SONY®

Multi Format Compact Switcher

Operating Instructions (Volume I Basic Operation)

Before operating the unit, please read this manual thoroughly and retain it for future reference.

MCS-8M

Software Version 1.03 or later

HDMI

Owner's Record

The model and serial numbers are located on the bottom. Record these numbers in the spaces provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No.⎯⎯⎯⎯⎯⎯ Serial No.⎯⎯⎯⎯⎯⎯

WARNING

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

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

THIS APPARATUS MUST BE EARTHED.

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

When installing the installation space must be secured in consideration of the ventilation and service operation.
- Do not block the ventilation slots at the left side and right side panels, and vents of the fans.
- Leave a space around the unit for ventilation.
- Leave more than 40 cm (15 $^3/_4$ in.) of space in the rear of the unit to secure the operation area.

When the unit is installed on the desk or the like, leave at least 10 cm (4 in.) of space in the left and right sides. Leaving 40 cm (15 $^3/_4$ in.) or more of space above the unit is recommended for service operation.

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 16 or 18 AWG wires
Length	Minimum 1.5 m (4 ft. 11 in.), Less than 2.5 m (8 ft. 3 in.)
Rating	Minimum 10 A, 125 V

Using this unit at a voltage other than 120 V 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.

For the customers in the U.S.A.
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.

All interface cables used to connect peripherals must be shielded in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

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 the customers in Canada
This Class A digital apparatus complies with Canadian ICES-003.

For the customers in Europe

This product with the CE marking complies with the EMC Directive 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 Environments: E1 (residential), E2 (commercial and light industrial), E3 (urban outdoors), E4 (controlled EMC environment, ex. TV studio).

The manufacturer of this product is Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan.
The Authorized Representative for EMC and product safety is Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

For kundene i Norge

Dette utstyret kan kobles til et IT-strømfordelingssystem.

For the State of California, USA only

Perchlorate Material - special handling may apply, See www.dtsc.ca.gov/hazardouswaste/perchlorate
Perchlorate Material : Lithium battery contains perchlorate.

For the customers in Taiwan only

廢電池請回收

AVERTISSEMENT

Afin de réduire les risques d'incendie ou d'électrocution, ne pas exposer cet appareil à la pluie ou à l'humidité.

Afin d'écarter 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.

AVERTISSEMENT

1. Utilisez un cordon d'alimentation (câble secteur à 3 fils)/fiche femelle/fiche mâle avec des contacts de mise à la terre conformes à la réglementation de sécurité locale applicable.
2. Utilisez un cordon d'alimentation (câble secteur à 3 fils)/fiche femelle/fiche mâle avec des caractéristiques nominales (tension, ampérage) appropriées.

Pour toute question sur l'utilisation du cordon d'alimentation/fiche femelle/fiche mâle ci-dessus, consultez un technicien du service après-vente qualifié.

Pour les clients au Canada

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

Pour les clients en Europe

Ce produit portant la marque CE est conforme à la Directive sur la compatibilité électromagnétique (EMC) 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 les environnements électromagnétiques suivants : E1 (résidentiel), E2 (commercial et industrie légère), E3 (urbain extérieur) et E4 (environnement EMC contrôlé, ex. studio de télévision).

Le fabricant de ce produit est Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japon.
Le représentant autorisé pour EMC et la sécurité des produits est Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Allemagne. Pour toute question concernant le service ou la garantie, veuillez consulter les adresses indiquées dans les documents de service ou de garantie séparés.

Table of Contents (this manual)

Chapter 1   Overview

Chapter 2   Preparations

Chapter 3   Basic Operations

Appendix

Table of Contents
(Volume II Advanced Settings)

(CD-ROM manual)

About This Manual

This manual describes the preparations necessary to use this unit and its basic operations.
Basic video switching and composition operations and audio mixing can be performed by following the procedure in this manual.

For details on advanced settings and operations, see the "Operating Instructions (Volume II Advanced Settings)."

How to Read the Manual

Notes on setting values

Setting values that appear in bold indicate factory default settings.

Example:

Knob	Parameter	Meaning	Setting values
V3	Format	Signal format	**108059**, 108050, 720p59, 720p50, 480i59, 576i50, Test1, Test2, Test3
V4	Aspect	Aspect ratio	**16:9**, 4:3

About references

References to the Operating Instructions (Volume II Advanced Settings) are indicated by the ➔ mark as follows.

