SONY

MULTI FORMAT SWITCHER SYSTEM

MVS-8000 System

SWITCHER PROCESSOR PACK

MVS-8400/8300/8200

DME PROCESSOR PACK

MVE-8000

DEVICE CONTROL UNIT PACK

DCU-8000

CENTER CONTROL PANEL PACK

CCP-8000

SYSTEM SETUP MANUAL

1st Edition

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

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Section 1
System Overview

1-1. Introduction

The MVS-8000 system has integrated a wide variety of new features including SDTV and HDTV television signal capability, advanced networking and layout-free control panels.
The MVS-8000 system includes SD/HD simulcast, multiple frame rates and resolutions, multi-channel casting and even broadcast equipment sharing, to name just a few.
The MVS-8000 system is completely ready for smooth integration into current systems, offering the added quality, reliability and features, needed for the live/post production environment.

The MVS series can be flexibly expanded as a user's needs grow simply installing the appropriate options to the basic system.

1-2. Features

Flexible configurations

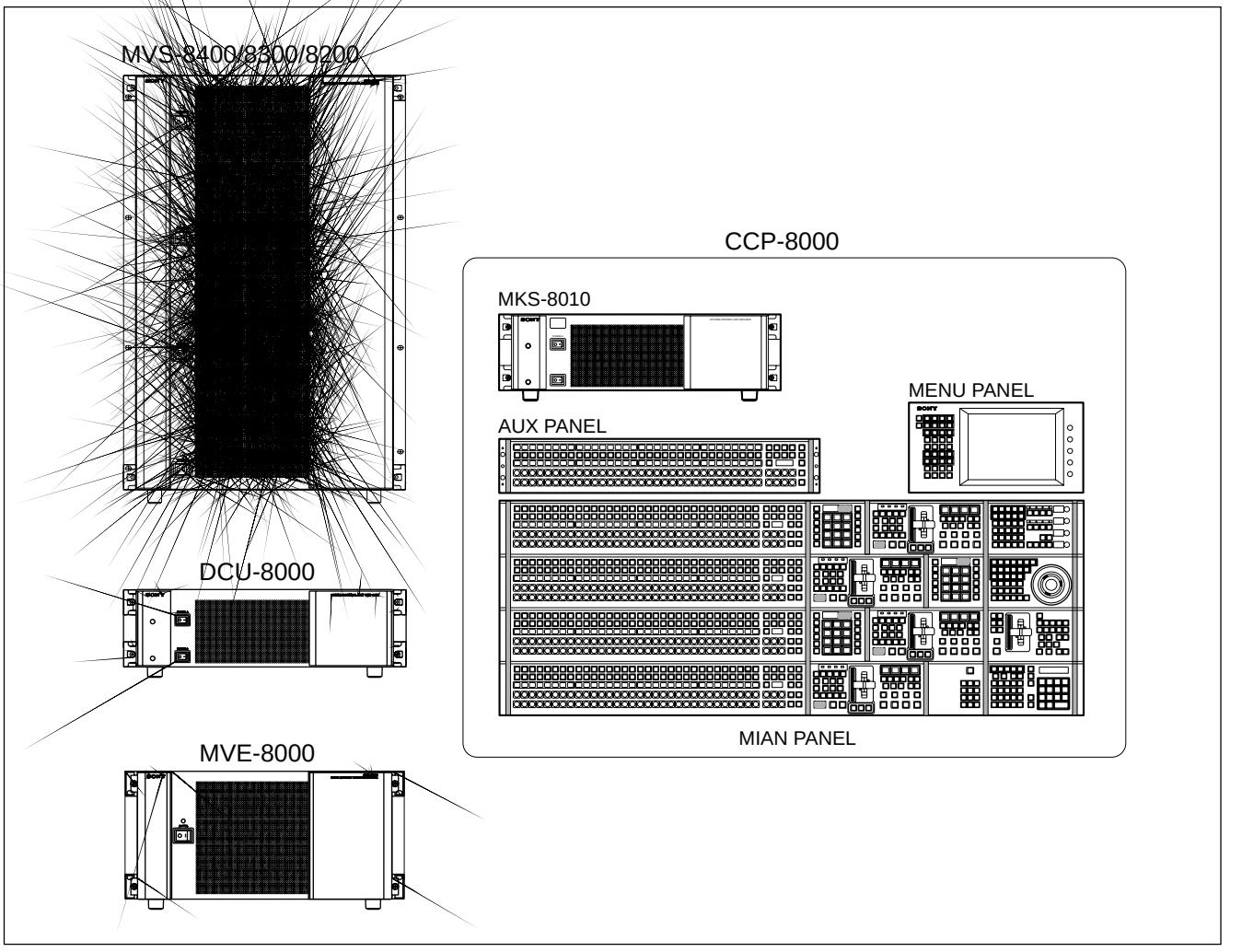
Item	Expandable number	Expansion basis
M/E configuration	2 M/E 3 M/E 4 M/E	Per M/E
Inputs	SD: up to 80 inputs HD: up to 68 inputs	Per 17 inputs
Outputs	56 assignable outputs (including 8 monitor outputs)	Per 8 outputs
DME Channel	1 to 8 CH (4 CH in one chassis)	Per 1 CH

SD/HD capability

High definition	Standard definition
1080i/60/59.94/50	480i/59.94
1080PsF/30/29.97/25/24/23.976	576i/50
720p/59.94 (future)	

1-3. System Description

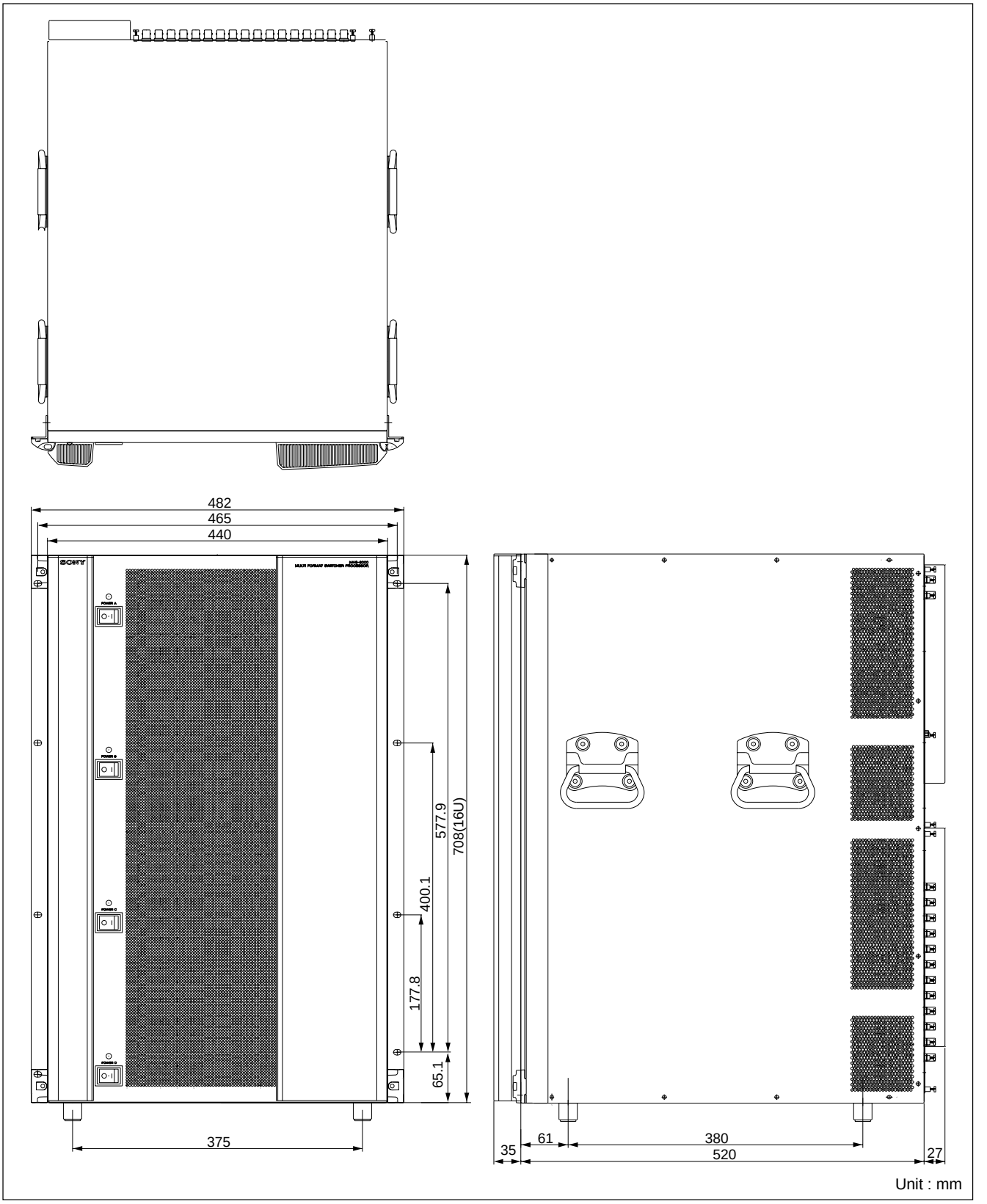
The MVS-8000 System consists of Switcher Processor Pack (MVS-8400/8300/8200), DME Processor Pack (MVE-8000), Center Control Panel Pack (CCP-8000) and Device Control Unit Pack (DCU-8000).



1-3-1. MVS-8000

The MVS-8000 is a 16 rack unit chassis which can be mounted in the standard 483 mm (19 inch) rack.

External dimensions of MVS-8000

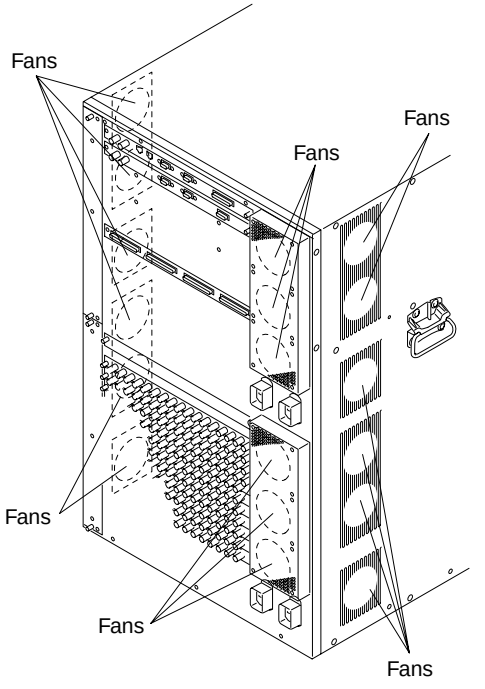


Note

The MVS-8000 has a built-in cooling system consisting of eighteen fans in total fan mounted on the rear and both sides of the frame, and an air filter on the rear of the front panel. Cooling air is drawn in at the front side of the frame, through the filter, boards, and modules, and then expelled out the rear and both sides of the frame at the fan unit.

If dust is accumulated at the intake of the fan or the cables doesn't keep off over 10 cm from the fans, air is prevented from flowing smoothly that result in rise of temperature inside the machine. It may result in adverse effects on performance and life of the machine.

MVS-8000
Multi Format Switcher Processor

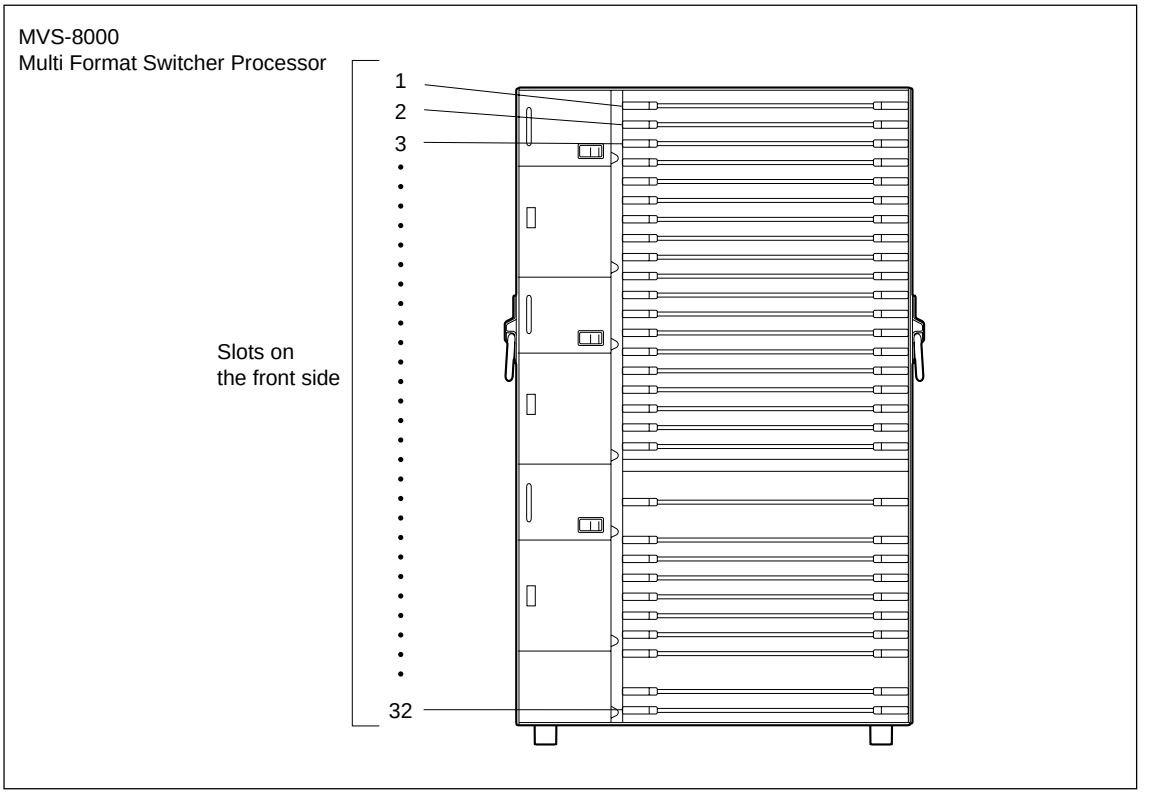


<Rear Side>

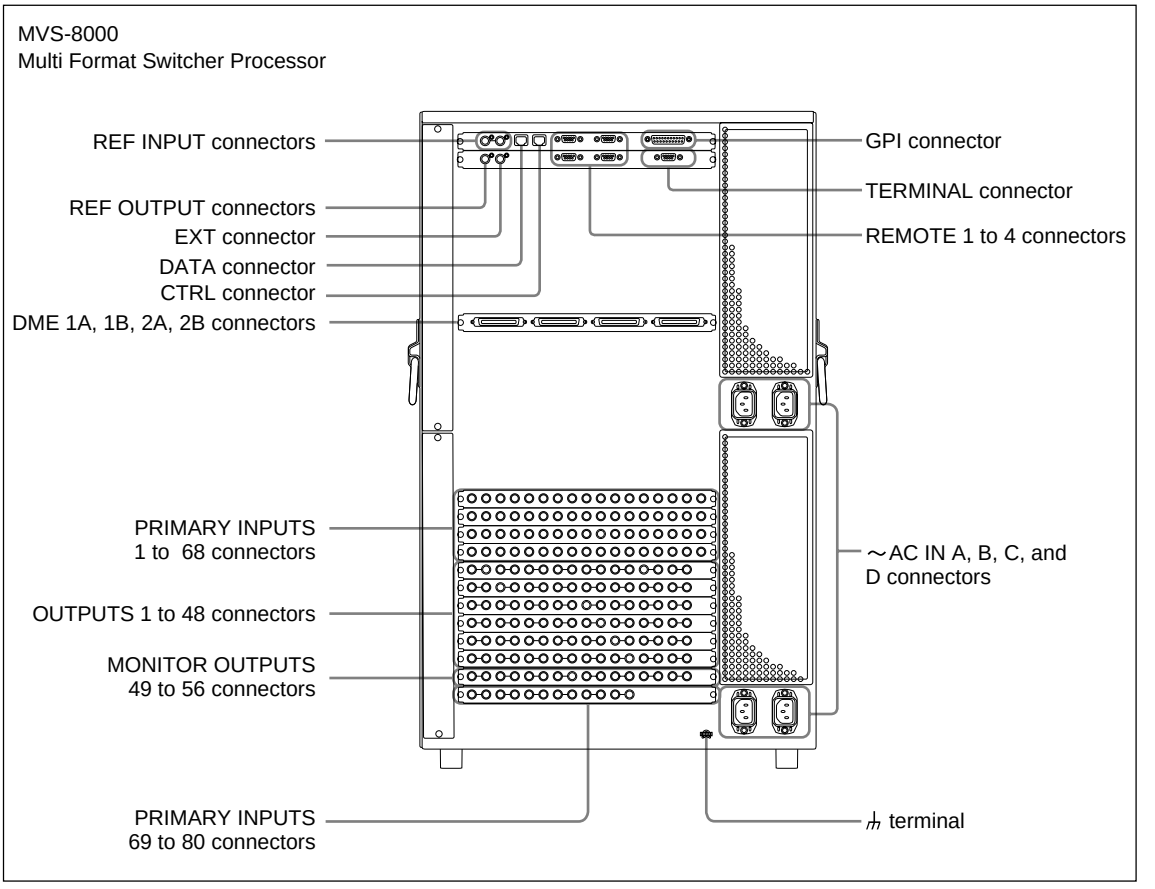
The MVS-8000 has the slots for plug-in boards in its front and rear. It contains of 32 slots in total for standard/option boards.

Note

The MVS-8000 is shown below with the front panel removed. The front panel must remain in place and closed during normal system operation to keep maximum cooling efficiency.



Power, control, and video connectors are at the rear chassis of MVS-8000. The illustration below shows a full loaded rear board. Some of the modules shown below are optional and may not be included in your system configuration.



MVS-8000 options

The following lists the plug-in boards that may be purchased as options.

MVS-8000 option configuration

Front side

Option name	Board name	Slot No.	Descriptions
MKS-8210HD/SD	DO-41/DO-42 MIX-45 KPC-16 DI-40/DI-41	3, 7, 12, 16 4, 8, 13, 17 5, 9, 14, 18 6, 10, 15, 19	Mix/Effect Board Set M/E1: Slot 12 to 15 M/E2: Slot 7 to 10 M/E3: Slot 3 to 6 M/E4: Slot 16 to 19
MKS-8170HD/SD	DIF-119/DIF-122	11	DME I/F Board
MKS-8160HD/SD	OUT-23/OUT-24	24 to 29	8 Outputs Board 1 to 8 output: Slot 24 9 to 16 output: Slot 25 17 to 24 output: Slot 26 25 to 32 output: Slot 27 33 to 40 output: Slot 28 41 to 48 output: Slot 29
MKS-8440HD/SD	DIO-62/DIO-63 MY-102	31 32	Frame Memory Board Set

Rear side

Option name	Board name	Printed characters	Description
MKS-8110HD/SD	CNI-9/CNI-10	IN 1 to 17 IN 18 to 34 IN 35 to 51 IN 52 to 68	17 Inputs Board
MKS-8160HD/SD	CNO-11/CNO-17B		8 Outputs Board Insert a real board into the slot that corresponds to the slot in the front.
MKS-8161HD/SD	CNO-12/CNO-17A	OUT 49 to 56	8 Monitor Outputs Board
MKS-8111SD	CNI-17	IN 69 to 80	12 Additional Input Board

Power supply unit

The MVS-8000 Power Supply Units are supplied with MVS-8000 processor.
Three power supply units are required to run the MVS-8000 system. An optional fourth unit is added to provide redundant power. With fourth unit mounted, one unit can fail without causing system failure.
It is recommended that each unit's AC input be connected to the AC supply circuit of a separated power source system. Any unit (s) for which a separate power source system is not available, is (are) recommended to be connected to a UPS (Uninterruptible Power Supply).

Option

Option name	Description
HK-PSU04	Power Supply Unit

The power cord is not supplied with the MVS-8000.
It is necessary that the power cord should be applicable to places in the area.

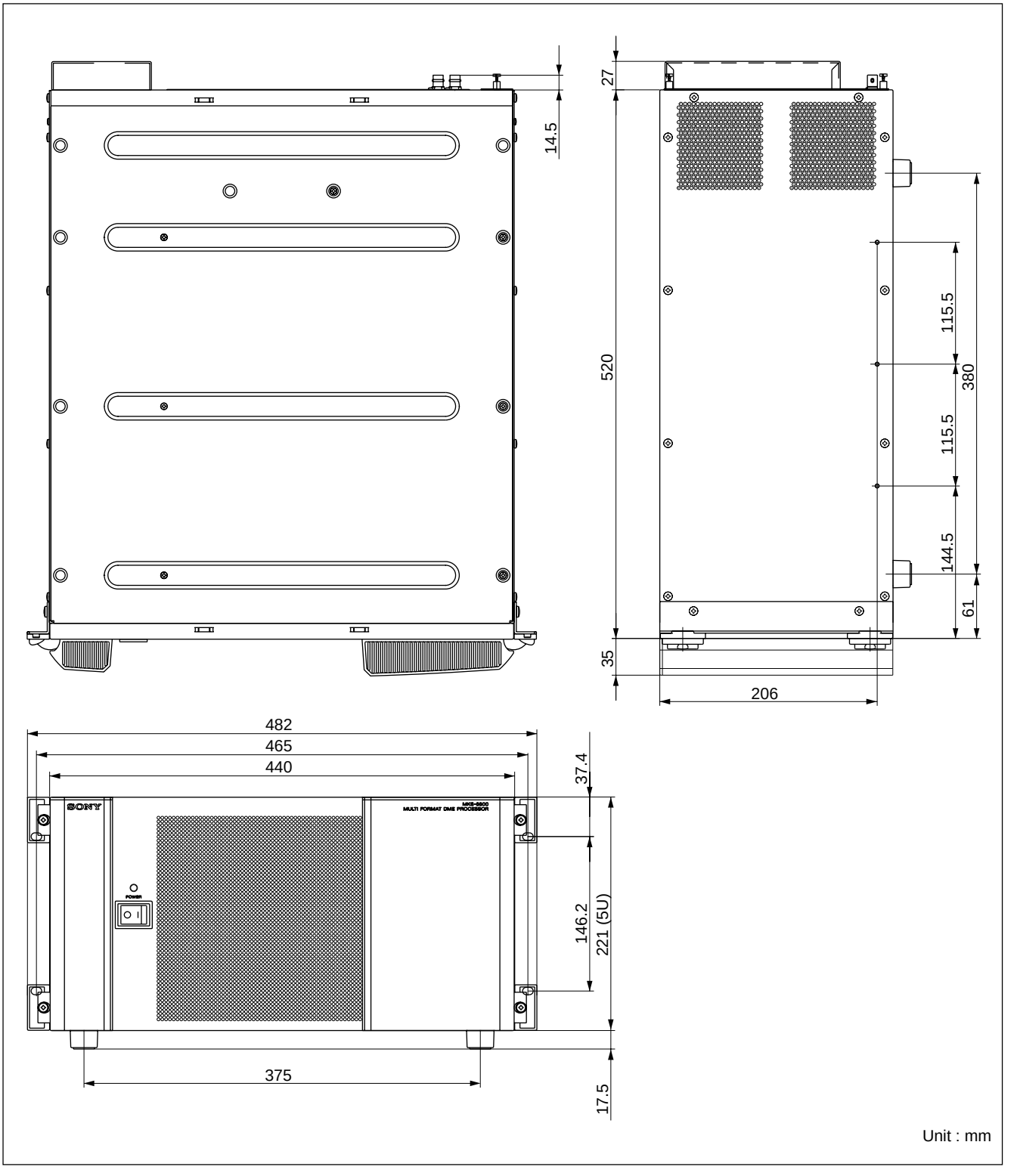
Power cord

Area	Specification	Length	Part No.
Japan	125 V 10 A ∗3P - 2P (adaptor)	2.5 m	1-776-997-11 ∗1-750-686-11
USA/Canada	125 V 10 A	2.4 m	1-557-377-11
All Europian countries	250 V 10 A	2.4 m	1-782-929-21

1-3-2. MVE-8000

MKS-8800 (Mutlti Format DME Processor) is a 5 rack unit chassis which can be mounted in the standard 483 mm (19 inch) rack.

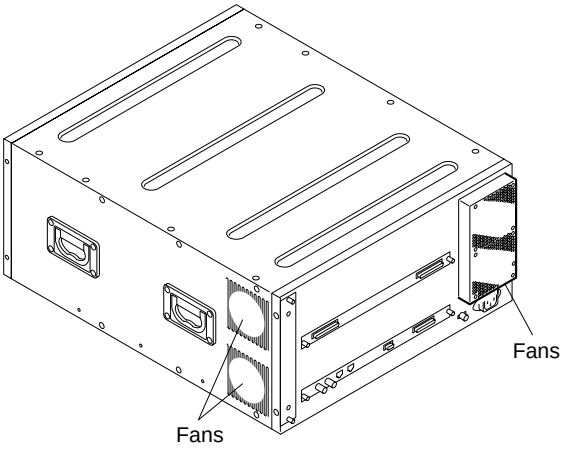
External dimensions of MKS-8800



Note

The MVE-8000 has a built-in cooling system consisting of four fans in total mounted on the rear and right side of the frame, and an air filter on the rear of the front panel. Cooling air is drawn in at the front side of the frame, through the filter, boards, and modules, and then expelled out the rear and right side of the frame at the fan unit.
If dust is accumulated at the intake of the fan or the cables doesn't keep off over 10 cm from the fans, air is prevented from flowing smoothly that result in rise of temperature inside the machine. It may result in adverse effects on performance and life of the machine.

MVE-8000
DME Processor Pack

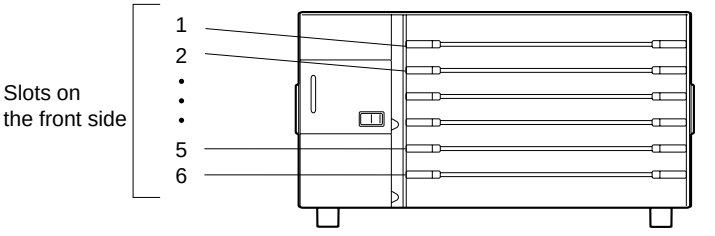


The MVE-8000 has the slots for plug-in boards in its front and rear. It contains of 6 slots in total for standard/option boards.

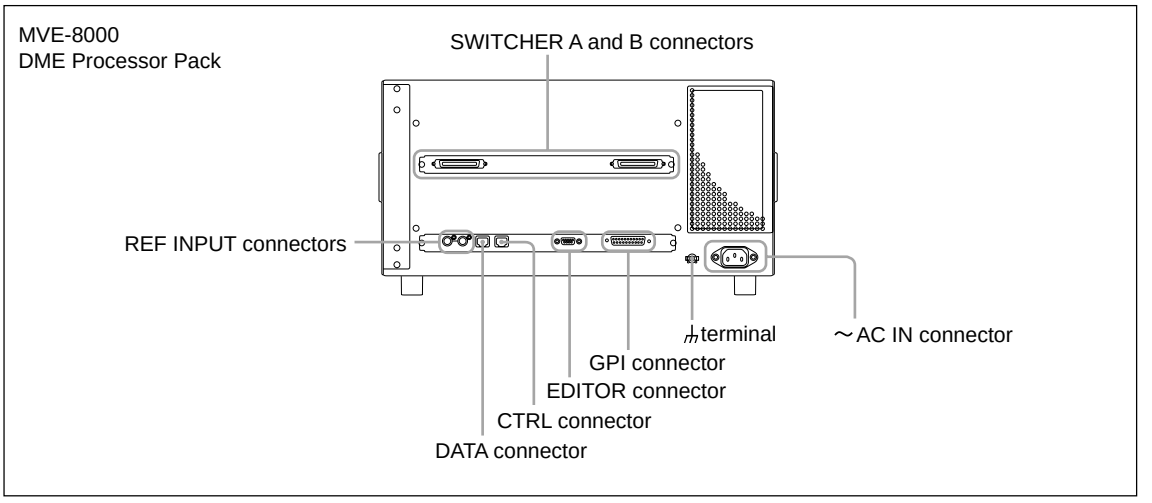
Note

The MVE-8000 is shown below with the front panel removed. The front panel must remain in place and closed during normal system operation to keep maximum cooling efficiency.

MVE-8000
DME Processor Pack



Power, control, and video connections are at the rear of MVE-8000. The illustration below shows a full loaded rear board. Some of the modules shown below are optional and may not be included in your system configuration.



MVE-8000 options

The following lists the plug-in boards that may be purchased as options.

MVE-8000 option configuration

Front side

Option name	Board name	Slot No.	Descriptions
MKS-8810M (MKS-8830M)	DVP-21 (VSE-39: daughter board)	1 to 2, 4 to 5	Basic Effect Board CH1: Slot 1 CH2: Slot 2 CH3: Slot 4 CH4: Slot 5
MKS-8820M	VIF-26	3	Input/Output Board

Rear side

Option name	Board name	Slot No.	Descriptions
MKS-8820M	CN-2153	–	Input/Output Board Insert a real board into the slot that corresponds to the slot in the front.

Power supply unit

The MVE-8000 Power Supply Unit is supplied with MVE-8000 processor.
One power supply unit is required to run the system.

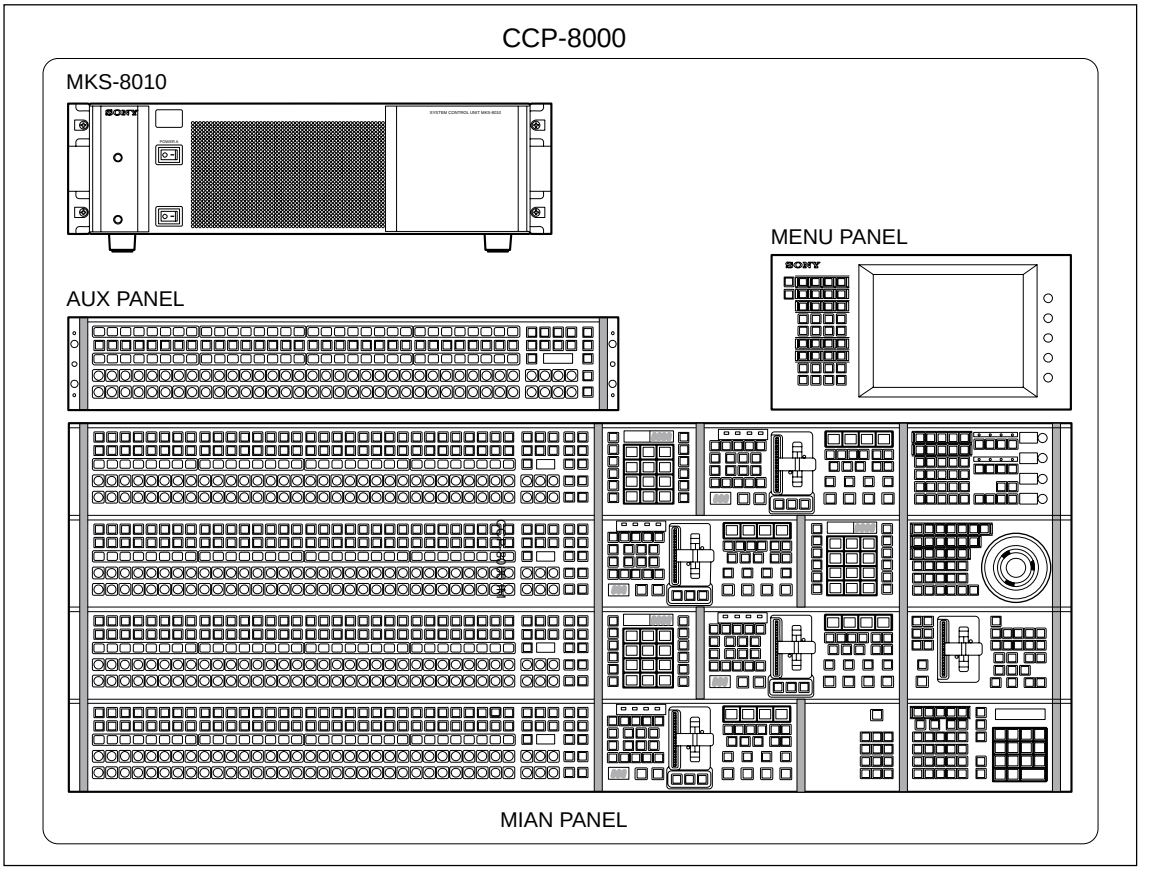
The power cord is not supplied with the MVE-8000.
It is necessary that the power cord should be applicable to places in the area.

Power cord

Area	Specification	Length	Part No.
Japan	125 V 10 A ∗3P - 2P (adaptor)	2.5 m	1-776-997-11 ∗1-750-686-11
USA/Canada	125 V 10 A	2.4 m	1-557-377-11
All Europian countries	250 V 10 A	2.4 m	1-782-929-21

1-3-3. CCP-8000

The modular design of MVS-8000 system control panel provides flexibility for locating the desired module in their preferred area of each M/E base plate. M/E base plates are offered in the three types of 16, 24 and 32 button style, while M/E bank are available in 2 M/E, 3 M/E, and 4M/E configuration.
It also have some module of DME control, Key Frame Control, Memory Card/USB, Flexi Pad and etc.
The CCP-8000 consists of System Control Unit (MKS-8010), Menu Panel (MKS-8011), and Main Panel.
System Control unit (MKS-8010) is a 3 rack unit chassis, which can be mounted in the standard 483 mm (19 inch) rack.



Main panel

The main panel, comprised of various types of operation modules, provides the operating controls of the system. It can be fleely laid out, with variable numbers of M/E banks (2 to 4) and cross-point buttons (16, 24 or 32) and variable layout of the AUX bus module. Operation modules can be mounted in the MKS-8075 Extension Adaptor and MKS-8076 Memory Card/USB Adaptor for installation apart from the main panel. The AUX bus module can also be removed from the main panel and used as an AUX panel.

Menu panel (MKS-8011)

The menu panel provides a GUI interface for operating the menus.

System control unit (MKS-8010)

The system control unit provides control functions for the center control panel as a whole. It also supplies power to the various panels

Shows the modules for CCP-8000.

Model Name	Description
MKS-8013	32 AUX Bus Module
MKS-8014	24 AUX Bus Module
MKS-8015	16 AUX Bus Module
MKS-8017	32 XPT Module
MKS-8018	24 XPT Module
MKS-8019	16 XPT Module
MKS-8020	Standard Transition Module
MKS-8021	Simple Transition Right Module
MKS-8022	Simple Transition Left Module
MKS-8023	Compact Key Transition Module
MKS-8024	Flexi Pad Module
MKS-8025	Memory Card/USB Module
MKS-8026	10 Key Pad Module
MKS-8030	Key Frame Module
MKS-8031TB	Track Ball Module
MKS-8032	DSK Fader Module
MKS-8034FB	FTB Module
MKS-8035	Key Control Module
MKS-8031JS	Joy Stick Module
MKS-8033	Utility/Shotbox Module

Main panel

Main Panel installation requires careful attention to the console support structure and the console cutout dimensions necessary to accommodate the mounting flanges located on the front and sides of the tub.

Menu panel (MKS-8011)

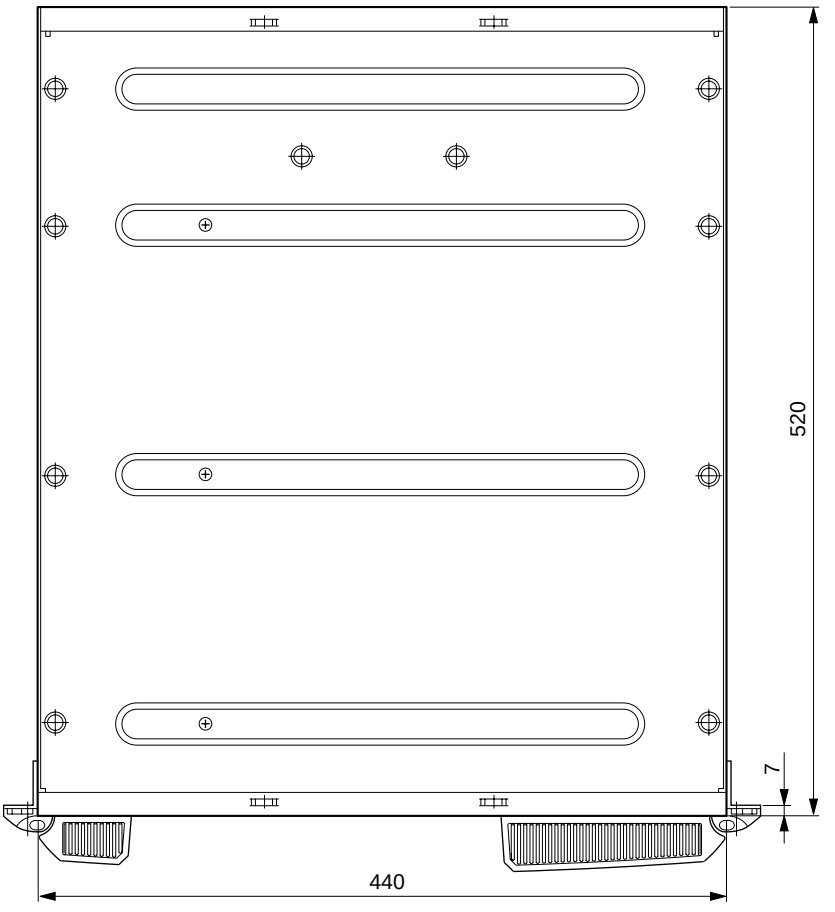
The Menu Panel includes a touch screen display, buttons for accessing menus, and knobs for adjusting parameter values.

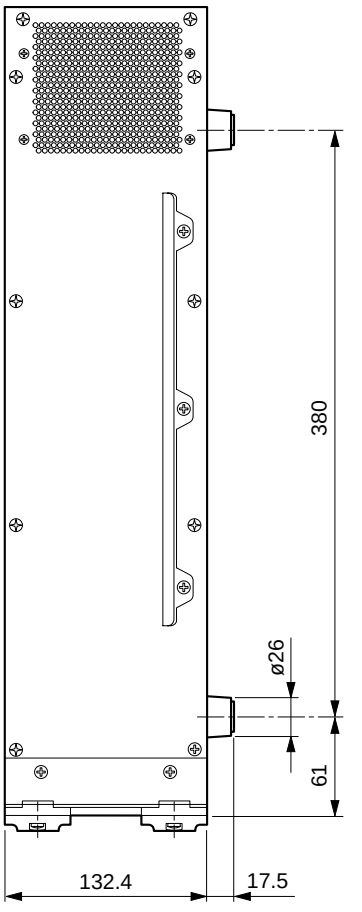
Note

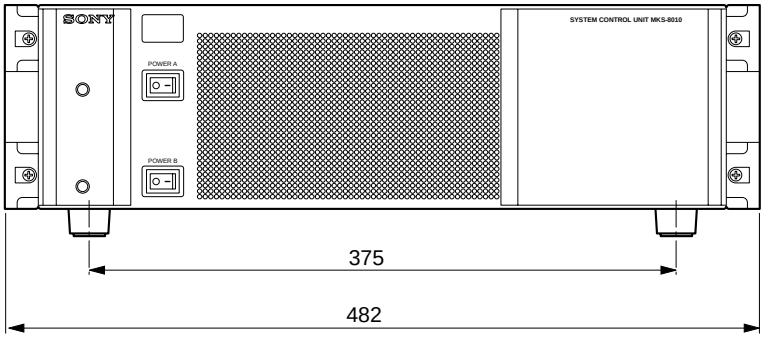
The Main Panel weighs approximately 16 to 30 kg (depending on the configuration). Prior to installation, ensure that your console is structurally capable of supporting the Main Panel.

