

SONY[®]

SWITCHER PROCESSOR PACK

DVS-9000-C

DVS9000SF-C

PRODUCTION SWITCHER PROCESSOR

DVS-9000

DVS-9000SF

BKDS-9160 BKDS-9161 BKDS-9162 BKDS-9210
BKDS-9470 MKS-8110SD MKS-8111SD HK-PSU04

OPERATION MANUAL English
1st Edition

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

THIS APPARATUS MUST BE EARTHED.

For the customers in the USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

(BKDS-9160/9161/9162/9210/9470, MKS-8110SD/8111SD, HK-PSU04 only)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For customers in Canada (BKDS-9160/9161/9162/9210/9470, MKS-8110SD/8111SD, HK-PSU04 only)

This Class A digital apparatus complies with Canadian ICES-003.

Pour les utilisateurs au Canada (BKDS-9160/9161/9162/9210/9470, MKS-8110SD/8111SD, HK-PSU04 uniquement)

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

WARNING: THIS WARNING IS APPLICABLE FOR USA ONLY.

If used in USA, use the UL LISTED power cord specified below.

DO NOT USE ANY OTHER POWER CORD.

Plug Cap	Parallel blade with ground pin (NEMA 5-15P Configuration)
Cord	Type SJT, three 18 AWG wires
Length	Less than 2.5 m (8 ft 3 in)
Rating	Minimum 10 A, 125 V

Using this unit at a voltage other than 120V may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

WARNING: THIS WARNING IS APPLICABLE FOR OTHER COUNTRIES.

1. Use the approved Power Cord (3-core mains lead)/Appliance Connector/Plug with earthing-contacts that conforms to the safety regulations of each country if applicable.
2. Use the Power Cord (3-core mains lead)/Appliance Connector/Plug conforming to the proper ratings (Voltage, Ampere).

If you have questions on the use of the above Power Cord/ Appliance Connector/Plug, please consult a qualified service personnel.

VORSICHT

Um Feuergefahr und die Gefahr eines elektrischen Schlages zu vermeiden, darf das Gerät weder Regen noch Feuchtigkeit ausgesetzt werden.

Um einen elektrischen Schlag zu vermeiden, darf das Gehäuse nicht geöffnet werden. Überlassen Sie Wartungsarbeiten stets nur qualifiziertem Fachpersonal.

DIESES GERÄT MUSS GEERDET WERDEN.

AVERTISSEMENT

Afin d'éviter tout risque d'incendie ou d'électrocution, ne pas exposer cet appareil à la pluie ou à l'humidité.

Afin d'écartier tout risque d'électrocution, garder le coffret fermé. Ne confier l'entretien de l'appareil qu'à un personnel qualifié.

CET APPAREIL DOIT ÊTRE RELIÉ À LA TERRE.

For the customers in Europe (DVS-9000/9000SF only)

This product with the CE marking complies with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European standards:

- EN60950: Product Safety
- EN55103-1: Electromagnetic Interference (Emission)
- EN55103-2: Electromagnetic Susceptibility (Immunity)

This product is intended for use in the following Electromagnetic Environment: E4 (controlled EMC environment, ex. TV studio).

Für Kunden in Europa (nur DVS-9000/9000SF)

Dieses Produkt besitzt die CE-Kennzeichnung und erfüllt sowohl die EMV-Direktive (89/336/EEC) als auch die Direktive Niederspannung (73/23/EEC) der EG-Kommission. Die Erfüllung dieser Direktiven bedeutet Konformität für die folgenden Europäischen Normen:

- EN60950: Produktsicherheit
- EN55103-1: Elektromagnetische Interferenz (Emission)
- EN55103-2: Elektromagnetische Empfindlichkeit (Immunität)

Dieses Produkt ist für den Einsatz unter die folgende elektromagnetische Bedingung ausgelegt: E4 (kontrollierter EMV-Bereich, z.B. Fernsehstudio).

Pour les clients européens (DVS-9000/9000SF uniquement)

Ce produit portant la marque CE est conforme à la fois à la Directive sur la compatibilité électromagnétique (EMC) (89/336/CEE) et à la Directive sur les basses tensions (73/23/CEE) émises par la Commission de la Communauté européenne.

La conformité à ces directives implique la conformité aux normes européennes suivantes:

- EN60950: Sécurité des produits
- EN55103-1: Interférences électromagnétiques (émission)
- EN55103-2: Sensibilité électromagnétique (immunité)

Ce produit est prévu pour être utilisé dans l'environnement électromagnétique suivant: E4 (environnement EMC contrôlé ex. studio de télévision).

For the customers in Europe (BKDS-9210/9160/9161/9470, MKS-8110SD/8111SD, HK-PSU04 only)

This product with the CE marking complies with the EMC Directive (89/336/EEC) issued by the Commission of the European Community.

Compliance with this directive implies conformity to the following European standards:

- EN55103-1: Electromagnetic Interference (Emission)
- EN55103-2: Electromagnetic Susceptibility (Immunity)

This product is intended for use in the following Electromagnetic Environment: E4 (controlled EMC environment, ex. TV studio).

Für Kunden in Europa (nur BKDS-9210/9160/9161/9470, MKS-8110SD/8111SD, HK-PSU04)

Dieses Produkt besitzt die CE-Kennzeichnung und erfüllt die EMV-Direktive (89/336/EEC) der EG-Kommission.

Die Erfüllung dieser Direktive bedeutet Konformität für die folgenden Europäischen Normen:

- EN55103-1: Elektromagnetische Interferenz (Emission)
- EN55103-2: Elektromagnetische Empfindlichkeit (Immunität)

Dieses Produkt ist für den Einsatz unter die folgende elektromagnetische Bedingung ausgelegt: E4 (kontrollierter EMV-Bereich, z.B. Fernsehstudio).

Pour les clients européens (BKDS-9210/9160/9161/9470, MKS-8110SD/8111SD, HK-PSU04 uniquement)

Ce produit portant la marque CE est conforme à la Directive sur la compatibilité électromagnétique (EMC) (89/336/CEE) émise par la Commission de la Communauté européenne. La conformité à cette directive implique la conformité aux normes européennes suivantes:

- EN55103-1: Interférences électromagnétiques (émission)
- EN55103-2: Sensibilité électromagnétique (immunité)

Ce produit est prévu pour être utilisé dans l'environnement électromagnétique suivant: E4 (environnement EMC contrôlé ex. studio de télévision).

Periodic inspections

To guarantee safe long-term operation, periodic inspections are recommended. Please contact your Sony representative for detailed information about the content and cost of periodic inspections.