Example 1:
POS (position) button (➔ *Advanced Settings*)
Example 2:
For details, see "Message List" (➔ Advanced Settings).

To find information on a specific topic

See *"Index" (page I-47)* at the end of this manual.
The index indicates whether the information can be found in "Volume I Basic Operation" or "Volume II Advanced Settings" and the corresponding page numbers.

Usage Precautions

Note on Faulty Pixels on the LCD Panel

The LCD panel fitted to this unit is manufactured with high precision technology, giving a functioning pixel ratio of at least 99.99%. Thus a very small proportion of pixels maybe "stuck", either always off (black), always on (red, green, or blue), or flashing. In addition, over a long period of use, because of the physical characteristics of the liquid crystal display, such "stuck" pixels may appear spontaneously. These problems are not a malfunction. Note that any such problems have no effect on recorded data.

Using the CD-ROM Manual

The supplied CD-ROM includes operation manuals (Japanese, English, French, German, Italian, Spanish, Simplified Chinese, Korea and Portuguese versions).

Preparations

The following program must be installed on your computer in order to read the Operating Instructions contained in the CD-ROM.
• Adobe Reader Version 6.0 or higher

Memo

If Adobe Reader is not installed, it may be downloaded from the following URL:
http://www.adobe.com

Adobe and Adobe Reader are trademarks of Adobe Systems Incorporated in the United States and/or other countries.

To Read the CD-ROM Manual

To read the operation manual contained in the CD-ROM disc, do the following:

1 Insert the CD-ROM disc in your CD-ROM drive.

A cover page appears automatically in your browser. If it does not appear automatically in the browser, double click the index.htm file on the CD-ROM disc.

2 Select and click the operation manual that you want to read.

The selected file opens.

Memo

The files may not be displayed properly, depending on the version of Adobe Reader. In such a case, install the latest version you can download from the URL mentioned in *"Preparations"* above.

Note

If you have lost or damaged the CD-ROM, you can purchase a new one to replace it. Contact your Sony service representative.

Overview

Introduction

The MCS-8M Multi Format Compact Switcher is a compact switcher that can be used in SD, HD, and 3D systems. This unit allows you to perform video switching with added effects and audio mixing via simple operations.