The Main Panel was designed to be flush mounted in a console, but it may also be surface mounted to be protruded above the surface of the console.

External dimensions of MKS-8010

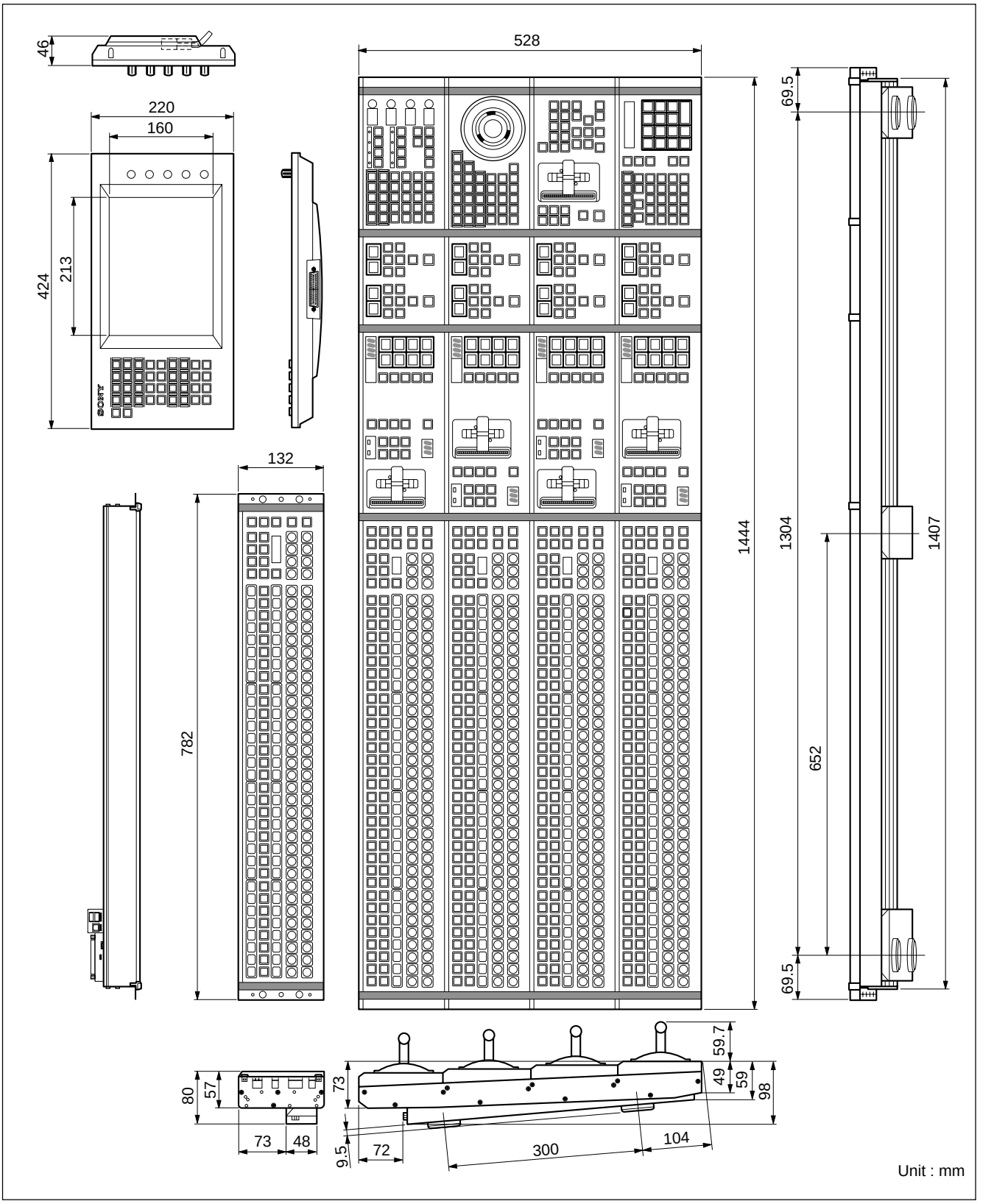




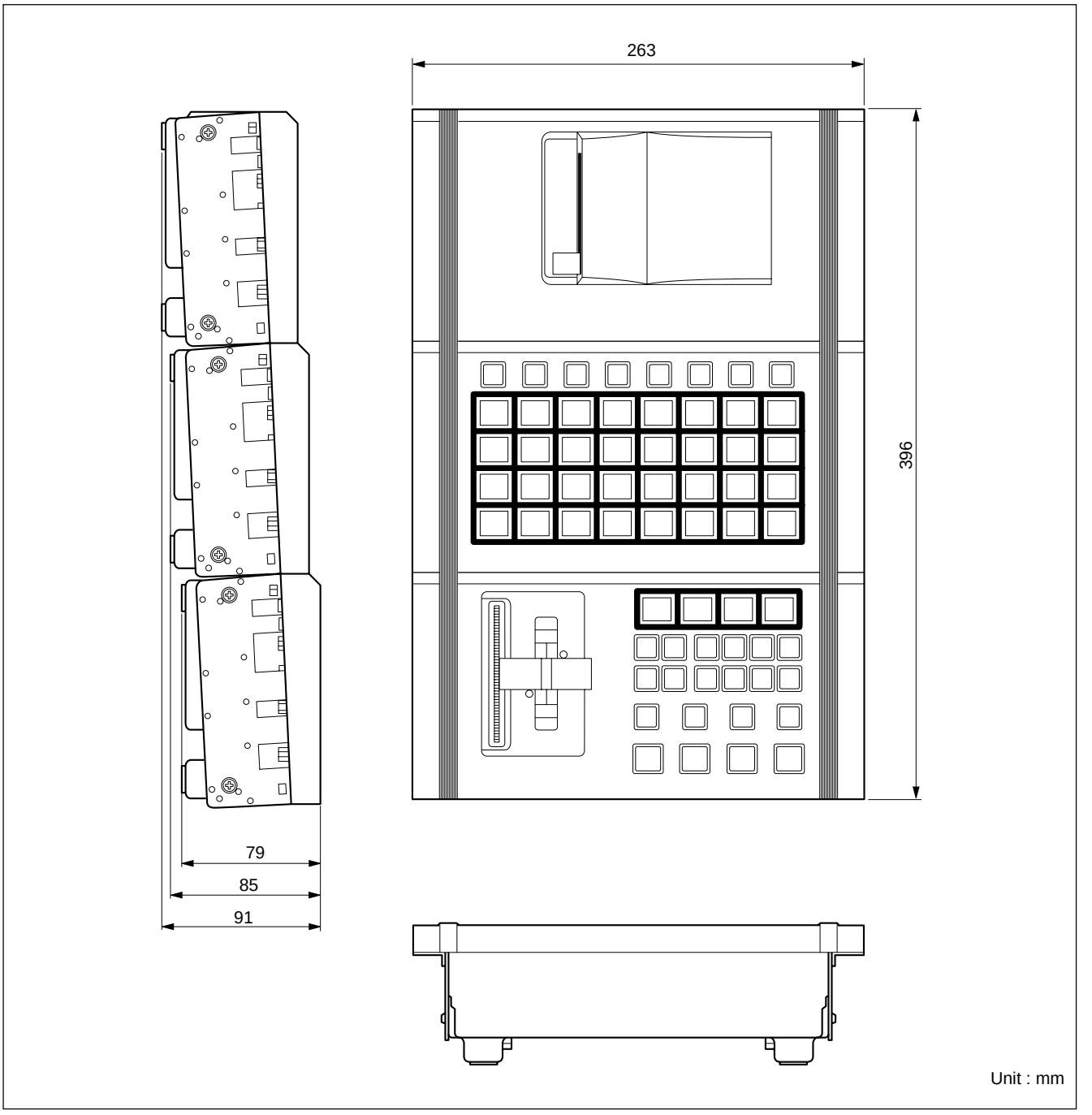


Unit : mm

External dimensions of main panel/AUX panel/menu panel MKS-8011



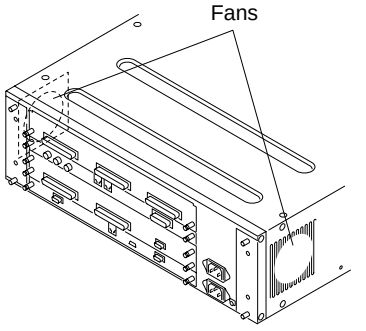
External dimensions of extension adaptor MKS-8075/memory card/USB adaptor MKS-8076



Note

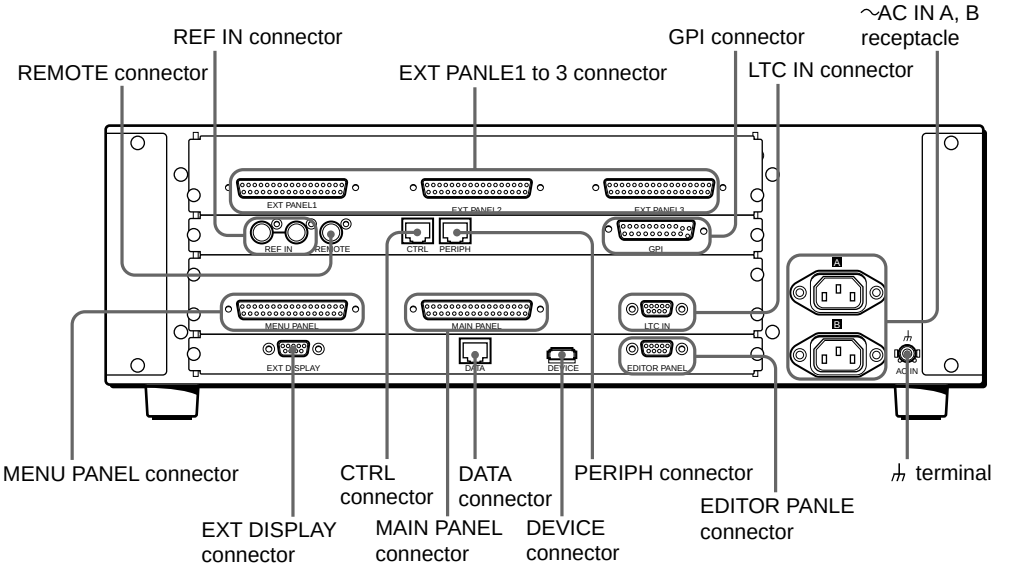
The MKS-8010 has a built-in cooling system consisting of a fan mounted on the both sides of the frame, and an air filter on the rear of the front panel. Cooling air is drawn in at the front side of the frame, through the filter, boards, and modules, and then expelled out the both sides of the frame at the fan unit. If dust is accumulated at the intake of the fan or the cables doesn't keep over 10 cm from the fans, air is prevented from flowing smoothly that result in rise of temperature inside the machine. It may result in adverse effects on performance and life of the machine if used in such an environment.

MKS-8010
System Control Unit

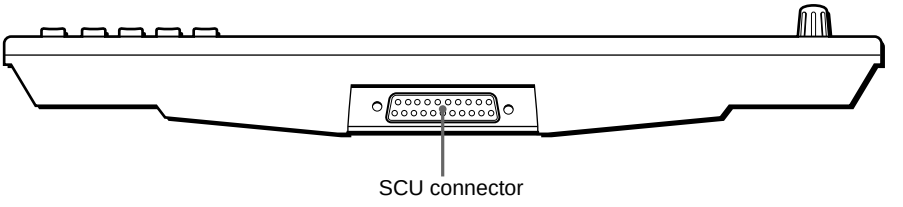


Power, control, and video connectors are at the rear of system control unit (MKS-8010), the main panel and menu panel (MKS-8011).
The illustration below shows a full loaded rear board.

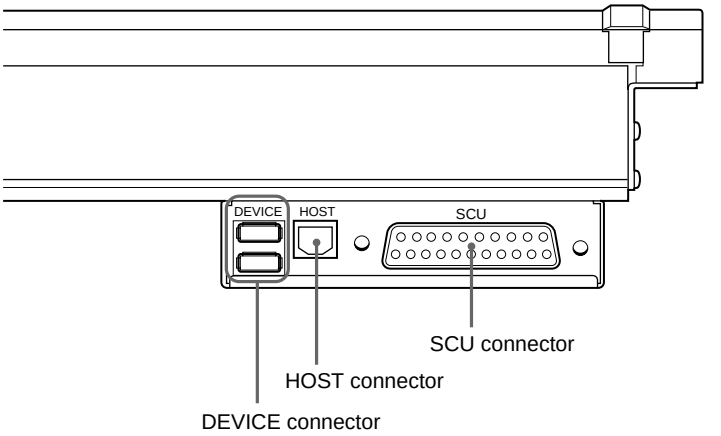
MKS-8010



Menu Panel



Main Panel



Power supply unit

The CCP-8000 Power Supply Units is supplied with System Control Unit (MKS-8010).
A power supply units is required to run the system. An optional second unit is added to provide redundant power. With second unit mounted, one unit can fail without causing system failure.
It is recommended that each unit's AC input be connected to the AC supply circuit of a separated power source system. Any unit (s) for which a separate power source system is not available, is (are) recommended to be connected to a UPS (Uninterruptible Power Supply).

Option

Option name	Description
HK-PSU03	Backup Power Supply Unit

The power cord is not supplied with the CCP-8000.
It is necessary that the power cord should be applicable to places in the area.

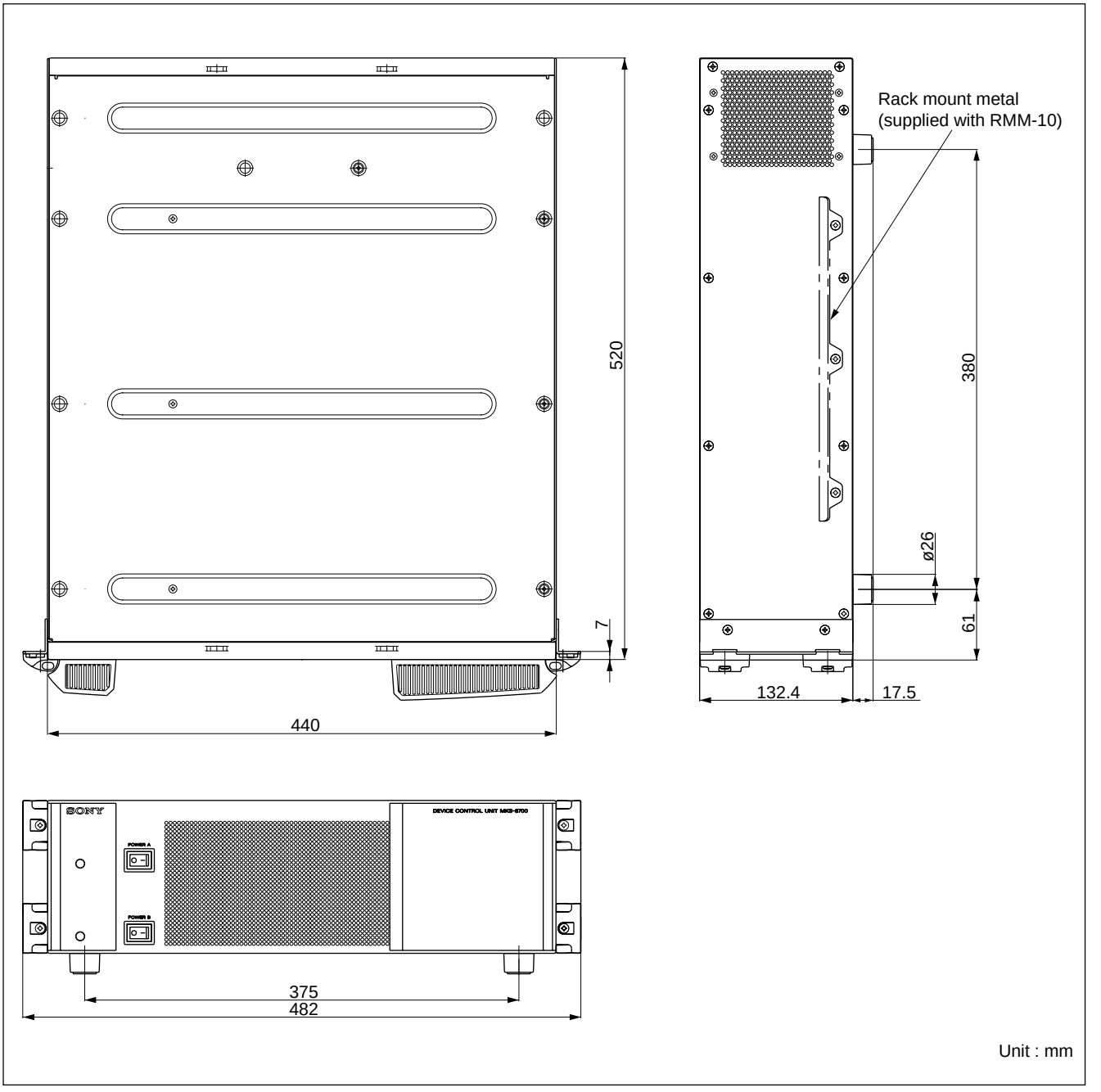
Power cord

Area	Specification	Length	Part No.
Japan	125 V 10 A ∗3P - 2P (adaptor)	2.5 m	1-776-997-11 ∗1-750-686-11
USA/Canada	125 V 10 A	2.4 m	1-557-377-11
All Europian countries	250 V 10 A	2.4 m	1-782-929-21

1-3-4. DCU-8000

DCU-8000 is a 3 rack unit chassis which can be mounted in standard 483 mm (19 inch) rack.

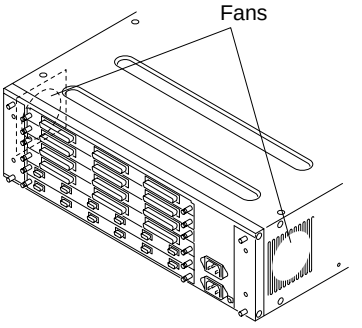
External dimensions of DCU-8000



Note

The DCU-8000 has a built-in cooling system consisting of a fan mounted on the both sides of the frame, and an air filter on the rear of the front panel. Cooling air is drawn in at the front side of the frame, through the filter, boards, and modules, and then expelled out the both sides of the frame at the fan unit. If dust is accumulated at the intake of the fan or the cables doesn't keep off over 10 cm from the fans, air is prevented from flowing smoothly that result in rise of temperature inside the machine. It may result in adverse effects on performance and life of the machine if used in such an environment.

DCU-8000
Device Control Unit

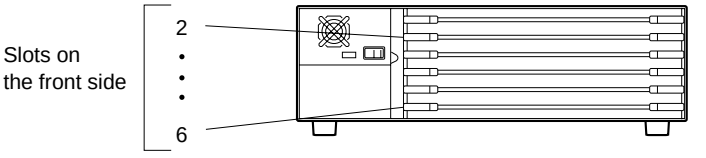


DCU-8000 has front and rear boards. It consists of 6 slots for standard/option boards.

Note

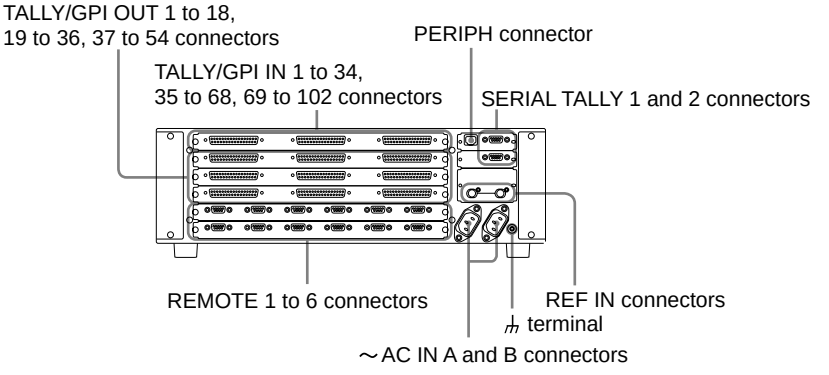
The DCU-8000 is shown below with the front panel removed. The front panel must remain in place and closed during normal system operation to keep maximum cooling efficiency.

DCU-8000
Device Control Unit



Power, control, and video connections are at the rear of DCU-8000. The illustration below shows a full loaded rear board. Some of the modules shown below are optional and may not be included in your system configuration.

DCU-8000
Device Control Unit



DCU-8000 options

The following lists the plug-in boards that may be purchased as options.

DCU-8000 option configuration
Front Side

Option name	Board name	Slot No.	Descriptions
MKS-8701	RC-90	2 to 6	Tally/GPI output Board
MKS-8702	IF-848	2 to 6	Serial Interface Board

Rear side

Option name	Board name	Slot No.	Descriptions
MKS-8701	CN-2195	–	Tally/GPI output Board Install the board into the slot in the real that corresponds to a RC-90 board that is inserted in the slot in the front.
MKS-8702	CN-2194	–	Serial Interface Board Install the board into the slot in the real that corresponds to a IF-848 board that is inserted in the slot in the front.

Power supply unit

The DCU-8000 Power Supply Units is supplied with DCU-8000 processor.
A power supply units is required to run the system. An Optional second unit is added to provide redundant power. With second unit mounted, one unit can fail without causing system failure.
It is recommended that each unit's AC input be connected to the AC supply circuit of a separated power source system. Any unit (s) for which a separate power source system is not available, is (are) recommended to be connected to a UPS (Uninterruptible Power Supply).

Option

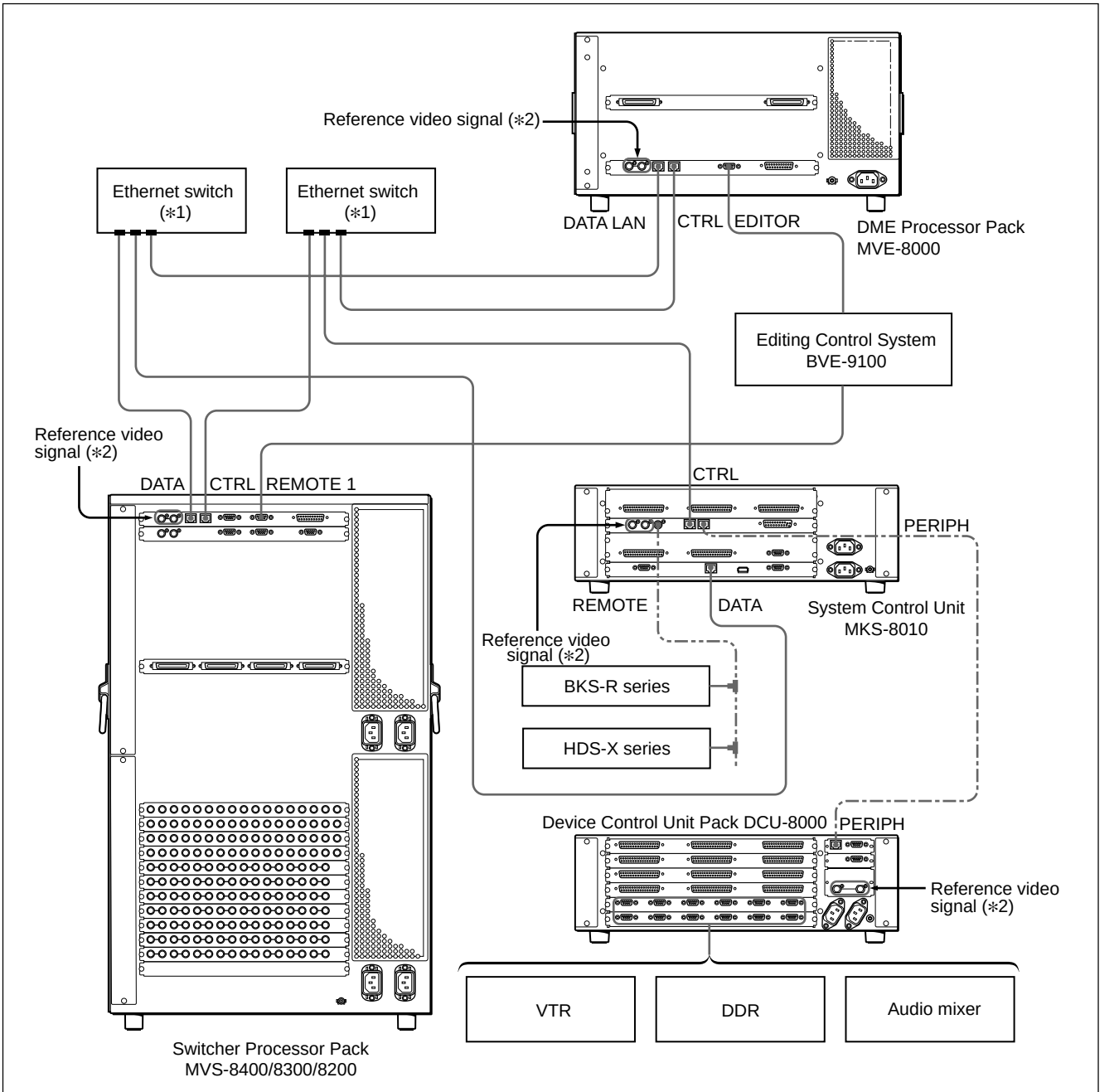
Option name	Description
HK-PSU03	Backup Power Supply Unit

The power cord is not supplied with the DCU-8000.
It is necessary that the power cord should be applicable to places in the area.

Power cord

Area	Specification	Length	Part No.
Japan	125 V 10 A ∗3P - 2P (adaptor)	2.5 m	1-776-997-11 ∗1-750-686-11
USA/Canada	125 V 10 A	2.4 m	1-557-377-11
All Europian countries	250 V 10 A	2.4 m	1-782-929-21

1-4. MVS-8000 System Example

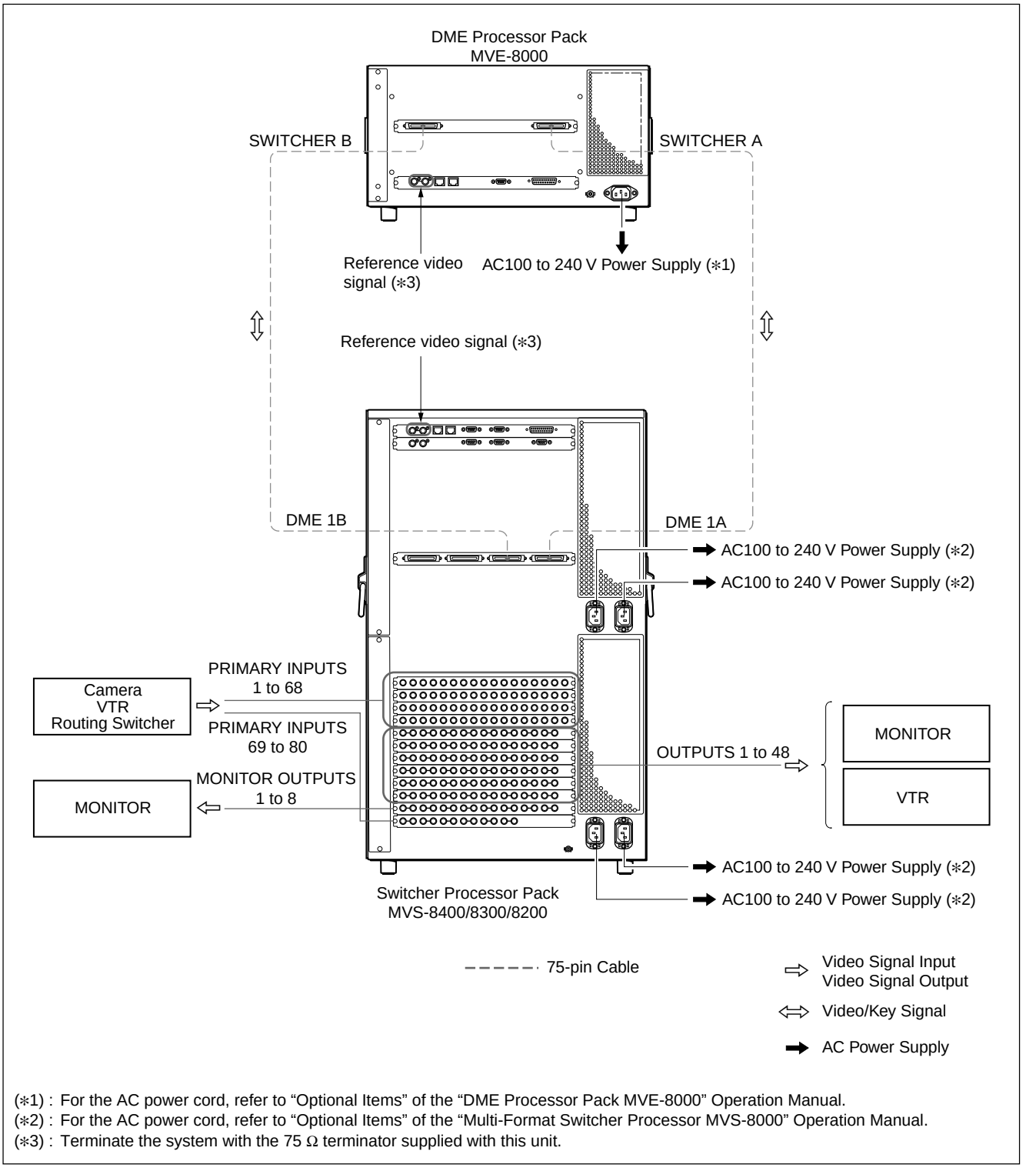


(∗1) : Connect each LAN (CTRL, DATA) to the separate Ethernet switches respectively.
However, a single Ethernet switch can be used for connecting each LAN.
For information about Ethernet switches that can be used in an MVS system, contact your local Sony Sales Office/Service Center.
For detailed information about setting up the Ethernet switch, refer to the documentation supplied with the switch.

(∗2) : Terminate the system with the 75 Ω terminator supplied. The 75 Ω terminator is supplied with the equipment.

1-5. Functional Overview

1-5-1. Video Signal Flow



(∗1) : For the AC power cord, refer to “Optional Items” of the “DME Processor Pack MVE-8000” Operation Manual.
(∗2) : For the AC power cord, refer to “Optional Items” of the “Multi-Format Switcher Processor MVS-8000” Operation Manual.
(∗3) : Terminate the system with the 75 Ω terminator supplied with this unit.

Section 2
Installation

2-1. Installation Tasks

Installation tasks should be completed in the following order:

1. Unpack equipment
2. Install the CCP-8000 main panel, the Menu Panel (MKS-8011) and the AUX panel (separate unit only) and System Control Unit (MKS-8010).
3. Install the switcher processor, DME processor, and DCU.
4. Connect cables and configure internal system communications (including Ethernet and IP address.)
5. Connect cables to video inputs and outputs, DME V/K.
6. Connect the power cables.
7. Test that the power supply system works correctly and communications are established correctly in the system.
8. Test basic system for proper operation
9. Cable external interface (including Tally and GPI).
10. Configure external interface.
11. Test external interfaces for proper operation

2-2. MVS-8000 Installation

2-2-1. Rack Mounting

The MVS-8000 can be mounted in the 19-inch standard rack.
To mount the MVS-8000 series in the rack, use the specified rack mount parts that are supplied with the MVS-8000 series and follow the procedure described below.

Note

If a rack mount parts other than the specified ones are used, the unit may not be mounted in the 19-inch standard rack.

Specified rack mount parts

- Support angle 2 pcs
- Bracket 4 pcs
- Support angle fixing screw 8 pcs
  (PSW4 × 10 : 7-682-962-01)
- Bracket fixing screw 8 pcs
  (B4 × 10 : 7-682-562-04)

1. Precautions for rack mounting

WARNING

- To prevent the rack from falling or moving, fix the rack on a flat and steady floor using bolt or others.
  If the rack falls due to the weight of the equipment, it may cause death or injury.
- Be sure to use the specified rack mount parts.
  If not, injury may result and the equipment may fall due to insufficient strength.
- After rack mounting, be sure to tighten the screws on the rack angle and fix the unit in the rack.
  If the screws on the angle are not tightened, the unit may slip from the rack and fall, causing injury.

CAUTION

When mounting the unit in the rack, note the following:

- Be sure to mount in the rack with four persons or more.
- Be careful not to catch your fingers or hands in the rack mount rail or others.
- Mount in the rack in a stable position.

Note

If several units are mounted in a rack, it is recommended to install a ventilation fan to prevent temperature rise inside the rack.

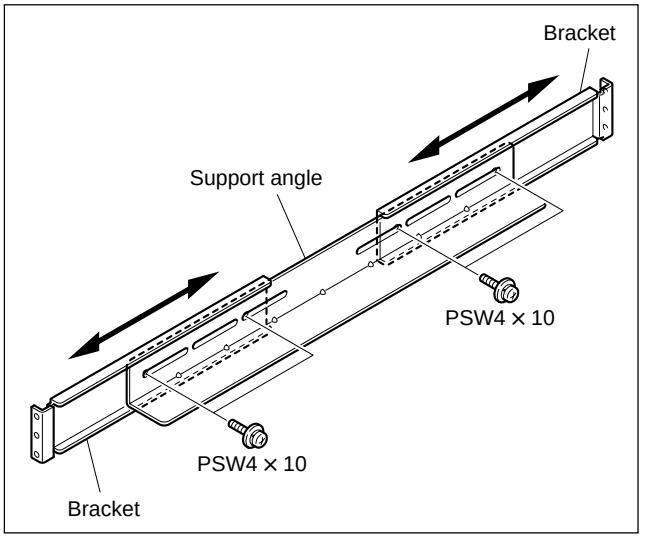
2. Rack mounting procedure

This section describes the rack mounting procedure using the dedicated system rack mount kit of the MVS-8000.

Note

Use the following torque to tighten the screws finally.
Tightening torque : 120×10^{-2} N•m {12.2 kgf•cm}

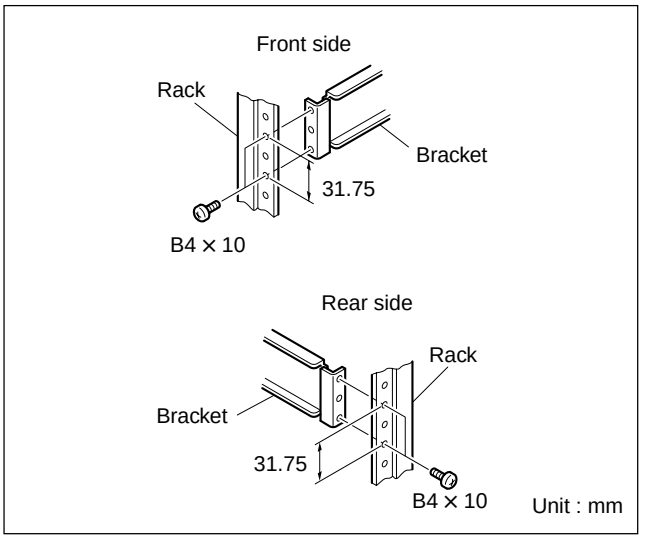
1. Attach the bracket to the support angle using the specified four screws.
2. Loosen the screws on the front and rear of the right and left brackets. Adjust the length of the brackets according to the depth of the rack.
   (The illustration below shows the left bracket.)



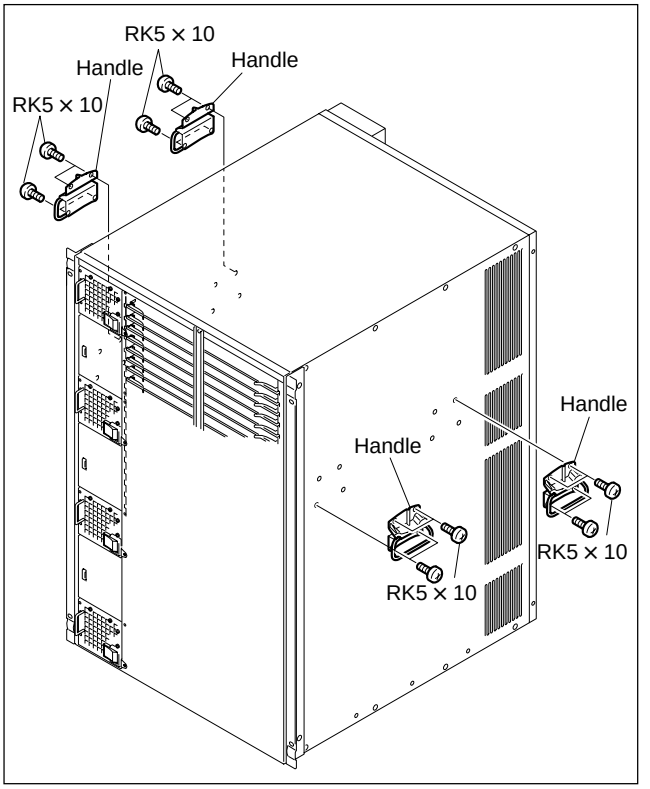
Note

Maximum depth of bracket : 750 mm
Minimum depth of bracket : 595 mm

3. Attach the right and left brackets to the rack completely using the specified eight screws.
   (The illustration below shows the left bracket.)



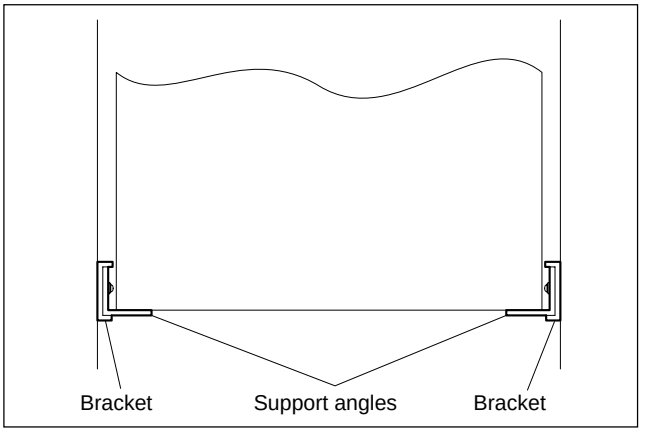
4. Tighten the screws (four screws each on the right and left) for adjusting the length of the bracket completely (the screws that were loosened in step 2).
5. Remove the front panel.
6. Remove the 16 screws and remove the handles (two handles each on the right and left) from both sides of the MVS-8000.