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Overview

The DVS-9000-C or DVS9000SF-C Switcher Processor Pack is a high-performance, multi-function production switcher processor for use in an SDTV-format DVS-9000 video switcher system. It has a wide range of application, being usable in studios and the ENG and OB vans of large-scale live production systems as well as in postproduction editing systems.

Features

SDTV format support

This unit supports the 480i/59.94 and 576i/50 formats.

Highly expandable system configuration

By combining option boards, you can configure the optimum system for your requirements, selecting the number of inputs and outputs and the number of M/E banks. The system's flexibility guarantees its ability to meet future expansion requirements.

High-performance keyers

Each M/E bank is equipped with four high-performance keyers that provide the following standard functions.

- Ability to apply transitions to keyers independently of the background
- Chroma key and color vector keys in each keyer
- FineKey™, and key borders up to 8H
- Color mixable matte generator available for both key fill and key borders

Simultaneous output of four programs

Each M/E bank is able to handle four simultaneous program outputs, with the ability to apply any of the four keys to program output. This gives the system the ability to handle a wide range of operating situations, for example simultaneous transmission of four programs.

Powerful preview functions

The system supports simultaneous output of look-ahead previews (next preview) and key previews, and also transition previews.

Powerful frame memory functions

Up to 222 SDTV still frames can be stored in frame memory, and up to eight frames can be called up for use simultaneously. Frames are called up instantly, making it possible to achieve animation effects. Image movement and paint functions are also possible. Still pictures from frame memory can be stored on the internal hard disk drive of the center control panel, and still pictures can be imported from and exported to PCs and other external devices.

Four-channel DME

Installation of an optional DME board set provides four-channel DME functionality. You can apply DME wipes, processed keys, and a wide variety of other DME functions.

Optional backup power supply

Installation of one or two optional HK-PSU04 Power Supply Units provides backup power in addition to the power supply unit (s) supplied as standard equipment. This reduces the risk of power trouble and increases the reliability of live broadcast systems.

Overview of the DVS-9000 Components

DVS-9000 Production Switcher Processor

DVS-9000 Production Switcher Processor main unit. This is the main chassis unit of the DVS-9000 Production Switcher Processor (size EIA 8RU). It is supplied with boards for 2 M/E banks, 17 inputs, and 24 outputs as standard equipment. The following options may be installed to configure different systems.

Option Name	Maximum number of installable option boards
BKDS-9160	1
BKDS-9161	1
BKDS-9210	2
BKDS-9470	1
MKS-8110SD	3
MKS-8111SD	1
HK-PSU04	2

DVS-9000SF Production Switcher Processor

DVS-9000SF Production Switcher Processor main unit. This is the main chassis unit of the DVS-9000SF Production Switcher Processor (size EIA 4RU). It is supplied with boards for 1 M/E banks, 17 inputs, and 12 outputs as standard equipment. The following options may be installed to configure different systems.

Option Name	Maximum number of installable option boards
BKDS-9162	1
BKDS-9210	1
BKDS-9470	1
MKS-8110SD	1
HK-PSU04	1

BKDS-9160 24 Output Board Set

A 24-output board set. This option is for the DVS-9000 only. One option set can be installed.

BKDS-9161 8 Monitor Output Board

An 8-output board for monitoring input signals. This option is for the DVS-9000 only. One option board can be installed.

BKDS-9162 12 Output Connector Board

A 12-output connector board. This option is for the DVS-9000SF only. One option board can be installed.

BKDS-9210 Mix Effect Board

A M/E board. Depending on the configuration, up to two option boards can be installed in a DVS-9000 system. One option board can be installed in a DVS-9000SF system.

BKDS-9470 DME Board Set

A 4-channel DME option board set. One option set can be installed in either the DVS-9000 or DVS-9000SF.

MKS-8110SD 17 Input Board

A 17-input board. Up to option three boards can be installed in the DVS-9000. One option board can be installed in the DVS-9000SF.

MKS-8111SD Additional 12 Input Board

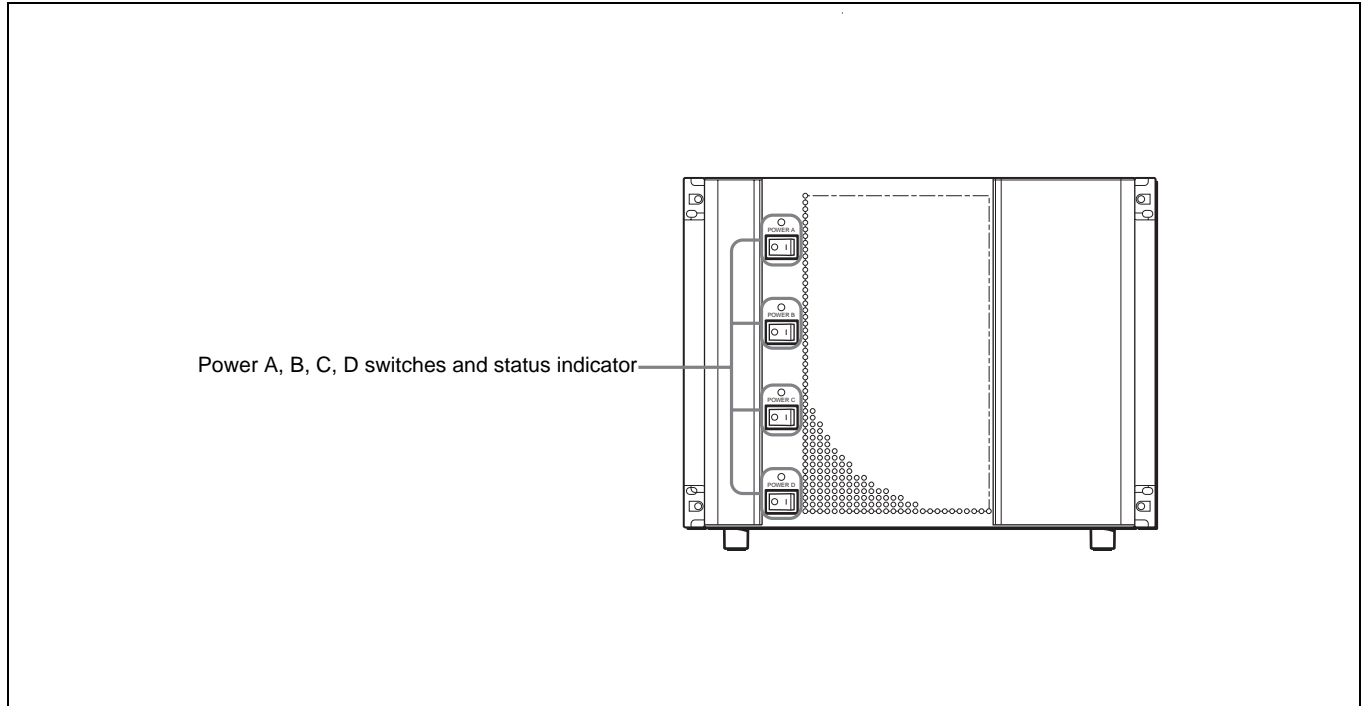
A 12-input expansion board. This option is for the DVS-9000 only. One option board can be installed. When more than 68 inputs (three MKS-8110SD boards) are required, this board can be installed to provide up to 80 inputs.