System configuration example: Live recording / production system (HD system)
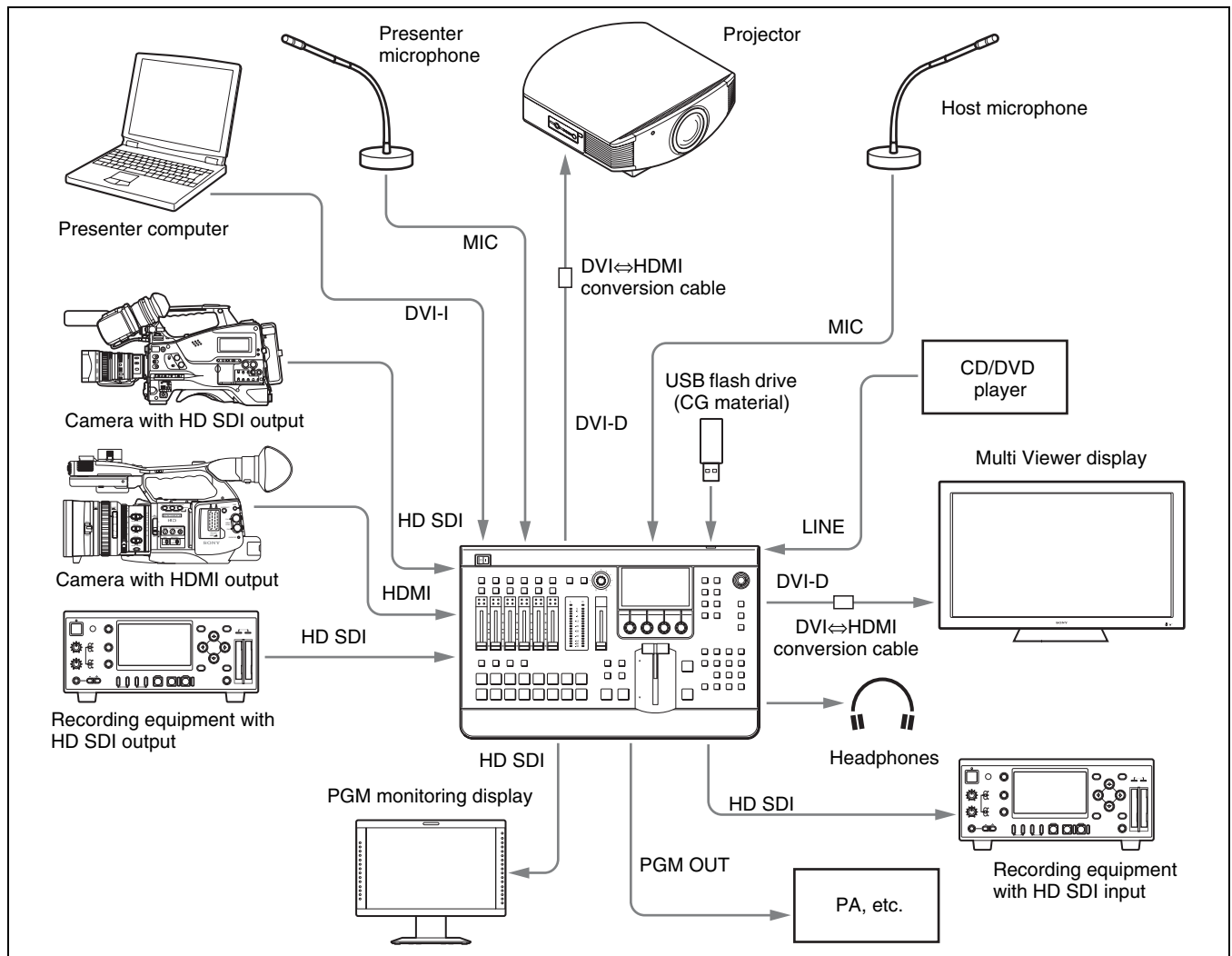
For details on configurations for SD or 3D systems, see "System Configuration Examples" (→ Advanced Settings).