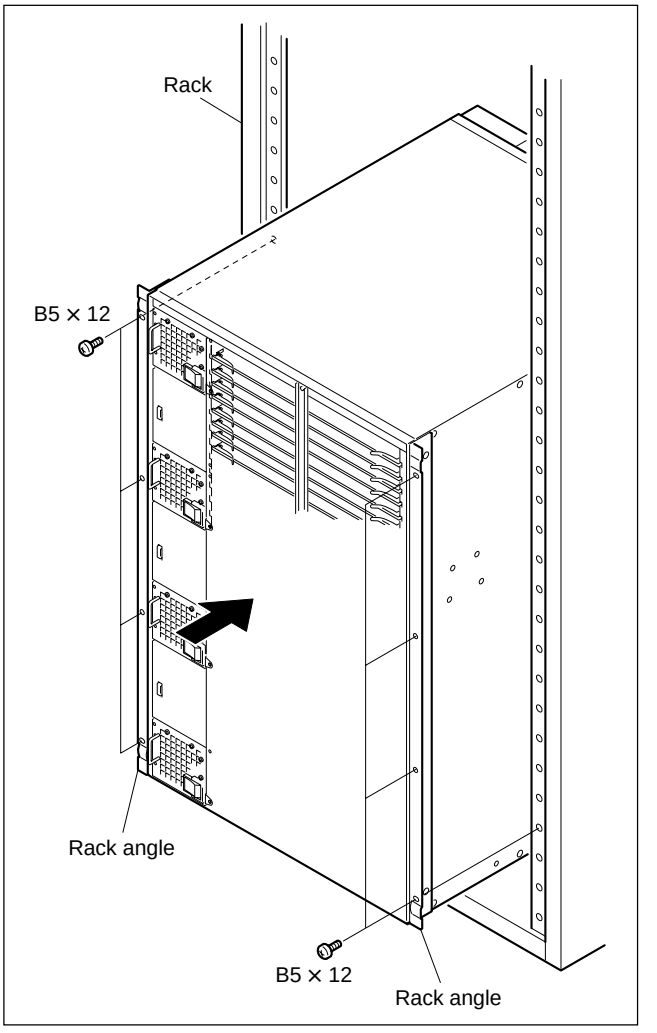
7. Place the right and left bottom ends of the MVS-8000 on the support angles, and slide the equipment to the rear.

Note

The support angles support the equipment as shown below.



8. Fix the rack angles of the equipment to the rack using the specified eight screws.



9. Attach the front panel to the equipment.

2-3. MVE-8000 Installation

2-3-1. Rack Mounting

The MVE-8000 can be mounted in the 19-inch standard rack.
To mount the MVE-8000 in the rack, use the specified rack mount kit and follow the procedure described below.

Specified rack mount kit : RMM-10

Note

If a rack mount kit other than the specified one is used, the unit may not be mounted in the 19-inch standard rack.

Parts of the RMM-10

- Rack tools 2 pcs
- Right rack mount adaptor 1 pc
- Left rack mount adaptor 1 pc
- Rack tool attaching screws (B4 × 6 : 7-682-560-09) 6 pcs
- Rack tool attaching screws (B4 × 10 : 7-682-560-10) 6 pcs

1. Precautions for rack mounting

WARNING

- To prevent the rack from falling or moving, fix the rack on a flat and steady floor using bolt or others.
  If the rack falls due to the weight of the equipment, it may cause death or injury.
- Be sure to use the specified rack mount kit.
  If not, injury may result and the equipment may fall due to insufficient strength.
- After rack mounting, be sure to tighten the screws on the rack angle and fix the unit in the rack.
  If the screws on the rack angle are not tightened, the unit may slip from the rack and fall, causing injury.

CAUTION

When mounting the unit in the rack, note the following:

- Be sure to mount in the rack with two persons or more.
- Be careful not to catch your fingers or hands in the rack mount rail or others.
- Mount in the rack in a stable position.

Note

If several units are mounted in a rack, it is recommended to install a ventilation fan to prevent temperature rise inside the rack.

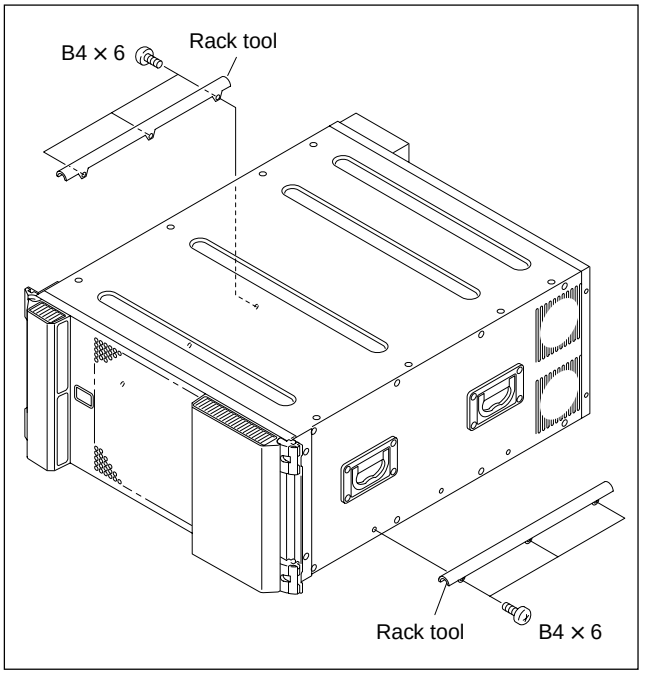
2. Rack mounting procedure

This section describes the rack mounting procedure using the RMM-10 rack mount kit.

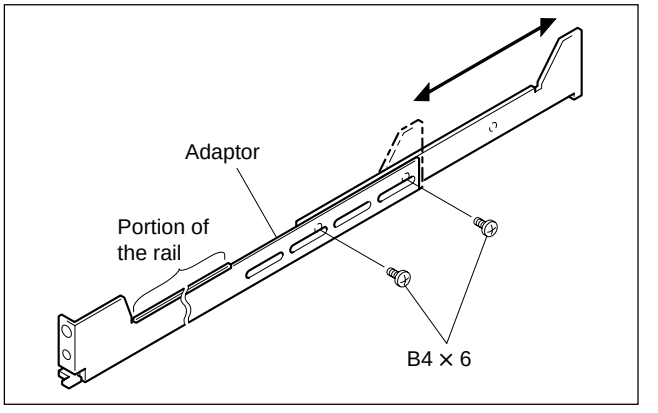
Note

Tighten the screws to the following torque.
Tightening torque : 120×10^{-2} N•m {12.2 kgf•cm}

1. Attach the rack tool to the side of the equipment using the specified six screws.
   Note
   Use B4 × 6 screws.



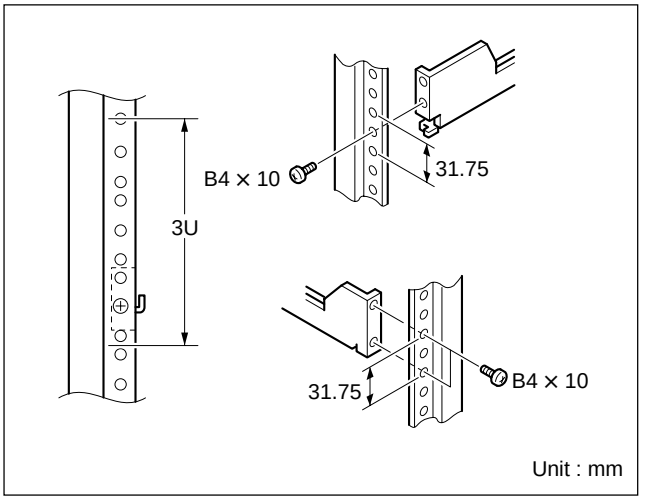
2. Loosen the screws on the rear of the right and left adaptors and adjust the length of the adaptor according to the depth of the rack.
   (The illustration below shows the left adaptor.)



Note

Maximum depth of adaptor : 750 mm
Minimum depth of adaptor : 595 mm

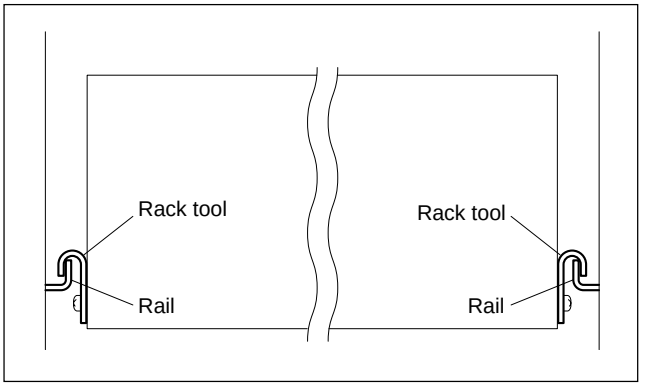
3. Attach the right and left adaptors to the rack completely using the specified six screws.
   (The illustration below shows the left adaptor.)



4. Tighten the screws (B4 × 6 : two screws each on the right and left) for adjusting the length of the adaptor completely (the screws that were loosened in step 2).
5. Align the groove of the rack tool at the side of the equipment with the rail, and slide the equipment to the rear.

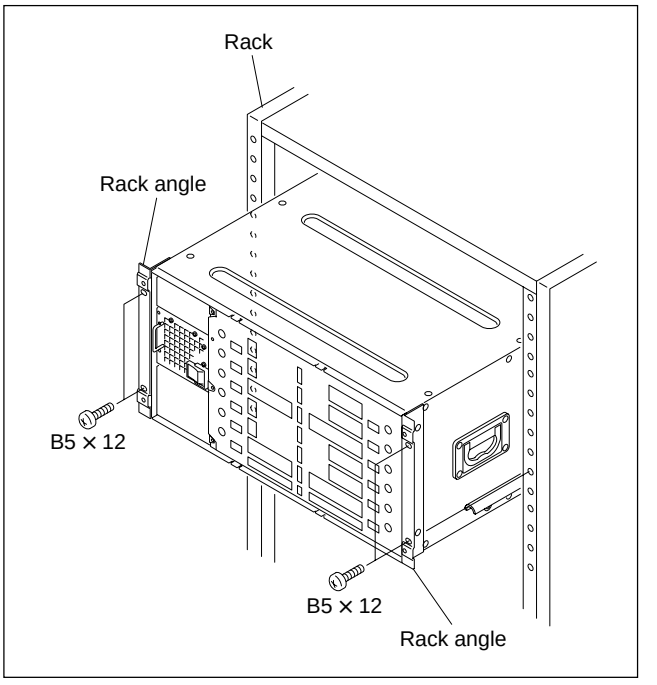
Note

The rack tools are hooked on the rails as shown below.



6. Remove the front panel.

7. Fix the rack angle in the rack using the specified screws.

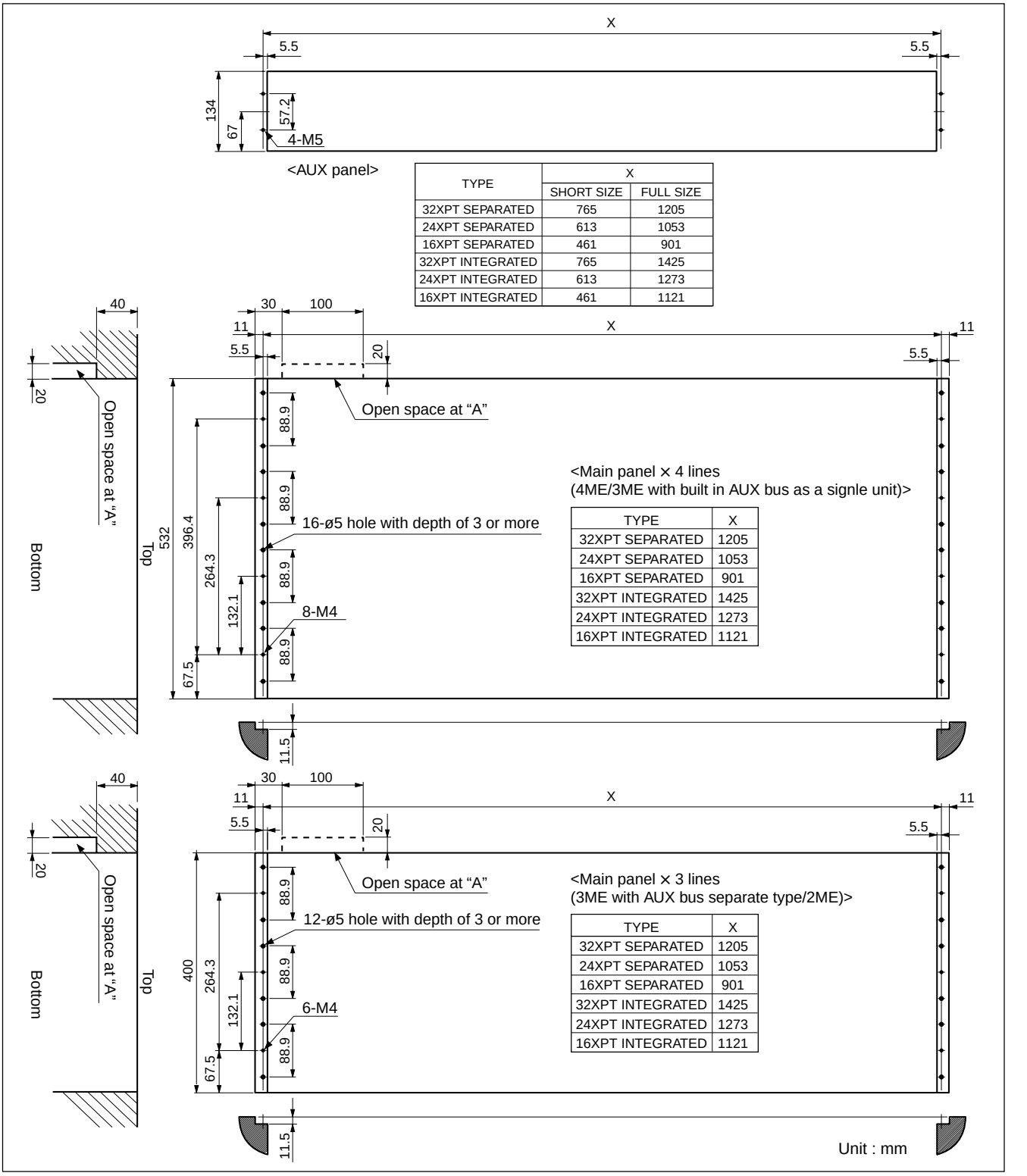


8. Attach the front panel to the equipment.

2-4. CCP-8000 Installation

2-4-1. Installation Space

When the main panel or the AUX panel are embedded into a control console or the like, make holes as shown below into the control console with the following dimensions.
Be sure to have an open space behind the cables of the connectors on the main panel shown as open space at “A” in the illustrations.

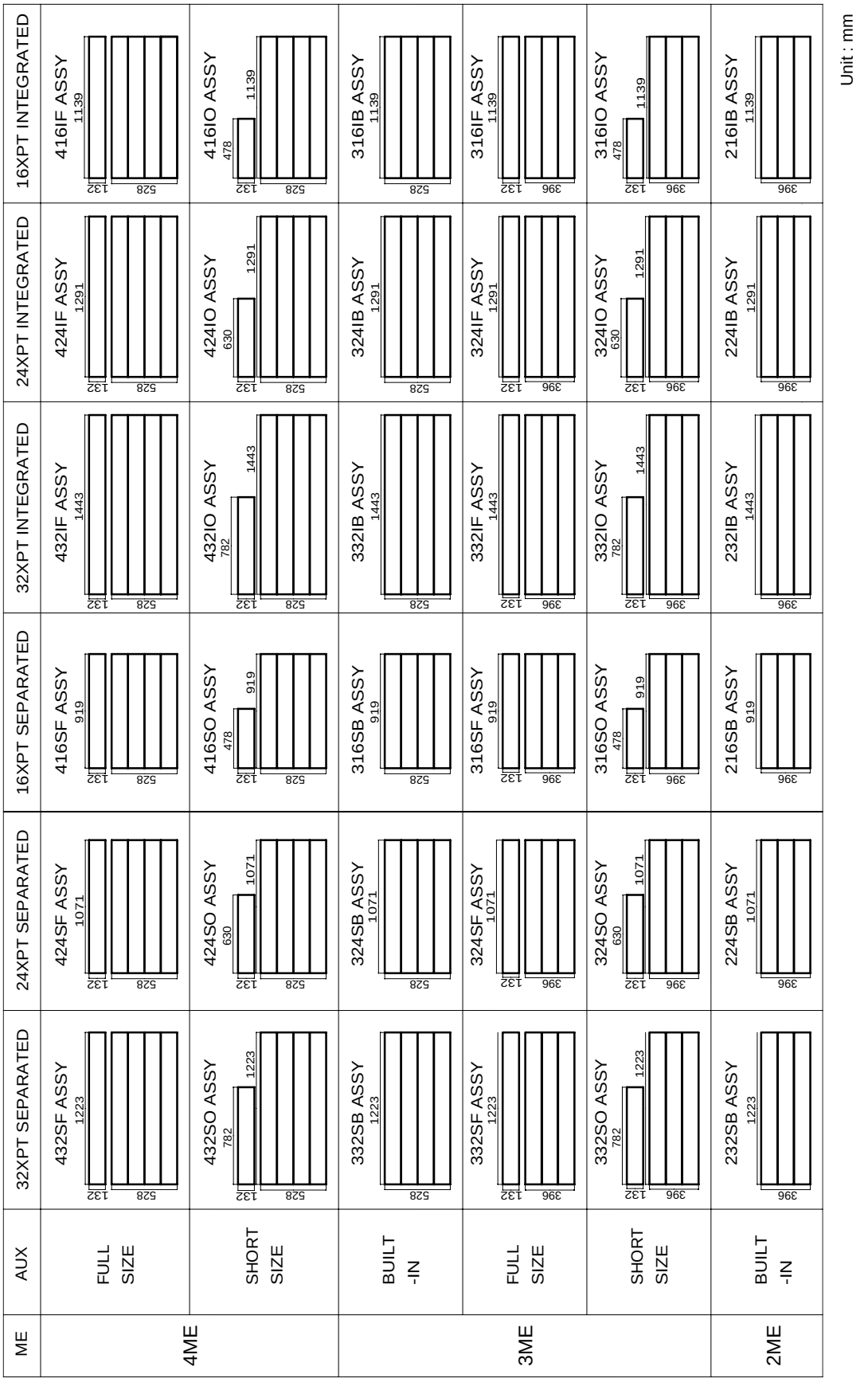


TYPE	X	
	SHORT SIZE	FULL SIZE
32XPT SEPARATED	765	1205
24XPT SEPARATED	613	1053
16XPT SEPARATED	461	901
32XPT INTEGRATED	765	1425
24XPT INTEGRATED	613	1273
16XPT INTEGRATED	461	1121

TYPE	X
32XPT SEPARATED	1205
24XPT SEPARATED	1053
16XPT SEPARATED	901
32XPT INTEGRATED	1425
24XPT INTEGRATED	1273
16XPT INTEGRATED	1121

TYPE	X
32XPT SEPARATED	1205
24XPT SEPARATED	1053
16XPT SEPARATED	901
32XPT INTEGRATED	1425
24XPT INTEGRATED	1273
16XPT INTEGRATED	1121

Main panel/AUX panel configuration list



Unit : mm

2-4-2. Installing the Main Panel

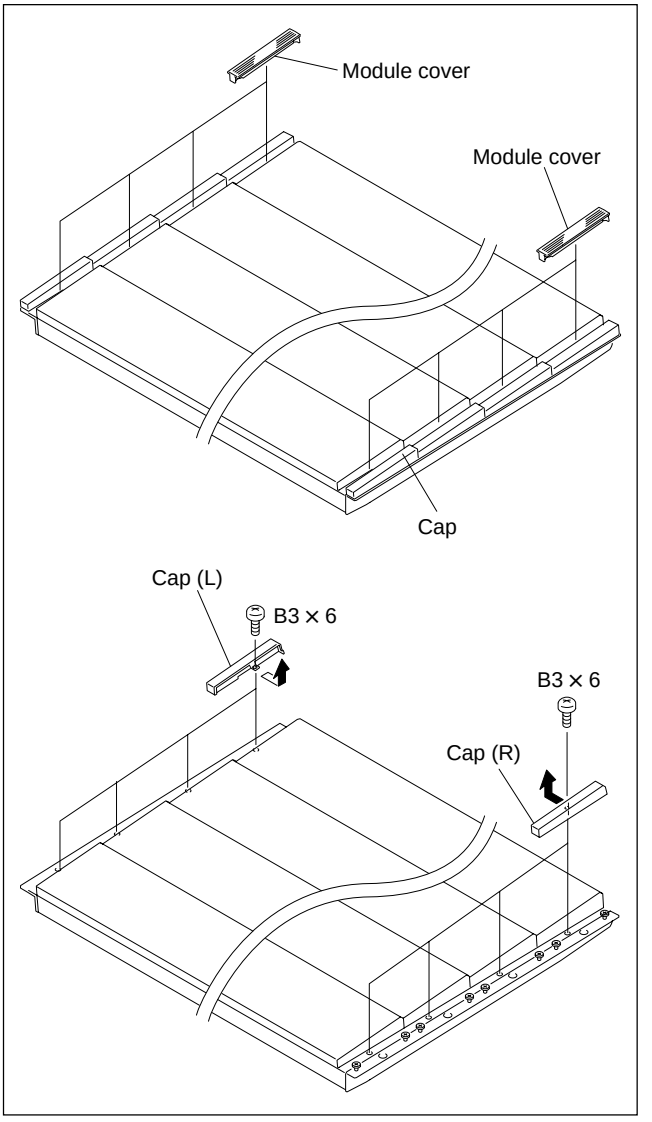
Note

When installing the main panel into the control console, be sure to install it with three persons or more.
Install the main panel by following the procedure described below.

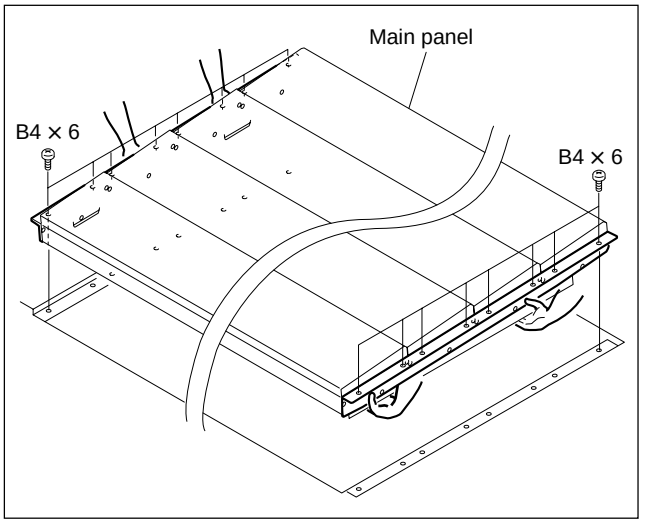
Tools required

For the 4-line configuration (4ME/3ME with built-in AUX bus, as a single unit)
Screws (B4 × 6) : 8 pcs
For the 3-line configuration (3ME with AUX bus separate type/2ME)
Screws (B4 × 6) : 6 pcs

1. Remove the module covers in the right and left.
2. Remove the screws and remove the cap (L) and (R) respectively.



3. Hold the main panel with the two persons or more and the remaining person installs the main panel into the control console while holding the main panel.
4. Fix the main panel to the control console with the screws.
   (The illustration below shows the 4-line configuration.)



5. Install all of the right and left module covers, and the caps (L) and (R) by reversing the steps 1 and 2 of removal.

2-4-3. Installing the AUX Panel

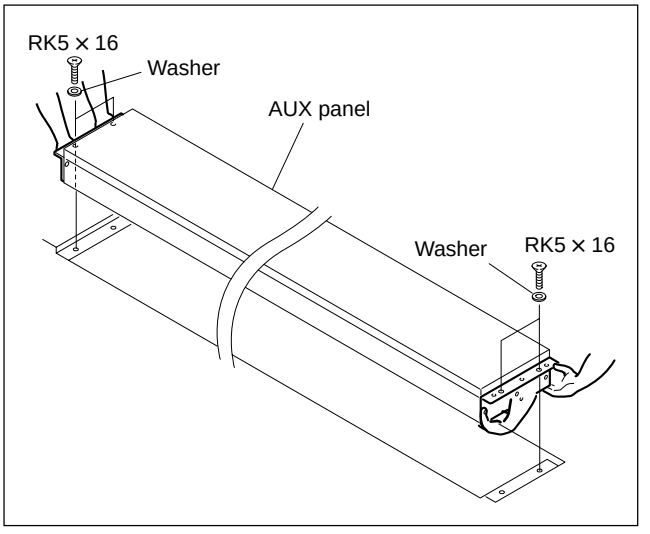
Note

When installing the AUX panel into the control console, be sure to install it with two persons or more.
Install the AUX panel by following the procedure described below.

Tools required

- Screws (RK5 × 16) : 4 pcs
- Ornamental washer for rack mount : 4 pcs
  (Sony part No. : 2-297-913-01)

1. Hold the AUX panel with the two persons or more and install the main panel into the control console.
2. Fix the AUX panel to the control console with the screws.

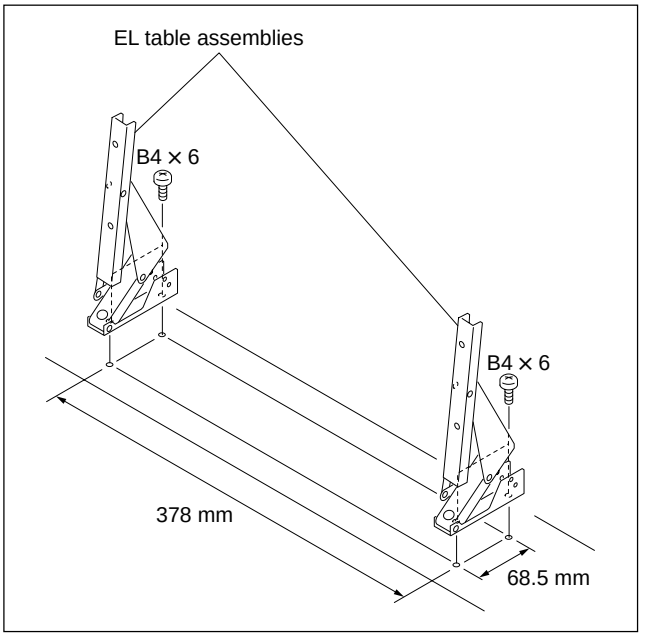


2-4-4. Installing the Menu Panel

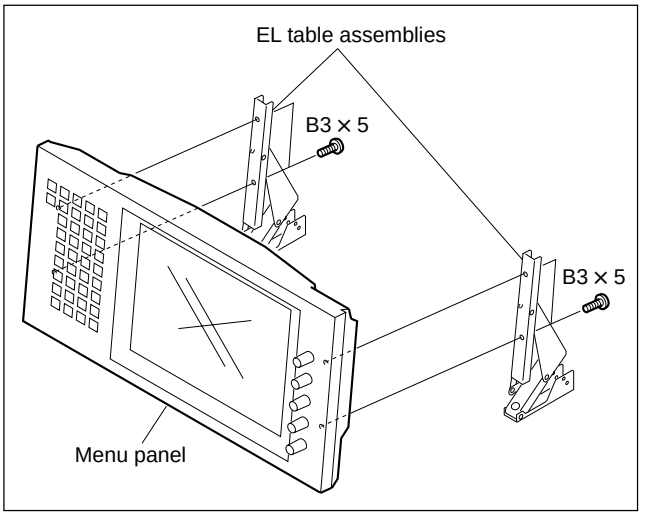
Tools required

- Screws (B4 × 6) : 4 pcs
- Screws (B3 × 5) : 4 pcs
- EL table assemblies : 2 pcs (Sony Part No. : X-3167-779-1)

1. Open the screw holes (M4) as shown in the illustration into the positions to which the menu panel is going to be installed.
2. Install the EL table assemblies to the screw holes that are opened in step 1 using the four screws.



3. Install the menu panel using the four screws (B3 × 5).



2-4-5. Rack Mounting

Rack Mounting the System Control Unit MKS-8010

The MKS-8010 is mounted in the 19-inch standard rack. To mount the MKS-8010 in the rack, use the specified rack mount kit and follow the procedure described below.

Specified rack mount kit : RMM-10

Note

If a rack mount kit other than the specified one is used, the unit may not be mounted in the 19-inch standard rack.

Parts of the RMM-10

- Rack tools 2 pcs
- Right rack mount adaptor 1 pc
- Left rack mount adaptor 1 pc
- Rack tool attaching screws 6 pcs
  (B4 × 6 : 7-682-560-09)
- Rack tool attaching screws 6 pcs
  (B4 × 10 : 7-682-560-10)

1. Precautions for rack mounting

WARNING

- To prevent the rack from falling or moving, fix the rack on a flat and steady floor using bolt or others.
  If the rack falls due to the weight of the equipment, it may cause death or injury.
- Be sure to use the specified rack mount kit.
  If not, injury may result and the equipment may fall due to insufficient strength.
- After rack mounting, be sure to tighten the screws on the rack angle and fix the unit in the rack.
  If the screws on the rack angle are not tightened, the unit may slip from the rack and fall, causing injury.

CAUTION

When mounting the unit in the rack, note the following:

- Be sure to mount in the rack with two persons or more.
- Be careful not to catch your fingers or hands in the rack mount rail or others.
- Mount in the rack in a stable position.

Note

If several units are mounted in a rack, it is recommended to install a ventilation fan to prevent temperature rise inside the rack.

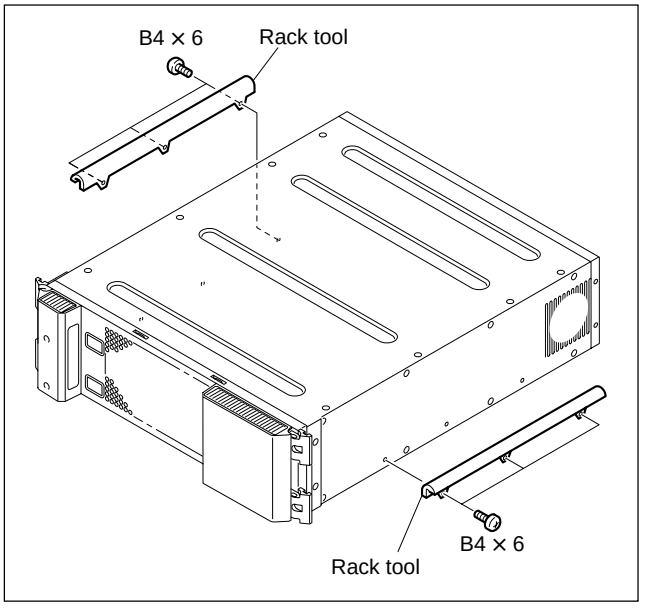
2. Rack mounting procedure

This section describes the rack mounting procedure using the RMM-10 rack mount kit.

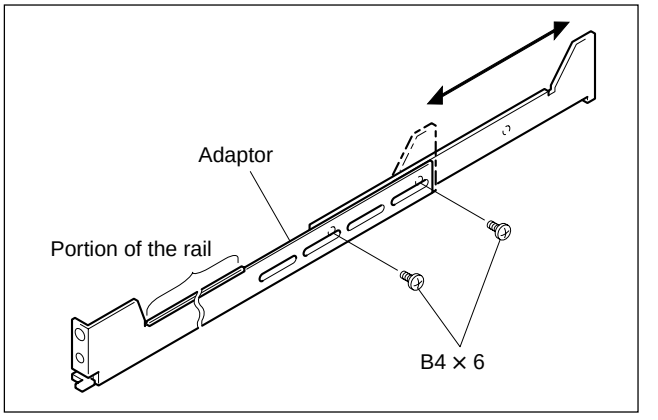
Note

Tighten the screws to the following torque.
Tightening torque : 120×10^{-2} N•m {12.2 kgf•cm}

1. Attach the rack tool to the side of the equipment using the specified six screws.
   Note
   Use B4 × 6 screws.



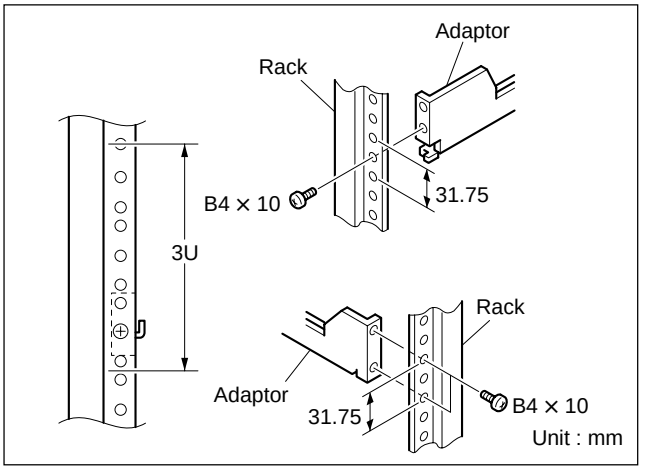
2. Loosen the screws on the rear of the right and left adaptors and adjust the length of the adaptor according to the depth of the rack.
   (The illustration below shows the left adaptor.)



Note

Maximum depth of adaptor : 750 mm
Minimum depth of adaptor : 595 mm

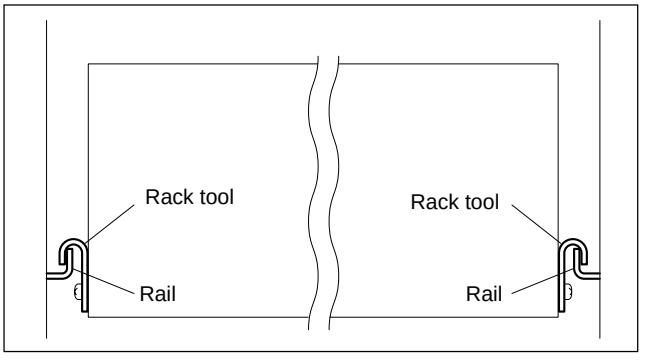
3. Attach the right and left adaptors to the rack completely using the specified six screws.
   (The illustration below shows the left adaptor.)



4. Tighten the screws (B4 × 6 : two screws each on the right and left) for adjusting the length of the adaptor completely (the screws that were loosened in step 2).
5. Align the groove of the rack tool at the side of the equipment with the rail, and slide the equipment to the rear.

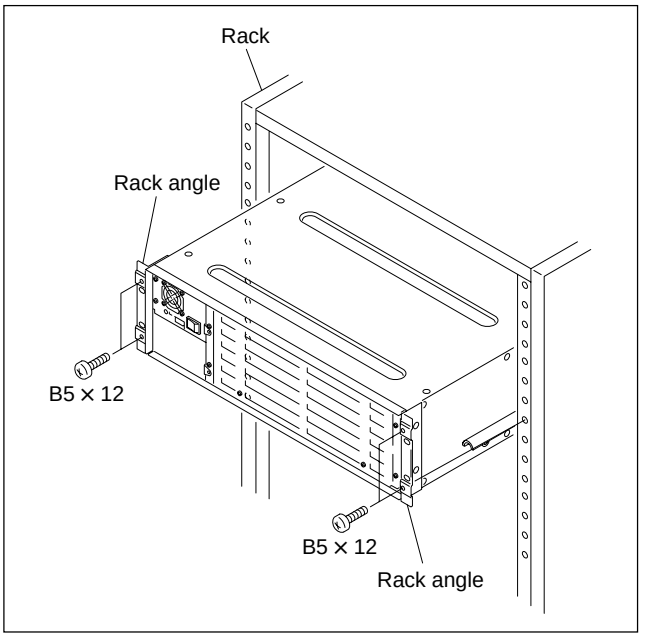
Note

The rack tools are hooked on the rails as shown below.



6. Remove the front panel. (Refer to Section 2-1.)

7. Fix the rack angle in the rack using the specified screws.



8. Attach the front panel to the equipment.

Rack Mounting the MKS-8075 (Extension Adaptor)/MKS-8076 (Memory Card/USB Adaptor)

The MKS-8075 and MKS-8076 can be mounted in the 19-inch standard rack.
To mount them in the rack, use the recommended rack mount parts and follow the procedure described below.

Note

In order to rack mount the MKS-8075 and MKS-8076, the following conditions must be met.

- The two or more adaptors must be configured to the two rows as shown in the illustration by connecting them horizontally together.
- Number of adaptors connected must be either 2 or 4 or 6 or 8.
- The connection method C (flat) must be used.
- For the connection method, refer to “2-8-1. Connecting the MKS-8075/MKS-8076”.

Tools required

- Screws (RK5 × 16) for rack mounting
- Ornamental washer for rack mount
  (Sony part No.: 2-297-913-01)
  When 2 adaptors are connected : Each 4 pcs
  When 4 adaptors are connected : Each 8 pcs
  When 6 adaptors are connected : Each 12 pcs
  When 8 adaptors are connected : Each 16 pcs

1. Precautions for rack mounting

WARNING

- To prevent the rack from falling or moving, fix the rack on a flat and steady floor using bolt or others.
  If the rack falls due to the weight of the equipment, it may cause death or injury.
- Be sure to use the side panels of the adaptor itself for rack mount.
  If not, injury may result and the equipment may fall due to insufficient strength.
- After rack mounting, be sure to tighten the screws on the side panels and fix the unit in the rack.

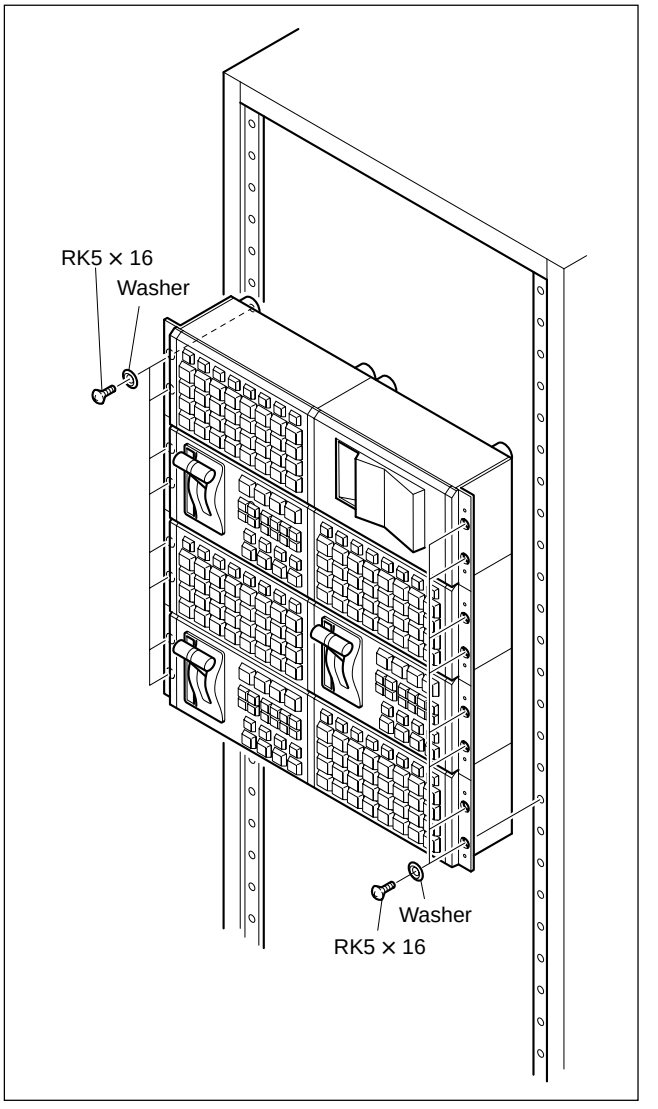
CAUTION

When mounting the unit in the rack, note the following:

- Be sure to mount in the rack with two persons or more.
- Mount in the rack in a stable position.

2. Rack mounting procedure

(1) Install the adaptor to the rack using rack mounting screws (RK5 × 16) and washers as shown in the illustration.
(The illustration below shows the configuration when 8 adaptors are connected.)