HK-PSU04 Power Supply Unit

A backup power supply unit. By installing one or two backup units in the DVS-9000, or one backup unit in the DVS-9000SF, you can back up the system's power supply.

Location and Function of Parts

DVS-9000 Front Panel



POWER A, B, C and D switches and status indicators

The POWER switches turn the unit on and off. The unit is powered on when the POWER switches are on the “I” side, and powered off when the POWER switches are on the “O” side. The status indicators light in green when the unit is powered on.

Depending on the system’s configuration when shipped, there may be no optional HK-PSU04 Power Supply Units installed. In this case, the only available POWER switches are A and B (there are no switches C and D).

The unit is not powered on until two of the POWER switches (A, B, C, and D) are turned on.

With HK-PSU04 units installed, the system continues to function normally as long as any two of the power supply units are operating normally.

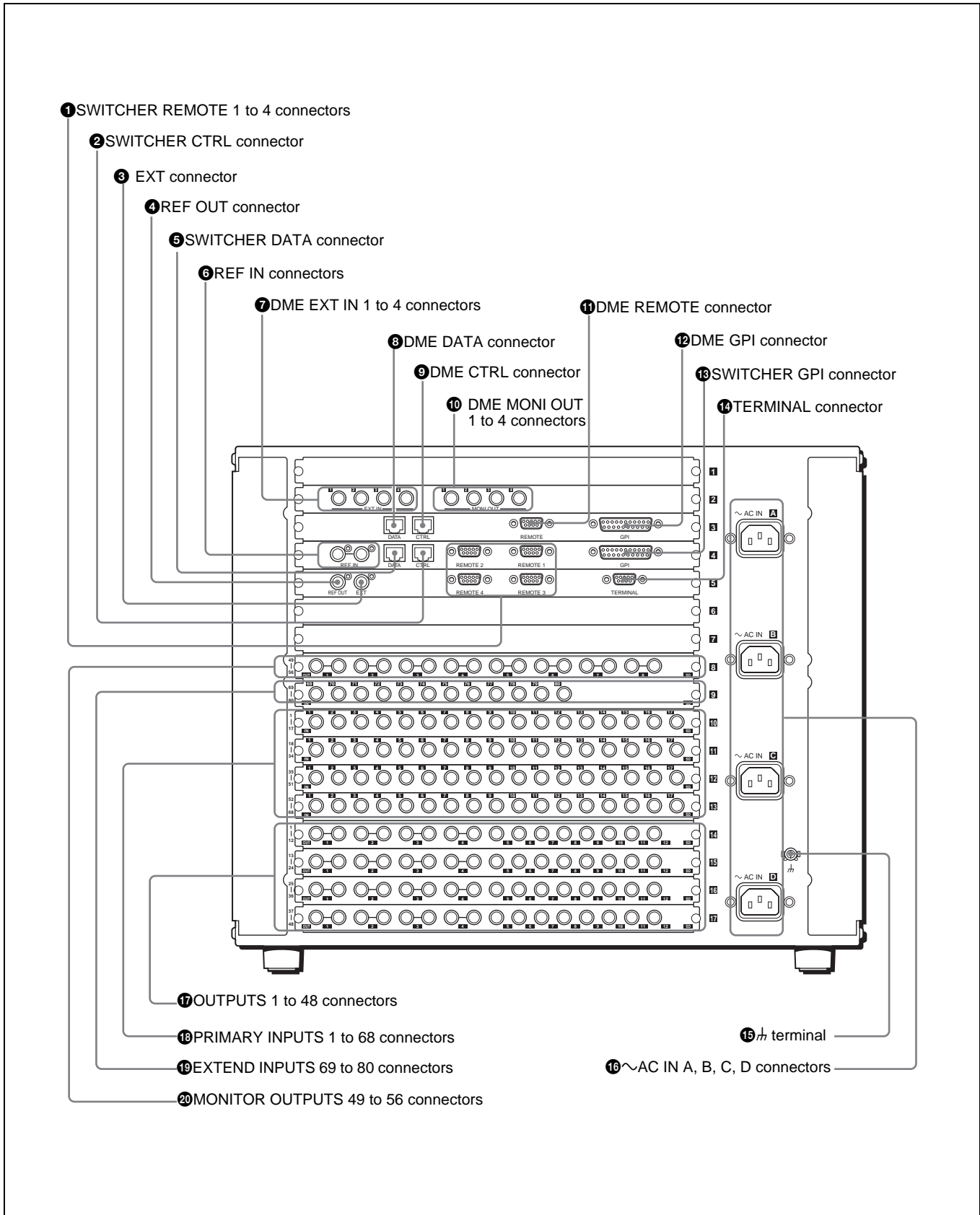
Caution

When installing the HK-PSU04 in your unit, be sure to contact your Sony service representative.

Note

If a status indicator does not light when you turn a POWER switch on, there may be a fault in the power circuits. Turn the POWER switch off and contact your Sony service representative.

DVS-9000 Rear Panel



1 SWITCHER REMOTE 1 to 4 connectors (D-sub 9-pin, RS-422A)

Used to control the DVS-9000 AUX bus from external devices, and to operate the DVS-9000 from editing control systems such as the BVE-9100.

Specify the types of connected devices on the center control panel.

2 SWITCHER CTRL (Switcher Control) connector (RJ-45)

Connect to an Ethernet switch*.

The DVS-9000 System is connected in the same way to the Ethernet switch to form a network for exchange of signals between the devices.

This network is used primarily to control the various devices from the center control panel.

* For information about Ethernet switches that can be used in a DVS-9000 system, contact your Sony service representative.

* Ethernet is a trademark of XEROX Corporation.

For more information about Ethernet switch connectors, see "DVS-9000 System Configuration" (page 15).

For detailed information about setting up the Ethernet switch, refer to the documentation supplied with the Ethernet switch.