Names and Functions of Parts

Front Panel

1 Audio control block *(page I-10)*

Power switch *(page I-18)*

2 Menu control block *(page I-11)*

USB connector *(page I-15)*

5 Numeric keypad block *(page I-13)*

4 Transition control block *(page I-13)*

3 Cross-point control block *(page I-12)*

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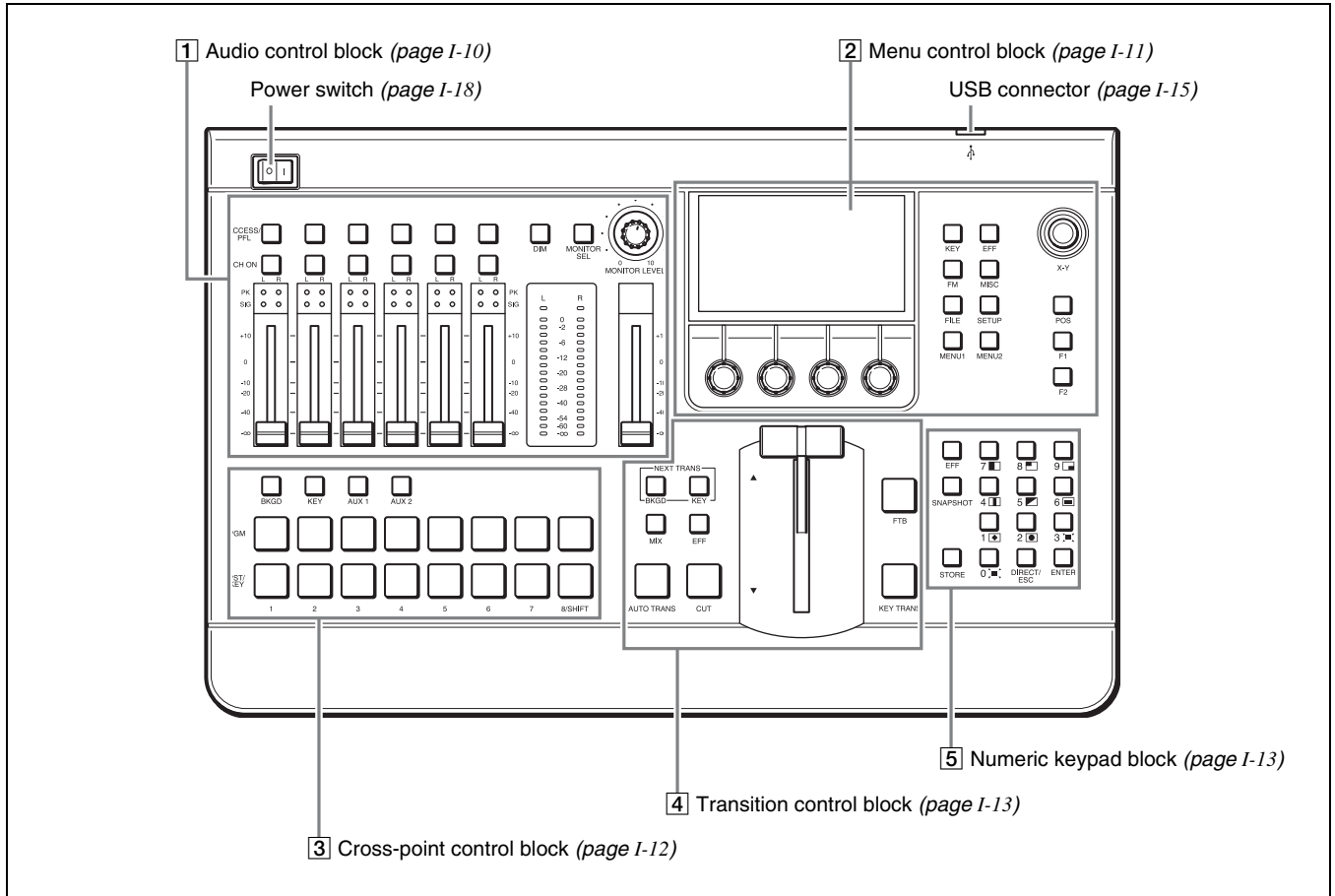
1 Audio Control Block
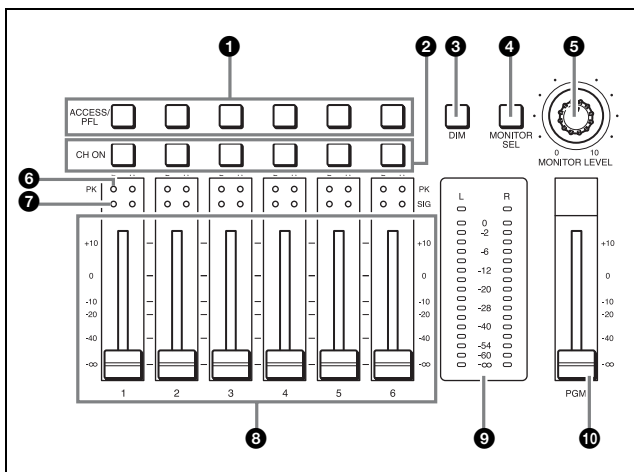
a ACCESS/PFL (access/pre-fade listen) buttons
(page I-38, → Advanced Settings)

b CH ON (channel on) buttons *(page I-37)*

c DIM (dimmer) button *(page I-38)*

d MONITOR SEL (monitor select) button
(page I-37)

e MONITOR LEVEL adjustment knob *(page I-38)*

f Peak indicator *(page I-25)*

g Input signal indicator *(page I-25)*

h Channel faders *(pages I-23, I-37)*

i Audio level meters *(page I-37)*

j Program fader *(page I-37)*

② Menu Control Block
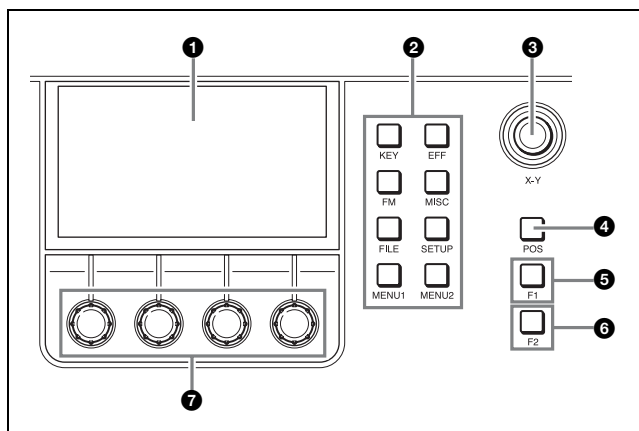
❶ Menu display

❷ Menu selection buttons

Display a menu that corresponds with the button pressed. The selected button will light orange.