2-5. DCU-8000 Installation

2-5-1. Rack Mounting

The DCU-8000 can be mounted in the 19-inch standard rack.
To mount the DCU-8000 in the rack, use the specified rack mount kit and follow the procedure described below.

Specified rack mount kit : RMM-10

Note

If a rack mount kit other than the specified one is used, the unit may not be mounted in the 19-inch standard rack.

Parts of the RMM-10

- Rack tools 2 pcs
- Right rack mount adaptor 1 pc
- Left rack mount adaptor 1 pc
- Rack tool attaching screws (B4 × 6 : 7-682-560-09) 6 pcs
- Rack tool attaching screws (B4 × 10 : 7-682-560-10) 6 pcs

1. Precautions for rack mounting

WARNING

- To prevent the rack from falling or moving, fix the rack on a flat and steady floor using bolt or others.
  If the rack falls due to the weight of the equipment, it may cause death or injury.
- Be sure to use the specified rack mount kit.
  If not, injury may result and the equipment may fall due to insufficient strength.
- After rack mounting, be sure to tighten the screws on the rack angle and fix the unit in the rack.
  If the screws on the rack angle are not tightened, the unit may slip from the rack and fall, causing injury.

CAUTION

When mounting the unit in the rack, note the following:

- Be sure to mount in the rack with two persons or more.
- Be careful not to catch your fingers or hands in the rack mount rail or others.
- Mount in the rack in a stable position.

Note

If several units are mounted in a rack, it is recommended to install a ventilation fan to prevent temperature rise inside the rack.

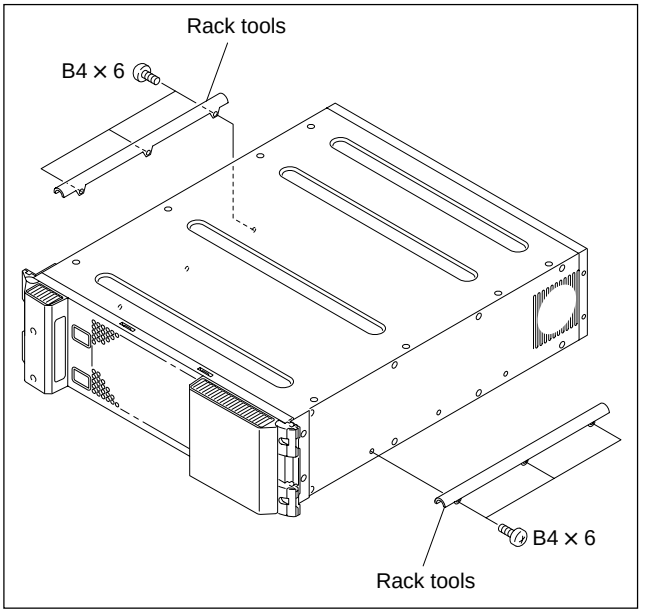
2. Rack mounting procedure

This section describes the rack mounting procedure using the RMM-10 rack mount kit.

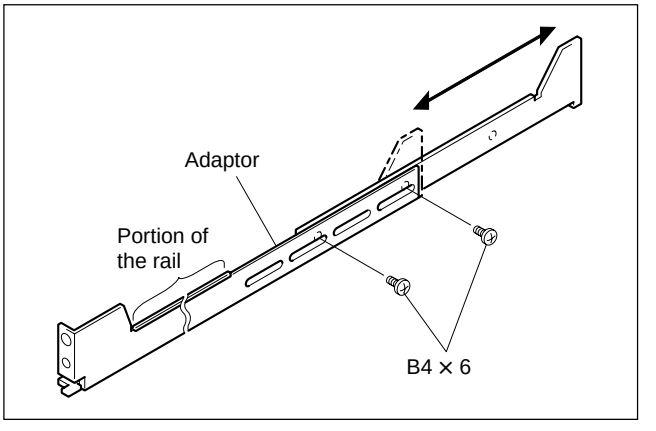
Note

Tighten the screws to the following torque.
Tightening torque : 120×10^{-2} N•m {12.2 kgf•cm}

1. Attach the rack tool to the side of the equipment using the specified six screws.
   Note
   Use B4 × 6 screws.



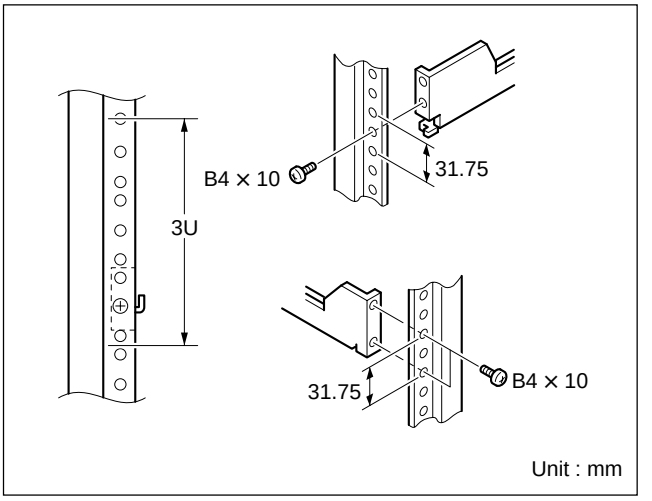
2. Loosen the screws on the rear of the right and left adaptors and adjust the length of the adaptor according to the depth of the rack.
   (The illustration below shows the left adaptor.)



Note

Maximum depth of adaptor : 750 mm
Minimum depth of adaptor : 595 mm

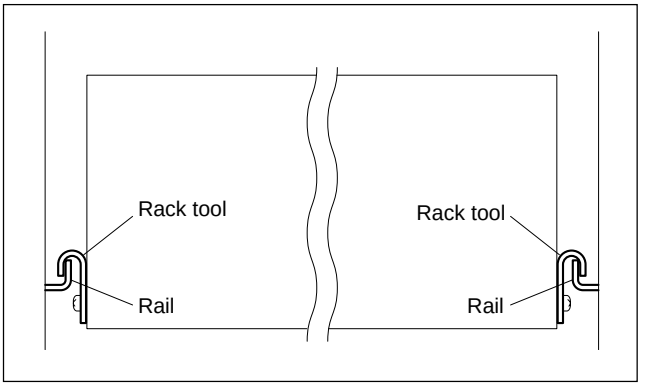
3. Attach the right and left adaptors to the rack completely using the specified six screws.
   (The illustration below shows the left adaptor.)



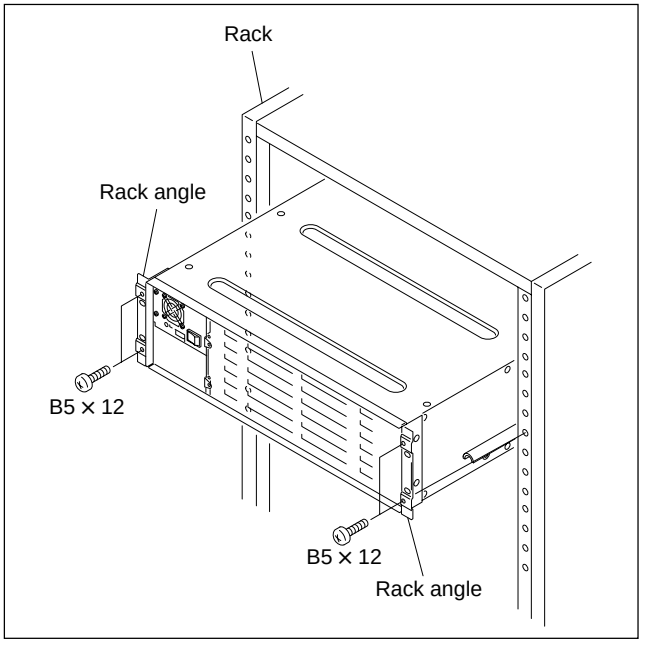
4. Tighten the screws (B4 × 6 : two screws each on the right and left) for adjusting the length of the adaptor completely (the screws that were loosened in step 2).
5. Align the groove of the rack tool at the side of the equipment with the rail, and slide the equipment to the rear.

Note

The rack tools are hooked on the rails as shown below.



6. Remove the front panel. (Refer to Section 1-4-1)
7. Fix the rack angle in the rack using the specified screws.

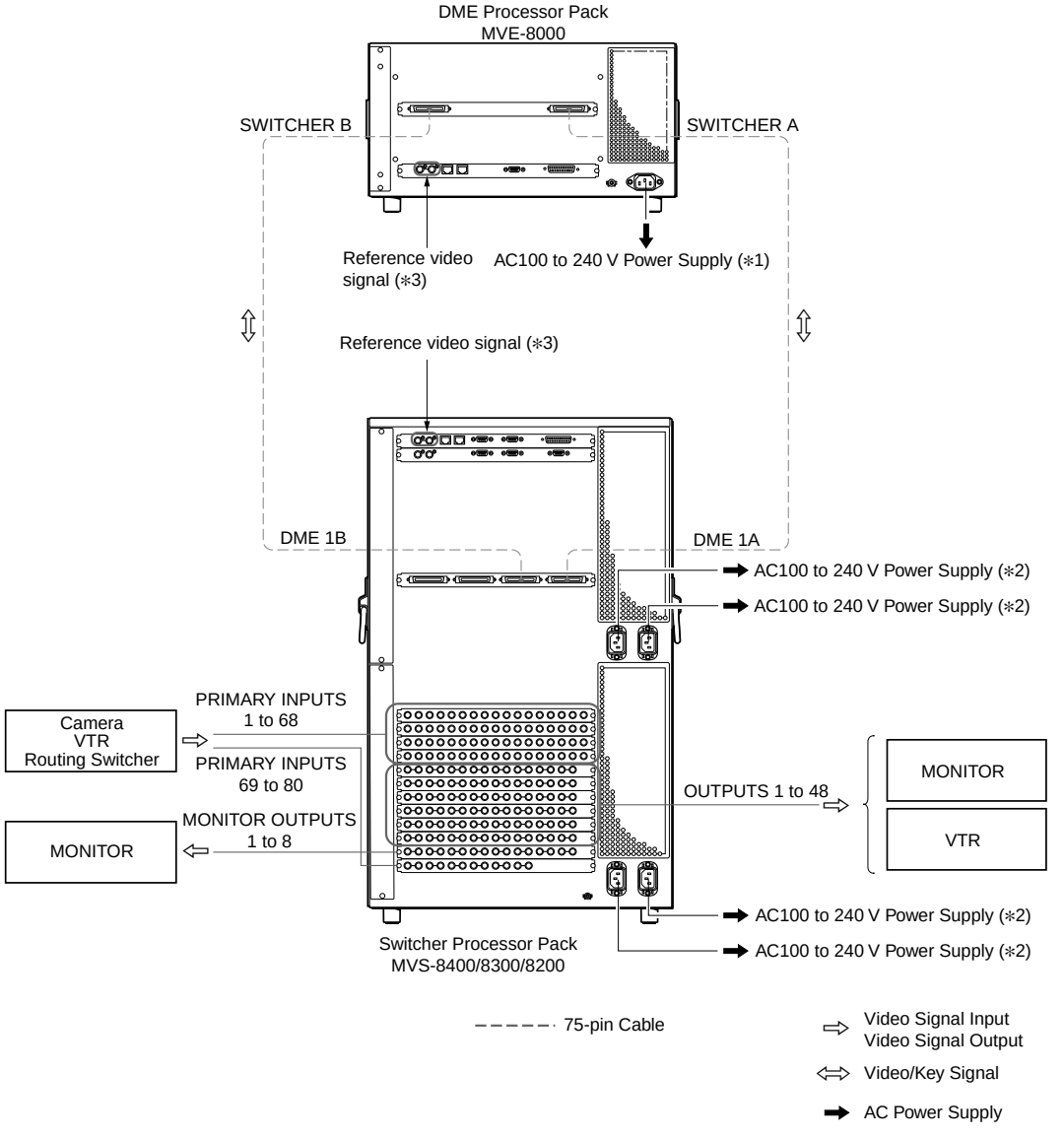


8. Attach the front panel to the equipment.

2-6. MVS-8000 System Video Cabling

The MVS-8000 system connections is shown in the illustration.
Different video and control wiring configurations may be created to meet individual facility requirements. Each input can be assigned to any CCP panel source select button, and any MVS system video signal can be assigned to any pair of output connectors.

MVS-8000 system video cabling



(∗1) : For the AC power cord, refer to “Optional Items” of the “DME Processor Pack MVE-8000” Operation Manual.
(∗2) : For the AC power cord, refer to “Optional Items” of the “Multi-Format Switcher Processor MVS-8000” Operation Manual.
(∗3) : Terminate the system with the 75 Ω terminator supplied with this unit.

Supplied and required cables

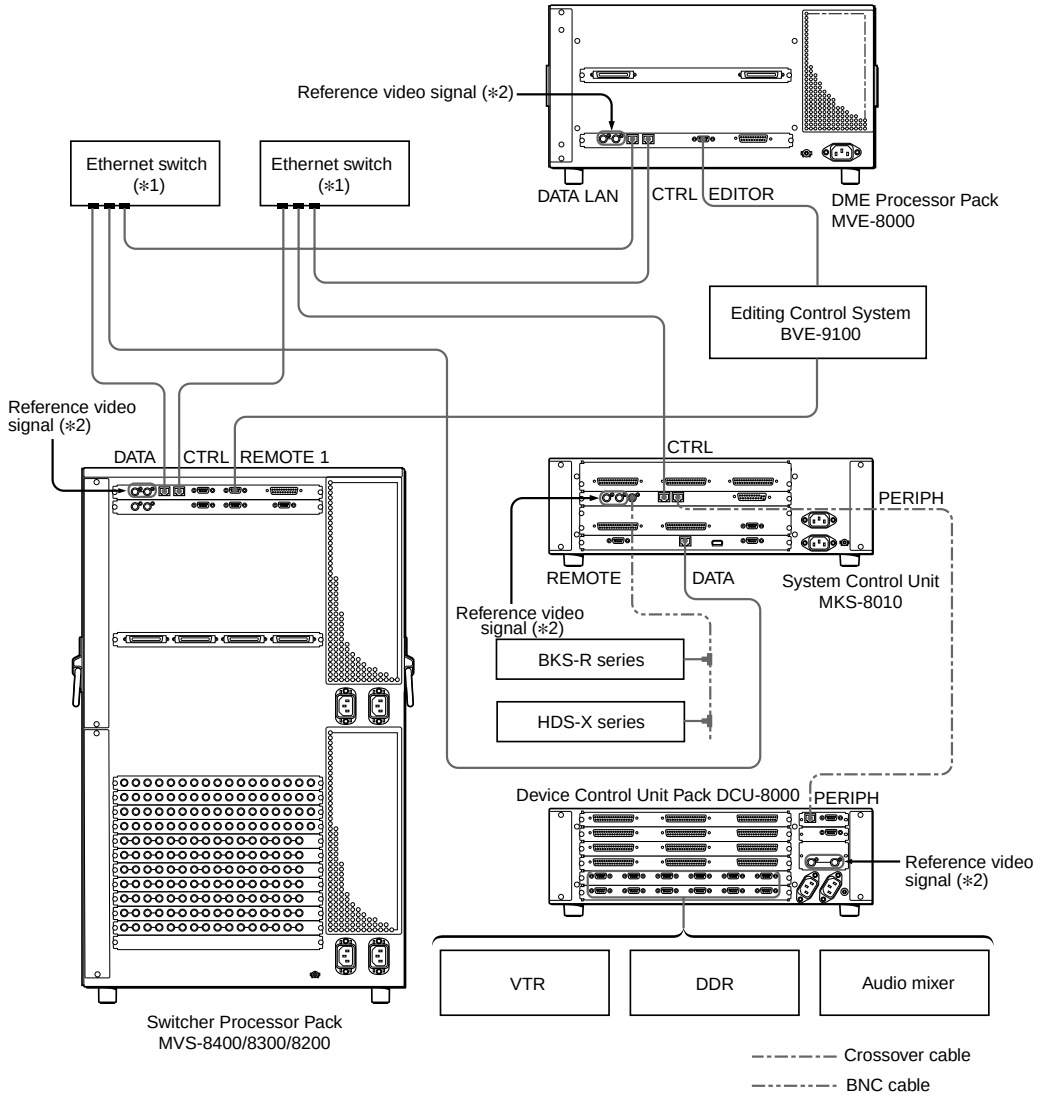
Cable	Description	Quantity	Part No.
DME V/K Interface	MDR 68-pin Female	2	Supplied with MVE-8000

2-7. MVS-8000 System Control Cabling

2-7-1. Cabling

The MVS system uses Ethernet, serial, parallel, USB and S-BUS control. Tally and GPI control are also available from DCU-8000 and CCP-8000 (System Control Unit).

MVS-8000 system control cabling



(∗1) : Connect each LAN (CTRL, DATA) to the separate Ethernet switches respectively.
However, a single Ethernet switch can be used for connecting each LAN.
For information about Ethernet switches that can be used in an MVS system, refer to “2-7-2. LAN Requirements” and “3-4. Ethernet Switch Settings”.
For detailed information about setting up the Ethernet switch, refer to the documentation -supplied with the switch.
(∗2) : Terminate the system with the 75 Ω terminator supplied. The 75 Ω terminator is supplied with the equipment.

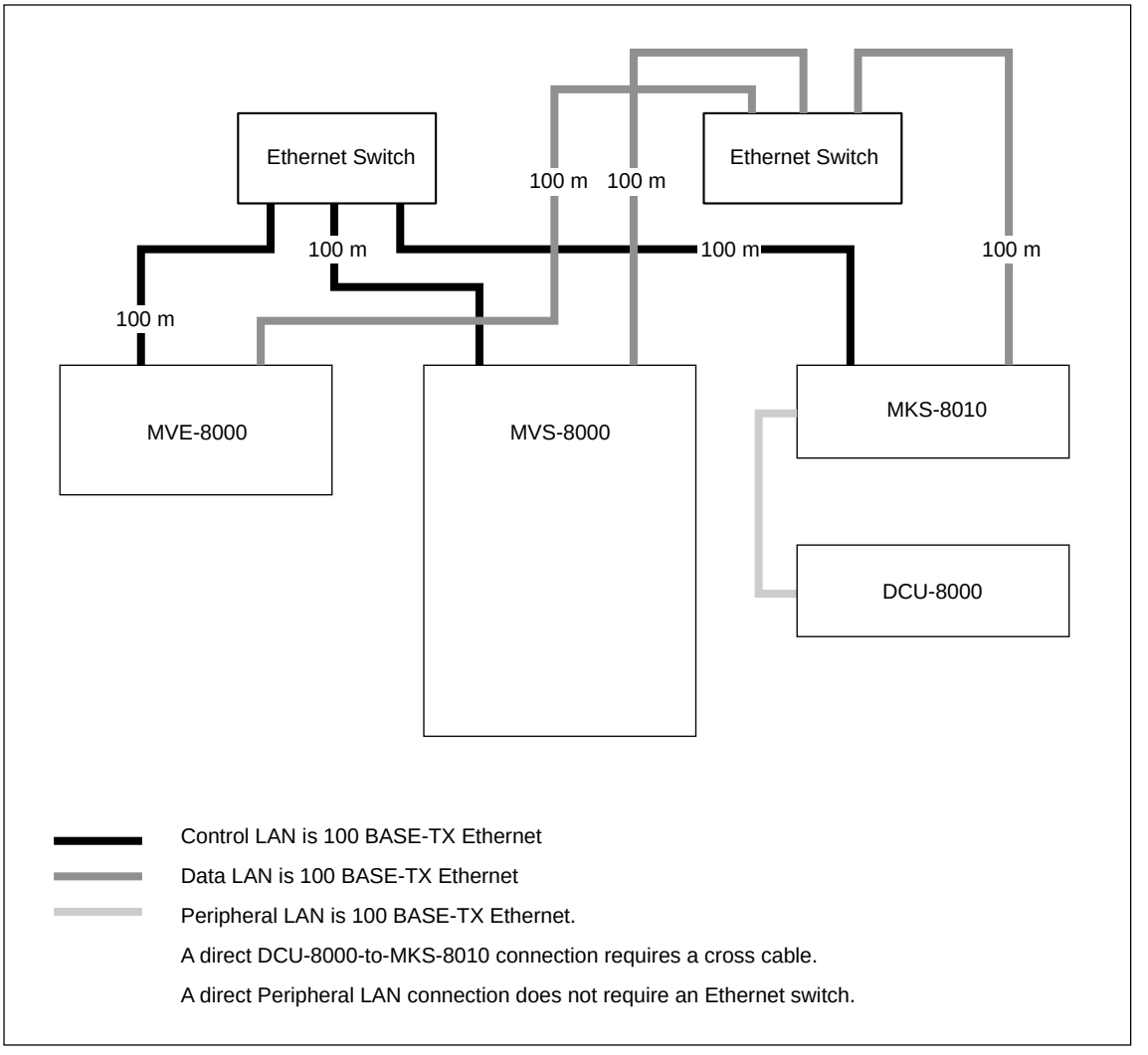
Supplied and required cables

Cable	Description	Quantity	Part No.
LAN cable	RJ-45 Conforms to the IEEE802.3 Ethernet 100 BASE-TX	∗	–

∗ : Quantity depends on the configuration.

Control cable length

One Ethernet cable is available up to 100m from an Ethernet switch.



2-7-2. LAN Requirements

The MVS-8000 system requires an Ethernet Local Area Network (LAN) for System Control LAN and Data LAN.
Switcher Processor (MVS-8000), DME Processor (MKS-8800), and System Control Unit (MKS-8010) are all connected via an Ethernet switch of appropriate specification.
Data LAN requires separate Ethernet switch from the one for Control LAN to avoid delay of the processing.

Notes

- Ethernet Hubs are not acceptable for the MVS-8000 system Ethernet connection.
  Use of hub instead of a switch may cause sluggish responses to panel button.
  Connect each LAN (Control/Data) nodes to the different switch to avoid sluggish.
- Ethernet switches are not supplied with MVS-8000 system.

Ethernet specification

Refer to Table below for a list of required Ethernet Specifications for MVS-8000 system.

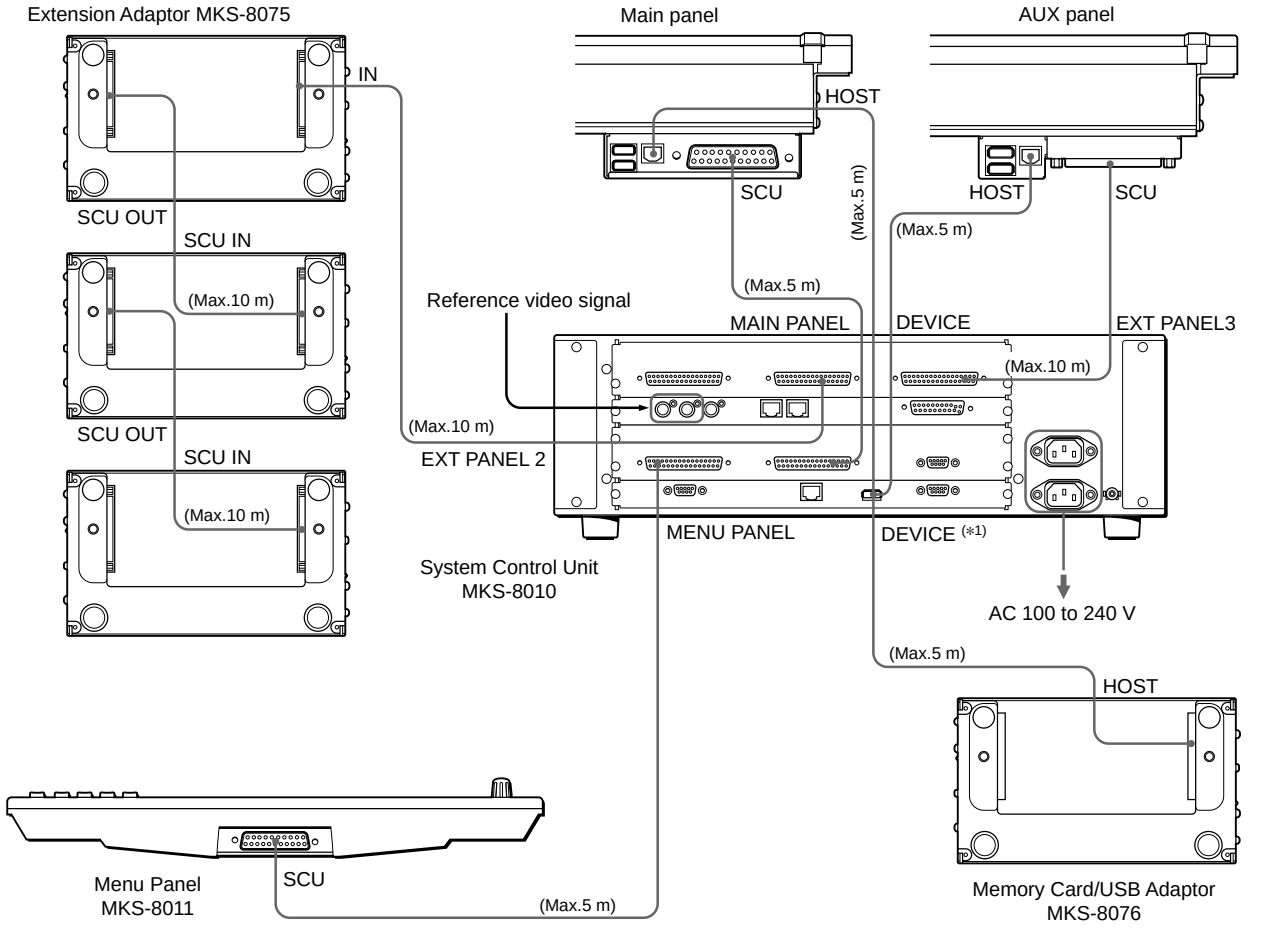
Ethernet specification

Cable	Type	100 BASE-TX compatible.
	Connectors	RJ-45 male connector at each end of cable
	Length	100 m maximum
Switch	Capacity of backbone	Higher than 1.5 Gbps
	Throughput	Higher than 120 Kbps (a port) packet size 64 Byte Total throughput : higher than 3 Mbps
	Delay time of packet	Less than 50u sec
	Speed	Dual : 100 Mbps
	Ports	RJ-45 auto negotiating 100 Mbps Number of ports required is dependent upon system configuration
	VALN	Compatible
	Switching mode	Store-and-Forward
	Management	SNMP, RMON

2-8. CCP-8000 Panel Cabling

CCP-8000 panel modules connections are shown in figure.

CCP-8000 system control cabling



(*1) : There are three methods as described below to install the memory card/USB module MKS-8025.

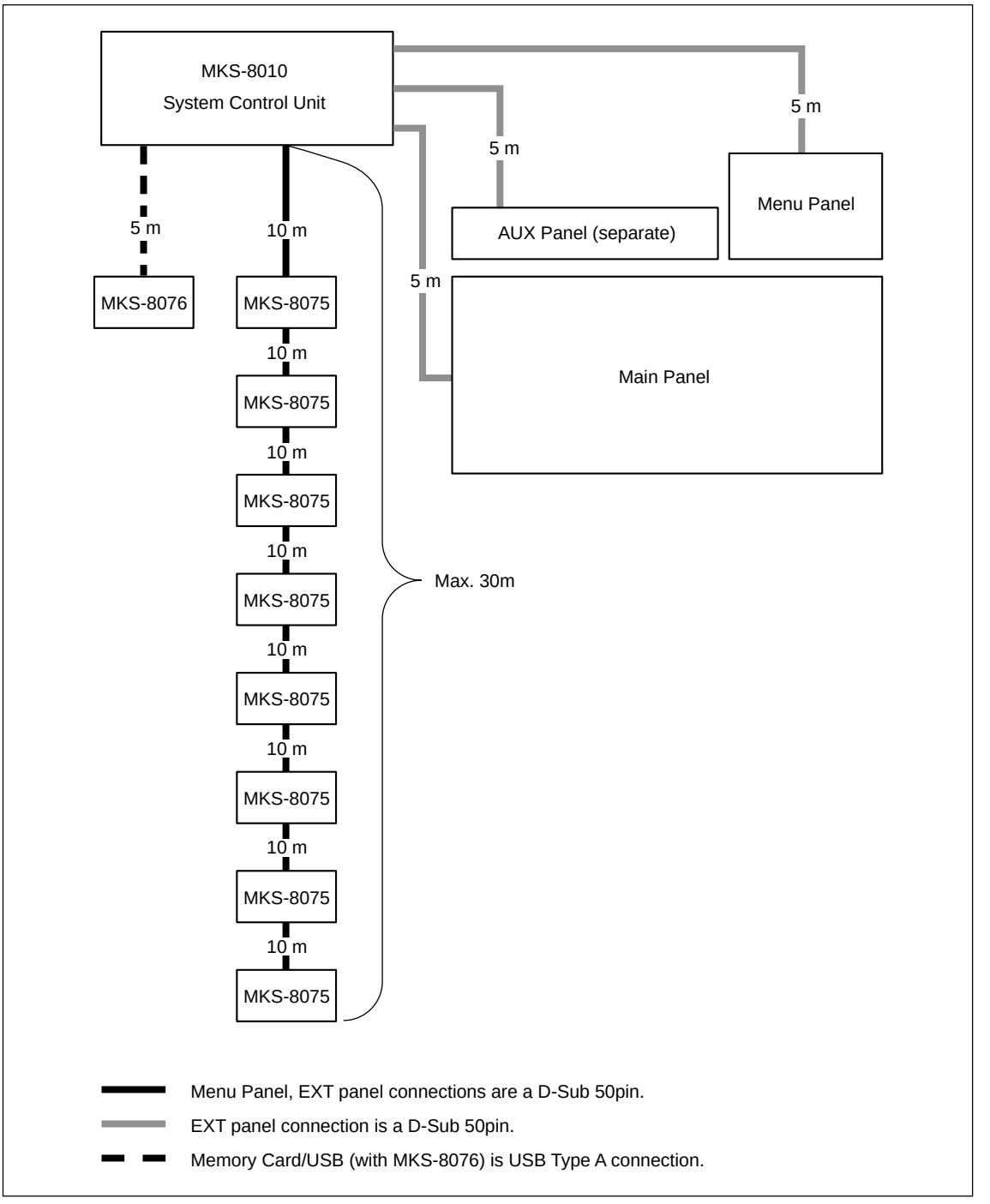
- In order to install the memory card/USB adaptor MKS-8025 into the main panel, connect the DEVICE terminal of the MKS-8010 to the HOST terminal of the main panel.
- In order to install the memory card/USB adaptor MKS-8025 into the AUX panel, connect the DEVICE terminal of the MKS-8010 to the HOST terminal of the AUX panel.
- In order to install the memory card/USB adaptor MKS-8025 outside the system using the MKS-8076, connect the DEVICE terminal of the MKS-8010 to the HOST terminal of the MKS-8076.

Supplied and required cables

Cable	Description	Quantity	Part No.
EXT/MENU/MAIN PANEL cable	D-sub 50-pin cable (5/10 m)	*	Supplied with CCP-8000 SWC-5005/SWC-5010
USB cable	USB Type A	1	Supplied with CCP-8000

* : Quantity depends on the configuration.

Panel cable length



Note

The maximum number of modules that can be connected to a single MKS-8010 System Control Unit is as follows.
The maximum number of adaptors that can be connected on 1 line is 8 units.)

Model	Model Name	Max modules
MKS-8013/8014/8015	32, 24, 16 AUX BUS MODULE	2
MKS-8026	10 KEY PAD MODULE	1
MKS-8030	KEY FRAME MODULE	1
MKS-8031TB	TRACK BALL MODULE	1
MKS-8031JS	JOY STICK MODULE	1
MKS-8035	KEY CONTROL MODULE	4
MKS-8023	COMPACT KEY TRANSITION MODULE	4
MKS-8032	DSK FADER MODULE	4
MKS-8033	UTILITY/SHOTBOX MODULE	2

However, it is not possible to connect four Key Control modules and a 10 Key Pad module on one line.

You can also connect keyboards, mouse, pen tablets and other devices with USB connectors regardless of whether an MKS-8025 has been installed in the main panel or installed apart form the main panel using an MKS-8076 adaptor.

2-8-1. Connecting the MKS-8075/MKS-8076

Structure of MKS-8075 (Connecting the extension adaptor)

Adaptor case :	1
Screw (BV3 × 10) :	4
Connecting plate A :	1
Connecting plate B :	1
Connecting plate C :	2
Panel cover (L) :	1
Panel cover (R) :	1
Cable (D-sub 50-pin):	1

Structure of MKS-8076 (Memory card/USB adaptor)

Adaptor case :	1
Screw (BV3 × 10) :	4
Connecting plate A :	1
Connecting plate B :	1
Connecting plate C :	2
Panel cover (L) :	1
Panel cover (R) :	1

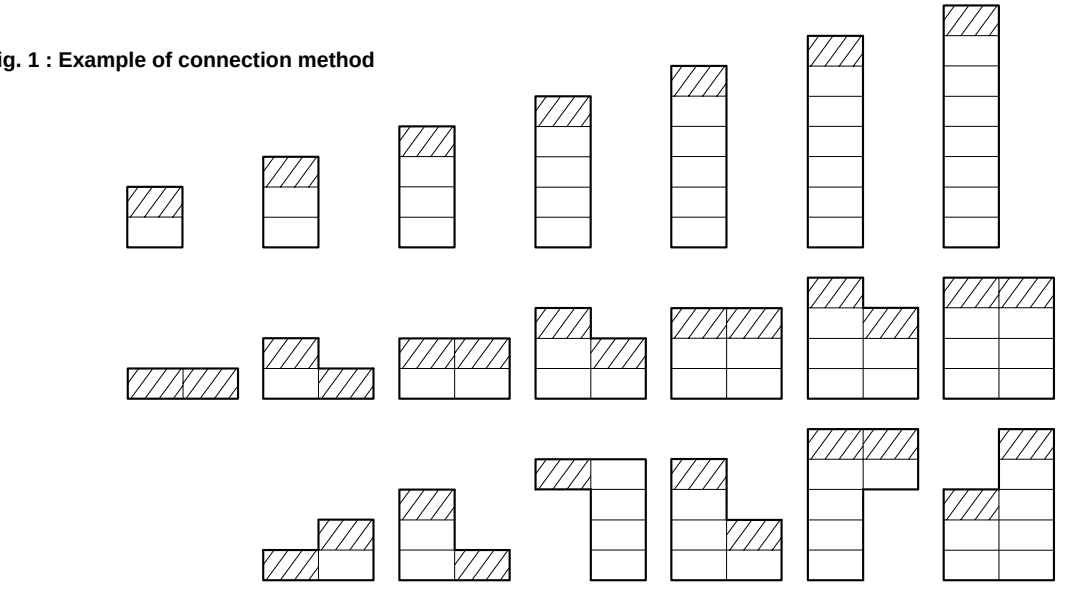
How to Connect the MKS-8075 and the MKS-8076

Notes

- A maximum of eight extension adaptors can be connected by using the horizontal connection and the vertical connection. (The horizontal connection can be configured up to the two horizontal connection line at the maximum.) (For an example of connection, refer to Fig. 1.)
- There are three methods of vertical connection as described below. (Refer to Fig. 2. (2-25 page))
  Method A : Install the extension adaptors on the panel so that they have differences in height like flight of steps having the same outside appearance as that of the main panel.
  Method B : Install the extension adaptors flat on the panel without any differences in height. (In such a case as installed on tabletop)
  Method C : Install the extension adaptors in the rack. (Horizontal connection is also required.)

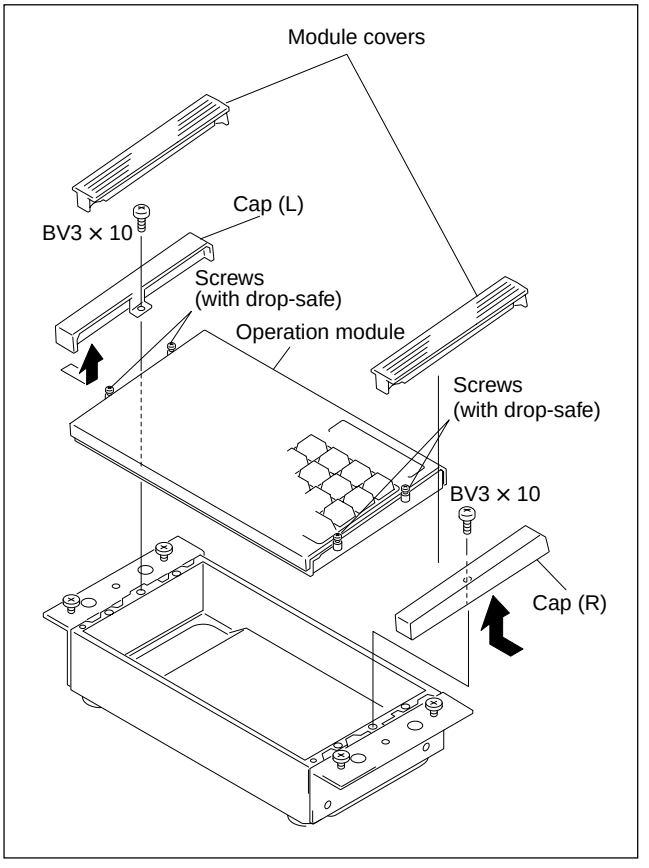
- When the extension adaptors are installed using both of the horizontal and vertical connections, be sure to perform the vertical connection first then perform the horizontal connection.
- When the MKS-8076 is going to be installed, install it in the top-most position. (Refer to Fig. 1.)
- When the vertical connection (A) is selected, be sure to secure all of the side panels with screws. Never panel it on table top. (The fixing method is same as that of the main panel.)

Fig. 1 : Example of connection method

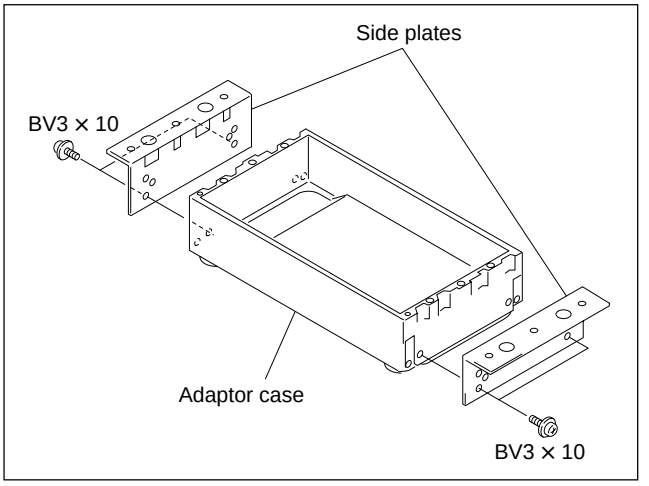


Connecting procedure

1. Remove the module cover. Remove the screws (BV3 × 10) fixing the caps (L) and (R), and remove the caps in the direction of the arrow.
2. Loosen the four screws (with drop-safe) fixing the operation module.
3. Hold the two screws (with drop-safe) in the front of the both sides of the operation module, and remove the operation module.



