball and football for two different destinations (areas of home and away teams for example). With this mode, one operator can create two independent programmes from a single control panel. (Fig 3)

* BZS-8200 Multi-Programme 2 Software is required. This function is only available on MVS-8000A/G and MVS-8000ASF/GSF systems.

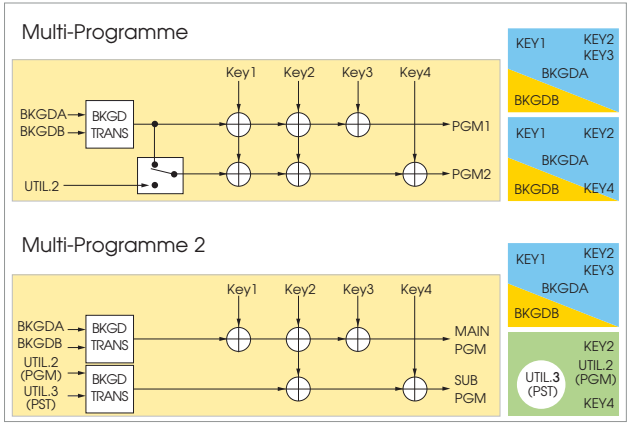


Fig 2 Multi-Programme Mode Block Diagramme Example

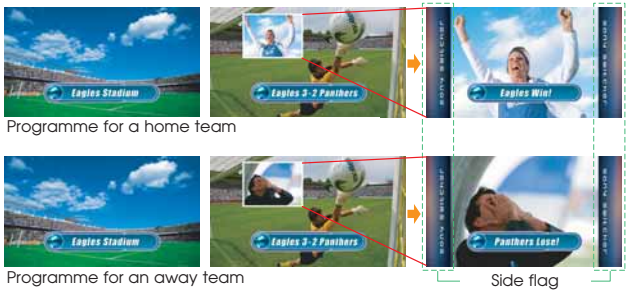


Fig 3 "Home and Away" Operation

Resizer Function

The MVS-8000G/8000GSF includes a useful resizer function that gives simple 2D DME picture manipulation with adjustable parameters such as size, position, and aspect to every keyer. This can be utilised for picture-in-picture effects and DME wipe transitions. A variety of effects such as drop shadow, mosaic, and blur can be applied to resized images. All these effects can be created without the use of an external DME, bringing great advantages for both simple operations and minimized system cost. Being an M/E resource the resizer data is also memorised as part of a switcher snapshot or timeline event.

Side Flags Function*

This standard feature of the MVS-8000G series switcher allows a 4:3 source to automatically form a 16:9 picture by adding desired graphics to both sides to the original image. This is convenient when using 4:3 material in a 16:9 production. When selecting the 4:3 source side-flags can be auomatically selected and a 16:9 image created using dedicated hardware that does not compromise system functionality, in other words without the use of any keyer inside the M/E bus. In addition, crop mode is provided when 4:3 pictures are used in DME wipe operations. This mode allows the margins between 16:9 and 4:3 pictures to be cropped if desired. This is useful for picture-in-picture effects where you do not require the addition of the side flags.

* This function is currently not supported in SD mode.

Enhanced Frame Memory System

The MVS-8000G/DVS-9000 Series provide a high-capacity frame memory system that enables video frames to be captured and stored either as still images or as clip sequences. With the DVS-9000 Series up to 444 images can be stored in the internal memory. With the MVS-8000G Series either one or two optional MKS-8442G frame memory boards can be supplied and up to 9000 images can be stored. (exact storage capacity is dependant on the operating standard and is as detailed in the chart below). The frame memory system allows instant recall of any stored image or clip onto any one (or more) of the eight outputs as either a video or key signal. A thumbnail PVW of all stored images and clips is displayed on the menu system and a clip viewer is also provided allowing you to scroll through any individual clip.

Furthermore the MVS-8000G Series has an interface for external HDD which allows for quick and easy back-up and recall of all frame memory data and the opportunity to easily transport images between different switcher systems. It is also possible to import TIFF/TGA/BMP image files directly from the switcher control panel.

Total frame storage capacity (approximate):

Formats	1 x MKS-8442G	2 x MKS-8442G (still images)
1080i	1000	2000 (1000)
720P	2000	4000 (2000)
480i	5000	10000 (5000)
576i	4500	9000 (4500)

In the case when two MKS-8442G cards are installed the second card is used for additional clip storage only.

Easy and Efficient Operation

All MVS-8000G/DVS-9000 Series switchers include a large colour touch-screen menu for efficient and intuitive system control. Through this menu system all operational parameters can easily be adjusted. The menu also includes an interactive M/E status display giving the user full information about the current M/E. Menu favourites can be set-up and recalled at the touch of a button and help is never far away as the system also includes a viewable operational manual.