Caution

When using a LAN cable: For safety, do not connect to a connector for peripheral device wiring that might have excessive voltage.

3 EXT (extension) connector (BNC type)

Used to expand inputs by connecting devices such as an HDS-X series routing switcher.

4 REF OUT (reference video output) connector (BNC type)

Output analog sync signals.

5 SWITCHER DATA connector (RJ-45)

Connect to an Ethernet switch.

The DVS-9000 System is connected in the same way to the Ethernet switch to form a network for exchange of signals between the devices.

This network is used primarily for exchange of various types of data (key frame effects, snapshots, etc.) and still pictures of frame memory.

Caution

When using a LAN cable: For safety, do not connect to a connector for peripheral device wiring that might have excessive voltage.

6 REF IN (reference signal input) connectors (BNC type)

If you wish to synchronize this unit to an external reference signal, input a black burst signal or analog sync signal. The

two connectors have a loop-through configuration. Signal input to one connector can be output from the other connector. If you will not be using the loop-through output, be sure to terminate the unused connector with the supplied 75Ω terminator.

7 DME EXT IN (Digital Multi Effects External input) 1 to 4 connectors (BNC type) (BKDS-9470)

Connectors for four serial digital video signal inputs. Dedicated input for DME external video.

8 DME DATA (Digital Multi Effects Data) connector (RJ-45) (BKDS-9470)

Connect to an Ethernet switch.

The DVS-9000 System is connected in the same way to the Ethernet switch to form a network for exchange of signals between the devices.

Caution

When using a LAN cable: For safety, do not connect to a connector for peripheral device wiring that might have excessive voltage.

9 DME CTRL (Digital Multi Effects Control) connector (RJ-45) (BKDS-9470)

Connect to an Ethernet switch.

The DVS-9000 System is connected in the same way to the Ethernet switch to form a network for exchange of signals between the devices.

This network is used primarily to control the various devices from the center control panel.

Caution

When using a LAN cable: For safety, do not connect to a connector for peripheral device wiring that might have excessive voltage.

10 DME MONI OUT (Digital Multi Effects Monitor Output) 1 to 4 connectors (BNC type) (BKDS-9470)

Connectors for four serial digital video signal outputs.

These connectors allow you to monitor any desired output signal with the DME signal (video, key, or with graphics).

11 DME REMOTE (Digital Multi Effects Remote) connector (D-sub 9-pin, RS-422A) (BKDS-9470)

When a BKDS-9470 is installed, enables control of DME operations from remote devices.

12 DME GPI (Digital Multi Effects General Purpose Interface) connector (D-sub 25-pin) (BKDS-9470)

Connect to external devices for input and output of trigger signals. Up to eight inputs and eight outputs are possible, with input and output conditions set on the center control panel.

13 SWITCHER GPI (Switcher General Purpose Interface) connector (D-sub 25-pin)

Connect to external devices for input and output of trigger signals. Up to eight inputs and eight outputs are possible, with input and output conditions set on the center control panel.

14 TERMINAL connector (D-sub 9-pin, RS-232C)

This connector is used for factory adjustments.

15 \perp (signal ground) terminal

Connect to the system ground.

16 \sim AC IN (AC power input) A, B, C, D connectors (3-pin)

Connect to 100 to 240 V AC power supply with the optional AC power cords.

Depending on the system's configuration when shipped, there may be no optional HK-PSU04 Power Supply Units installed. In that case, the AC IN C and D connectors is not used.

Caution

For information about installing an HK-PSU04, contact your Sony service representative.

17 OUTPUTS 1 to 48 connectors (BNC type) (BKDS-9160)

These connectors output serial digital signals. They can be freely assigned to program output, preview output, AUX output and so on.

There are two BNC connectors for the lower numbers on each slot (1 to 4, 13 to 16, 25 to 28, 37 to 40) and one BNC connector for the upper numbers (5 to 12, 17 to 24, 29 to 36, 41 to 48).

Make output assignments using the center control panel of the DVS-9000 system.

The number of connectors varies depending on the number of BKDS-9160 sets installed.

Refer to the User's Guide for information about signals that may be assigned.

18 PRIMARY INPUTS 1 to 68 connectors (BNC type) (MKS-8110SD)

These connector accept up to 68 serial digital video signal inputs. The number of connectors varies depending on the number of MKS-8110SD boards installed.

19 EXTEND INPUTS 69 to 80 connectors (BNC type) (MKS-8111SD)

These connectors accept up to 12 expansion serial digital video signal inputs.

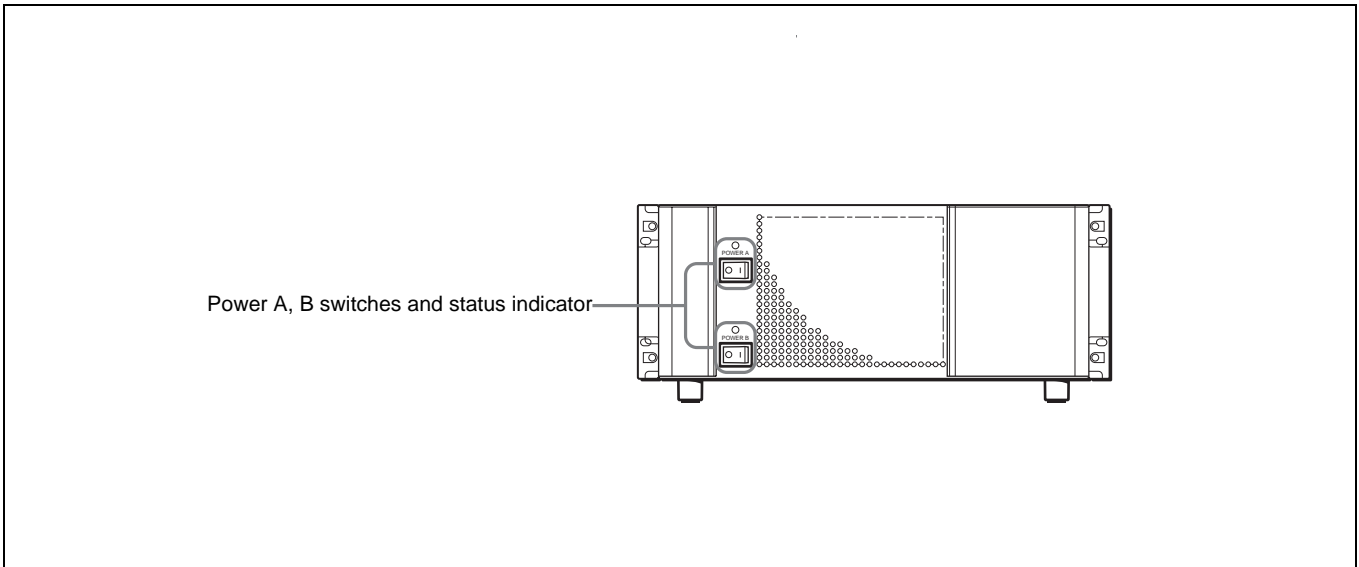
Use these connectors when 69 or more inputs are required.