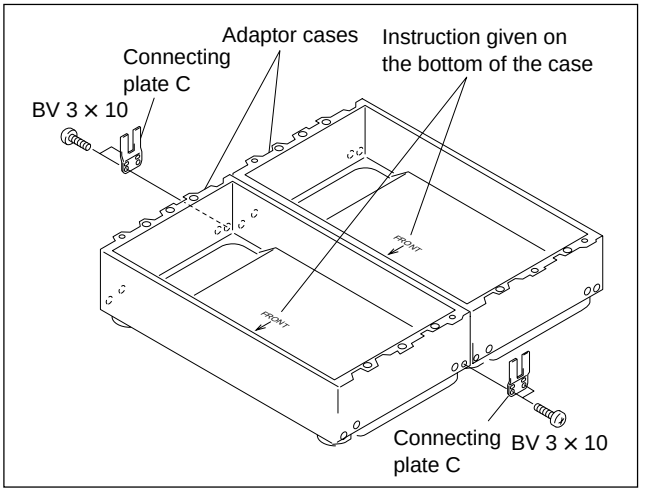
4. Remove the screws (BV3 × 10) fixing the side plates to the adaptor case, and remove the side plates.



When the Vertical connection is selected

(1) Connect the adaptor cases that you want to connect, together. (Be careful of the direction of the adaptor cases. See the instruction given on the bottom of the adaptor case.)

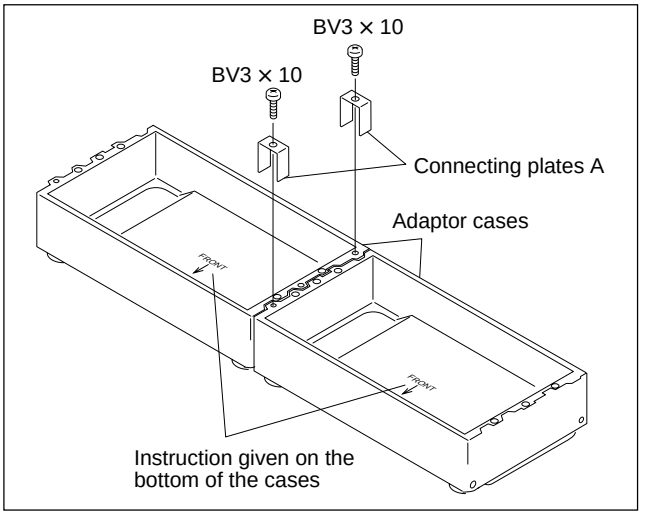
(2) Fix the right and left of the adaptor cases as shown in the illustration using the two pieces of the connecting plate C.
- When fixing the adaptor cases, you can select either the flat connection or the connection like flight of steps.
- When selecting the connection like flight of steps of the connection method (A), (see Fig. 2) the two screws are secured with one notch offset each other.
- When the flat connection of the connection method (B, C) is selected, (see Fig. 2) the two screws are secured in the same height.



When the Horizontal connection is selected

(1) Connect the adaptor cases that you want to connect, together.
(Be careful of the direction of the adaptor cases. See the instruction given on the bottom of the adaptor case.)

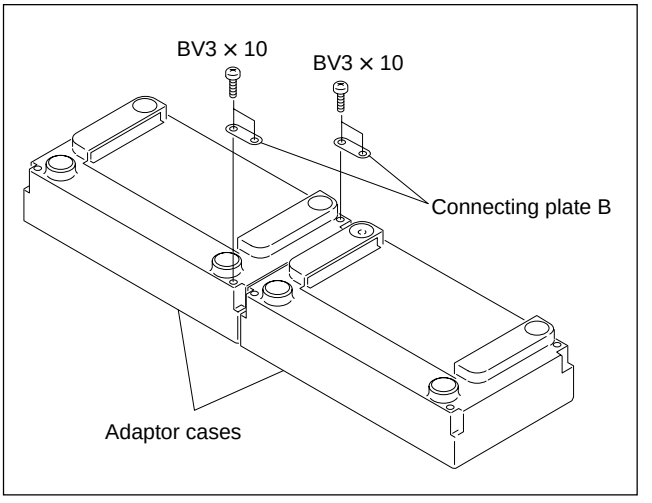
(2) Fix the top plate of the adaptor cases at the locations shown in the illustration using the two connecting screws and the two pieces of the connecting plate A for every two pieces of adaptor case.



(3) Fix the bottom plate of the adaptor cases at the locations shown in the illustration using the 4 connecting screws (BV3 × 10) and the 2 pieces of the connecting plate B for every 2 pieces of adaptor case.

Note

When the Vertical connection (A) is selected, there are several locations where the connecting plate B cannot be fixed. It makes no problems.



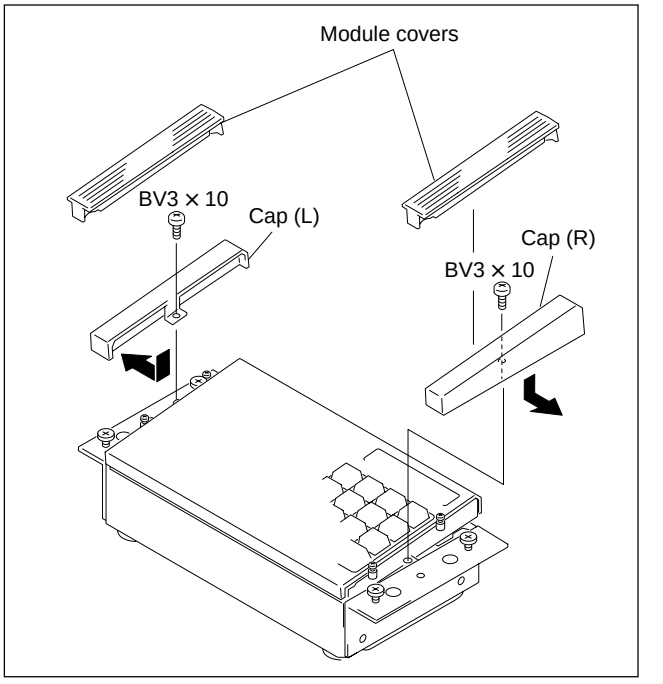
5. Install the side panel.

Note

The screw positions that fix the side panel are different in the connection methods (A), (B) and (C) respectively. (see Fig. 2)

6. Install the operation module and fix it by tightening the four screws on the sides.

7. For the connection methods (A) and (B) (see Fig. 2), install the caps (L) and (R), and the module cover in the direction of the arrow.



For the connection method (C) (see Fig. 2), remove the four stepped screws and install the panel covers (L) and (R).

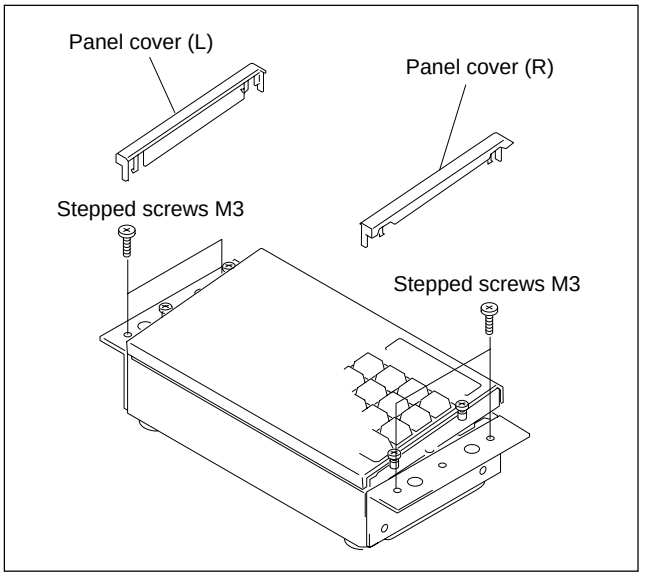
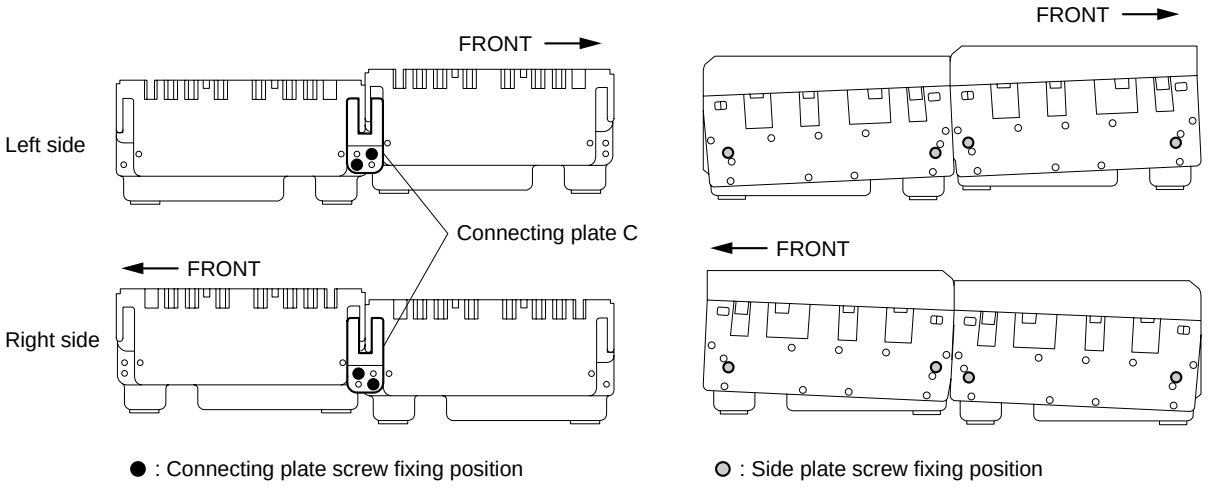


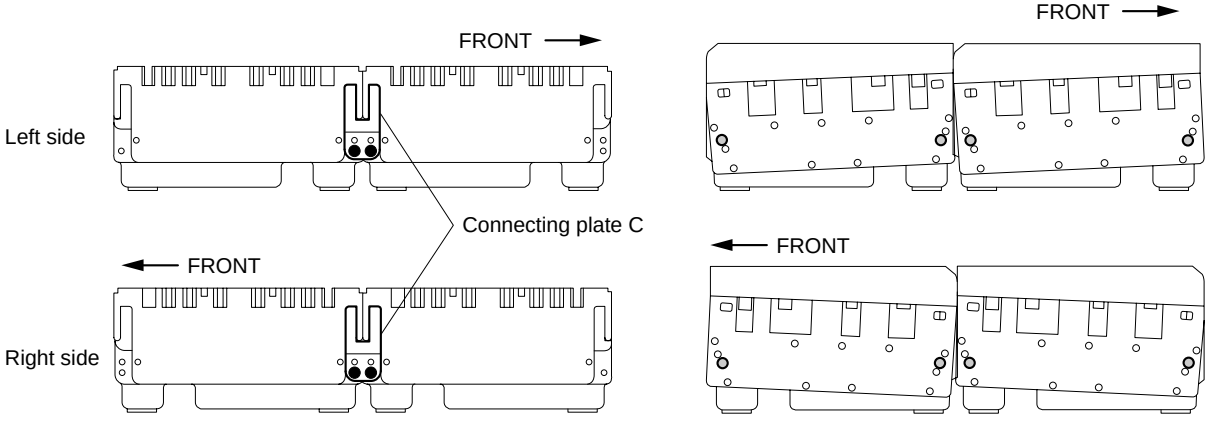
Fig. 2 : Side panel installation methods



● : Connecting plate screw fixing position

○ : Side plate screw fixing position

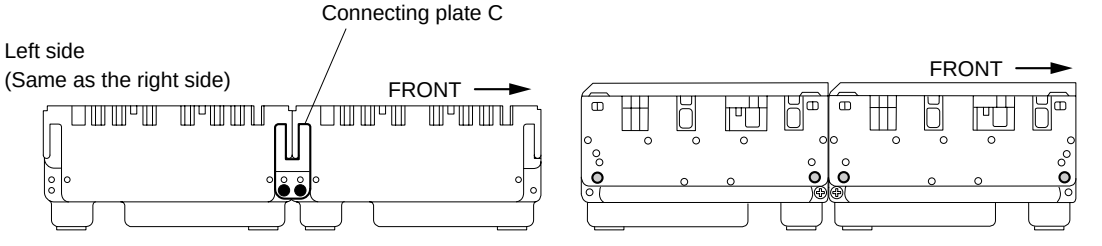
Connection method (A)



● : Connecting plate screw fixing position

○ : Screw fixing position

Connection method (B)



● : Connecting plate screw fixing position

○ : Screw fixing position

Connection method (C)

How to Connect the Cables

Parts required

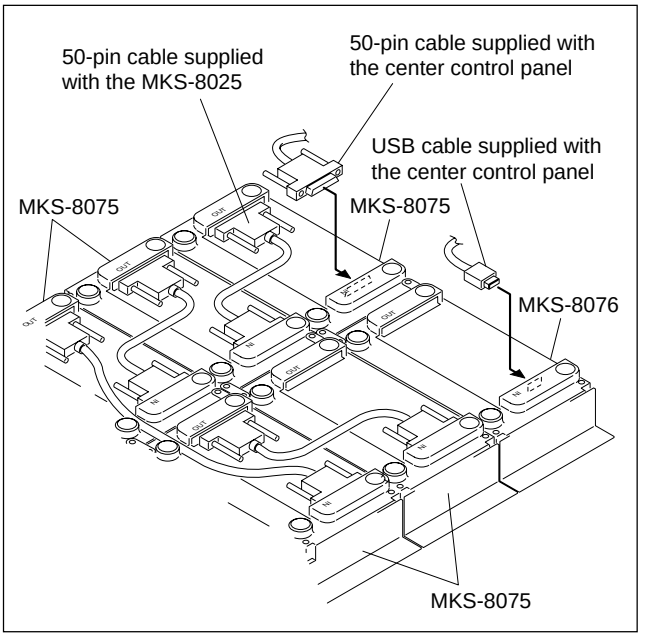
- 50-pin cable supplied with the center control panel
- 50-pin cable supplied with the MKS-8075
- USB cable (5 m) supplied with the center control panel

Connecting cables for the MKS-8075

1. Connect the EXT PANEL 1 to 3 terminals of the system control unit MKS-8010 to the SCU IN terminals of the MKS-8075 using the 50-pin cable supplied with the center control panel.
2. Connect the SCU OUT terminal of the MKS-8075 to the SCU IN terminal of the adjacent MKS-8075 using the cable supplied with the MKS-8075 as shown in the illustration.

Connecting cables for the MKS-8076

Connect the DEVICE terminal of the system control unit MKS-8010 to the IN terminal of the MKS-8076 using the USB cable supplied with the center control panel.



Section 3
Configuration

3-1. Introduction

This section provides system configuration information for the MVS-8000 system

The MVS-8000 system has three Ethernet connections for panel and devices communications (control, data, peripheral systems).
The control LAN is intended to control the various devices from the center control panel (CCP-8000).
The data LAN is intended to exchange of various type of data (key frame effects, snapshot, etc.) and still pictures of frame memory. This network allows the transfer of files without adversely effecting communications over the control LAN.
The peripheral LAN is intended to exchange tally information between the center control panel and the device control unit.

All MVS-8000 system devices on same LAN must be connected to the same Ethernet switch.

Note
It is not available to connect MVS-8000 system LAN to your existing facility LAN.

The control LAN and peripheral LAN allow the following number of devices within a LAN to keep real-time processing.

Number of devices on a Control LAN

Device	Quantity
Switcher processor	2
DME processor	4
Center control panel	4
Total	10

Number of devices on a Peripheral LAN

Device	Quantity
Center control panel	4
Device control unit	2
Total	6

3-2. Basic Configuration Steps

Basically, the following steps need to complete system configuration.

1. Set IP address.
2. Configure Ethernet switch.
3. Power up system.

3-3. IP Address

The MVS-8000 system uses IP address 10.x.x.x.
Each device of MVS-8000 system has independent NETWORK terminal for each LAN.
The IP address for all NETWORK terminals has same rules as below.
The IP address is identified by four byte of the form below.
10.AA.BB.CC
ex. 10.1.2.1

10.	AA.	BB.	CC.
Fixed	GROUP ID + LAN ID GROUP ID is defined as DIP SW of GROUP ID 1 to 63. LAN IDs are as follows ; Control LAN : 0 Peripheral LAN : 64 Data LAN : 128	Unit cord (Fixed) It uses to identify unit category.	Unit ID Unit ID is defined as DIP SW of UNIT ID 1 to 254.
	Used bit for LAN Group ; Control LAN : 1 to 63 Peripheral LAN : 65 to 127 Data LAN : 129 to 191	Unit category are as follows ; PANEL : 1 SWITCHER : 2 DME : 3 PFV-SP : 4 DCU : 5 ROUTER : 6	Used bit ; 1 to 254*1

*1 : the default setting is “1”.

Host name

When IP address is defined, it is also named host name automatically.

The host name is identified by ten digits (characters and numbers) of the format below.

Format :
Unit name (3 characters) + Group ID (3 digits) + LAN code (1 character) + Unit ID (3 digits)
Example :
IP address : 10.1.1.1 Host name : PNL001C001

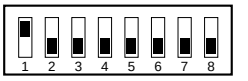
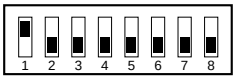
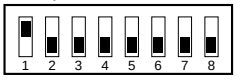
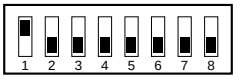
Unit category	Unit name
PANEL	PNL
SWITCHER	SWR
DME	DME
DCU	DCU

Group ID + LAN Code

Control LAN	001C to 063C
Peripheral LAN	001P to 063P
Data LAN	001D to 063D

3-3-1. Default IP Address

The MVS-8000 system is shipped with default IP addresses. Sony Corporation has chosen these default IP addresses to make MVS-8000 system configuration easy.

Device	IP Address	Host name	Dipswitch setting	
MVS-8000	10.1.2.1 (C) 10.129.2.1 (D)	SWR001C001 SWR001D001	Group ID 	Unit ID 
MVE-8000	10.1.3.1 (C) 10.129.3.1 (D)	DME001C001 DME001D001	Group ID 	Unit ID 
CCP-8000	10.1.1.1 (C) 10.65.1.1 (P) 10.129.1.1(D)	PNL001C001 PNL001P001 PNL001D001	Group ID 	Unit ID 
DCU-8000	10.65.5.1 (P)	DCU001P001	Group ID 	Unit ID 

C : Control LAN
D : Data LAN
P : Peripheral LAN

Note

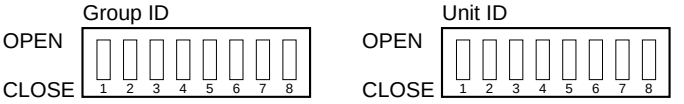
If more than one MVS-8000 system resides on the same network, the Unit ID for each additional MVS-8000 system device must be changed before it is connected the network.
The communication via control LAN and peripheral LAN cannot be established among devices of different Group IDs.
All devices must have the same setting normally.

3-3-2. Changing IP Address

The default IP address of the MVS-8000 system can be changed using dipswitch setting on CPU boards.

Device	Board	Group ID	Unit ID
MVS-8000	CA-44	S102 (8bit)	S103 (8bit)
MVE-8000	CA-44CF	S102 (8bit)	S103 (8bit)
CCP-8000	CA-45	S902 (8bit)	S901 (8bit)
DCU-8000	CA-47	S754 (8bit)	S755 (8bit)

Dipswitch on CPU board



1. Set the DIP switch on each device as you required.
See the bit of each switch (Group ID/Unit ID) in table.

Bit settings

Bit	1	2	3	4	5	6	7	8
Group ID	1	2	4	8	16	32	Control*	Data*
Unit ID	1	2	4	8	16	32	64	128

* : These bits are factory use only. Use the bits with the default setting (CLOSE) as shipped from the factory.

The Group ID and Unit ID switch setting determines all of the LAN IP addresses (Control/Data/Peripheral LAN).
The Peripheral LAN IP address is made by adding 64 to the Group ID.
The Data LAN IP address is made by adding 128 to the Group ID.

Switcher processor IP address

IP Address	Group ID	Unit ID
10.2.2.1 (C) 10.130.2.1 (D)	Group ID 1 2 3 4 5 6 7 8	Unit ID 1 2 3 4 5 6 7 8
10.5.2.2 (C) 10.133.2.2 (D)	Group ID 1 2 3 4 5 6 7 8	Unit ID 1 2 3 4 5 6 7 8
10.10.2.10 (C) 10.138.2.10 (D)	Group ID 1 2 3 4 5 6 7 8	Unit ID 1 2 3 4 5 6 7 8

C : Control LAN
D : Data LAN

3-4. Ethernet Switch Settings

The following Ethernet switches are tested to MVS-8000 system.

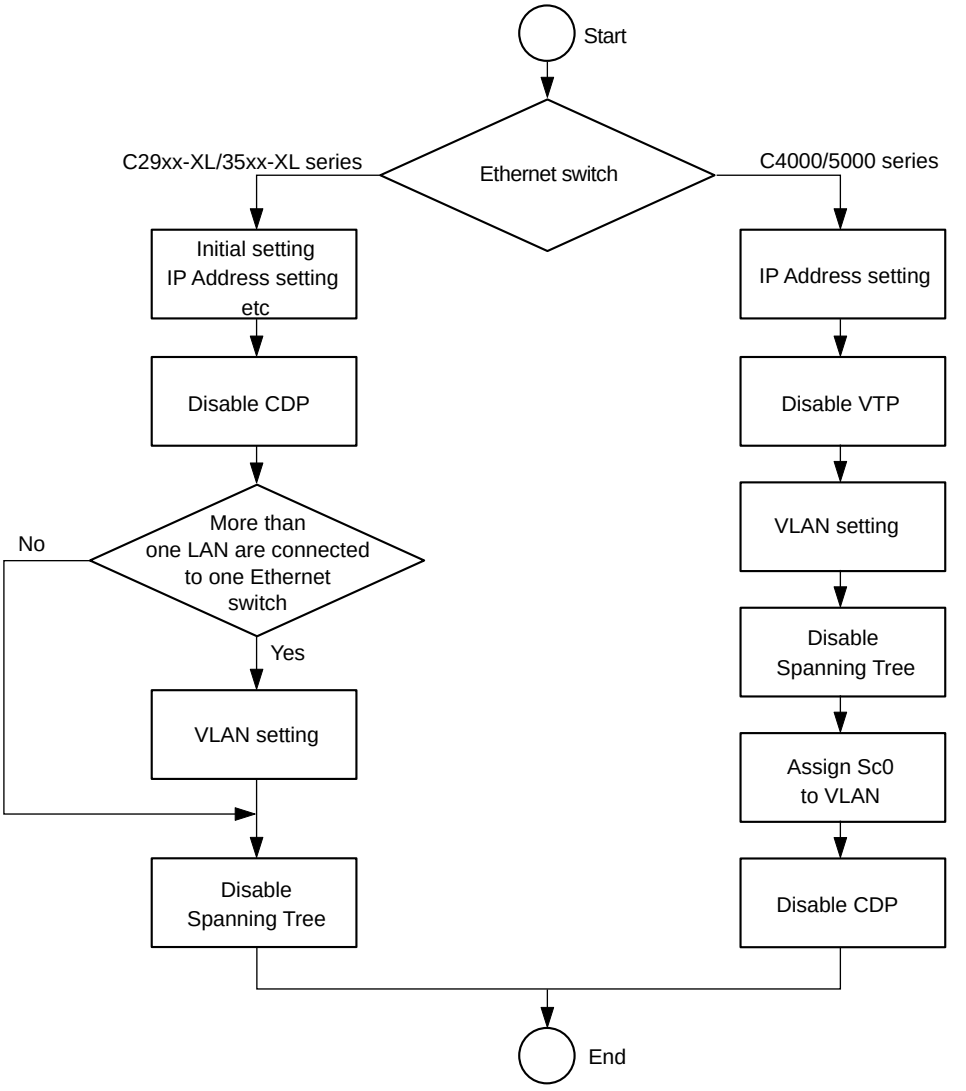
Recommended models

Vendor	Model name
Cisco	Catalyst 29xx-XL
Cisco	Catalyst 35xx-XL
Cisco	Catalyst 4000 series
Cisco	Catalyst 5000 series

∗ : Please confirm the details of a recommendation model 1 to a Cisco agency.

The Ethernet switch for MVS-8000 system requires the following settings
Follow the flowchart below to setup Ethernet switch.

1. Initialize Ethernet switch
   (Required minimum settings)
2. Set VLAN
   (Depending on the customer's system situation)
   Procedure of setup ethernet switch



A) Initialize ethernet switch

Cisco Catalyst 29xx-XL series or Cisco Catalyst 35xx-XL series require the following parameters to initialize.

For details, refer to Quick Start Guide supplied with a Ethernet switch

Note

If the following network configuration does not fit your existing Ethernet configuration, make sure all nodes have unique node address and are place on the appropriate network.

IP address	10.4.17.254*1
Subnet mask	255.0.0.0
Default gateway	Not used
Host name	CiscoSW1*2
Secret password	ciscosw1 (host name in small letters)*2
Telnet password	ciscosw1 (same as secret password)*2
Cluster command switch	Not used

∗1 : On Second and later Ethernet switch, simply subtract 1 to the node address. For example, the second Ethernet switch would have an address of 10.4.17.253.

∗2 : On Second and later Ethernet switch, simply add 1 to the number of the host name. For example, the second Ethernet switch would have a host name of CiscoSW2.

In case of Cisco Catalyst 4000 series or Cisco Catalyst 5000 series

Cisco Catalyst 4000 series or Cisco Catalyst 5000 series requires initializing and setting VLAN together. Step the next procedure “B) Set VLAN”.

B) Set VLAN

In Case of Cisco Catalyst 2900-XL Series or Cisco Catalyst 3500-XL Series

VLAN is set on network through a standard browser such as Microsoft Internet Explorer or Netscape Navigator/Communicator.
For details, refer to Quick Start Guide supplied with an Ethernet switch.

Step 1 : Disable Cisco Discovery Protocol (CDP)

To disable CDP requires Cisco Command Line Interface (CLI).
There are two ways to use CLI.

- Connect PC to a node of Ethernet switch with Ethernet cable. Access Ethernet switch through telnet.
- Connect the COM port of PC to the console port of Ethernet switch in the same manner as initial setting. Access Ethernet switch.

1) Log in to Cisco Ethernet switch.
2) The prompt “CiscoSW1>” is displayed.
3) Enter the enable <cr>.
4) The prompt “CiscoSW1 #” is displayed.
5) Enter the configure terminal and [Enter].
6) The prompt “CiscoSW1 (config) #” is displayed.
7) Enter no cdp run and [Enter]
8) Enter end and [Enter].
9) The prompt “CiscoSW1 #” is displayed.
10) Enter show running-config prompt and [Enter].
11) Check to see “no cdp run” on monitor.
12) Enter write memory and [Enter].
13) Saved the setting on Cisco Ethernet switch.
14) Enter disable and [Enter].
15) The prompt “CiscoSW1>” is displayed.
16) Enter exit <cr> to exit telnet.

Step 2 : Set VLAN

Note

If separated Ethernet switches are used for each of Control LAN, Data LAN and Peripheral LAN, it does not require.

It requires to separate from each network, Control LAN, Data LAN, and Peripheral LAN to set VALN.
Use port 1 through 10 for Control LAN, port 11 through 20 for Data LAN, after 21 port for Peripheral LAN.
For details, refer to Software Configuration Guide.
Assign port 1 through 10 to VLAN1, port 11 through 20 for VLAN2, port 21 through 24 for VLAN3.

Step 3 : Disable Spanning-Tree on VLANs

Connect PC to a node of Ethernet switch with Ethernet cable.
Browser requires to setup as Quick Start Guide

1) Access the Ethernet switch via PC
2) Open Cluster Management Suite of the switch.
3) Disable Spanning-tree protocol as Software Configuration Guide.

   Note

   Save new configuration data.
   If new configuration is not saved, the setting is back when re-booting.

In Case of Cisco Catalyst 4000 Series or Cisco Catalyst 5000 Series

The settings require Cisco Command Line Interface (CLI).
For details of operation, refer to Family Software Configuration Guide of Catalyst 4000 series or Cisco Catalyst 5000 series.
The required parameters for MVS-8000 system are follows.

There are two interfaces to setup IP address in Catalyst 4000 series.
They are called sc0 and mel.
The sc0 port is normal Ethernet port.
The switch can be accessed and set by setting IP address to sc0 and connecting a PC to any of normal Ethernet ports.
The mel port is 10 BASE-T port on supervisor engine.
The switch can be set by connecting a PC to this port.

Step 1 : IP Address

Both IP address “sc0” and “mel” are required.
The network segment of the sc0 and mel ports is recommended to be separated.

Example

	sc0	me1
IP Address	10.4.17.254	192.168.0.254
Subnet Mask	255.0.0.0	255.255.255.0

Step 2 : Disable VTP

Disable VTP as Catalyst 4000/5000 Family Software Configuration Guide.
Connect PC to a node of Ethernet switch with Ethernet cable.
Browser requires to setup as Quick Start Guide.

1) Access the Ethernet switch via personal computer.
2) Open Cluster Management Suite of the switch.

Step 3 : Set VLAN

The separated VLAN settings are required to control LAN, data LAN, and peripheral LAN.
They require more than 3 VLAN setting.
Name VLAN for each network.
Assign port as system setting to named VLAN.

Example of C4003 96 port

controlLAN 1	Port 1 to 12
controlLAN2	Port 13 to 14
dataLAN1	Port 25 to 36
dataLAN2	Port 37 to 48
peripheralLAN1	Port 49 to 60
peripheralLAN2	Port 61 to 72
managementLAN1	Port 73 to 84
managementLAN2	Port 85 to 96

The managementLAN 1/2 manage Ethernet switch and system with the above setting.

Step 4 : Disable Spanning-Tree
Disable all spanning tree on VLAN.
Refer to Catalyst 4000/5000 Family Software Configuration Guide

Step 5 : Assign sc0 to VLAN
Assign sc0 to VLAN except Control LAN, Data LAN, and Peripheral LAN.
Refer to Catalyst 4000/5000 Family Software Configuration Guide

Step 6 : Disable Cisco Discovery Protocol (CDP)
Disable CDP globally.
Refer to Catalyst 4000/5000 Family Software Configuration Guide

3-5. Software Installation

The current software version is displayed by pressing the following buttons in order.
"ENG SETUP"→"System"→"Install" to show the Install menu.
Select the desired software to install on the Install menu and press the Install button. Then installation starts.
The status area displays the device ID of each device, and the version, and released date.

3-6. Engineering Setups

The engineering setups are required to configure the system connected to switcher, DME, control panel, DCU and external devices.
The "ENG SETUP" of menu panel GUI provides you the following items can be set.

- Recognizing devices on the LAN
- Switching the signal format
- Switching the screen aspect ratio
- Selecting the state after powering on
- Time setting
- Signal assignment to cross-point buttons
- Output signal assignment

For detail setup of ENG SETUP, refer to User's Guide Volume 1 Chapter 1 "Setup" and User's Guide Volume 2 Chapter 17 "Engineering Setup".

3-7. Tally Setup

This section describes how to set the tally (system tally (S-Bus), parallel tally and serial tally).

Note

If tally is not used in the systems such as the MVS-8000 standalone configuration, this setting is not required.

Definition of system

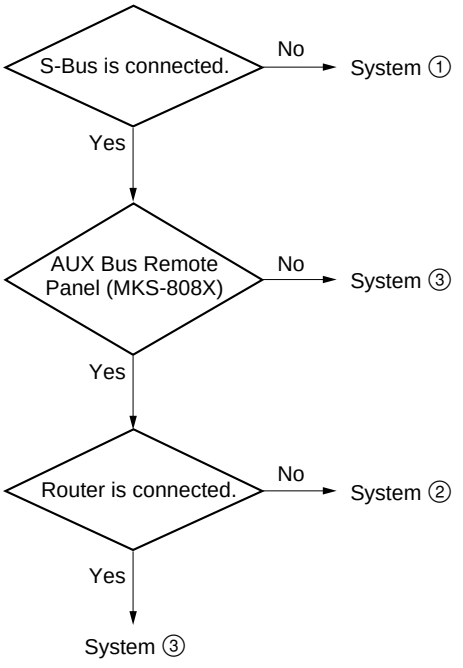
Major system configurations are classified into the three systems of System ①, System ② and System ③. This classification is used only for the convenience of description in this manual as described below.

System	Description
System ①	The MVS standalone system In the case when independent MVS-8000 system is going to use tally
System ②*1	The MVS-8000 + MKS-808x (Aux Remote Panel) system (having no tally)*2 The system that is configured by the combination the MVS-8000 system with the AUX Remote Panel
System ③	The MVS-8000 + router system The system that is configured by the combination of MVS-8000 system with the Sony routing switcher

∗1 : The equipment before Ver. 1.20 requires primary station. (Sony S-BUS Routing Switcher or BKPF-R70A is required.)
In the case if the equipment of Ver. 1.30 and higher is not connected to router, set the primary station function of the MVS-8000 to the ON position.

∗2 : In the system using the AUX Remote Panel, the specified items must be set even when tally setup is not going to be made.

Confirm in which system your equipment corresponds by referring to the following flow chart.



Confirming the setting items

The following items marked with the white round circle are required to be set in the respective systems.

○ = Setting is required.

	System ①	System ②	System ③
Switcher Output Assignment	○	○	○
Router	○	○	○
Group Tally	○ (default)	–	○
Wiring	–	–	○
Tally Enable	○	–	○
Tally Copy	○	–	○
Parallel Tally	○	–	○

	System ①	System ②	System ③
Setting primary station	–	○*	○
Setting MKS-808x	–	○	○**

∗ : Complete the setup as the primary station at the router side or at the MVS-8000 side.
∗∗ : In the case that the AUX Bus Remote Panel is connected.

3-7-1. Setting Router

Engineering Setup → Router/Tally → Router
Page 7361

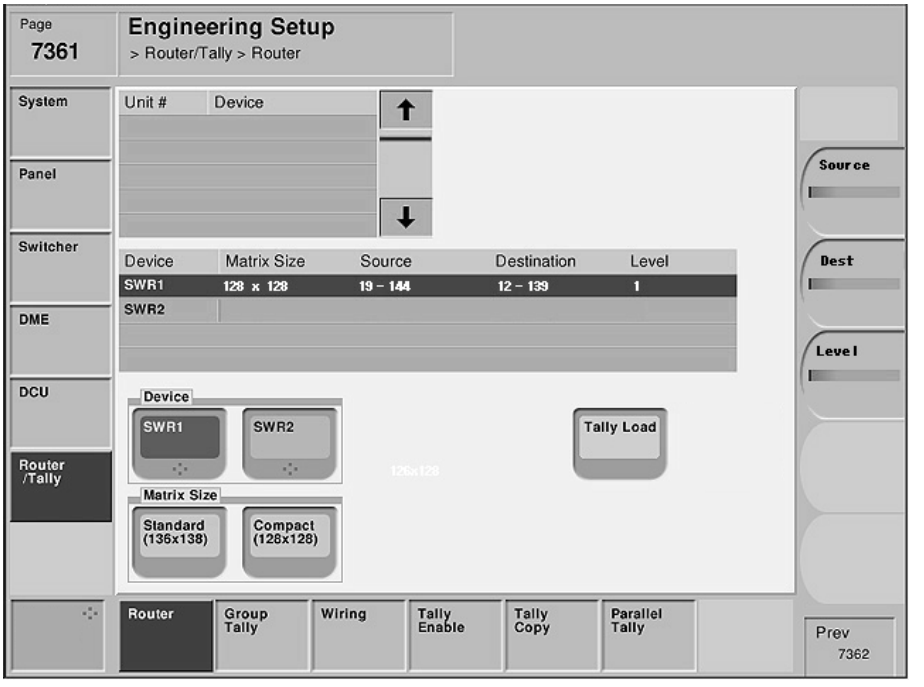
This menu is used to assign the input and output signals of the switcher on the virtual matrix space of the S-BUS.

When setting the tallies, the input and output signals to and from the equipment (such as router, switcher and others) that has the crosspoints should be assigned on the virtual matrix space. When they are assigned, serial numbers (unique) are given to all inputs and outputs on the matrix space, of all the equipment that are to be controlled. These serial numbers are necessary for the integrated handling of the signals.
By assigning all of the equipment on virtual matrix space, i.e., by mapping, the input and output terminals of each equipment shall have the virtual addresses. When this setting is complete, all of the equipment that have crosspoints and constitute the system are assigned on the virtual matrix space. Generation of the tallies are managed and handled by the virtual numbers that are assigned by this setting.

Note

For router setup, refer to the System Setup Manual of the router.

This setup is used by the interface (on the S-Bus protocol) of switcher with router. However, because the virtual numbers are required to be set in the tally system of even the systems that are not connected to S-Bus/router, this setting must be implemented.



Menu screen

Setting items

	System ①	System ②	System ③
Device	SWR1/SWR2	SWR1/SWR2	SWR1/SWR2
Matrix Size	Standard Setting Source* : 1 Destination* : 1 Level : 1	Standard Setting Source* : 1 Destination* : 1 Level : 1	Standard/Compact Setting Source* : 1 to Max (889 (S), 897 (C)) Destination* : 1 to Max (887 (S), 897 (C)) Level : 1 to 8

∗ : Set the top value of matrix for both of the Source and Destination. The end value is determined automatically in accordance with the Matrix Size.
As to the Source Address, the same Source Address can be duplicated and be set using SWR1/SWR2.
The value with parenthesis (S) is the value when Standard mode is selected. The value with parenthesis (C) is the value when Compact mode is selected.

For the system ①

Select “Standard” that is the default setup of Matrix Size for the system ①.

Default setup :

Matrix Size : standard (136 × 138)

For the system ②

Select “Standard” that is the default setup of Matrix Size for the system ②.

Default setup :

Matrix Size : standard (136 × 138)

For the system ③

Select either “Standard” or “Compact” of Matrix Size depending on the number of units of the equipment consisting the system.

When “Standard” (136 × 138) is selected, the switcher is assigned to the S-Bus space with the full size. (All of the inputs and outputs of the switcher can be assigned to the S-Bus space.)

When “Compact” (128 × 128) is selected, the switcher is assigned to the S-Bus space with the compact size.

(Not all of the inputs and outputs of the switcher are assigned to the S-Bus space, but the S-Bus space can be effectively used.)

Note

If two units of the MVS-8000 switcher processor are connected, each switcher processor must be set independently. Select the target device to be set using “Device” of this menu. Assign each switcher processor to SWR1/SWR2 using the menu screen (Engineering Setup → System → Network Config).

Setup example : For the system ③

System : MVS-8000 × 1 unit, router × 1 unit (8 × 4)
The MVS-8000 is assigned to (virtual source No. 19 to No. 146 and virtual destination No. 12 to No. 139) on the virtual matrix space.
Select “Compact” (128 × 128) of the Matrix Size.

Note

For setting a router, refer also to the System Setup Manual of the router.