- **KEY button** *(page I-33)*

  Displays the [Key] menu. (→ *Advanced Settings*)

- **EFF (effect) button**

  Displays the [Effect] menu. (→ *Advanced Settings*)

- **FM (frame memory) button**

  Displays the [Frame Memory] menu.
  (→ *Advanced Settings*)

- **MISC (miscellaneous) button**

  Displays the [Misc] menu. (→ *Advanced Settings*)

- **FILE button**

  Displays the [File] menu. (→ *Advanced Settings*)

- **SETUP button** *(pages I-19 to I-27)*

  Displays the [Setup] menu. (→ *Advanced Settings*)

- **MENU1 and 2 buttons (menu shortcut buttons)**

  Assign shortcuts to frequently used menus to these buttons.
  Assigning menu shortcuts
  Hold down the MENU button while the menu you want to assign is displayed in the menu display.
  Canceling menu shortcut assignments
  Hold down the MENU button.

  Notes

  - To save the button assignments, perform [Startup Define] in the [Setup] menu before turning the unit off (*page I-40*).
  - To change the menu assigned to a MENU button, cancel the current assignment before assigning the new menu.

- Menu shortcuts cannot be assigned to the MENU buttons in 3D mode.

❸ X-Y pointer *(→ Advanced Settings)*

❹ POS (position) button *(→ Advanced Settings)*

❺ F1 button

When the resizer function is enabled, this selects whether to use the X-Y pointer as a resizer or a positioner.
The button lights orange when resizer is selected, and green when positioner is selected.

Tip

When the resizer function is disabled, this button remains unlit and does not function.

❻ F2 button

When sample mark display for chroma key is enabled, this executes auto chroma key (*page I-34*).

❼ Adjustment knobs 1 to 4 (V1 to V4) *(page I-12)*

Viewing the menu screen
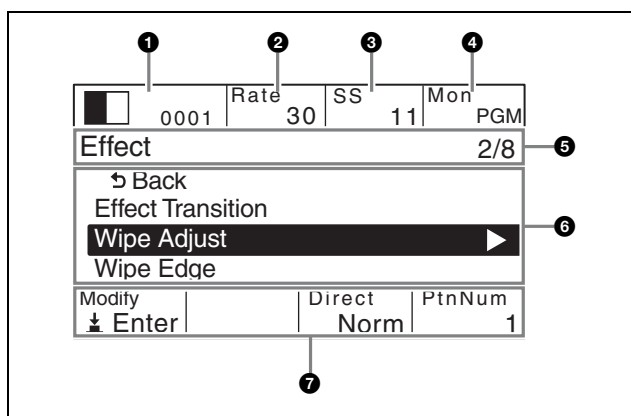
❶ Effect pattern area *(page I-41)*

Displays the effect pattern icon and number currently selected for the effect transition.

❷ Transition rate area *(page I-31)*

Displays the transition rate of the current effect transition.

❸ Snapshot area *(page I-38)*

❹ Audio monitor area *(page I-37)*

❺ Menu name area

Left: Displays the name of the current menu.
Right: Displays the item number of the currently selected menu item or a message *(→ Advanced Settings)*.

❻ Items area

Displays the menu items.

⊘ Parameters area

Displays the parameter names and setting values.