The control panel surface includes three colour LCD source name displays and optional flexipad™ and shotbox™ memory recall panels to which preset pattern icons or text can be imported and displayed.

Programmable Macros

Having a dedicated button for each function on the MVS-8000G/DVS-9000 Series is handy, but the macro system allows users to take operational convenience a step further. Any operational key sequence can be recorded and stored as a macro. This is very useful in cue-ing up a VTR whenever the source VTR button is pressed or automatically turning on a key whenever a certain camera is selected for example. It will also be possible to store menu set-up commands as macro events in a future software revision.

Using the FlexiPad module, or the 10-key pad module, users can simply record operational sequences, then store and assign them to any desired button (or even fader arm). Macros are extremely useful in live environments when time is critical and there is no tolerance for making operational mistakes. Once programmed, macros can be edited either directly from the control panel or by using the text based editor on the touch-screen menu display.

Explore your Imagination

Sophisticated Digital Multi-Effects (DME)

Depending on the application there are a number of external DME processors available to enhance your operation. Up to eight channels of fully featured non-linear DME can be specified for either the MVS-8000G or DVS-9000 systems. Each channel also includes a separate key channel and the DME can either be connected via a dedicated video interface, which does not consume primary switcher I/Ps or O/Ps or via a coaxial video connection.

Being an integrated resource the DME is allocated as required, is freely assignable across the whole switcher and can be utilised for either DME wipe transitions or key effects. Each channel can manipulate a 2D image in 3D space and provides a variety of image manipulation effects. As well as supporting the standard range of DME effects each channel also includes global axis control and a combiner function. By assigning multiple channels to a single keyer and using the combiner's easy brick mode a slab can be produced at the touch of a button.

For MVS-8000G/GSF Series switchers

In addition to the standard internal key re-size engines up to eight channels of integrated full feature DME can be fitted when two DME processors are connected to the MVS-8000G*. Two processor options are available to suit the production requirements:

* Only four channels are supported on the MVS-8000GSF

MVE-8000A

The 2RU MVE-8000A DME processor supports a standard range of features including non-linear effects, lighting, glow and film mode.

MVE-9000

The larger (4RU) MVE-9000 DME processor is also available and offers a greater range of effects than the MVE-8000A. In addition to the feature sets provided by the MVE-8000A, it delivers enhanced picture quality and a wider assortment of features for the creation of striking special effects in live events and post-production.

A rich variety of effects are provided, such as Depth Combine, Dim/Fade, Wipe Crop, Art Edge, Key Border, Spot Lighting, Texture Lighting, Flex Shadow and Wind – as well as other effects available on the MVE-8000A.

For DVS-9000 Series Switcher

The DVS-9000 Series benefits from the optional internal four channel effect card (BKDS-9470), however, for systems requiring up to eight channels of DME effects, either the MVE-8000A or MVE-9000 system can be additionally specified and would be interfaced via the use of BNC SDI connectors.

BKDS-9470

The internal BKDS-9470 DME board set offers four channels of non-linear digital effects. This DME board can perform linear and non-linear effects including Digital SKETCH, Digital SPARKLE and up to four channels of intersect combine. Each DME channel also 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. Also, powerful lighting effects can be added to non-linear and 3D-effect patterns, with easy set-up of colour and shape for the light source.

Texture Lighting Software

Optional texture lighting software is supported for both the MVE-9000 and BKDS-9470 DME processors.

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 non-linear effect patterns. Up to four light sources are available per DME channel.





System Configuration

Centre Control Panel CCP-8000 Series

MKS-8017A 32 XPT Module

MKS-8018A 24 XPT Module

MKS-8019A 16 XPT Module

MKS-8013A 32 AUX BUS Module

MKS-8014A 24 AUX BUS Module

MKS-8015A 16 AUX BUS Module

MKS-8020A Standard Transition Module

MKS-8021A Simple Transition Right Module

MKS-8021ASC Simple Transition Compact R Module

MKS-8022A Simple Transition Left Module

MKS-8022ASC Simple Transition Compact L Module

MKS-8023AB Compact Key Transition Module

MKS-8027A Compact Transition Right Module

MKS-8028A Compact Transition Left Module

MKS-8026A 10-Key PAD Module

MKS-8030A Key Frame Module

MKS-8031ATB Track Ball Module

MKS-8031AJS Joystick Module

System Configuration

Sophisticated Digital Multi-Effects (DME)