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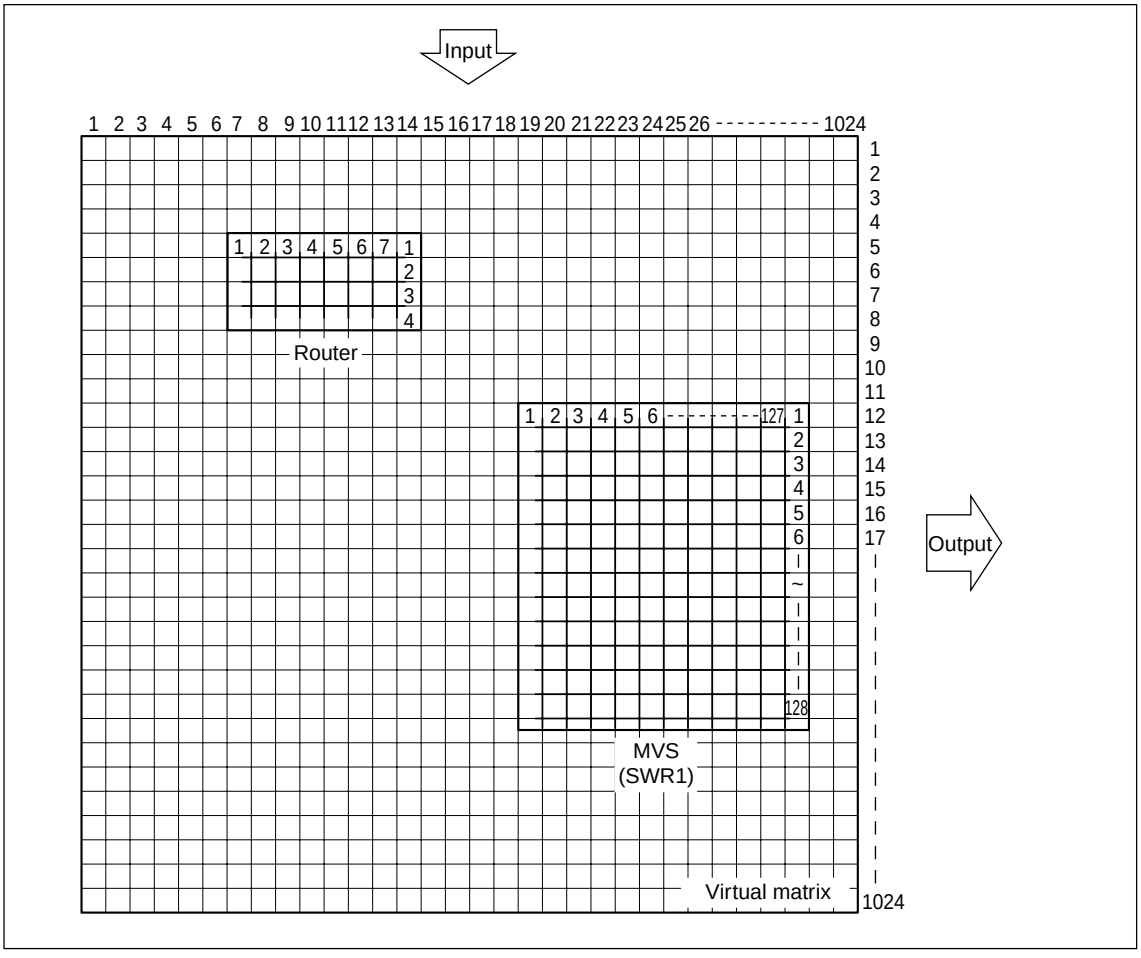
Device	Matrix Size	Source	Destination	Level
SWR1	128 x 128	19	12	1
SWR2				

Relation between physical and virtual numbers when assigning on virtual matrix space.

	Input		
	Physical terminals	→	Virtual terminals
Router	1		7
	2		8
	3		9
	4		10
	5		11
	6		12
	7		13
	8		14
SWR1	1		19
	2		20
	126		144
	127		145
	128		146

	Output		
	Physical terminals	→	Virtual terminals
Router	1		5
	2		6
	3		7
	4		8
SWR1	1		12
	128		139



Assignment to virtual matrix space

MVS-8000 matrix assignment (Standard mode)

Source

No.	Source	No.	Source
1	Primary 1	41	Primary 41
2	Primary 2	42	Primary 42
3	Primary 3	43	Primary 43
4	Primary 4	44	Primary 44
5	Primary 5	45	Primary 45
6	Primary 6	46	Primary 46
7	Primary 7	47	Primary 47
8	Primary 8	48	Primary 48
9	Primary 9	49	Primary 49
10	Primary 10	50	Primary 50
11	Primary 11	51	Primary 51
12	Primary 12	52	Primary 52
13	Primary 13	53	Primary 53
14	Primary 14	54	Primary 54
15	Primary 15	55	Primary 55
16	Primary 16	56	Primary 56
17	Primary 17	57	Primary 57
18	Primary 18	58	Primary 58
19	Primary 19	59	Primary 59
20	Primary 20	60	Primary 60
21	Primary 21	61	Primary 61
22	Primary 22	62	Primary 62
23	Primary 23	63	Primary 63
24	Primary 24	64	Primary 64
25	Primary 25	65	Primary 65
26	Primary 26	66	Primary 66
27	Primary 27	67	Primary 67
28	Primary 28	68	Primary 68
29	Primary 29	69	Primary 69
30	Primary 30	70	Primary 70
31	Primary 31	71	Primary 71
32	Primary 32	72	Primary 72
33	Primary 33	73	Primary 73
34	Primary 34	74	Primary 74
35	Primary 35	75	Primary 75
36	Primary 36	76	Primary 76
37	Primary 37	77	Primary 77
38	Primary 38	78	Primary 78
39	Primary 39	79	Primary 79
40	Primary 40	80	Primary 80

No.	Source
81	Black
82	White
83	Color Bkgd 1
84	Color Bkgd 2
85	Frame Memory 1
86	Frame Memory 2
87	Frame Memory 3
88	Frame Memory 4
89	Frame Memory 5
90	Frame Memory 6
91	Frame Memory 7
92	Frame Memory 8
93	Color Correction 1
94	Color Correction 2
95	DME Monitor Video
96	DME Monitor Key
97	M/E-1 Out 1
98	M/E-1 Out 2
99	M/E-1 Out 3
100	M/E-1 Out 4
101	M/E-1 Out 5
102	M/E-1 Out 6
103	M/E-1 Proc Video
104	M/E-1 Proc Key
105	M/E-2 Out 1
106	M/E-2 Out 2
107	M/E-2 Out 3
108	M/E-2 Out 4
109	M/E-2 Out 5
110	M/E-2 Out 6
111	M/E-2 Proc Video
112	M/E-2 Proc Key
113	M/E-3 Out 1
114	M/E-3 Out 2
115	M/E-3 Out 3
116	M/E-3 Out 4
117	M/E-3 Out 5
118	M/E-3 Out 6
119	M/E-3 Proc Video
120	M/E-3 Proc Key
121	P/P Out 1
122	P/P Out 2
123	P/P Out 3

No.	Source
124	P/P Out 4
125	P/P Out 5
126	P/P Out 6
127	P/P Proc Video
128	P/P Proc Key
129	DME1
130	DME2
131	DME3
132	DME4
133	DME5
134	DME6
135	DME7
136	DME8

Destination

No.	Destination	Bus*
1	Out 1	Assignable Output**
2	Out 2	Assignable Output**
3	Out 3	Assignable Output**
4	Out 4	Assignable Output**
5	Out 5	Assignable Output**
6	Out 6	Assignable Output**
7	Out 7	Assignable Output**
8	Out 8	Assignable Output**
9	Out 9	Assignable Output**
10	Out 10	Assignable Output**
11	Out 11	Assignable Output**
12	Out 12	Assignable Output**
13	Out 13	Assignable Output**
14	Out 14	Assignable Output**
15	Out 15	Assignable Output**
16	Out 16	Assignable Output**
17	Out 17	Assignable Output**
18	Out 18	Assignable Output**
19	Out 19	Assignable Output**
20	Out 20	Assignable Output**
21	Out 21	Assignable Output**
22	Out 22	Assignable Output**
23	Out 23	Assignable Output**
24	Out 24	Assignable Output**
25	Out 25	Assignable Output**
26	Out 26	Assignable Output**
27	Out 27	Assignable Output**
28	Out 28	Assignable Output**
29	Out 29	Assignable Output**
30	Out 30	Assignable Output**
31	Out 31	Assignable Output**
32	Out 32	Assignable Output**
33	Out 33	Assignable Output**
34	Out 34	Assignable Output**
35	Out 35	Assignable Output**
36	Out 36	Assignable Output**
37	Out 37	Assignable Output**
38	Out 38	Assignable Output**
39	Out 39	Assignable Output**
40	Out 40	Assignable Output**
41	Out 41	Assignable Output**
42	Out 42	Assignable Output**

No.	Destination	Bus*
43	Out 43	Assignable Output**
44	Out 44	Assignable Output**
45	Out 45	Assignable Output**
46	Out 46	Assignable Output**
47	Out 47	Assignable Output**
48	Out 48	Assignable Output**
49	Monitor Out 1	Monitor 1
50	Monitor Out 2	Monitor 2
51	Monitor Out 3	Monitor 3
52	Monitor Out 4	Monitor 4
53	Monitor Out 5	Monitor 5
54	Monitor Out 6	Monitor 6
55	Monitor Out 7	Monitor 7
56	Monitor Out 8	Monitor 8
57		M/E-1 Bkgd A
58		M/E-1 Bkgd B
59		M/E-1 Utility 1
60		M/E-1 Utility 2
61		M/E-1 Key 1 Fill
62		M/E-1 Key 1 Source
63		M/E-1 Key 2 Fill
64		M/E-1 Key 2 Source
65		M/E-1 Key 3 Fill
66		M/E-1 Key 3 Source
67		M/E-1 Key 4 Fill
68		M/E-1 Key 4 Source
69		M/E-1 Dme Video
70		M/E-1 Dme Key
71		M/E-1 Ext Dme
72		M/E-2 Bkgd A
73		M/E-2 Bkgd B
74		M/E-2 Utility 1
75		M/E-2 Utility 2
76		M/E-2 Key 1 Fill
77		M/E-2 Key 1 Source
78		M/E-2 Key 2 Fill
79		M/E-2 Key 2 Source
80		M/E-2 Key 3 Fill
81		M/E-2 Key 3 Source
82		M/E-2 Key 4 Fill
83		M/E-2 Key 4 Source
84		M/E-2 Dme Video

No.	Destination	Bus*
85		M/E-2 Dme Key
86		M/E-2 Ext Dme
87		M/E-3 Bkgd A
88		M/E-3 Bkgd B
89		M/E-3 Utility 1
90		M/E-3 Utility 2
91		M/E-3 Key 1 Fill
92		M/E-3 Key 1 Source
93		M/E-3 Key 2 Fill
94		M/E-3 Key 2 Source
95		M/E-3 Key 3 Fill
96		M/E-3 Key 3 Source
97		M/E-3 Key 4 Fill
98		M/E-3 Key 4 Source
99		M/E-3 Dme Video
100		M/E-3 Dme Key
101		M/E-3 Ext Dme
102		P/P Bkgd A (DSK Bkgd 1)
103		P/P Bkgd B (DSK Bkgd 2)
104		P/P Utility 1
105		P/P Utility 2 (DSK Bkgd 3)
106		P/P Key 1 Fill
107		P/P Key 1 Source
108		P/P Key 2 Fill
109		P/P Key 2 Source
110		P/P Key 3 Fill
111		P/P Key 3 Source
112		P/P Key 4 Fill
113		P/P Key 4 Source
114		P/P Dme Video (DSK Bkgd 4)
115		P/P Dme Key
116		P/P Ext Dme
117		DME Utility 1
118		DME Utility 2
119		Frame Memory Source 1
120		Frame Memory Source 2
121		Reserved
122		Reserved
123		DME 1 Video
124		DME 1 Key
125		DME 2 Video
126		DME 2 Key
127		DME 3 Video
128		DME 3 Key
129		DME 4 Video
130		DME 4 Key
131		DME 5 Video
132		DME 5 Key
133		DME 6 Video
134		DME 6 Key
135		DME 7 Video
136		DME 7 Key
137		DME 8 Video
138		DME 8 Key

∗ : To switch the XPT from the S-Bus remote control, select the corresponding bus number.

∗∗ : This is the output (bus) that is set by the Output Assign of the switcher setup. Among the buses of AUX 1 to 48, Edit PVW and DME Monitor, only the buses that are set by the Output Assign, are controlled.

MVS-8000 matrix assignment (Compact mode)

Source

No.	Source	No.	Source
1	Primary 1	41	Primary 41
2	Primary 2	42	Primary 42
3	Primary 3	43	Primary 43
4	Primary 4	44	Primary 44
5	Primary 5	45	Primary 45
6	Primary 6	46	Primary 46
7	Primary 7	47	Primary 47
8	Primary 8	48	Primary 48
9	Primary 9	49	Primary 49
10	Primary 10	50	Primary 50
11	Primary 11	51	Primary 51
12	Primary 12	52	Primary 52
13	Primary 13	53	Primary 53
14	Primary 14	54	Primary 54
15	Primary 15	55	Primary 55
16	Primary 16	56	Primary 56
17	Primary 17	57	Primary 57
18	Primary 18	58	Primary 58
19	Primary 19	59	Primary 59
20	Primary 20	60	Primary 60
21	Primary 21	61	Primary 61
22	Primary 22	62	Primary 62
23	Primary 23	63	Primary 63
24	Primary 24	64	Primary 64
25	Primary 25	65	Primary 65
26	Primary 26	66	Primary 66
27	Primary 27	67	Primary 67
28	Primary 28	68	Primary 68
29	Primary 29	69	Primary 69
30	Primary 30	70	Primary 70
31	Primary 31	71	Primary 71
32	Primary 32	72	Primary 72
33	Primary 33	73	Primary 73
34	Primary 34	74	Primary 74
35	Primary 35	75	Primary 75
36	Primary 36	76	Primary 76
37	Primary 37	77	Primary 77
38	Primary 38	78	Primary 78
39	Primary 39	79	Primary 79
40	Primary 40	80	Primary 80

No.	Source
81	Black
82	White
83	Color Bkgd 1
84	Color Bkgd 2
85	Frame Memory 1
86	Frame Memory 2
87	Frame Memory 3
88	Frame Memory 4
89	Frame Memory 5
90	Frame Memory 6
91	Frame Memory 7
92	Frame Memory 8
93	Color Correction 1
94	Color Correction 2
95	DME Monitor Video
96	DME Monitor Key
97	M/E-1 Out 1
98	M/E-1 Out 2
99	M/E-1 Out 3
100	M/E-1 Out 4
101	M/E-1 Out 5
102	M/E-1 Out 6
103	M/E-2 Out 1
104	M/E-2 Out 2
105	M/E-2 Out 3
106	M/E-2 Out 4
107	M/E-2 Out 5
108	M/E-2 Out 6
109	M/E-3 Out 1
110	M/E-3 Out 2
111	M/E-3 Out 3
112	M/E-3 Out 4
113	M/E-3 Out 5
114	M/E-3 Out 6
115	P/P Out 1
116	P/P Out 2
117	P/P Out 3
118	P/P Out 4
119	P/P Out 5
120	P/P Out 6
121	DME1
122	DME2
123	DME3

No.	Source
124	DME4
125	DME5
126	DME6
127	DME7
128	DME8

Destination

No.	Destination	Bus*
1	Out 1	Assignable Output**
2	Out 2	Assignable Output**
3	Out 3	Assignable Output**
4	Out 4	Assignable Output**
5	Out 5	Assignable Output**
6	Out 6	Assignable Output**
7	Out 7	Assignable Output**
8	Out 8	Assignable Output**
9	Out 9	Assignable Output**
10	Out 10	Assignable Output**
11	Out 11	Assignable Output**
12	Out 12	Assignable Output**
13	Out 13	Assignable Output**
14	Out 14	Assignable Output**
15	Out 15	Assignable Output**
16	Out 16	Assignable Output**
17	Out 17	Assignable Output**
18	Out 18	Assignable Output**
19	Out 19	Assignable Output**
20	Out 20	Assignable Output**
21	Out 21	Assignable Output**
22	Out 22	Assignable Output**
23	Out 23	Assignable Output**
24	Out 24	Assignable Output**
25	Out 25	Assignable Output**
26	Out 26	Assignable Output**
27	Out 27	Assignable Output**
28	Out 28	Assignable Output**
29	Out 29	Assignable Output**
30	Out 30	Assignable Output**
31	Out 31	Assignable Output**
32	Out 32	Assignable Output**
33	Out 33	Assignable Output**
34	Out 34	Assignable Output**
35	Out 35	Assignable Output**
36	Out 36	Assignable Output**
37	Out 37	Assignable Output**
38	Out 38	Assignable Output**
39	Out 39	Assignable Output**
40	Out 40	Assignable Output**
41	Out 41	Assignable Output**
42	Out 42	Assignable Output**

No.	Destination	Bus*
43	Out 43	Assignable Output**
44	Out 44	Assignable Output**
45	Out 45	Assignable Output**
46	Out 46	Assignable Output**
47	Out 47	Assignable Output**
48	Out 48	Assignable Output**
49		Monitor Out 1 Monitor 1
50		Monitor Out 2 Monitor 2
51		Monitor Out 3 Monitor 3
52		Monitor Out 4 Monitor 4
53		Monitor Out 5 Monitor 5
54		Monitor Out 6 Monitor 6
55		Monitor Out 7 Monitor 7
56		Monitor Out 8 Monitor 8
57		M/E-1 Bkgd A
58		M/E-1 Bkgd B
59		M/E-1 Utility 1
60		M/E-1 Utility 2
61		M/E-1 Key 1 Fill
62		M/E-1 Key 1 Source
63		M/E-1 Key 2 Fill
64		M/E-1 Key 2 Source
65		M/E-1 Key 3 Fill
66		M/E-1 Key 3 Source
67		M/E-1 Key 4 Fill
68		M/E-1 Key 4 Source
69		M/E-2 Bkgd A
70		M/E-2 Bkgd B
71		M/E-2 Utility 1
72		M/E-2 Utility 2
73		M/E-2 Key 1 Fill
74		M/E-2 Key 1 Source
75		M/E-2 Key 2 Fill
76		M/E-2 Key 2 Source
77		M/E-2 Key 3 Fill
78		M/E-2 Key 3 Source
79		M/E-2 Key 4 Fill
80		M/E-2 Key 4 Source
81		M/E-3 Bkgd A
82		M/E-3 Bkgd B
83		M/E-3 Utility 1
84		M/E-3 Utility 2

No.	Destination	Bus*
85		M/E-3 Key 1 Fill
86		M/E-3 Key 1 Source
87		M/E-3 Key 2 Fill
88		M/E-3 Key 2 Source
89		M/E-3 Key 3 Fill
90		M/E-3 Key 3 Source
91		M/E-3 Key 4 Fill
92		M/E-3 Key 4 Source
93		P/P Bkgd A (DSK Bkgd 1)
94		P/P Bkgd B (DSK Bkgd 2)
95		P/P Utility 1
96		P/P Utility 2 (DSK Bkgd 3)
97		P/P Key 1 Fill
98		P/P Key 1 Source
99		P/P Key 2 Fill
100		P/P Key 2 Source
101		P/P Key 3 Fill
102		P/P Key 3 Source
103		P/P Key 4 Fill
104		P/P Key 4 Source
105		P/P Dme Video (DSK Bkgd 4)
106		DME Utility 1
107		DME Utility 2
108		Frame Memory Source 1
109		Frame Memory Source 2
110		Reserved
111		Reserved
112		DME 1 Video
113		DME 1 Key
114		DME 2 Video
115		DME 2 Key
116		DME 3 Video
117		DME 3 Key
118		DME 4 Video
119		DME 4 Key
120		DME 5 Video
121		DME 5 Key
122		DME 6 Video
123		DME 6 Key
124		DME 7 Video
125		DME 7 Key
126		DME 8 Video
127		DME 8 Key
128		–

∗: To switch the XPT from the S-Bus remote control, select the corresponding bus number.

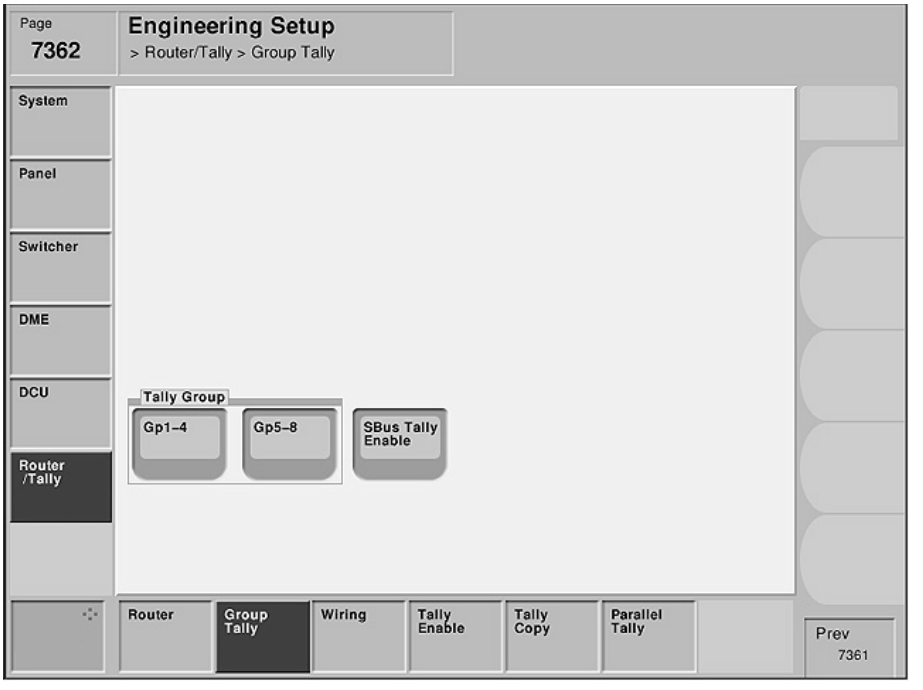
∗∗ : This is the output (bus) that is set by the Output Assign of the switcher setup. Among the buses of AUX 1 to 48, Edit PVW and DME Monitor, only the buses that are set by the Output Assign, are controlled.

3-7-2. Setting Group Tally

Engineering Setup → Router/Tally → Group Tally
Page 7362

This menu is used to select either the tally groups 1 to 4 or the tally groups 5 to 8 shall be used by as many as the four tally groups at the maximum.
The S-Bus tally can be enabled or disabled as required.

In the video switching systems, there are many occasions that two or more independent jobs are carried out within the same switching system.
For example, recording of the on-air program by VTR or by slow motion VTR while on-air is under way or distributing the on-air program to the local network stations while on-air is under way is performed.
As the result, sophisticated tally system is required in order to correspond to the sophisticated output system.
If a video switching system becomes sophisticated, the tally system that aims at attracting attention of operators can become the cause of confusion on the other hand. In order to avoid this confusion, the entire tally system can be divided into the two systems. After the entire tally system is divided into the two systems, one tally system can be, for example, assigned to the on-air tally while the other tally system can be assigned to the off-air live tally. The two colors of red and green can be used for the display of each tally system.
Each combination of red tally and green tally as described above is called tally group.
The S-Bus protocol is capable of controlling the eight tally groups (system tally red/green tally) of the tally groups 1 to 8.
The MVS-8000 is capable of controlling the four tally groups.
The S-Bus tally is required to be set when the tally information supplied from the MVS-8000 is going to be sent to the equipment for example UMD (Under Monitor Display) that indicates tally, via the S-BUS.



Menu screen

Setting items

	System ①	System ②	System ③
Tally Gp	Gp1-4/Gp5-8	Gp1-4/Gp5-8	Gp1-4/Gp5-8
SBus Tally Enable	Disable	Disable	Enable/Disable

For the system ①

Select “Gp1-4” or “Gp5-8” as desired from the Tally Group for the system ①. As to the S-Bus Tally, select “Disable” (i.e., the “SBus Tally Enable” button is not selected) because there is no equipment that is connected by S-Bus.

For the system ②

This setting is not required for the system ② because the system ② does not use tally. Select either “Gp1-4” or “Gp5-8” from the Tally Group for the system ②. As to the S-Bus Tally, select “Disable” because UMD is not connected to the system ②.

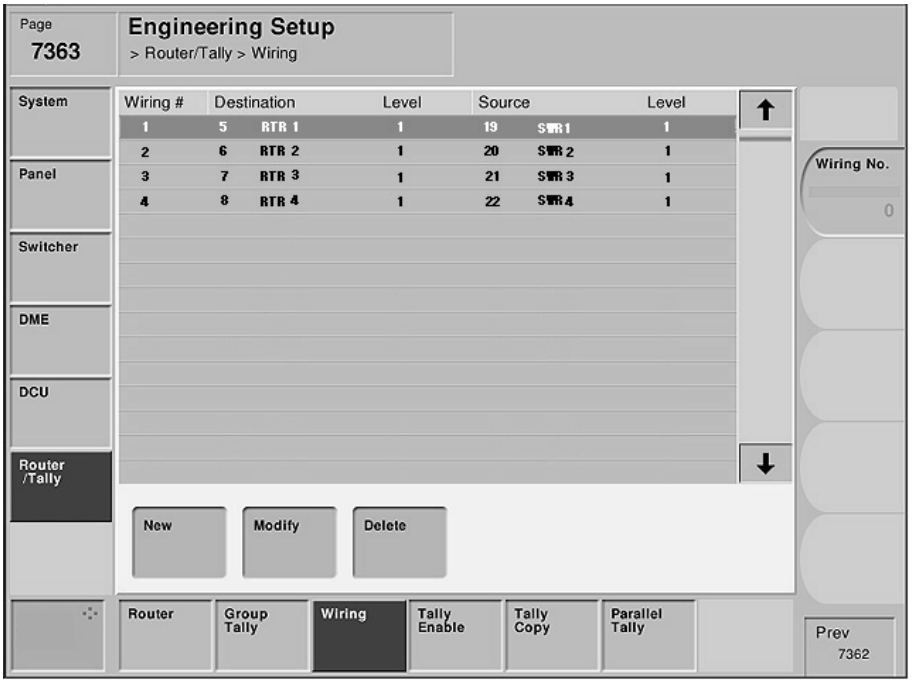
For the system ③

Select “Gp1-4” or “Gp5-8” as desired from the Tally Group for the system ③. As to the S-Bus Tally, select “Enable” (i.e., select the “SBus Tally Enable” button) if there is any equipment (such as UMD) that is connected by S-Bus.

3-7-3. Setting Wiring

Engineering Setup → Router/Tally → Wiring
Page 7363

This menu is set in order to trace back the connection and to locate the source of the connected equipment starting from the output of the final stage.
In the system configuration where inputs and outputs of a switcher are connected to a router, the connection relationship (wiring) between the switcher and the router on the matrix space must be set.
In order to implement this setting, take reading of the connection between the switcher and router from the system wiring diagram and set the wiring between the input/output terminals and virtual numbers.
After the wiring is set, we can know which input/output of which equipment are connected to which input/output of which equipment.



Menu screen

Setting items

	System ①	System ②	System ③
Wiring	Setting is not required	Setting is not required	Setting is required

For the system ①

Because crosspoints of the equipment are not connected (router is not connected) in the system ①, this setting is not necessary.

For the system ②

Because crosspoints of the equipment are not connected (router is not connected) in the system ②, this setting is not necessary.

For the system ③

Since inputs and outputs of the MVS-8000 are connected to router in the system ③, set the corresponding virtual numbers.

Setup example : For the system ③

System : MVS-8000 × 1 unit, router × 1 unit (8 × 4)

1. Connect Destination 1 (virtual No. 5) of a router to Primary 1 (virtual No. 19) of the MVS-8000.
2. Connect Destinations 2 to 4 (virtual No. 6 to 8) of a router to Primary 2 to 4 (virtual No. 20 to 23) of the MVS-8000.

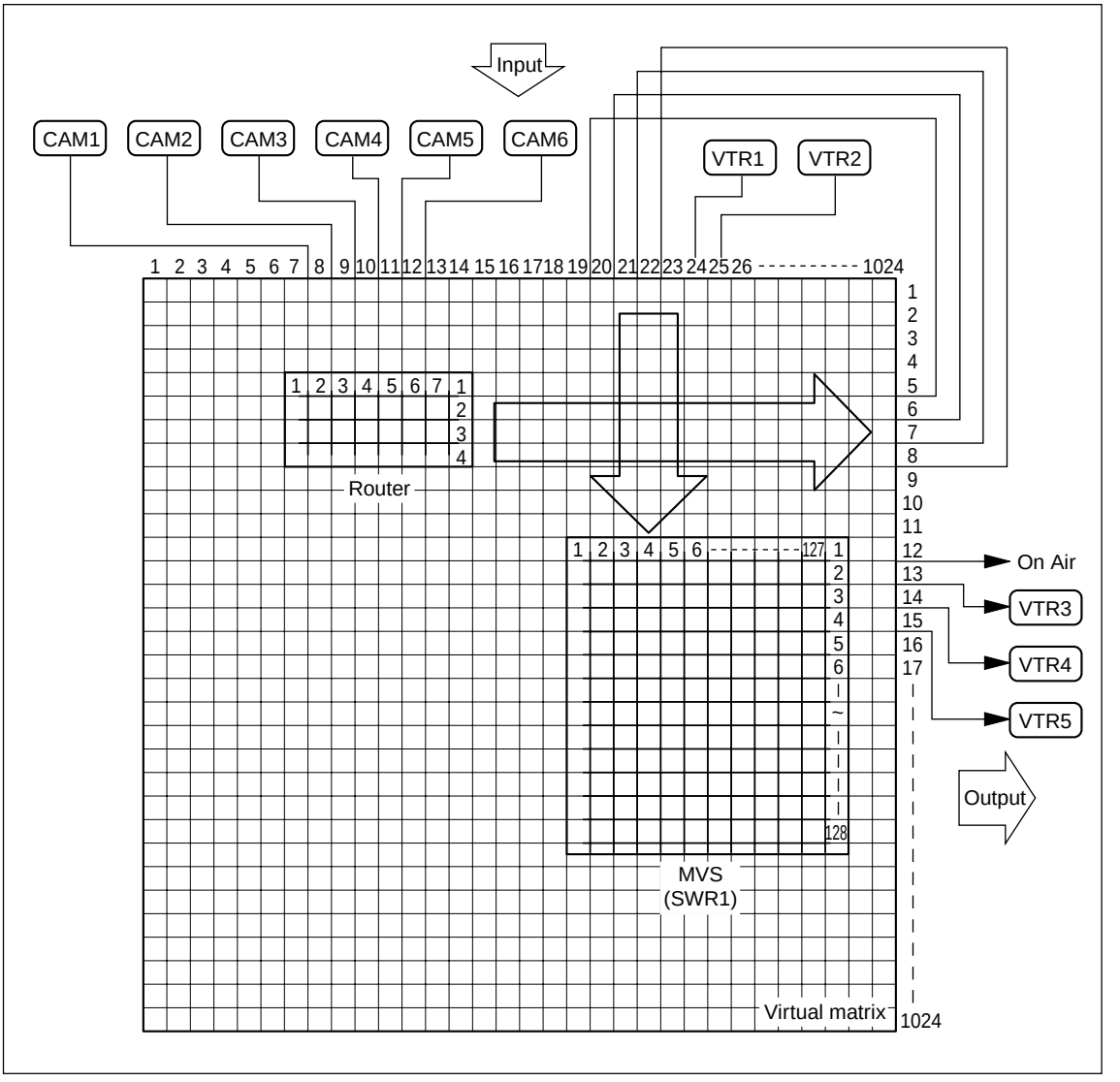
Page 7363

Wiring#	Destination		Level	Source		Level
1	5	RTR1*	1	19	SWR1*	1
2	6	RTR2*	1	20	SWR2*	1
3	7	RTR3*	1	21	SWR3*	1
4	8	RTR4*	1	22	SWR4*	1

* : The Source/Destination Names that are set from the Router/MVS side are displayed.

Virtual destination number	Virtual source number
5	19
6	20
7	21
8	22

Connection information



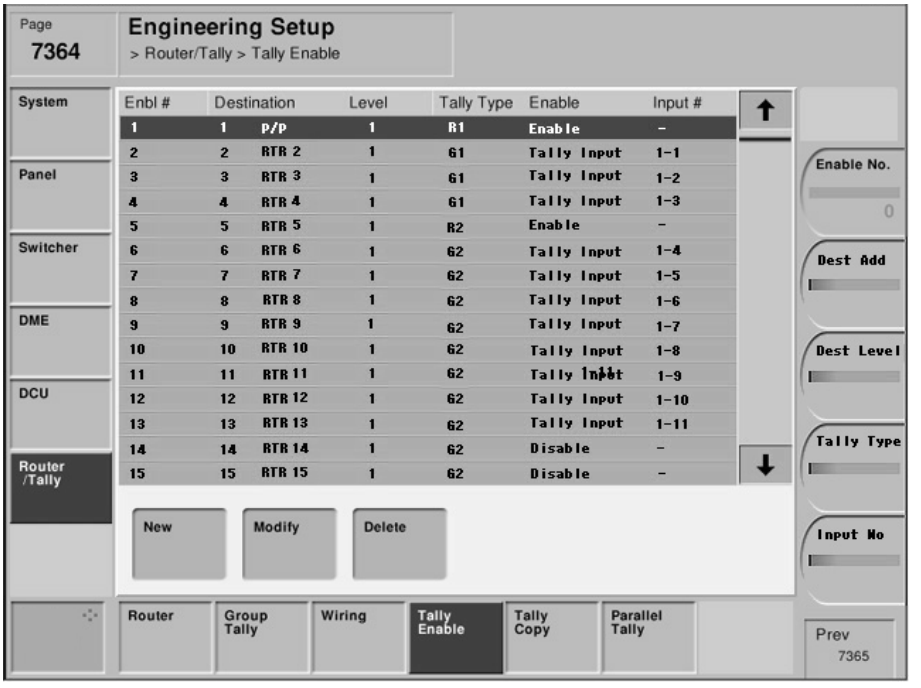
Setting the crosspoints connections (wiring)

3-7-4. Setting Tally Enable

Engineering Setup → Router/Tally → Tally Enable
Page 7364

This menu is used to set which Destination should be output to which tally.

In the video switching systems, there are many occasions that two or more independent jobs are carried out by the same switching system.
For example, recording of the on-air program by VTR or by slow motion VTR while on-air is under way or distributing the on-air program to the local network stations while on-air is under way is performed.
As the result, sophisticated tally system is required in order to correspond to the sophisticated output system.
If a video switching system becomes sophisticated, the tally system that aims at attracting attention of operators can become the cause of confusion on the other hand. In order to avoid this confusion, the entire tally system can be divided into the two systems. After the entire tally system is divided into the two systems, one tally system can be, for example, assigned to the on-air tally while the other tally system can be assigned to the off-air live tally. The two colors of red and green can be used for the display of each tally system.



Menu screen

Setting items

	System ①	System ②	System ③
Tally Enable	Setting is required Tally Type : G1 to 8, R1 to 8 Enable : Enable, Disable, Tally Input	Setting is not required	Setting is required Tally Type : G1 to 8, R1 to 8 Enable : Enable, Disable, Tally Input

Tally type : Enable → Tally is created all the time.
Disable → Tally is not created all the time.
Tally Input → Tally is created depending on the tally input status.

Input # : It selects which port shall be used when the Tally Input selected.
It also selects which of either DCU1 or DCU2 is going to be used.
The port number in the range of 1 to 102 can be selected.
Setting example : When No. 2 port of DCU1 is going to be used.
Input # 1-2

For the system ①

Set the tally type and the output conditions of the MVS-8000 outputs (virtual terminal numbers) that you want to display the tally.

For the system ②

Because this system does not use tally, the setting is not necessary.

For the system ③

Set the tally type and the output conditions of the MVS-8000 outputs (virtual terminal numbers) that you want to display the tally.

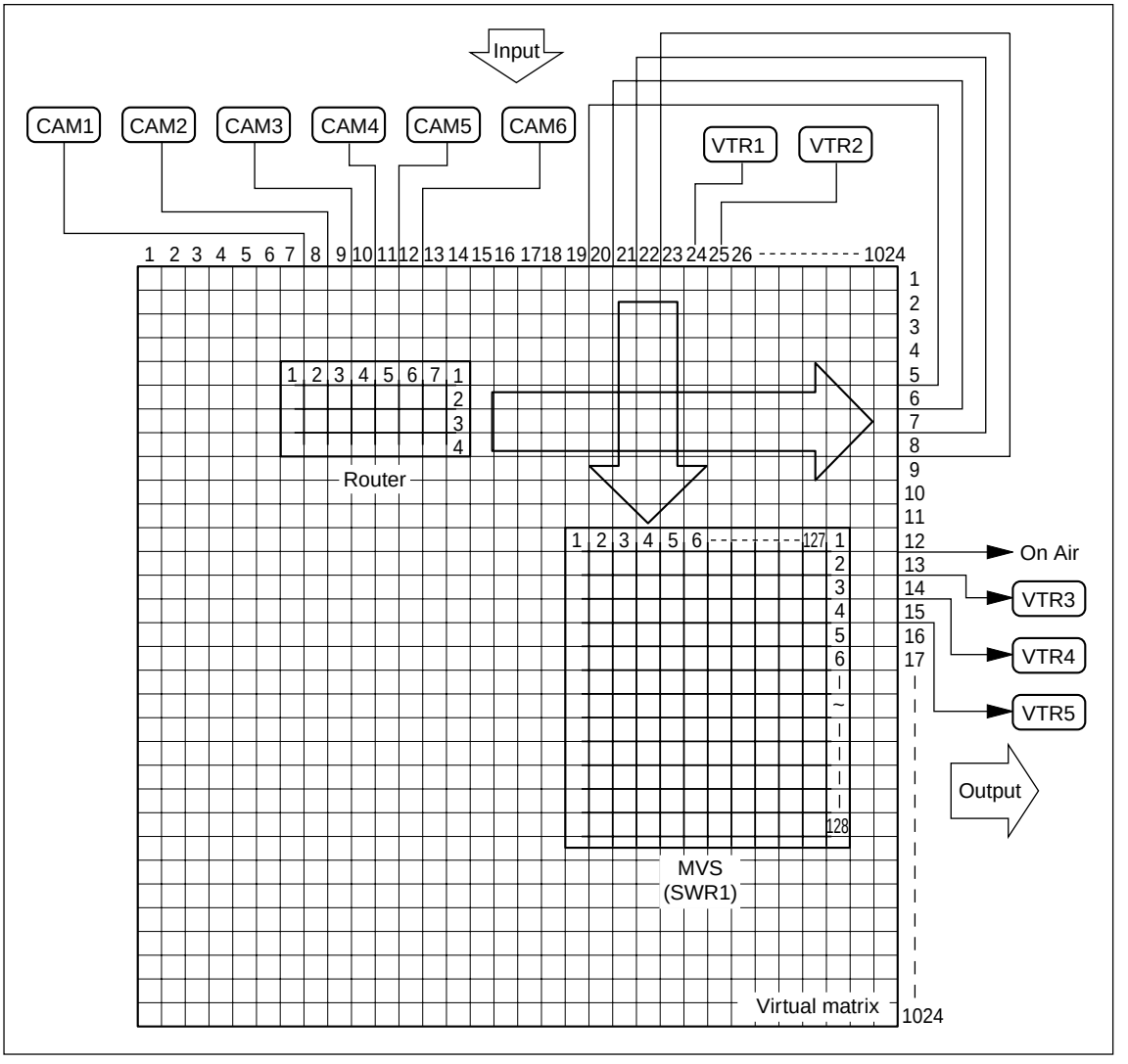
Setup example : For the system ③

System : MVS-8000 × 1 unit, router × 1 unit (8 × 4)

1. When P/P PGM is assigned to 1 using the menu Page 7333 Engineering Setup → Switcher → Output, OUTPUT 1 (virtual No. 12) of the MVS-8000 becomes the final output of P/P PGM. Put the red tally to the source of the crosspoints that are connected to this Destination. Select Enable in order to turn ON the tally at all times.
2. When Outputs 2 and 3 (virtual No. 13 and 14) of the MVS-8000 are output to VTR for the simultaneous recording of the on-air program with VTR or for the recording with slow motion VTR, put the green tally to the source of the crosspoints that are connected to this Destination. Set the Enable item so that tally turns on only when VTR is going to be used as the output. In this case, set the tally Enable so that tally turns on only when the Tally GPI In of the DCU receives a signal (when it is on) from the Tally/GPI Output of VTR.