Menu operations

When you press a menu selection button or an ACCESS/PFL button, setting items and values appear in the parameters area at the bottom of the screen. You can use the corresponding adjustment knobs to perform adjustments and selections.
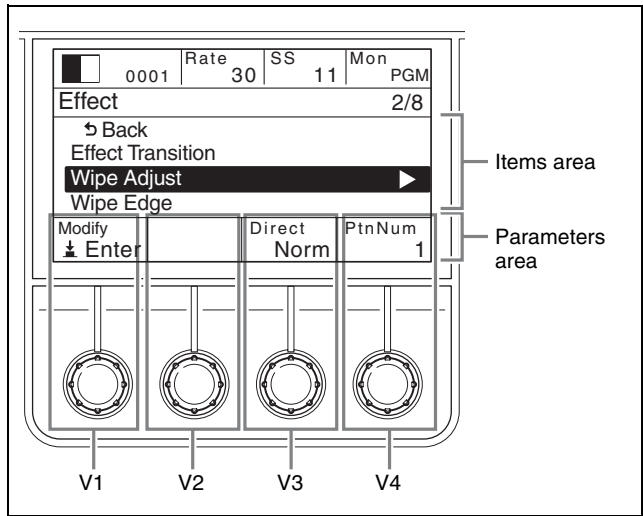
Basic adjustment knob operations

Items area

Turn the V1 knob left or right to move the cursor up or down.

If the ▶ icon appears for an item, pressing the V1 knob moves to the sub menu of that item.

Parameters area

Turn the V2 to V4 knobs left or right to increase, decrease, or cycle through setting values.

You can make incremental adjustments to parameters in the [Effect] menu, [Key] menu (excluding some parameters in the [Resizer] menu), and the [Misc] menu that include decimal number values by turning the knobs while pressing them.

If an action (saving, applying of setting values, etc.) is associated with the respective item, pressing the knob performs this action.

③ Cross-Point Control Block
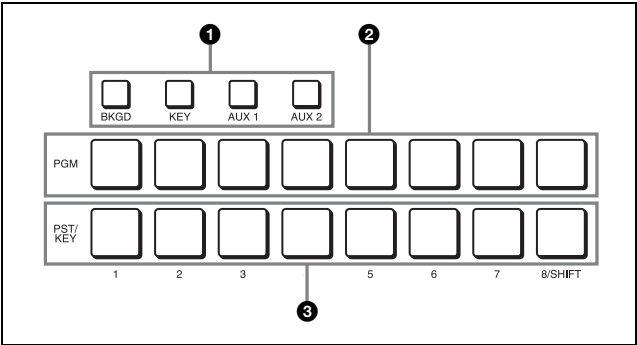
❶ Bus delegation buttons

Use the cross-point buttons to switch which bus to control. The transition types that can be selected will also change during this time.

Bus delegation button	Bus controlled by cross-point buttons		Selectable transition type selection button
	PGM row	**PST/KEY row**	
BKGD	PGM bus	PST bus	MIX, EFF
KEY	PGM bus	KEY bus (fill bus and source bus)	MIX, EFF
AUX 1	Aux1 PGM bus	Aux1 PST bus	MIX only
AUX 2	Aux2 PGM bus	Aux2 PST bus	MIX only

To select the key source

Press a PST/KEY cross-point button while holding down the KEY button.

❷ PGM (program) cross-point buttons 1 to 8/SHIFT *(pages I-21, I-29)*

❸ PST/KEY (preset/key) cross-point buttons 1 to 8/SHIFT *(pages I-21, I-29)*

④ Transition Control Block
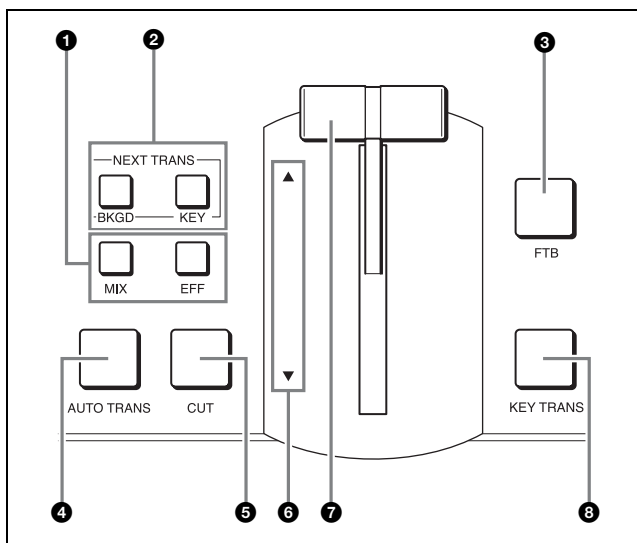
❶ Transition type selection buttons

- **MIX button** *(pages I-30, I-31)*
- **EFF (effect) button** *(pages I-30, I-31)*

❷ Next transition selection buttons

- **BKGD (background) button** *(page I-13)*
- **KEY button** *(pages I-13, I-33, I-34)*

❸ FTB (fade-to-black) button

When you press the FTB button, the current program output image will fade out to a black screen. When you press the FTB button again, the original image will fade in from the black screen.