MKS-8036A
Device Control Module

MKS-8025MS
Memory Stick™/USB Module

MKS-8011A
Menu Panel

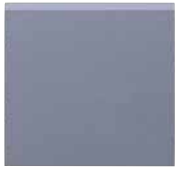
MKS-8032A
DSK Fader Module

MKS-8024A
Flexipad Module

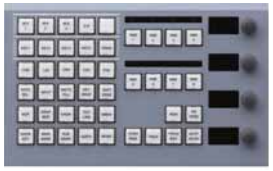
MKS-8041
Blank Panel (1/2)

MKS-8033A
Utility/Shot Box Module

MKS-8034ADK
DSK/FTB Module



MKS-8040
Blank Panel (1/3)



MKS-8035A
Key Control Module

MKS-8034AFB
FTB Module

MKS-8042
Blank Panel (1/6)

MKS-8010A System Control Unit

HK-PSU02 Backup Power Supply Unit
SWC-5002/5005/5010 Panel Cable (2/5/10 m)
MKS-8075A Extension Adaptor
MKS-8076 Memory Card USB Adaptor

Centre Control Panel CCP-9000 Series

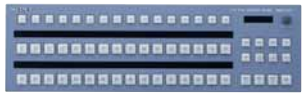
MKS-9011A
1 M/E Control Panel

MKS-9012A
2 M/E Control Panel

Remote Panel

UCP-8060
Universal Control Panel *

MKS-8080
AUX BUS Remote Panel *



MKS-8082
AUX BUS Remote Panel *

* Rack-mount brackets for these panels are included.

Plug-in Editor

MKS-8050 Editing Keyboard

MKS-2050 Editing Keyboard

BZS-8050 Editing Control Software

System Management Software

BZPS-8000 System Management Software
BZPS-8000L System Management Software (Standalone type)
BZPS-8001 Switcher Set-up Software
BZPS-8002 PFV-SP Set-up Software

Rear Panels

Switcher Processors

MULTI-FORMAT SWITCHER PROCESSOR

MVS-8000G

MVS-8000GSF

17 Input Board	MKS-8110G
Additional 12 Input Board	MKS-8111G *1
24 Output Board Set	MKS-8160G *1
8 Monitor Output Board	MKS-8161M *1
12 Output Board	MKS-8162A *2
Mix/Effect Board	MKS-8210G
Frame Memory Board	MKS-8442G
Format Converter Board	MKS-8450G
DME Interface Board	MKS-8170G *1
Simple PP Software	BZS-8250
Multi Program 2 Software	BZS-8200
Colour Corrector Software	BZS-8420 *3
Switcher Upgrade Software (Upgrade SD to Multi-format) For MVS-8000G	BZS-8500M *1
Switcher Upgrade Software (Upgrade SD to Multi-format) For MVS-8000GSF	BZS-8510M *2
Mix/Effect Upgrade Software (Upgrade SD to Multi-format)	BZS-8520M
Mix/Effect Upgrade Software (Upgrade SD to Multi-format)	BZS-8530M *1
Power Supply Unit	HK-PSU04

*1 For MVS-8000G only
*2 For MVS-8000GSF only
*3 Optional MKS-8442G board is required.

Standard configuration:
The MVS-8000G is supplied with one 17 input board, one 24 output board, two mix/effect board sets and two power supply units. The MVS-8000GSF is supplied with one 17 input board, one 12 output board, one mix/effect board set, DME interface and one power supply unit.

PRODUCTION SWITCHER PROCESSOR

DVS-9000

DVS-9000SF

17 Input Board	MKS-8110 SD
Additional 12-Input Board	MKS-8111 SD *4
24 Output Board Set	BKDS-9160 *4
8 Monitor Output Board	BKDS-9161 *4
12 Output Board	BKDS-9162 *5
Mix/Effect Board	BKDS-9210
DME Board Set	BKDS-9470
Simple P/P Software	BZS-9250
Colour Corrector Software	BZS-9420
Texture Lighting Software	BZS-9471
Power Supply Unit	HK-PSU04

*4 For DVS-9000 only
*5 For DVS-9000SF only

Standard configuration:
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 Processors

MVE-8000A Multi-Format DME Processor
MKE-8020A MVS Interface Board
MKE-8021A Input/Output Board (for SDI)
MKE-8040A Effects Board (2 channel)
HK-PSU-02 Power Supply Unit

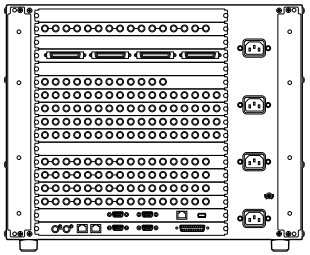
MVE-9000 Multi-Format DME Processor
MKE-9020M MVS Interface Board
MKE-9021M Input/Output Board
MKE-9040M Advanced Effects Board (1 channel)
BZDM-9050 Texture Lighting Software

Device Control Unit

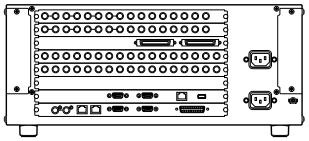
MKS-8700 Device Control Unit
MKS-8701 Tally/GPI Output Board
MKS-8702 Serial Interface Board

MKS-2700 Device Control Unit
HK-PSU-01 Backup Power Supply Unit

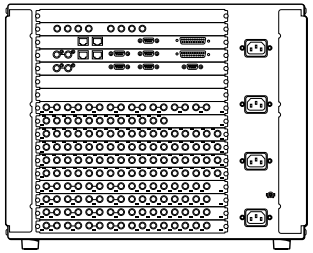
The figures show the rear panels in which optional boards are installed.