20 MONITOR OUTPUTS 49 to 56 connectors (BNC type) (BKDS-9161)

Use these connectors as outputs for primary input monitors or as auxiliary outputs for external devices.

These connectors are effective if you wish to output primary inputs with as little delay as possible.

DVS-9000SF Front Panel



Power A, B switches and status indicators

The POWER switches turn the unit on and off. The unit is powered on when the POWER switches are on the “I” side, and powered off when the POWER switches are on the “O” side. The status indicators light in green when the unit is powered on.

Depending on the system’s configuration when shipped, there may be no optional HK-PSU04 Power Supply Unit installed. In this case, the only available POWER switch is A (there is no switch B).

The unit is powered on when either of the two POWER switches (A or B) is turned on.

With an HK-PSU04 unit installed, the system continues to function normally as long as either of the two power supply units is operating normally.

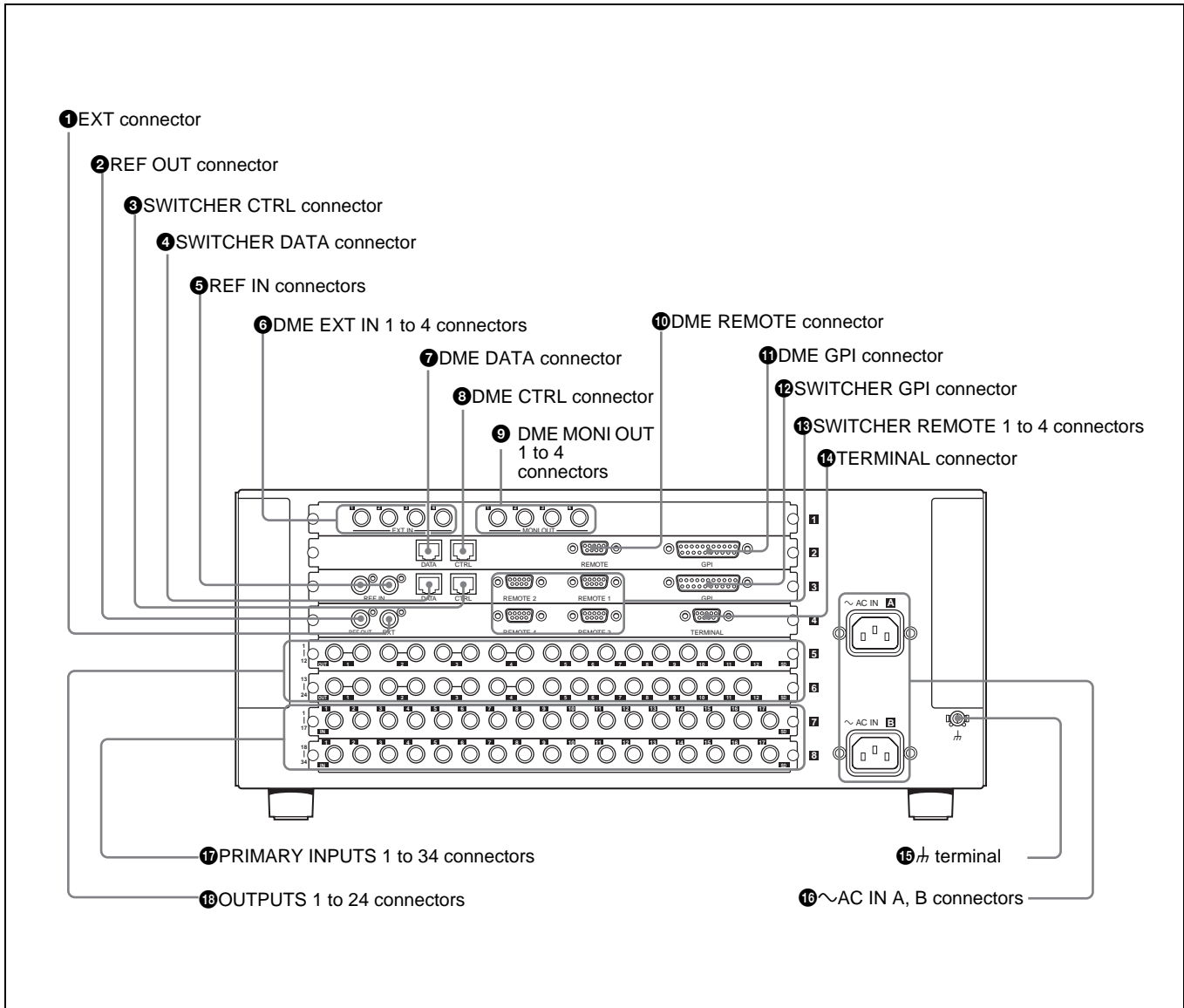
Caution

When installing the HK-PSU04 in your unit, be sure to contact your Sony service representative.

Note

If a status indicator does not light when you turn a POWER switch on, there may be a fault in the power circuits. Turn the POWER switch off and contact your Sony service representative.

DVS-9000SF Rear Panel



1 EXT (extension) connector (BNC type)
Used to expand inputs by connecting devices such as an HDS-X series routing switcher.

2 REF OUT (reference video output) connector (BNC type)
Output analog sync signals.

3 SWITCHER CTRL (Switcher Control) connector (RJ-45)
Connect to an Ethernet switch*.
The DVS-9000 System is connected in the same way to the Ethernet switch to form a network for exchange of signals between the devices.
This network is used primarily to control the various devices from the center control panel.

* For information about Ethernet switches that can be used in an DVS-9000 system, contact your Sony service representative.

For more information about Ethernet switch connectors, see "DVS-9000 System Configuration" (page 15).

For detailed information about setting up the Ethernet switch, refer to the documentation supplied with the Ethernet switch.

Caution

When using a LAN cable: For safety, do not connect to a connector for peripheral device wiring that might have excessive voltage.

4 SWITCHER DATA connector (RJ-45)

Connect to an Ethernet switch.

The DVS-9000 System is connected in the same way to the Ethernet switch to form a network for exchange of signals between the devices. This network is used primarily for exchange of various types of data (key frame effects, snapshots, etc.) and still pictures of frame memory.