❹ AUTO TRANS (auto-transition) button

(page I-30)

❺ CUT button *(page I-30)*

❻ Transition indicators *(page I-31)*

❼ Fader lever *(page I-30)*

❽ KEY TRANS (key transition) button
(→ *Advanced Settings*)

Using the next transition selection buttons

Turn on (i.e., light) the buttons by pressing them to specify which part of the video is switched at the next transition.

Next transition selection button	Operation
BKGD	The background video is switched at the next transition.
KEY	The key is inserted or removed at the next transition. If the key is not currently inserted, it is inserted at the next transition. If the key is inserted, it is removed at the next transition.
BKGD+KEY (simultaneous)	The background video is switched and the key is inserted or removed at the next transition.

Tip

When the AUX 1 or AUX 2 button is selected (i.e., lit) in the bus delegation buttons, the next transition is fixed at BKGD.

⑤ Numeric Keypad Block
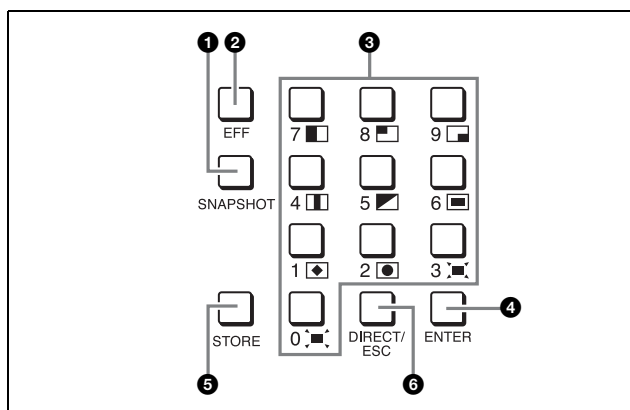
❶ SNAPSHOT button *(page I-38)*

❷ EFF (effect) button *(page I-31)*

❸ Numeric buttons (0 to 9) *(page I-31)*

❹ ENTER button *(pages I-32, I-39)*

❺ STORE button *(page I-38)*

❻ DIRECT/ESC (direct/escape) button *(page I-31)*

Entering numeric values

The numeric buttons are used to enter numeric values for operations such as specifying effect pattern numbers and saving or recalling snapshots.

① **Press the EFF button or SNAPSHOT button to light it.**

(When specifying an effect pattern number, be sure to turn off the DIRECT/ESC button.)

② **Press the numeric buttons (0 to 9) to enter the numeric value.**

The entered value appears in white at the top of the menu screen.

③ **Press the ENTER button to confirm.**

The numeric value appears in orange after it is confirmed.

Tip

If you press the DIRECT/ESC button before pressing the ENTER button after entering the numeric value, the value will be canceled.