Page 7363

Enbl#	Destination		Level	Tally Type	Enable	Input#
1	12	P/P	1	R1	Enable	
2	13	AUX1	1	G1	Tally Input	1-1
3	14	AUX2	1	G1	Tally Input	1-2
4	15	AUX3	1	G1	Tally Input	1-3

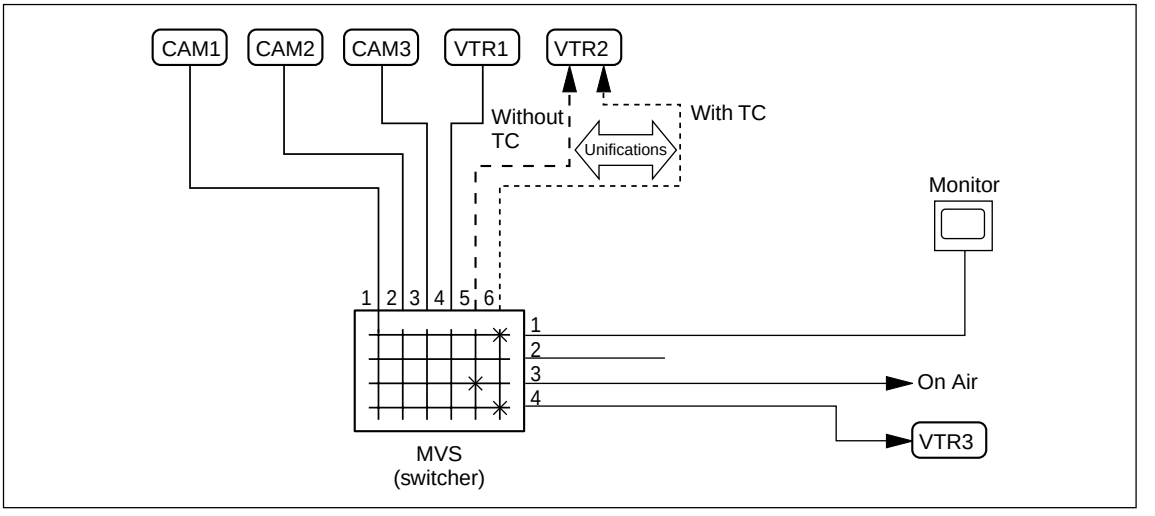


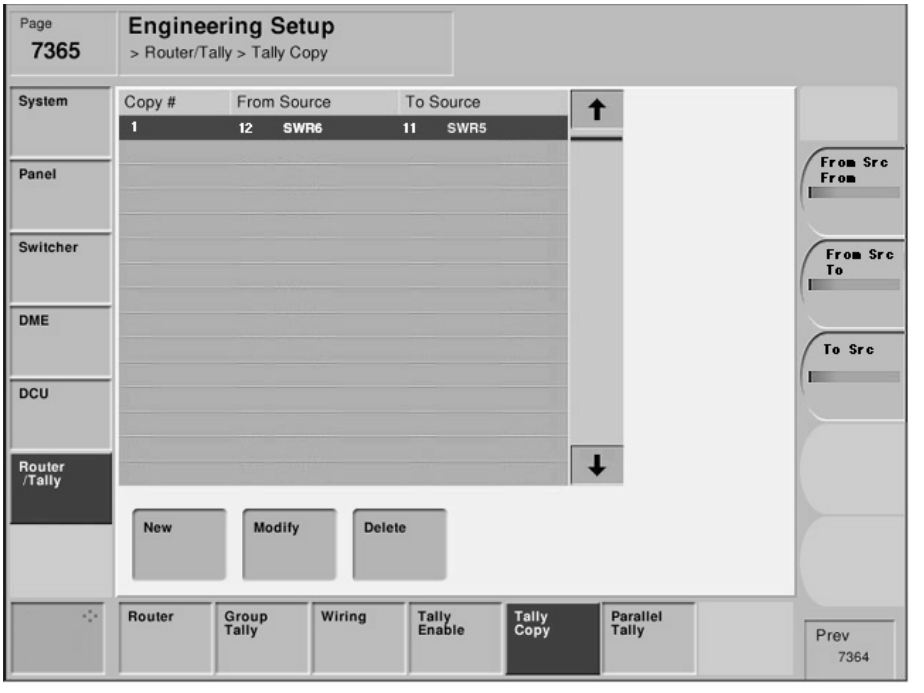
Setting Tally Enable

3-7-5. Setting Tally Copy

Engineering Setup → Router/Tally → Tally Copy
Page 7365

This menu is used to unify the tally information.
The virtual sources correspond to sources by one-to-one correspondence. However, there are cases that the same source is connected to two or more input terminals at the same time.
For example, the ordinary video output signal and the video output signal with timecode from a single unit of VTR are connected to the separate input terminals respectively.
Because the different tally informations that are searched separately can be created for a single unit of equipment in such a case, these informations must be unified by obtaining the logical OR of the tally informations corresponding to all virtual input terminals to which the equipments that have the two or more outputs are connected.
For this purpose, unify the tally informations by this setting that is separate from the equipment connection information.





Menu screen

Setting items

	System ①	System ②	System ③
Tally Copy	Setting is required	Setting is not required	Setting is required

For the system ①

Set the virtual terminal number of copy source (From Source) and copy destination (To Source) as required.

For the system ②

Because there is no equipment that is connected on matrix in this system, this setting is not necessary.

For the system ③

Set the virtual terminal number of copy source (From Source) and copy destination (To Source) as required.

Setup example : For the system ③

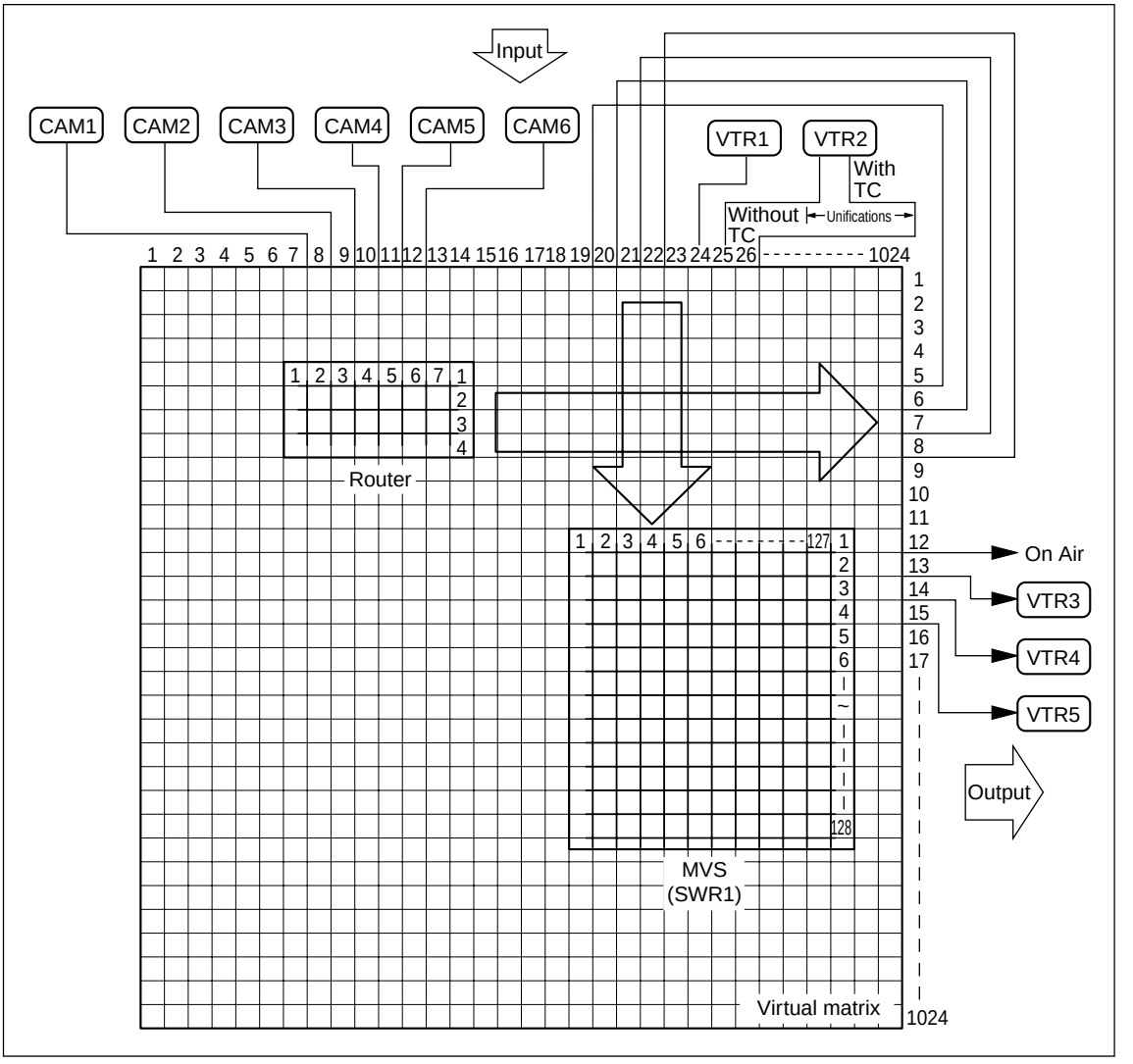
System: MVS-8000 × 1 unit, router × 1 unit (8 × 4)

1. Connect the video signal (with TC) from VTR to Primary 8 (virtual terminal No. 26) of the switcher.
2. Connect the video signal (without TC) from VTR to Primary 7 (virtual terminal No. 25) of the switcher.

Establish the Tally Copy setup because the tally information must be output after the tally informations from the two sources are unified to a single tally information.

Page 7365

Copy#	From Source		To Source	
1	26	SWR8	25	SWR7



System connection diagram (example)

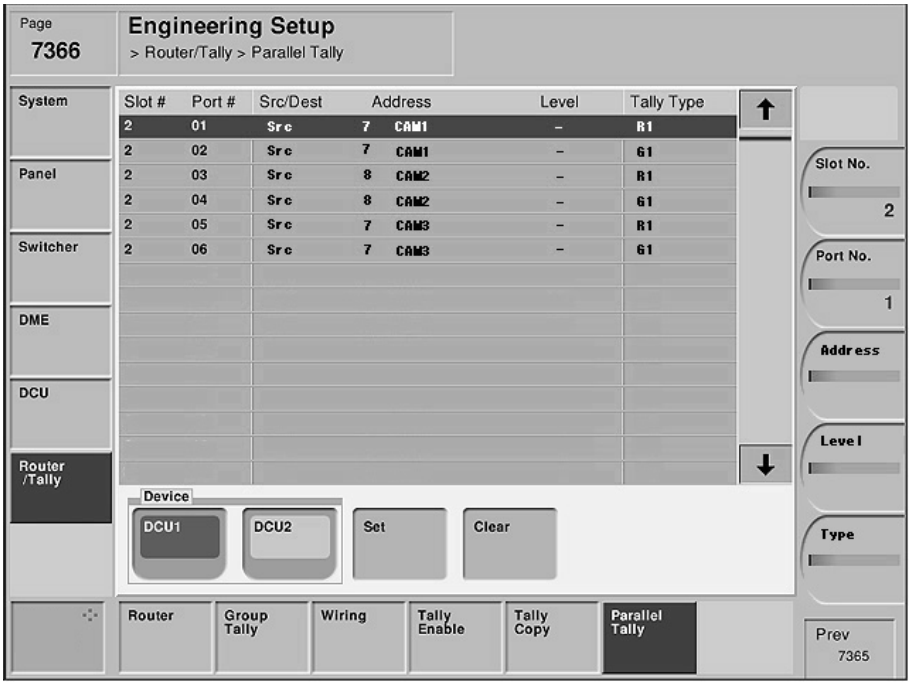
3-7-6. Setting Parallel Tally

Engineering Setup → Router/Tally → Parallel Tally
Page 7366

The Parallel Tally output provides the relay contact. This menu is used to enable the Parallel Tally to directly turn ON/OFF the tally lamp. In this setting, terminal numbers of the virtual inputs and the virtual outputs (Monitor Tally) of the virtual matrix are assigned to the respective pins of the parallel tally connector (DCU-8000).

Notes

- To use the Parallel Tally, the Tally/GPI Output Board MKS-8701 must be installed in the MKS-8700.
- Assign the terminal numbers of the virtual inputs and the virtual outputs of the virtual matrix to the slot numbers and the port number of the slot in which the MKS-8701 is installed.



Menu screen

Setting items

	System ①	System ②	System ③
Parallel Tally	Setting is required	Setting is not required	Setting is required

Device : Selects either DCU1 or DCU2.
Slot No. : Slot number of the MKS-8701 that is inserted in the DCU-8000.
Port No. : Port number of the MKS-8701.

For the system ①

Set the Tally Type and assign the virtual terminal number to each pin (pin number and slot number of the MKS-8701) of the parallel tally.

For the system ②

This setting is not required for the system ② because the system ② does not use tally.

For the system ③

Set the Tally Type and assign the virtual terminal number to each pin (pin number and slot number of the MKS-8701) of the parallel tally.

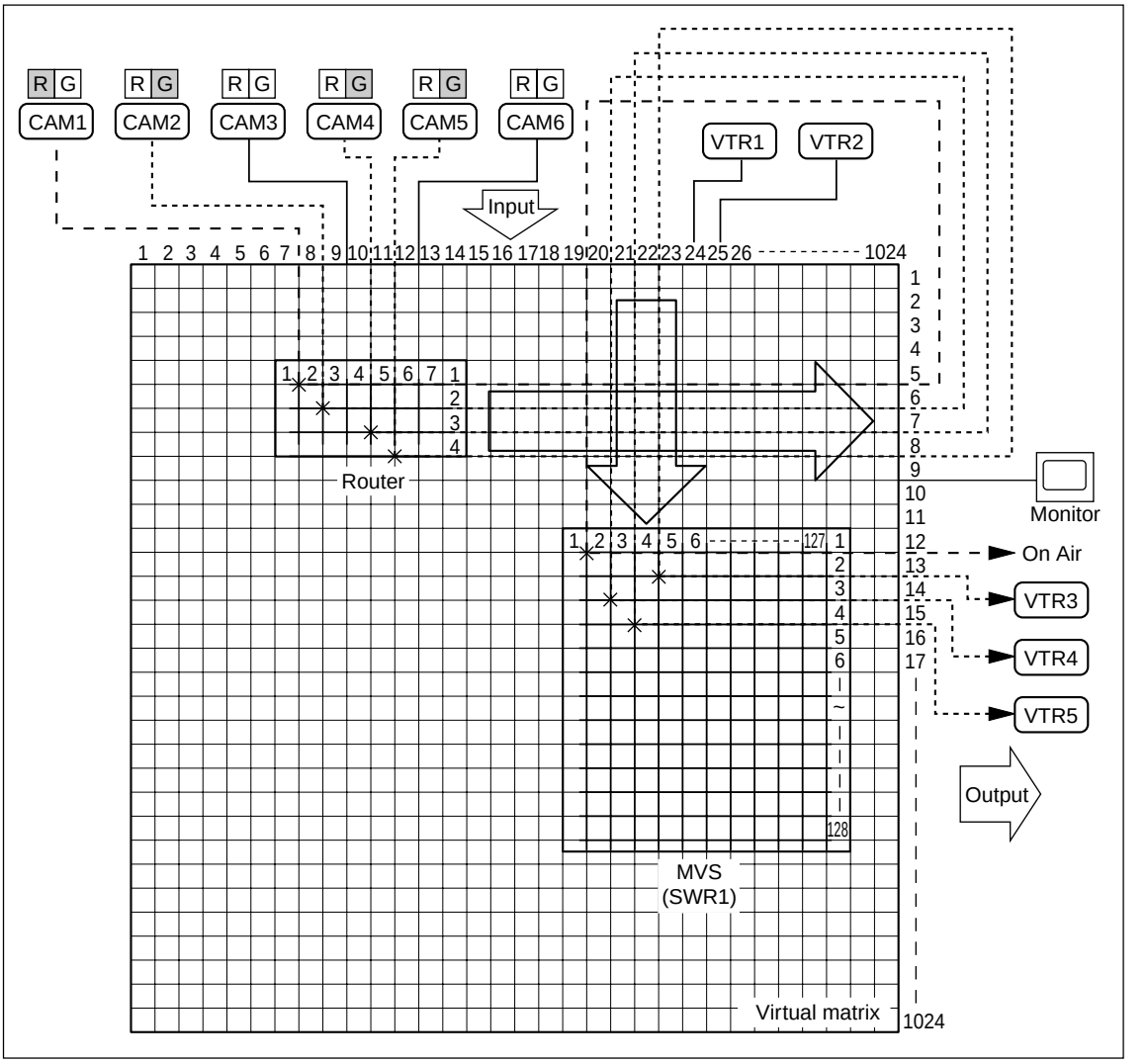
Setup example : For the system ③

System : MVS-8000 × 1 unit, router × 1 unit (8 × 4)

1. Put the Red/Green Tally to the CAM 1 to CAM 3 (virtual terminals Nos. 7 to 9) that supply video signal to the router.
2. Put the Red/Green Tally to the monitor that is connected to Destination 5 (virtual terminal No. 9) of the router.

Page 7366

Slot#	Port#	Src/Dest	Address		Level	Tally Type
2	01	Src	7	CAM1	–	R1
2	02	Src	7	CAM1	–	G1
2	03	Src	8	CAM2	–	R1
2	04	Src	8	CAM2	–	G1
2	05	Src	9	CAM3	–	R1
2	06	Src	9	CAM3	–	G1
2	07	Dest	9	MON1	1	R1
2	07	Dest	9	MON1	1	G1



System connection diagram (example)

3-7-7. Setting Serial Tally

The Serial Tally signal is output from the Serial Tally 1 terminal and the Serial Tally 2 terminal of the MKS-8700.
Ver. 1.20 does not support the Serial Tally setup. The fixed tally output is supported.
In Ver. 1.20, the fixed tallies of R-1, G-1, R-2 and G-2 are output from Serial Tally 1 terminal of the MKS-8700.
Tally signal is output according to the protocol attached as APPENDIX. For details, please refer to the “BVS-3000 Series, DVS-8000 Series PROTOCOL and COMMAND SPECIFICATIONS (Sony Part No. : 9-967-262-21)”.
Bit assignment is shown in the following table.

MVS-8000 Matrix assignment

Bit No.	Source	Bit No.	Source
1	Primary 1	36	Primary 36
2	Primary 2	37	Primary 37
3	Primary 3	38	Primary 38
4	Primary 4	39	Primary 39
5	Primary 5	40	Primary 40
6	Primary 6	41	Primary 41
7	Primary 7	42	Primary 42
8	Primary 8	43	Primary 43
9	Primary 9	44	Primary 44
10	Primary 10	45	Primary 45
11	Primary 11	46	Primary 46
12	Primary 12	47	Primary 47
13	Primary 13	48	Primary 48
14	Primary 14	49	Primary 49
15	Primary 15	50	Primary 50
16	Primary 16	51	Primary 51
17	Primary 17	52	Primary 52
18	Primary 18	53	Primary 53
19	Primary 19	54	Primary 54
20	Primary 20	55	Primary 55
21	Primary 21	56	Primary 56
22	Primary 22	57	Primary 57
23	Primary 23	58	Primary 58
24	Primary 24	59	Primary 59
25	Primary 25	60	Primary 60
26	Primary 26	61	Primary 61
27	Primary 27	62	Primary 62
28	Primary 28	63	Primary 63
29	Primary 29	64	Primary 64
30	Primary 30	65	Primary 65
31	Primary 31	66	Primary 66
32	Primary 32	67	Primary 67
33	Primary 33	68	Primary 68
34	Primary 34	69	Primary 69
35	Primary 35	70	Primary 70

Bit No.	Source
71	Primary 71
72	Primary 72
73	Primary 73
74	Primary 74
75	Primary 75
76	Primary 76
77	Primary 77
78	Primary 78
79	Primary 79
80	Primary 80
81	Black
82	White
83	Color Bkgd 1
84	Color Bkgd 2
85	Frame Memory 1
86	Frame Memory 2
87	Frame Memory 3
88	Frame Memory 4
89	Frame Memory 5
90	Frame Memory 6
91	Frame Memory 7
92	Frame Memory 8
93	Color Correction 1
94	Color Correction 2
95	DME Monitor Video
96	DME Monitor Key
97	M/E-1 Out 1
98	M/E-1 Out 2
99	M/E-1 Out 3
100	M/E-1 Out 4
101	M/E-1 Out 5
102	M/E-1 Out 6
103	M/E-2 Out 1
104	M/E-2 Out 2
105	M/E-2 Out 3
106	M/E-2 Out 4
107	M/E-2 Out 5
108	M/E-2 Out 6
109	M/E-3 Out 1
110	M/E-3 Out 2
111	M/E-3 Out 3
112	M/E-3 Out 4
113	M/E-3 Out 5
114	M/E-3 Out 6
115	P/P Out 1
116	P/P Out 2
117	P/P Out 3
118	P/P Out 4
119	P/P Out 5
120	P/P Out 6
121	DME1
122	DME2
123	DME3
124	DME4
125	DME5
126	DME6
127	DME7
128	DME8

APPENDIX

****
MVS SERIAL TALLY
****
EFF:EFFECT ADDRESS
 24h:SERIAL TALLY

<<PGM TALLY>>
 WRITE: BC, EFF, byte2, FF, byte4, byte5, byte6, ...

byte2 TALLY TYPE
91h: GP1 RED
92h: GP1 GREEN
93h: GP2 RED
94h: GP2 GREEN
95h: GP3 RED
96h: GP3 GREEN
97h: GP4 RED
98h: GP4 GREEN

* You can set TALLY TYPE in the setup menu.

byte4 COMPRESS STATUS BYTE (UPPER)

byte5 COMPRESS STATUS BYTE (LOWER)

DATA	bit	7	6	5	4	3	2	1	0
STATUS(U)	bit 7	128	127	126	125	124	123	122	121
	6	120	119	118	117	116	115	114	113
	5	112	111	110	109	108	107	106	105
	4	104	103	102	101	100	99	98	97
	3	96	95	94	93	92	91	90	89
	2	88	87	86	85	84	83	82	81
	1	80	79	78	77	76	75	74	73
	0	72	71	70	69	68	67	66	65
STATUS(L)	bit 7	64	63	62	61	60	59	58	57
	6	56	55	54	53	52	51	50	49
	5	48	47	46	45	44	43	42	41
	4	40	39	38	37	36	35	34	33
	3	32	31	30	29	28	27	26	25
	2	24	23	22	21	20	19	18	17
	1	16	15	14	13	12	11	10	9
	0	8	7	6	5	4	3	2	1

1-128 means each source number. It's assignable, but the default is the same as MVS source number specified in COMPACT MODE. If it's tallied, the bit is "1". If it's not tallied, it's "0".

Status bit shows if the data is all "0" or not.
If it's all "0", the status bit is "0". If it's not all "0", it's "1". This is to minimize the data length.

For example:
If only sources #100 and #72 are tallied:

STATUS(U)	bit	7:	0
		6:	0
		5:	0
		4:	1
		3:	0
		2:	0
		1:	0
		0:	1

Then, the following bytes are only STATUS(U) bit 4 data (97-104) and bit 0 data (65-72) as follows:

byte6	MSB	7:	104
		6:	103
		5:	102
		4:	101
		3:	100
		2:	99
		1:	98
	LSB	0:	97

byte7	MSB	7:	72
		6:	71
		5:	70
		4:	69
		3:	68
		2:	67
		1:	66
	LSB	0:	65

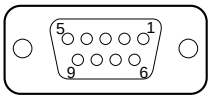
The serial tally information is sent whenever the status is changed. (There is no READ command.)

3-8. Pin Output

3-8-1. MVS-8000

The input/output signals of the connectors at the rear panel are as follows.

TERMINAL : RS-232C (D-sub 9-pin, Female)
to Terminal

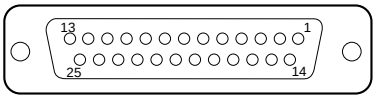


– EXT VIEW –

Pin No.	Signal name	Function
1	DCD	Data Carrier detect (*1)
2	RXD	Received data
3	TXD	Transmitted data
4	DTR	Data terminal ready (*1)
5	GND	Ground
6	DSR	Data set ready (*1)
7	RTS	Request to send (*2)
8	CTS	Clear to send (*2)
9	–	–

(*1) : Pins 1, 4 and 6 are internally connected together on the CN-2133 board.
(*2) : Pins 7 and 8 are internally connected together on the CN-2133 board.

GPI : (D-sub 25-pin, Female)
INPUT × 8, TTL
OUTPUT × 4, relay contacts 30 V 0.1 A
(resistive load)
OUTPUT × 4, open collector, 30 V rated voltage



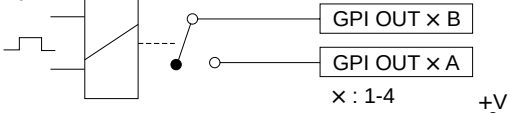
— EXT VIEW —

Pin No.	Signal name	Function
1	GND	Ground
2	GND	Ground
3	GPI IN 2	General-purpose input
4	GPI IN 4	
5	GPI IN 6	
6	GPI IN 8	
7	GPI OUT 1B	General-purpose open collector output (B) (*3)
8	GPI OUT 2B	
9	GPI OUT 3B	
10	GPI OUT 4B	
11	GPI OUT 6	General-purpose relay output (B) (*4)
12	GPI OUT 8	
13	GPI OUT COM	Ground for open collector output
14	GND	Ground
15	GPI IN 1	General-purpose input
16	GPI IN 3	
17	GPI IN 5	
18	GPI IN 7	
19	GPI OUT 1A	General-purpose relay output (A) (*3)
20	GPI OUT 2A	
21	GPI OUT 3A	
22	GPI OUT 4A	
23	GPI OUT 5	General-purpose open collector output (*4)
24	GPI OUT 7	
25	GPI OUT COM	Ground for open collector output

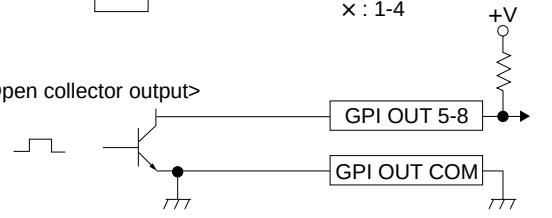
Note

A and B of the same number constitute a pair of relay contacts.

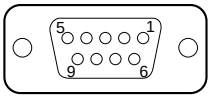
(*3) <Relay>



(*4) <Open collector output>



REMOTE 1 to 4 : RS-422A (D-sub 9-pin, Female)
<DEVICE> (∗5) from External Devices

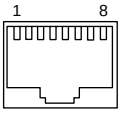


– EXT VIEW –

Pin No.	Signal name	Function
1	FG	Frame ground
2	TX–	Transmitted data (–)
3	RX+	Received data (+)
4	GND	Common ground
5	–	No Connection
6	GND	Common ground
7	TX+	Transmitted data (+)
8	RX–	Received data (–)
9	–	No Connection

(*5) <DEVICE> : The equipment that is in charge of control

DATA/CTRL : 100BASE-TX, RJ-45 (8-pin)



– EXT VIEW –

Pin No.	Signal name	Function
1	TX+	Transmitted data (+)
2	TX–	Transmitted data (–)
3	RX+	Received data (+)
4	–	No Connection
5	–	No Connection
6	RX–	Received data (–)
7	–	No Connection
8	–	No Connection

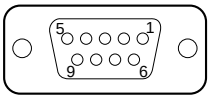
3-8-2. MVE-8000

The input/output signals of the connectors at the rear panel are as follows.

Note

<CONTROLLER> indicates a controlling device.
<DEVICE> indicates a controlled device.

EDITOR : RS-422A (D-sub 9-pin, Female)
<DEVICE> (∗1)

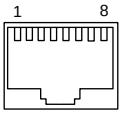


– EXT VIEW –

Pin No.	Signal name	Function
1	FG	Frame ground
2	TX–	Transmitted data (–)
3	RX+	Received data (+)
4	GND	Ground
5	–	No Connection
6	GND	Ground
7	TX+	Transmitted data (+)
8	RX–	Received data (–)
9	FG	Frame ground

(∗1) : Editing control unit such as BVE-9100 (EDITOR)

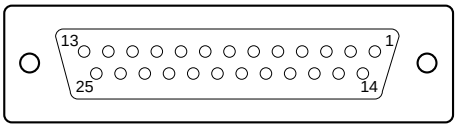
DATA
CTRL : 100BASE-TX, RJ-45 (8-pin)



– EXT VIEW –

Pin No.	Signal name	Function
1	TX+	Transmitted data (+)
2	TX–	Transmitted data (–)
3	RX+	Received data (+)
4	–	No Connection
5	–	No Connection
6	RX–	Received data (–)
7	–	No Connection
8	–	No Connection

GPI : (D-sub 25-pin, Female)
INPUT × 8, TTL
OUTPUT × 4, relay contacts 30 V 0.1 A (resistive load)
OUTPUT × 4, open collector 30 V rated voltage

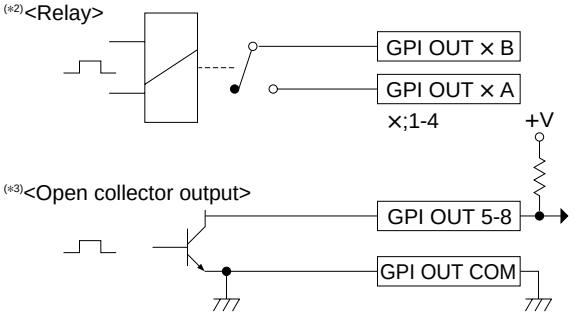


–EXT VIEW–

Pin No.	Signal name	Function
1	GND	Ground
2	GND	Ground
3	GPI IN 2	General-purpose input
4	GPI IN 4	
5	GPI IN 6	
6	GPI IN 8	
7	GPI OUT 1B	General-purpose relay output (B)∗2
8	GPI OUT 2B	
9	GPI OUT 3B	
10	GPI OUT 4B	
11	GPI OUT 6	General-purpose open collector
12	GPI OUT 8	output∗3
13	GPI OUT COM	Ground for open collector output
14	GND	Ground
15	GPI IN 1	General-purpose input
16	GPI IN 3	
17	GPI IN 5	
18	GPI IN 7	
19	GPI OUT 1A	General-purpose relay output (A)∗2
20	GPI OUT 2A	
21	GPI OUT 3A	
22	GPI OUT 4A	
23	GPI OUT 5	General-purpose open collector
24	GPI OUT 7	output∗3
25	GPI OUT COM	Ground for open collector output

Note

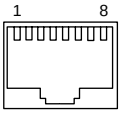
A and B of the same number constitute a pair of relay contacts.



3-8-3. CCP-8000

Input and output signals of the connectors on the rear panel are as follows.

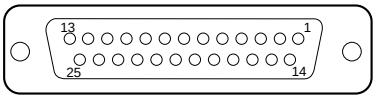
CTRL/DATA/PERIPH : 100BASE-TX, RJ-45 (8-pin)



– EXT VIEW –

Pin No.	Signal name	Function
1	TX+	Transmitted data (+)
2	TX–	Transmitted data (–)
3	RX+	Received data (+)
4	–	No Connection
5	–	No Connection
6	RX–	Received data (–)
7	–	No Connection
8	–	No Connection

GPI : (D-sub 25-pin, Female)
INPUT × 8, TTL
OUTPUT × 4, relay contacts 30 V 0.1 A
(resistive load)
OUTPUT × 4, open collector 30 V rated voltage



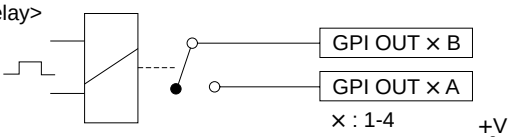
— EXT VIEW —

Pin No.	Signal name	Function
1	GND	Ground
2	GND	Ground
3	GPI IN 2	General-purpose input
4	GPI IN 4	
5	GPI IN 6	
6	GPI IN 8	
7	GPI OUT 1B	General-purpose relay
8	GPI OUT 2B	output (B)(∗1)
9	GPI OUT 3B	
10	GPI OUT 4B	
11	GPI OUT 6	General-purpose open collector
12	GPI OUT 8	output (B)(∗2)
13	GPI OUT COM	Ground for open collector output
14	GND	Ground
15	GPI IN 1	General-purpose input
16	GPI IN 3	
17	GPI IN 5	
18	GPI IN 7	
19	GPI OUT 1A	General-purpose relay output (A)(∗1)
20	GPI OUT 2A	
21	GPI OUT 3A	
22	GPI OUT 4A	
23	GPI OUT 5	General-purpose open collector
24	GPI OUT 7	output (∗2)
25	GPI OUT COM	Ground for open collector output

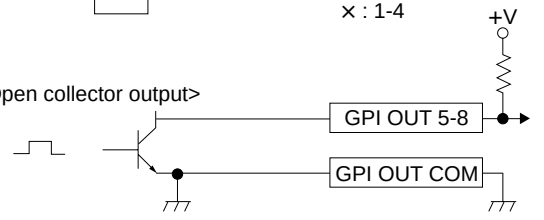
Note

A and B of the same number constitute a pair of relay contacts.

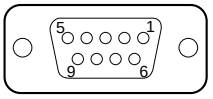
(∗1) <Relay>



(∗2) <Open collector output>



EDITOR PANEL : RS-422A (D-sub 9-pin, Female) <CONTROLLER> (*3)

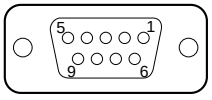


– EXT VIEW –

Pin No.	Signal name	Function
1	FG	Frame ground
2	RX–	Received data (–)
3	TX+	Transmitted data (+)
4	GND	Common ground
5	–	No Connection
6	GND	Common ground
7	RX+	Received data (+)
8	TX–	Transmitted data (–)
9	–	No Connection

(∗3) <CONTROLLER> : Indicates a controlling device.

LTC IN : (D-sub 9-pin, Female) to External Device



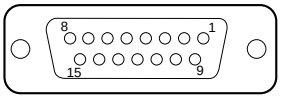
– EXT VIEW –

Pin No.	Signal name	Function
1	–	No Connection
2	–	No Connection
3	–	No Connection
4	GND	Ground
5	LTC (+)	Liner Time Code +
6	–	No Connection
7	GND	Ground
8	–	No Connection
9	LTC (–)	Liner Time Code –

DEVICE : USB Type A

Pin No.	Signal name	Function
1	VBUS	USB Vcc
2	D–	USB–
3	D+	USB+
4	GND	Ground

EXT DISPLAY : (High-density D-sub 15-pin, analog RGB, Female) to External Display



— EXT VIEW —

Pin No.	Signal name	Function
1	RED	Video Red
2	GREEN	Video Green
3	BLUE	Video Blue
4	–	No Connection
5	GND	Ground
6	GND	Ground
7	GND	Ground
8	GND	Ground
9	–	No Connection
10	GND	Ground
11	–	No Connection
12	–	No Connection
13	HSYNC	Horizontal Sync
14	VSYNC	Vertical Sync
15	–	No Connection

3-8-4. DCU-8000

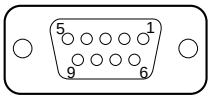
The input/output signals of the connectors at the rear panel are as follows.

Note

<CONTROLLER> indicates a controlling device.
<DEVICE> indicates a controlled device.

MKS-8700

SERIAL TALLY 1, 2 : RS-422A (D-sub 9-pin, Female)
<CONTROLLER> to Tally Interface Unit (∗1)

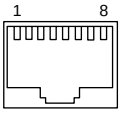


– EXT VIEW –

Pin No.	Signal name	Function
1	FG	Frame ground
2	RX–	Received data (–)
3	TX+	Transmitted data (+)
4	GND	Common ground
5	–	No Connection
6	GND	Common ground
7	RX+	Received data (+)
8	TX–	Transmitted data (–)
9	–	No Connection

(∗1) : TALLY INTERFACE UNIT BKDS-6080 and others.