Caution

When using a LAN cable: For safety, do not connect to a connector for peripheral device wiring that might have excessive voltage.

5 REF IN (reference signal input) connectors (BNC type)

If you wish to synchronize this unit to an external reference signal, input a black burst signal or analog sync signal. The two connectors have a loop-through configuration. Signal input to one connector can be output from the other connector. If you will not be using the loop-through output, be sure to terminate the unused connector with the supplied 75Ω terminator.

6 DME EXT IN (Digital Multi Effects External input) 1 to 4 connectors (BNC type) (BKDS-9470)

Connectors for four serial digital video signal inputs. Dedicated input for DME external video.

7 DME DATA (Digital Multi Effects Data) connector (RJ-45) (BKDS-9470)

Connect to an Ethernet switch.

The DVS-9000 System is connected in the same way to the Ethernet switch to form a network for exchange of signals between the devices.

Caution

When using a LAN cable: For safety, do not connect to a connector for peripheral device wiring that might have excessive voltage.

8 DME CTRL (Digital Multi Effects Control) connector (RJ-45) (BKDS-9470)

Connect to an Ethernet switch.

The DVS-9000 System is connected in the same way to the Ethernet switch to form a network for exchange of signals between the devices.

This network is used primarily to control the various devices from the center control panel.

Caution

When using a LAN cable: For safety, do not connect to a connector for peripheral device wiring that might have excessive voltage.

9 DME MONI OUT (Digital Multi Effects Monitor Output) 1 to 4 connectors (BNC type) (BKDS-9470)

Connectors for four serial digital video signal outputs.

These connectors allow you to monitor any desired output signal with the DME signal (video, key, or with graphics).

10 DME REMOTE (Digital Multi Effects Remote) connector (D-sub 9-pin, RS-422A) (BKDS-9470)

When a BKDS-9470 DME Board Set is installed, use this connector to control the unit from an external device.

11 DME GPI (Digital Multi Effects General Purpose Interface) connector (D-sub 25-pin) (BKDS-9470)

Connect to external devices for input and output of trigger signals. Up to eight inputs and eight outputs are possible, with input and output conditions set on the center control panel.

12 SWITCHER GPI (Switcher General Purpose Interface) connector (D-sub 25-pin)

Connect to external devices for input and output of trigger signals. Up to eight inputs and eight outputs are possible, with input and output conditions set on the center control panel.

13 SWITCHER REMOTE 1 to 4 connectors (D-sub 9-pin, RS-422A)

Used to control the DVS-9000SF AUX bus from external devices, and to operate the DVS-9000SF from editing control systems such as the BVE-9100.

Specify the types of connected devices on the center control panel.

14 TERMINAL connector (D-sub 9-pin, RS-232C)

This connector is used for factory adjustments.

15 \hbar (signal ground) terminal

Connect to the system ground.

16 \sim AC IN (AC power input) A, B connectors (3-pin)

Connect to 100 to 240 V AC power supply with the optional AC power cords.

Depending on the system's configuration when shipped, there may be no optional HK-PSU04 Power Supply Unit installed. In that case, the AC IN B connector is not used.

Caution

For information about installing an HK-PSU04, contact your Sony service representative.

17 PRIMARY INPUTS 1 to 34 connectors (BNC type) (MKS-8110SD)

These connector accept up to 34 serial digital video signal inputs. The number of connectors varies depending on the number of MKS-8110SD boards installed.

**18 OUTPUTS 1 to 24 connectors (BNC type)
(BKDS-9162)**

These connectors output serial digital signals. They can be freely assigned to program output, preview output, AUX output and so on.

There are two BNC connectors for the lower numbers on each slot (1 to 4, 13 to 16) and one BNC connector for the upper numbers (5 to 12, 17 to 24) (the BKDS-9162 is required 13 to 24).

Make output assignments using the center control panel of the DVS-9000 system.

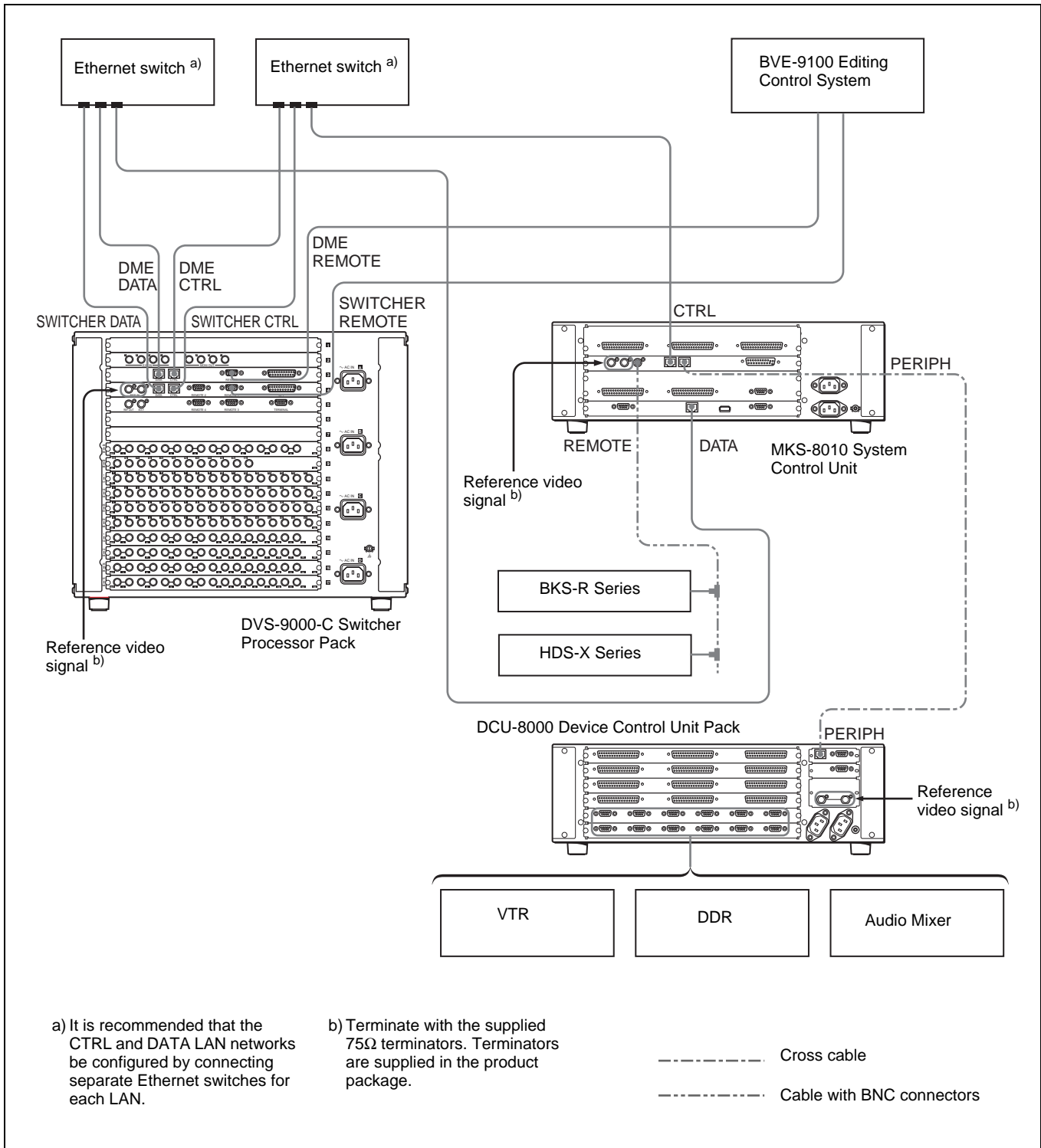
Refer to the User's Guide for information about signals that may be assigned.