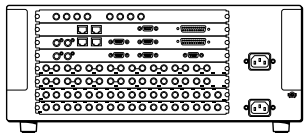
MVS-8000G
(Full option)



MVS-8000GSF
(Full option)

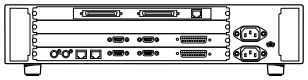


DVS-9000
(Full option)

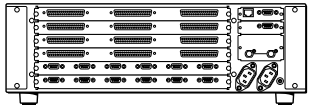


DVS-9000SF
(Full option)

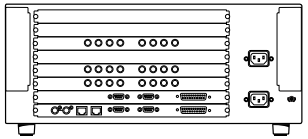
MKS-8010A



MVE-8000A
(with MVS Interface Board MKE-8020A)

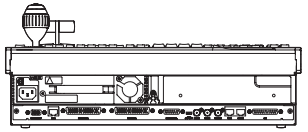


MKS-8700
with Tall/GPI Output Board
MKS-8701 x 3
Serial Interface Board
MKS-8702 x 2



MVE-9000
(with Input/Output Board MKE-9021M)

MKS-2700



MKS-9011A/9012A

Specifications

General		
Power requirement		AC 100 to 240 V, ± 10% 50/60 Hz
Power consumption		
MVS-8000G		12 to 5 A
MVS-8000GSF		7 to 3 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		0.7 to 0.5 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-8000G		482 x 354 x 520 mm (19 x 14 x 20 1/2 inches)
MVS-8000GSF		482 x 176 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 176 x 520 mm (19 x 7 x 20 1/2 inches)
CCP-8000 Series	Main Panel	4 M/E, 32-crosspoint buttons: 1443 (with mount bracket) x 98.5 x 528 mm (56 7/8 x 4 x 20 7/8 inches) 3 M/E, 24-crosspoint buttons: 1291 (with mount bracket) x 98.5 x 528 mm (50 7/8 x 4 x 20 7/8 inches) 2 M/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	1 M/E Control Panel	440 x 175 x 385.3 mm (17 3/8 x 7 x 15 1/4 inches)
	2 M/E Control Panel	440 x 186.6 x 442 mm (17 3/8 x 7 3/8 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 Stick/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-8000G		49 kg (108 lb) (fully loaded)
MVS-8000GSF		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	4 M/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	2 M/E, 12-crosspoint buttons: 12.5 kg (27 lb 9 oz) 1 M/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)

Video inputs/outputs	
MVS-8000G/8000GSF	
Primary inputs	MVS-8000G: Max. 80/MVS-8000GSF: Max. 34, BNC x 1 each SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Assignable outputs	MVS-8000G: Max. 48/MVS-8000GSF: Max. 24, OUT 1, 2, 13 to 16, 25, 26, 37 to 40: BNC x 2 each OUT 3 to 12, 17 to 24, 27 to 36, 41 to 48, FC1 to 4: BNC x 1 each SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Monitor outputs	MVS-8000G: Max. 8, BNC x 2 each SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Integrated DME I/O	MDR 68-pin x 4 (inputs/outputs: 2 CH 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, SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Video outputs Video/Key	BNC x 8, SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Monitor outputs	BNC x 4, SMPTE292M (HDTV), SMPTE259M-C (SDTV)
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, SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Video outputs Video/Key	BNC x 8, SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Ext Video In	BNC x 4, SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Monitor outputs	BNC x 4, SMPTE292M (HDTV), SMPTE259M-C (SDTV)

Reference	
MVS-8000G/8000GSF, 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 analogue sync SDTV systems: Analogue black burst/analogue sync
MVE-8000A	
Reference intputs	BNC x 2, 75 Ω with loop-through output Analogue black burst or HD tri-level sync
MVE-9000	
Reference intputs	BNC x 2, 75 Ω with loop-through output Analogue black burst or HD tri-level sync

Control	
MVS-8000G/8000GSF	
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
FM Data	RJ-45 x 1, 100BASE-TX
FM Device	Complies with IEEE 1394
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
Editor	D-sub 15-pin, RS-422A

Control	
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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