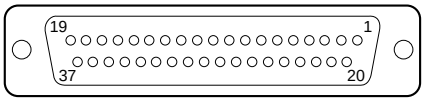
PERIPH : 100BASE-TX, RJ-45 (8-pin)



– EXT VIEW –

Pin No.	Signal name	Function
1	TX+	Transmitted data (+)
2	TX–	Transmitted data (–)
3	RX+	Received data (+)
4	–	No Connection
5	–	No Connection
6	RX–	Received data (–)
7	–	No Connection
8	–	No Connection

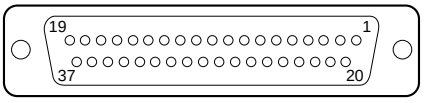
TALLY/GPI IN 1-34 : D-sub 37-pin, Female
INPUT × 34, TTL, 2 INPUT TTL/+12 V Switchable (∗2)



–EXT VIEW–

Pin No.	Signal name	Function
1	TALLY/GPI IN 1	Tally/GPI inputs
2	TALLY/GPI IN 3	
3	TALLY/GPI IN 5	
4	TALLY/GPI IN 7	
5	TALLY/GPI IN 9	
6	TALLY/GPI IN 11	
7	TALLY/GPI IN 13	
8	TALLY/GPI IN 15	
9	TALLY/GPI IN 17	
10	TALLY/GPI IN 19	
11	TALLY/GPI IN 21	
12	TALLY/GPI IN 23	
13	TALLY/GPI IN 25	
14	TALLY/GPI IN 27	
15	TALLY/GPI IN 29	
16	TALLY/GPI IN 31	
17	TALLY/GPI IN 33 (∗2)	
18	GND	Ground
19	GND	Ground
20	TALLY/GPI IN 2	Tally/GPI inputs
21	TALLY/GPI IN 4	
22	TALLY/GPI IN 6	
23	TALLY/GPI IN 8	
24	TALLY/GPI IN 10	
25	TALLY/GPI IN 12	
26	TALLY/GPI IN 14	
27	TALLY/GPI IN 16	
28	TALLY/GPI IN 18	
29	TALLY/GPI IN 20	
30	TALLY/GPI IN 22	
31	TALLY/GPI IN 24	
32	TALLY/GPI IN 26	
33	TALLY/GPI IN 28	
34	TALLY/GPI IN 30	
35	TALLY/GPI IN 32	
36	TALLY/GPI IN 34 (∗2)	
37	GND	Ground

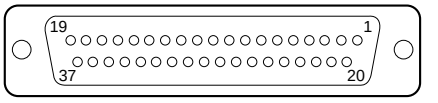
TALLY/GPI IN 35-68 : D-sub 37-pin, Female
INPUT × 34, TTL, 2 INPUT TTL/+12 V Switchable (∗2)



–EXT VIEW–

Pin No.	Signal name	Function
1	TALLY/GPI IN 35	Tally/GPI inputs
2	TALLY/GPI IN 37	
3	TALLY/GPI IN 39	
4	TALLY/GPI IN 41	
5	TALLY/GPI IN 43	
6	TALLY/GPI IN 45	
7	TALLY/GPI IN 47	
8	TALLY/GPI IN 49	
9	TALLY/GPI IN 51	
10	TALLY/GPI IN 53	
11	TALLY/GPI IN 55	
12	TALLY/GPI IN 57	
13	TALLY/GPI IN 59	
14	TALLY/GPI IN 61	
15	TALLY/GPI IN 63	
16	TALLY/GPI IN 65	
17	TALLY/GPI IN 67 (∗2)	
18	GND	Ground
19	GND	Ground
20	TALLY/GPI IN 36	Tally/GPI inputs
21	TALLY/GPI IN 38	
22	TALLY/GPI IN 40	
23	TALLY/GPI IN 42	
24	TALLY/GPI IN 44	
25	TALLY/GPI IN 46	
26	TALLY/GPI IN 48	
27	TALLY/GPI IN 50	
28	TALLY/GPI IN 52	
29	TALLY/GPI IN 54	
30	TALLY/GPI IN 56	
31	TALLY/GPI IN 58	
32	TALLY/GPI IN 60	
33	TALLY/GPI IN 62	
34	TALLY/GPI IN 64	
35	TALLY/GPI IN 66	
36	TALLY/GPI IN 68 (∗2)	
37	GND	Ground

TALLY/GPI IN 69-102 : D-sub 37-pin, Female
INPUT × 34, TTL, 2 INPUT TTL/+12 V Switchable (∗2)

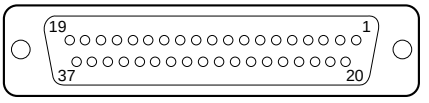


–EXT VIEW–

Pin No.	Signal name	Function
1	TALLY/GPI IN 69	Tally/GPI inputs
2	TALLY/GPI IN 71	
3	TALLY/GPI IN 73	
4	TALLY/GPI IN 75	
5	TALLY/GPI IN 77	
6	TALLY/GPI IN 79	
7	TALLY/GPI IN 81	
8	TALLY/GPI IN 83	
9	TALLY/GPI IN 85	
10	TALLY/GPI IN 87	
11	TALLY/GPI IN 89	
12	TALLY/GPI IN 91	
13	TALLY/GPI IN 93	
14	TALLY/GPI IN 95	
15	TALLY/GPI IN 97	
16	TALLY/GPI IN 99	
17	TALLY/GPI IN 101 (∗2)	
18	GND	Ground
19	GND	Ground
20	TALLY/GPI IN 70	Tally/GPI inputs
21	TALLY/GPI IN 72	
22	TALLY/GPI IN 74	
23	TALLY/GPI IN 76	
24	TALLY/GPI IN 78	
25	TALLY/GPI IN 80	
26	TALLY/GPI IN 82	
27	TALLY/GPI IN 84	
28	TALLY/GPI IN 86	
29	TALLY/GPI IN 88	
30	TALLY/GPI IN 90	
31	TALLY/GPI IN 92	
32	TALLY/GPI IN 94	
33	TALLY/GPI IN 96	
34	TALLY/GPI IN 98	
35	TALLY/GPI IN 100	
36	TALLY/GPI IN 102 (∗2)	
37	GND	Ground

MKS-8701

TALLY/GPI OUT 1-18 : D-sub 37-pin, Female
OUTPUT × 18, relay contacts 30 V 0.1 A (∗3)



–EXT VIEW–

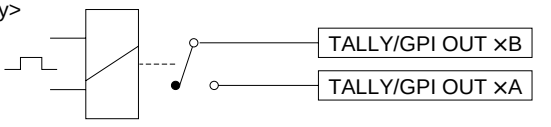
Pin No.	Signal name	Function
1	TALLY/GPI OUT 1A	Tally/GPI outputs
2	TALLY/GPI OUT 2A	
3	TALLY/GPI OUT 3A	
4	TALLY/GPI OUT 4A	
5	TALLY/GPI OUT 5A	
6	TALLY/GPI OUT 6A	
7	TALLY/GPI OUT 7A	
8	TALLY/GPI OUT 8A	
9	TALLY/GPI OUT 9A	
10	TALLY/GPI OUT 10A	
11	TALLY/GPI OUT 11A	
12	TALLY/GPI OUT 12A	
13	TALLY/GPI OUT 13A	
14	TALLY/GPI OUT 14A	
15	TALLY/GPI OUT 15A	
16	TALLY/GPI OUT 16A	
17	TALLY/GPI OUT 17A	
18	TALLY/GPI OUT 18A	
19	GND	Ground
20	TALLY/GPI OUT 1B	Tally/GPI outputs
21	TALLY/GPI OUT 2B	
22	TALLY/GPI OUT 3B	
23	TALLY/GPI OUT 4B	
24	TALLY/GPI OUT 5B	
25	TALLY/GPI OUT 6B	
26	TALLY/GPI OUT 7B	
27	TALLY/GPI OUT 8B	
28	TALLY/GPI OUT 9B	
29	TALLY/GPI OUT 10B	
30	TALLY/GPI OUT 11B	Tally/GPI outputs
31	TALLY/GPI OUT 12B	
32	TALLY/GPI OUT 13B	
33	TALLY/GPI OUT 14B	
34	TALLY/GPI OUT 15B	
35	TALLY/GPI OUT 16B	
36	TALLY/GPI OUT 17B	
37	TALLY/GPI OUT 18B	

(∗3)

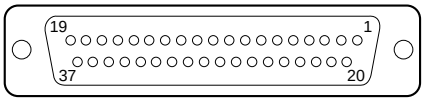
Note

A and B of the same number constitute a pair of relay contacts.

<Relay>



TALLY/GPI OUT 19-36 : D-sub 37-pin, Female
OUTPUT × 18, relay contacts 30 V 0.1 A (∗3)



–EXT VIEW–

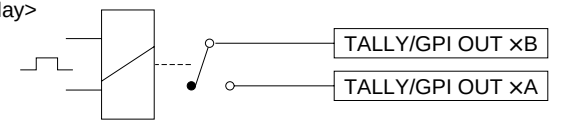
Pin No.	Signal name	Function
1	TALLY/GPI OUT 19A	Tally/GPI outputs
2	TALLY/GPI OUT 20A	
3	TALLY/GPI OUT 21A	
4	TALLY/GPI OUT 22A	
5	TALLY/GPI OUT 23A	
6	TALLY/GPI OUT 24A	
7	TALLY/GPI OUT 25A	
8	TALLY/GPI OUT 26A	
9	TALLY/GPI OUT 27A	
10	TALLY/GPI OUT 28A	
11	TALLY/GPI OUT 29A	
12	TALLY/GPI OUT 30A	
13	TALLY/GPI OUT 31A	
14	TALLY/GPI OUT 32A	
15	TALLY/GPI OUT 33A	
16	TALLY/GPI OUT 34A	
17	TALLY/GPI OUT 35A	
18	TALLY/GPI OUT 36A	
19	GND	Ground
20	TALLY/GPI OUT 19B	Tally/GPI outputs
21	TALLY/GPI OUT 20B	
22	TALLY/GPI OUT 21B	
23	TALLY/GPI OUT 22B	
24	TALLY/GPI OUT 23B	
25	TALLY/GPI OUT 24B	
26	TALLY/GPI OUT 25B	
27	TALLY/GPI OUT 26B	
28	TALLY/GPI OUT 27B	
29	TALLY/GPI OUT 28B	
30	TALLY/GPI OUT 29B	Tally/GPI outputs
31	TALLY/GPI OUT 30B	
32	TALLY/GPI OUT 31B	
33	TALLY/GPI OUT 32B	
34	TALLY/GPI OUT 33B	
35	TALLY/GPI OUT 34B	
36	TALLY/GPI OUT 35B	
37	TALLY/GPI OUT 36B	

(∗3)

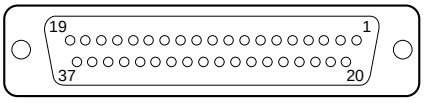
Note

A and B of the same number constitute a pair of relay contacts.

<Relay>



TALLY/GPI OUT 37-54 : D-sub 37-pin, Female
OUTPUT × 18, relay contacts 30 V 0.1 A (∗3)



–EXT VIEW–

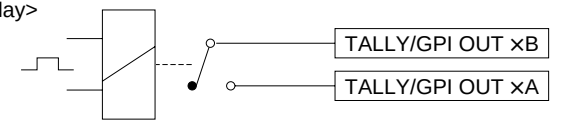
Pin No.	Signal name	Function
1	TALLY/GPI OUT 37A	Tally/GPI outputs
2	TALLY/GPI OUT 38A	
3	TALLY/GPI OUT 39A	
4	TALLY/GPI OUT 40A	
5	TALLY/GPI OUT 41A	
6	TALLY/GPI OUT 42A	
7	TALLY/GPI OUT 43A	
8	TALLY/GPI OUT 44A	
9	TALLY/GPI OUT 45A	
10	TALLY/GPI OUT 46A	
11	TALLY/GPI OUT 47A	
12	TALLY/GPI OUT 48A	
13	TALLY/GPI OUT 49A	
14	TALLY/GPI OUT 50A	
15	TALLY/GPI OUT 51A	
16	TALLY/GPI OUT 52A	
17	TALLY/GPI OUT 53A	
18	TALLY/GPI OUT 54A	
19	GND	Ground
20	TALLY/GPI OUT 37B	Tally/GPI outputs
21	TALLY/GPI OUT 38B	
22	TALLY/GPI OUT 39B	
23	TALLY/GPI OUT 40B	
24	TALLY/GPI OUT 41B	
25	TALLY/GPI OUT 42B	
26	TALLY/GPI OUT 43B	
27	TALLY/GPI OUT 44B	
28	TALLY/GPI OUT 45B	
29	TALLY/GPI OUT 46B	
30	TALLY/GPI OUT 47B	Tally/GPI outputs
31	TALLY/GPI OUT 48B	
32	TALLY/GPI OUT 49B	
33	TALLY/GPI OUT 50B	
34	TALLY/GPI OUT 51B	
35	TALLY/GPI OUT 52B	
36	TALLY/GPI OUT 53B	
37	TALLY/GPI OUT 54B	

(∗3)

Note

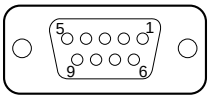
A and B of the same number constitute a pair of relay contacts.

<Relay>



MKS-8702

REMOTE1 to 6 : RS-422A (D-sub 9-pin, Female)
<CONTROLLER> to External Device



– EXT VIEW –

Pin No.	Signal name	Function
1	FG	Frame ground
2	RX–	Received data (–)
3	TX+	Transmitted data (+)
4	GND	Common ground
5	–	No Connection
6	GND	Common ground
7	RX+	Received data (+)
8	TX–	Transmitted data (–)
9	–	No Connection

Section 4
Specifications

The following specifications show the reference performance for this unit and individual option boards/ units.
Design and specifications are subject to change without notice.

4-1. MVS-8000

MVS-8000 Multi Format Switcher Processor

General

Power requirements	100 to 240 V AC ±10 %, 50/60 Hz
Peak inrush current	(1) Power ON, current probe method : 60 A (100 V), 110 A (230 V) (2) Hot switching inrush current, measured in accordance with European standard EN55103-1 : 40 A (230 V)
Power consumption	20 to 8.5 A
Operating temperature	+5 ˚C to +40 ˚C (41 ˚F to 104 ˚F)
Performance guaranteed temperature	+10 ˚C to +35 ˚C (50 ˚F to 95 ˚F)
Storage temperature	−20 ˚C to +60 ˚C (−4 ˚F to +140 ˚F)
Operating humidity	10 % to 90 %
Dimensions	482 × 708 × 520 mm (19 × 27 $^{7}/_{8}$ × 20 $^{1}/_{2}$ inches) (w/h/d, excluding projections)
Mass	Approx. 85 kg (187 lb 6 oz) (when equipped with all installable option boards and option power supply unit)

Remote Control connectors

CTRL	RJ-45 Complies with 100BASE-TX standard
DATA	RJ-45 Complies with 100BASE-TX standard
REMOTE 1, 2, 3, 4	D-sub 9-pin, female Comply with RS-422A standard Data transfer rate : 38.4 Kbps
GPI	D-sub 25-pin, female TTL inputs : 8 Relay contact outputs : 4 (30 V AC/DC, 0.1 A) Open collector outputs : 4
TERMINAL	D-sub 9-pin, female Complies with RS-232C standard Data transfer rate : 9600 bps
EXT	BNC type, 75 Ω S-BUS data transfer rate : 312/1250 Kbps

Reference input and output

REF IN	BNC type, 75 Ω with loop-through output
	HDTV systems :
	HD tri-level sync/SDTV analog black burst/SDTV analog sync
	SDTV systems :
	Analog black burst/analog sync
REF OUT	BNC type, 75 Ω
	HD tri-level sync (HDTV systems only)
	Signal level 300 mV ±10 %
	Analog sync
	Signal level 300 mV ±10 %
	Phase variation range
	−90H to +90H

AC input

AC IN A, B, C, D	3-pin AC connector

Accessories supplied

75 Ω terminator (1)
Bracket (4)
Support angle (2)
Screw (+B4 ×10) (8)
Screw (+PSW4 × 10) (8)
Operation Manual (1)
Installation Manual (1)

Accessories not supplied

AC power cord (for USA and Canada only) (125 V 10 A 2.4 m (8 ft)) (Part No.: 1-557-377-11)
AC power cord (for Europe only) (250 V 10 A 2.4 m (8 ft)) (Part No.: 1-782-929-21)

MKS-8110HD 17 Input Board

General

Power requirements	12 V DC
Power consumption	Max. 10 W
Dimensions	274 × 94 mm (10 7/8 × 3 3/4 inches) (w/d)
Mass	Approx. 1 kg (2 lb 3 oz)

Input

Inputs	17 (BNC type)
Signal format	SMPTE292M
Signal level	0.8 V p-p ±10 %
Signal transfer rate	1.5 Gbps
Return loss	15 dB
Cable length	100 m (FC-FB cable, BELDEN1694 or equivalent)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8110SD 17 Input Board

General

Power requirements	12 V DC
Power consumption	Max. 10 W
Dimensions	274 × 94 mm (10 7/8 × 3 3/4 inches) (w/d)
Mass	Approx. 1 kg (2 lb 3 oz)

Input

Inputs	17 (BNC type)
Signal format	SMPTE259M-C
Signal level	0.8 V p-p ±10 %
Signal transfer rate	270 Mbps
Return loss	15 dB
Cable length	200 m (FC-FB cable, BELDEN8281 or equivalent)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8111SD Additional 12 Input Board

General

Power requirements	12 V DC
Power consumption	Max. 10 W
Dimensions	274 × 94 mm (10 7/8 × 3 3/4 inches) (w/d)
Mass	Approx. 1 kg (2 lb 3 oz)

Input

Inputs	12 (BNC type)
Signal format	SMPTE259M-C
Signal level	0.8 V p-p ±10 %
Signal transfer rate	270 Mbps
Return loss	15 dB
Cable length	200 m (5C-2V cable, BELDEN8281 or equivalent)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8160HD 8 Output Board

General

Power requirements	12 V DC
Power consumption	Max. 110 W
Dimensions	OUT board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
	CN board : 274 × 94 mm (10 7/8 × 3 3/4 inches) (w/d)
Mass	Approx. 3 kg (6 lb 9 oz)

Output

Outputs	8 (BNC type), each with 2 outputs
Signal format	SMPTE292M
Signal level	0.8 V p-p ±10 %
Signal transfer rate	1.5 Gbps

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8160SD 8 Output Board

General

Power requirements	12 V DC
Power consumption	Max. 80 W
Dimensions	OUT board : 317 × 380 mm (12 1/2 ×15 inches) (w/d)
	CN board : 274 × 94 mm (10 7/8 × 3 3/4 inches) (w/d)
Mass	Approx. 3 kg (6 lb 9 oz)

Output

Outputs	8 (BNC type), each with 2 outputs
Signal format	SMPTE259M-C
Signal level	0.8 V p-p ±10 %
Signal transfer rate	270 Mbps

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8161HD Monitor Output Board

General

Power requirements	12 V DC
Power consumption	Max. 10 W
Dimensions	274 × 94 mm (10 7/8 × 3 3/4 inches) (w/d)
Mass	Approx. 1 kg (2 lb 3 oz)

Output

Outputs	8 (BNC type), each with 2 outputs
Signal format	SMPTE292M
Signal level	0.8 V p-p ±10 %
Signal transfer rate	1.5 Gbps

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8161SD Monitor Output Board

General

Power requirements	12 V DC
Power consumption	Max. 10 W
Dimensions	274 × 94 mm (10 7/8 × 3 3/4 inches) (w/d)
Mass	Approx. 1 kg (2 lb 3 oz)

Output

Outputs	8 (BNC type), each with 2 outputs
Signal format	SMPTE259M-C
Signal level	0.8 V p-p ±10 %
Signal transfer rate	270 Mbps

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8170HD DME Interface Board

General

Power requirements	12 V DC
Power consumption	Max. 50 W
Dimensions	DIF board : 317 × 380 mm (12 1/2 ×15 inches) (w/d)
	CN board : 274 × 94 mm (10 7/8 × 3 3/4 inches) (w/d)
Mass	Approx. 1 kg (2 lb 3 oz)

Input and output (DME 1A, DME 1B, DME 2A, DME 2B)

Connector	MDR 68-pin
Signal format	LVDS

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8170SD DME Interface Board

General

Power requirements	12 V DC
Power consumption	Max. 50 W
Dimensions	DIF board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
	CN board : 274 × 94 mm (10 7/8 × 3 3/4 inches) (w/d)
Mass	Approx. 1 kg (2 lb 3 oz)

Input and output (DME 1A, DME 1B, DME 2A, DME 2B)

Connector	MDR 68-pin
Signal format	LVDS

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8210HD Mix/Effect Board Set

General

Power requirements	12 V DC
Power consumption	Max. 250 W
Dimensions	MIX board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
	KPC board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
	DI board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
	DO board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
Mass	Approx. 5 kg (11 lb)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8210SD Mix/Effect Board Set

General

Power requirements	12 V DC
Power consumption	Max. 150 W
Dimensions	MIX board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
	KPC board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
	DI board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
	DO board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
Mass	Approx. 5 kg (11 lb)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8440HD Frame Memory Board Set

General

Power requirements	12 V DC
Power consumption	Max. 70 W
Dimensions	MY board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
	DIO board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
Mass	Approx. 2 kg (4 lb 6 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8440SD Frame Memory Board Set

General

Power requirements	12 V DC
Power consumption	Max. 50 W
Dimensions	MY board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
	DIO board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
Mass	Approx. 2 kg (4 lb 6 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

HK-PSU04 Power Supply Unit

General

Power requirements	100 to 240 V AC ±10 %, 50/60 Hz
Output power	12 V DC ±0.5 V
Power consumption	10 to 5 A
Secondary power supply	Max. 60 A
Dimensions	94 × 83 × 396 mm (3 3/4 × 3 3/8 × 15 5/8 inches) (w/h/d)
Mass	Approx. 3 kg (6 lb 9 oz)

Accessories supplied

Installation Guide (1)

(supplied only when product is purchased separately)

4-2. MVE-8000

MKS-8800 Multi Format DME Processor

General

Power requirements	100 to 240 V AC ±10 %, 50/60 Hz
Peak inrush current	(1) Power ON, current probe method : 60 A (100 V), 60 A (230 V) (2) Hot switching inrush current, measured in accordance with European standard EN55103-1 : 40 A (230 V)
Power consumption	Approx. 3.5 to 1.5 A
Performance temperature	+5 ˚C to +40 ˚C (41 ˚F to 104 ˚F)
Operating temperature	+10 ˚C to +35 ˚C (50 ˚F to 95 ˚F)
Storage temperature	−20 ˚C to +60 ˚C (−4 ˚F to +140 ˚F)
Operating humidity	10 % to 90 %
Dimensions	440 × 221 × 520 mm (17 $^{3}/_{8}$ × 8 $^{3}/_{4}$ × 20 $^{1}/_{2}$ inches) (w/h/d, excluding projections)
Mass	Approx. 20 kg (44 lb 1 oz) (when equipped with all installable option boards)

Reference input

REF IN	BNC type, 75 Ω with loop-through output HDTV systems : HD tri-level sync/SDTV analog black burst/SDTV analog sync SDTV systems : Analog black burst/analog sync

Control connectors

CTRL	RJ-45 Complies with 100 BASE-TX standard
DATA	RJ-45 Complies with 100 BASE-TX standard
EDITOR	D-sub 9-pin, female Complies with RS-422A standard Data transfer rate : 38.4 Kbps
GPI	D-sub 25-pin, female TTL inputs : 8 Relay contact outputs : 4 (30 V AC/DC, 0.1 A) Open collector outputs : 4

AC input

AC IN	3-pin AC connector

System Delay

System delay	1 frame (except 720P) 2 frames (in case of 720P)

Accessories supplied

MDR 68-pin cable (2)
75 Ω terminator (1)
Operation Manual (1)
Installation Manual (1)

Accessories not supplied

AC power cord (for USA and Canada only) (125 V 10 A 2.4 m (8 ft)) (Part No.: 1-557-377-11)
AC power cord (for Europe only) (250 V 10 A 2.4 m (8 ft)) (Part No.: 1-782-929-21)

MKS-8810M Basic Effects Board

General

Power requirements	12 V DC
Power consumption	Approx. 4.3 A
Dimensions	317 × 380 mm (12 1/2 × 15 inches) (w/d)
Mass	Approx. 1.1 kg (2 lb 6 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8820M Input/Output Board

General

Power requirements	12 V DC
Power consumption	Approx. 4.1 A
Dimensions	VIF board : 317 × 380 mm (12 1/2 × 15 inches) (w/d) CN board : 278 × 94 mm (11 × 3 3/4 inches) (w/d)
Mass	Approx. 1.4 kg (3 lb 1 oz)

Video signal inputs and outputs

SWITCHER A, SWITCHER B

Connectors	MDR 68-pin
Signal format	LVDS (special format)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8830M Nonlinear Effect Board

General

Power requirements	1.8 V DC, 3.3 V DC
Power consumption	Max. 20 W
Dimensions	139 × 116 mm (5 1/2 × 4 5/8 inches) (w/d)
Mass	Approx. 0.2 kg (7 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

4-3. DCU-8000

MKS-8700 Device Control Unit

General

Power requirements	100 to 240 V AC ±10 %, 50/60 Hz
Peak inrush current	(1) Power ON, current probe method : 20 A (100 V), 60 A (230 V) (2) Hot switching inrush current, measured in accordance with European standard EN55103-1 : 30 A (230 V)
Power consumption	Max. 1.4 A
Operating temperature	+5 ˚C to +40 ˚C (41 ˚F to 104 ˚F)
Performance guranteed temperature	+10 ˚C to +35 ˚C (50 ˚F to 95 ˚F)
Storage temperature	−20 ˚C to +60 ˚C (−4 ˚F to +140 ˚F)
Operating humidity	10 % to 90 %
Dimensions	440 × 132 × 520 mm (17 3/8 × 5 1/4 × 20 1/2 inches) (w/h/d, excluding projections)
Mass	Approx. 12 kg (26 lb 7 oz) (without MKS-8701 and MKS-8702)

Reference input

REF IN	BNC type, 75 Ω, with loop-through output HDTV systems : HD tri-level sync/SDTV analog black burst/SDTV analog sync SDTV systems : Analog black burst/analog sync

Control connectors

PERIPH	RJ-45 Complies with 100BASE-TX standard
SERIAL TALLY 1, 2	D-sub 9-pin, female Complies with RS-422A standard Data transfer rate : 38.4 Kbps
TALLY/GPI IN	1 to 34, 35 to 68, 69 to 102 D-sub 37-pin, female TTL inputs : 96 (1 to 32, 35 to 66, 69 to 100) TTL/+12 V input selectable : 6 (33, 34, 67, 68, 101, 102)

AC input

AC IN A, B	3-pin AC connector

Accessories supplied

75 Ω terminator (1)
Operation Manual (1)
Installation Manual (1)

Accessories not supplied

AC power cord (for USA and Canada only) (125 V 10 A 2.4 m (8 ft)) (Part No.: 1-557-377-11)
AC power cord (for Europe only) (250 V 10 A 2.4 m (8 ft)) (Part No.: 1-782-929-21)

MKS-8701 TALLY/GPI Output Board

General

Power requirements	12 V DC
Power consumption	Max. 1 A
Dimensions	RC board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
	CN board : 278 × 94 mm (11 × 3 3/4 inches) (w/d)
Mass	Approx. 1.2 kg (2 lb 10 oz)

Output connectors

TALLY/GPI OUT 1 to 18, 19 to 36, 37 to 54
D-sub 37-pin, female
Relay contact outputs : 54 (30 V AC/DC, 0.1 A)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8702 Serial Interface Board

General

Power requirements	12 V DC
Power consumption	Max. 0.5 A
Dimensions	IF board : 317 × 380 mm (12 1/2 × 15 inches) (w/d)
	CN board : 278 × 94 mm (11 × 3 3/4 inches) (w/d)
Mass	Approx. 1.2 kg (2 lb 10 oz)

Control connectors

Remote 1 to 6
D-sub, 9-pin, female
Complies with RS-422A standard
Data transfer rate: 38.4 Kbps

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

4-4. CCP-8000

Center Control Panel

The center control panel is comprised of the main panel, the System Control Unit (MKS-8010), the menu panel (MKS-8011), and operation modules. The required operation modules are installed in the main panel at the factory.
The following accessories are center control panel accessories.

Accessories supplied

75 Ω terminator (1)
T bridge (1)
Button top puller (1)
50-pin cables*
Name plates (attached to main panel)
USB cable (5 m/16 ft) (1)
Track ball (1)
Switch cover 12 (20)
Switch cover 15 (20)
Self-lighting switch chip (5)
Operation Manual (1)
Installation Manual (1)
User's Guide (2)

∗ : The number depends on the system configuration.

When purchased together with the center control panel, the MKS-8075 Extension Adaptor and MKS-8076 Memory Card/USB Adaptor are supplied with the same accessories as when purchased separately (see pages 4-23).

Main Panel

Main panel specifications vary according to the system configuration. The following shows specifications for typical configurations.

General

Power requirements	12 V DC
Power consumption	Max. 10 A
Operating temperature	+5 °C to +40 °C (41 °F to 104 °F)
Performance temperature	+10 °C to +35 °C (50 °F to 95 °F)
Storage temperature	−20 °C to +60 °C (−4 °F to +140 °F)
Operating humidity	10 % to 90 %
Dimensions* (w/h/d)	Example 1 : (32 crosspoint buttons, 4 M/E) : 1443 × 98 × 528 mm (56 7/8 × 3 7/8 × 20 7/8 inches) Example 2 : (32 crosspoint buttons, 3 M/E) : 1223 × 98 × 528 mm (48 1/4 × 3 3/4 × 20 7/8 inches) Example 3 : (32 crosspoint buttons, 2 M/E) : 1443 × 92 × 396 mm (56 7/8 × 3 5/8 × 15 5/8 inches) Example 4 : (32 crosspoint buttons, 2 M/E) : 1223 × 92 × 396 mm (48 1/4 × 3 5/8 × 15 5/8 inches) Example 5 : (24 crosspoint buttons, 4 M/E) : 1291 × 98 × 528 mm (50 7/8 × 3 7/8 × 20 7/8 inches) Example 6 : (24 crosspoint buttons, 3 M/E) : 1071 × 98 × 528 mm (42 1/4 × 3 7/8 × 20 7/8 inches) Example 7 : (24 crosspoint buttons, 2 M/E) : 1291 × 92 × 396 mm (50 7/8 × 3 5/8 × 15 5/8 inches) Example 8 : (24 crosspoint buttons, 2 M/E) : 1071 × 92 × 396 mm (42 1/4 × 3 5/8 × 15 5/8 inches) Example 9 : (16 crosspoint buttons, 3 M/E) : 919 × 98 × 528 mm (36 3/16 × 3 7/8 × 20 7/8 inches) Example 10 : (16 crosspoint buttons, 2 M/E) : 919 × 92 × 396 mm (36 3/16 × 3 5/8 × 15 5/8 inches)
Mass*	Example 1 : Approx. 30 kg (66 lb 2 oz) Example 2 : Approx. 26 kg (57 lb 5 oz) Example 3 : Approx. 23 kg (50 lb 11 oz) Example 4 : Approx. 19 kg (41 lb 14 oz) Example 5 : Approx. 28 kg (61 lb 11 oz) Example 6 : Approx. 23 kg (50 lb 11 oz) Example 7 : Approx. 21 kg (46 lb 4 oz) Example 8 : Approx. 16 kg (35 lb 4 oz) Example 9 : Approx. 20 kg (44 lb 1 oz) Example 10 : Approx. 13 kg (28 lb 10 oz)

∗ : Dimensions and mass vary depending on the configuration. The above examples give dimensions (w/h/d) and mass for typical configurations.

For details, refer to the Installation Manual.

Control connectors

SCU	D-sub 50-pin, female
HOST	USB Type B
DEVICE	USB Type A (2) Maximum supply current 400 mA

AUX Panel

AUX panel specifications vary according to the system configuration. The following shows specifications for typical configurations.

General

Dimensions*(w/h/d)	Example 1 : (32 crosspoint buttons) : 782 × 82 × 132 mm (30 7/8 × 3 1/4 × 5 1/4 inches)
	Example 2 : (24 crosspoint buttons) : 630 × 82 × 132 mm (24 7/8 × 3 1/4 × 5 1/4 inches)
	Example 3 : (16 crosspoint buttons) : 478 × 82 × 132 mm (18 13/16 × 3 1/4 × 5 1/4 inches)
Mass*	Example 1 : Approx. 5.0 kg (11 lb)
	Example 2 : Approx. 4.0 kg (8 lb 13 oz)
	Example 3 : Approx. 3.0 kg (6 lb 10 oz)

∗ : Dimensions and mass vary depending on the configuration. The above examples give dimensions (w/h/d) and mass for typical configurations.

Control connectors

SCU	D-sub 50-pin, female
HOST	USB Type B
DEVICE	USB Type A (2)
Maximum supply current	400 mA

MKS-8010 System Control Unit

General

Power requirements	100 to 240 V AC ±10 %, 50/60 Hz
Peak inrush current	(1) Power ON, current probe method : 20 A (100 V), 90 A (230 V)
	(2) Hot switching inrush current, measured in accordance with European standard EN55103-1 : 30 A (230 V)
Current consumption	1 A/0.7 A
Operating temperature	+5 ˚C to +40 ˚C (41 ˚F to 104 ˚F)
Performance guaranteed temperature	+10 ˚C to +35 ˚C (50 ˚F to 95 ˚F)
Storage temperature	−20 ˚C to +60 ˚C (−4 ˚F to +140 ˚F)
Operating humidity	10 % to 90 %
Dimensions	440 × 132 × 520 mm (17 3/8 × 5 1/4 × 20 1/2 inches) (w/h/d, excluding projections)
Mass	Approx. 12 kg (26 lb 7 oz)

Reference input

REF IN	BNC type, 75 Ω, with loop-through output HDTV systems : HD tri-level sync/SDTV analog black burst/SDTV analog sync SDTV systems : Analog black burst/analog sync

Control connectors

CTRL	RJ-45
	Complies with 100BASE-TX standard
DATA	RJ-45
	Complies with 100BASE-TX standard
PERIPH	RJ-45
	Complies with 100BASE-TX standard
MAIN PANEL	D-sub 50-pin, female
MENU PANEL	D-sub 50-pin, female
EXT PANEL 1, 2, 3	D-sub 50-pin, female
DEVICE	USB Type A
	Maximum supply current 2 A
REMOTE	BNC type, 75 Ω
	S-BUS
	Data transfer rate : 312/1250 Kbps
GPI	D-sub 25-pin, female
	TTL inputs : 8
	Relay contact outputs : 4 (30 V AC/DC, 0.1 A)
	Open collector outputs : 4
LTC IN	D-sub 9-pin, female
EDITOR PANEL	D-sub, 9-pin, female
	Complies with RS-422A standard
	Data transfer rate : 38.4 Kbps

Video output

EXT DISPLAY	High-density D-sub 15-pin, female
	Analog RGB

AC input

AC IN A, B	3-pin AC connector

Accessories not supplied

AC power cord (for USA and Canada only) (125 V 10 A 2.4 m (8 ft)) (Part No.: 1-557-377-11)
AC power cord (for Europe only) (250 V 10 A 2.4 m (8 ft)) (Part No.: 1-782-929-21)

MKS-8011 Menu Panel

General

Power requirements	12 V DC
Power consumption	Max. 1A
Dimensions	424 × 46 × 220 mm (16 3/4 × 1 13/16 × 8 3/4 inches) (w/h/d, excluding projections)
Mass	Approx. 2.5 kg (5 lb 8 oz)

Control connectors

SCU	D-sub 50-pin, female

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8013 32 AUX Bus Module

General

Power requirements	12 V DC
Power consumption	Max. 3 A
Dimensions	740 × 132 mm (29 1/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 2.5 kg (5 lb 8 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8014 24 AUX Bus Module

General

Power requirements	12 V DC
Power consumption	Max. 3 A
Dimensions	588 × 132 mm (23 1/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 2.0 kg (4 lb 6 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8015 16 AUX Bus Module

General

Power requirements	12 V DC
Power consumption	Max. 3 A
Dimensions	436 × 132 mm (17 1/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 1.5 kg (3 lb 4 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8017 32 XPT Module

General

Power requirements	12 V DC
Power consumption	Max. 3 A
Dimensions	740 × 132 mm (29 1/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 2.5 kg (5 lb 8 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8018 24 XPT Module

General

Power requirements	12 V DC
Power consumption	Max. 3A
Dimensions	588 × 132 mm (23 1/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 2.0 kg (4 lb 6 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8019 16 XPT Module

General

Power requirements	12 V DC
Power consumption	Max. 3A
Dimensions	436 × 132 mm (17 1/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 1.5 kg (3 lb 4 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8020 Standard Transition Module

General

Power requirements	12 V DC
Power consumption	Max. 1 A
Dimensions	293 × 132 mm (11 5/8 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 1.0 kg (2 lb 3 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8021 Simple Transition Right Module

General

Power requirements	12 V DC
Power consumption	Max. 1 A
Dimensions	293 × 132 mm (11 5/8 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 1.0 kg (2 lb 3 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8022 Simple Transition Left Module

General

Power requirements	12 V DC
Power consumption	Max. 1 A
Dimensions	293 × 132 mm (11 5/8 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 1.0 kg (2 lb 3 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8023 Compact Key Transition Module

General

Power requirements	12 V DC
Power consumption	Max. 0.5 A
Dimensions	147 × 132 mm (5 7/8 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.5 kg (1 lb 1 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8024 Flexi Pad Module

General

Power requirements	12 V DC
Power consumption	Max. 1 A
Dimensions	147 × 132 mm (5 7/8 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.6 kg (1 lb 5 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8025 Memory Card/USB Module

General

Power requirements	5 V DC
Power consumption	Max. 1 A
Dimensions	220 × 132 mm (8 3/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.7 kg (1 lb 8 oz)
PC card slot	Type II (1) (Supports Card Bus)

Control connectors

DEVICE	USB Type A (3) Maximum supply current 400 mA*

* : When used with PC Card, up to a total of 400 mA can be supplied by 3 ports. When used without PC Card, up to a total of 800 mA can be supplied by 3 ports.

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8026 10 Key Pad Module

General

Power requirements	12 V DC
Power consumption	Max. 1 A
Dimensions	220 × 132 mm (8 3/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.7 kg (1 lb 8 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8030 Key Frame Module

General

Power requirements	12 V DC
Power consumption	Max. 1 A
Dimensions	220 × 132 mm (8 3/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.9 kg (1 lb 15 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8031JS Joystick Module

General

Power requirements	12 V DC
Power consumption	Max. 1 A
Dimensions	220 × 132 mm (8 3/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.7 kg (1 lb 8 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8031TB Track Ball Module

General

Power requirements	12 V DC
Power consumption	Max. 1 A
Dimensions	220 × 132 mm (8 3/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.7 kg (1 lb 8 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8032 DSK Fader Module

General

Power requirements	12 V DC
Power consumption	Max. 1 A
Dimensions	220 × 132 mm (8 3/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.8 kg (1 lb 12 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8033 Utility/Shotbox Module

General

Power requirements	12 V DC
Power consumption	Max. 1.5 A
Dimensions	220 × 132 mm (8 3/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.7 kg (1 lb 8 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8034FB FTB Module

General

Power requirements	12 V DC
Power consumption	Max. 0.5 A
Dimensions	147 × 132 mm (5 7/8 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.4 kg (14 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8035 Key Control Module

General

Power requirements	12 V DC
Power consumption	Max. 1 A
Dimensions	220 × 132 mm (8 3/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.6 kg (1 lb 5 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8040 Blank Panel (1/3)

General

Power requirements	12 V DC
Power consumption	Max. 0.1 A
Dimensions	147 × 132 mm (5 7/8 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.4 kg (14 oz)

General

Accessories supplied
Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8041 Blank Panel (1/2)

General

Power requirements	12 V DC
Power consumption	Max. 0.1 A
Dimensions	220 × 132 mm (8 3/4 × 5 1/4 inches) (w/d, excluding projections)
Mass	Approx. 0.4 kg (14 oz)

Accessories supplied

Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8075 Extension Adaptor

General

Power requirements	12 V DC
Power consumption	Max. 0.5 A
Dimensions	263 × 79 × 132 mm (10 3/8 × 3 1/8 × 5 1/4 inches) (w/h/d, excluding projections)
Mass	Approx. 0.9 kg (1 lb 15 oz)

Control connectors

EXT IN	D-sub 50-pin, male
EXT OUT	D-sub 50-pin, female

Accessories supplied

50-pin cable (1)
Connecting panel A (2)
Connecting panel B (1)
Connecting panel C (1)
Connecting screws (+BV3 × 10) (4)
Panel cover (L) (1)
Panel cover (R) (1)
Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MKS-8076 Memory Card/USB Adaptor

General

Power requirements	5 V DC
Power consumption	Max. 1A
Dimensions	263 × 79 × 132 mm (10 3/8 × 3 1/8 × 5 1/4 inches) (w/h/d, excluding projections)
Mass	Approx. 0.6 kg (1 lb 5 oz)

Control connectors

HOST	USB Type B

Accessories supplied

Connecting panel A (2)
Connecting panel B (1)
Connecting panel C (1)
Panel cover (L) (1)
Panel cover (R) (1)
Connecting screws (+BV3 × 10) (4)
Operation and Installation Guide (1)
(supplied only when product is purchased separately)

MVS-8000 (SY) E
9-967-961-01

Sony Corporation
B&P Company

Printed in Japan
2002. 4 16