Example System Configuration

DVS-9000 System Configuration

The figure below shows the configuration of a DVS-9000 system.

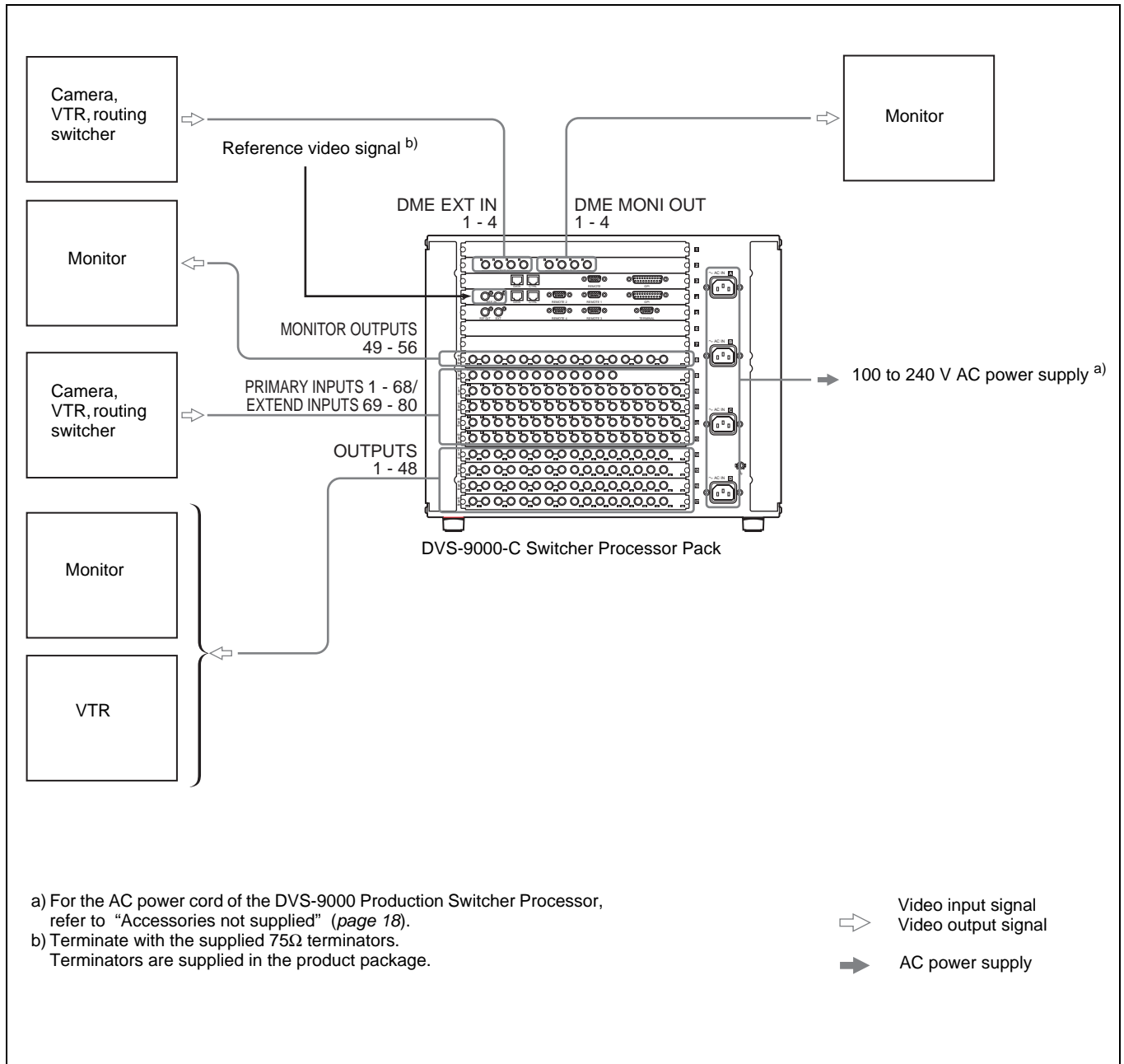
The same type of configuration is possible with a DVS-9000SF system.



Flow of Video Signals

The figure below shows the flow of video signals in a DVS-9000 system.

The flow of signals is the same in a DVS-9000SF system.



Power Supply Unit Status Indicators

The power supply unit status indicators show the status of the power supply unit during operation and when the unit is powered on. Whenever a power error is detected, it is reflected immediately by the indicator.

Meaning of status indicator displays

Indicator color	Status	Description	Steps to take
Green	Lit	Operating normally	–
Red	Lit	Power supply unit fan fault	Exchange the fan unit
–	Not lit	Power supply unit fault	Exchange the power unit

Notes

- When the unit is powered on, the status indicators may light momentarily in red and a whining sound may be heard. This is not a malfunction. When some of the power supply units are off and some are on, the status indicators of the units which are off may light in red. This is not a malfunction.
- Power all of the installed power supply units on.

Specifications

The following specifications show the reference performance for this unit and individual option boards/modules.

Design and specifications are subject to change without notice.

DVS-9000 Production Switcher Processor

General

Power requirements

100 to 240 V AC, 50/60 Hz

Current consumption

100 V: 8.5 A, 240 V: 4.2A

Peak inrush current

- (1) Power ON, current probe method:
60 A (100 V), 110 A (240 V)
- (2) Hot switching inrush current, measured in accordance with European standard EN55103-1: 40 A (230 V)

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 (w/h/d, excluding projections)

482×354×520 mm
(19×14×20¹/₂ inches)

Mass

Approx. 43 kg (9 lb 7 oz)

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 (30V AC/DC, 0.1A) Open collector outputs: 4
TERMINAL	D-sub 9-pin, female

	Complies with RS-232C standard
	Data transfer rate: 9600 bps
EXT	BNC type, 75Ω
	S-BUS data transfer rate: 312/1250 Kbps

Reference input and output

REF IN	BNC type, 75Ω, with loop-through output Analog black burst/analog sync
REF OUT	BNC type, 75Ω Analog sync Signal level ±300 mV ±10% Phase variation range -90H to +90H

Video 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 (5C-2V cable, BELDEN8281 or equivalent)

Video output

Outputs	24 (BNC type): 1 to 4 and 13 to 16, each with 2 outputs
Signal format	SMPTE259M-C
Signal level	0.8 V p-p ±10%
Signal transfer rate	270 Mbps

AC input

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

75Ω terminator (1)
Bracket (4)
Support angle (2)
Screw (+B4×10) (8)
Screw (+PSW 4×10) (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)

DVS-9000SF Production Switcher Processor

Analog sync
Signal level ± 300 mV $\pm 10\%$
Phase variation range
-90H to +90H

General

Power requirements
100 to 240 V AC, 50/60 Hz

Current consumption
100 V: 5.4 A, 240 V: 2.5 A

Peak inrush current
(1) Power ON, current probe method:
60 A (100 V), 110 A (240 V)
(2) Hot switching inrush current,
measured in accordance with
European standard EN55103-1: 40 A
(230 V)

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 (w/h/d, excluding projections)
482×177×520 mm
(19×7×20¹/₂ inches)

Mass
Approx. 25 kg (5 lb 8 oz)

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 (30V AC/DC,
0.1A)
Open collector outputs: 4

TERMINAL D-sub 9-pin, female
Complies with RS-232C standard
Data transfer rate: 9600 bps

EXT BNC type, 75Ω
S-BUS data transfer rate: 312/1250 Kbps

Reference input and output

REF IN BNC type, 75Ω, with loop-through
output
Analog black burst/analog sync

REF OUT BNC type, 75Ω

Video input

Inputs 17 (BNC type)
Signal format SMPTE259M-C
Signal level 0.8 V p-p $\pm 10\%$
Signal transfer rate
270 Mbps
Return loss 15 dB
Cable length 200 m (5C-2V cable, BELDEN8281 or
equivalent)

Video output

Outputs 12 (BNC type): 1 to 4, each with 2
outputs
Signal format SMPTE259M-C
Signal level 0.8 V p-p $\pm 10\%$
Signal transfer rate
270 Mbps

AC input

AC IN A, B 3-pin AC connector

Accessories supplied

75Ω terminator (1)
Bracket (4)
Support angle (2)
Screw (+B4×10) (8)
Screw (+PSW 4×10) (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)

BKDS-9160 24 Output Board Set

General

Power requirements
12 V DC

Power consumption
Max. 50 W

Dimensions (w/h)
OUT board: 317×380 mm
(12¹/₂×15 inches)

Mass CN board: 274×94 mm
(10⁷/₈×3³/₄ inches) (using 2 boards)
Approx. 2 kg (4 lb 6 oz)

Output

Outputs 24 (BNC type), 1 to 4 and 13 to 16, each with 2 outputs
Signal format SMPTE259M-C
Signal level 0.8 Vp-p ±10%
Signal transfer rate 270 Mbps

Accessories supplied

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

BKDS-9161 Monitor Output Board

General

Power requirements 12 V DC
Power consumption Max. 10 W
Dimensions (w/d, excluding projections) 274×94 mm (10⁷/₈×3³/₄ inches)
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 Vp-p ±10%
Signal transfer rate 270 Mbps

Accessories supplied

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

BKDS-9162 12 Output Connector Board

General

Power requirements 12 V DC
Power consumption Max. 5 W
Dimensions (w/d, excluding projections) 274×94 mm (10⁷/₈×3³/₄ inches)
Mass Approx. 1 kg (2 lb 3 oz)

Output

Outputs 12 (BNC type), 1 to 4, each with 2 outputs
Signal format SMPTE259M-C
Signal level 0.8 Vp-p ±10%
Signal transfer rate 270 Mbps

Accessories supplied

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

BKDS-9210 Mix/Effect Board

Power requirements 12 V DC
Power consumption Max. 80 W
Dimensions (w/d, excluding projections) 317×380 mm (12¹/₂×15 inches)
Mass Approx. 2 kg (4 lb 6 oz)
Accessories supplied
Operation and Installation Guide (1)
(supplied only when product is purchased separately)

BKDS-9470 DME Board Set

General

Power requirements 12 V DC
Power consumption Max. 100 W
Dimensions (w/h)
DVP board: 317×380 mm (12¹/₂×15 inches)
CA board: 317×380 mm (12¹/₂×15 inches)
CN board: 274×94 mm (10⁷/₈×3³/₄ inches) (When used with two boards)
Mass Approx. 4 kg (8 lb 13 oz)

Remote Control connectors

CTRL RJ-45
Complies with 100Base-TX standard
DATA RJ-45
Complies with 100Base-TX standard
REMOTE 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 (30V AC/DC,
0.1A)
Open collector outputs: 4

Input

Inputs 4 (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)

Output

Outputs 4 (BNC type)
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-8110SD 17 Input Board

General

Power requirements
12 V DC
Power consumption
Max. 10 W
Dimensions (w/h)
274×94 mm (10⁷/₈×3³/₄ inches)
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 (5C-2V 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 (w/h)
274×94 mm (10⁷/₈×3³/₄ inches)
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)

HK-PSU04 Power Supply Unit

Power requirements
100 to 240 V AC, 50/60 Hz
Power consumption
100 V: 10 A, 240 V: 5 A
Peak inrush current
(1) Power ON, current probe method:
60 A (100 V), 110 A (240 V)
(2) Hot switching inrush current,
measured in accordance with
European standard EN55103-1: 40 A
(230 V)
Output power 12 V DC ±0.5V
Secondary power supply
Max. 60 A
Dimensions (w/h/d)
94×83×396 mm (3³/₄×3³/₈×15⁵/₈ inches)
Mass
Approx. 3 kg (6 lb 9 oz)
Accessories supplied
Operation and Installation Guide (1)
(supplied only when product is
purchased separately)

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