Rear Panel

① ② 1 Audio output block *(page I-15)*

2 Audio input block *(page I-15)*

③

④ TALLY/GPI   REMOTE

⑤

5 Video input block *(page I-16)*

4 Reference signal input/output block *(page I-16)*

3 Video output block *(page I-16)*

⑥
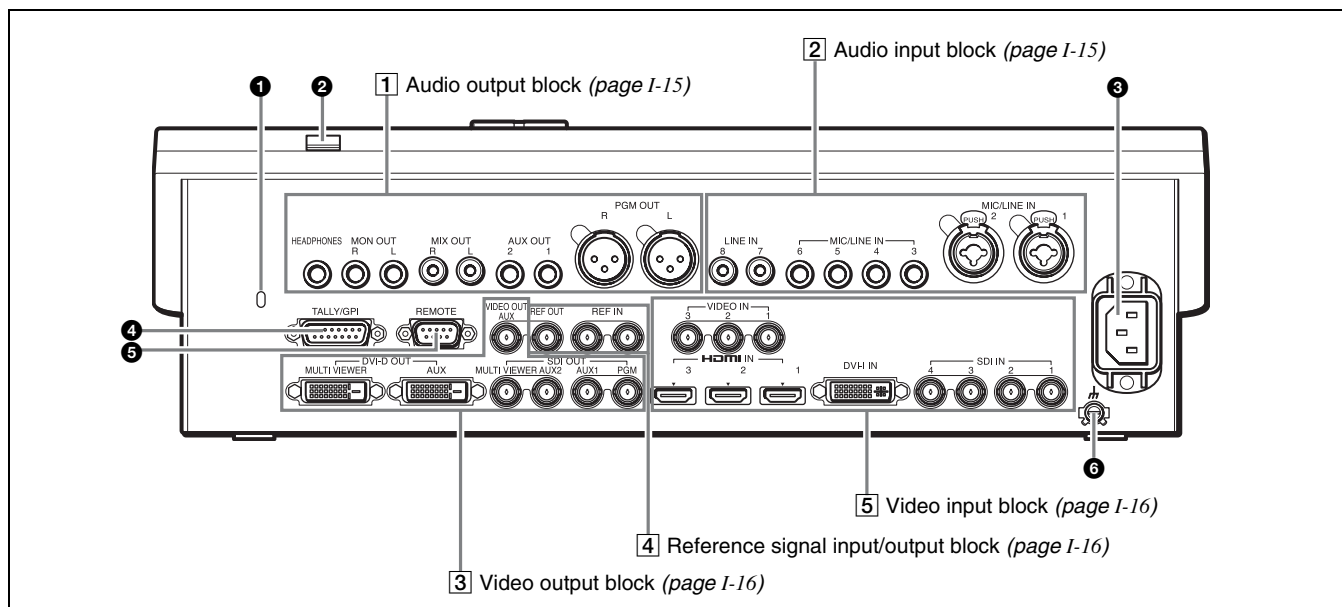
① Anti-theft cable slot

Connect a commercially available anti-theft cable
(3 mm × 7 mm) here to prevent theft.

② USB connector

Connect a USB flash drive here.

③ AC IN (power input) connector *(page I-18)*

④ TALLY/GPI connector (15-pin D-sub, male) *(page I-46)*

⑤ REMOTE connector (RS-232C, 9-pin D-sub, male) *(page I-46)*

⑥ Ground connector

Connect the system grounding wire here.

1 Audio Output Block

① HEADPHONES connector (standard stereo phone) *(page I-38)*

② MON OUT (monitor output) L and R connectors (TRS phone) *(page I-37)*

③ MIX OUT (mix output) L and R connectors (phono jack) *(→ Advanced Settings)*

④ AUX OUT (auxiliary output) 1 and 2 connectors (TRS phone)

(→ Advanced Settings)

⑤ PGM OUT (program output) L and R connectors (XLR, male) *(page I-37)*

2 Audio Input Block

① LINE IN (line input) 7 and 8 connectors (phono jack) *(page I-23)*

② MIC/LINE IN (microphone/line input) 3 to 6 connectors (TRS phone) *(page I-23)*

③ MIC/LINE IN (microphone/line input) 1 and 2 connectors (XLR, female/TRS phone combo) *(page I-23)*

These do not supply power (e.g., for condenser
microphones).

3 Video Output Block

a **VIDEO OUT AUX (video output auxiliary) connector (BNC type)** *(→ Advanced Settings)*

This output is used for confirming video.

b **DVI-D OUT (DVI-D output) connectors (DVI-D type)**

- **MULTI VIEWER connector** *(page I-27)*

- **AUX (auxiliary) connector**
  (→ Advanced Settings)

  Outputs 1080i/59.94, 1080i/50, 720p/59.94, and 720p/50 signals.

c **SDI OUT (SDI output) connectors (BNC type)**

- **MULTI VIEWER connector** *(page I-27)*

- **AUX (auxiliary) 1 and 2 connectors**
  (→ Advanced Settings)

- **PGM (program) connector** *(page I-37)*

4 Reference Signal Input/Output Block
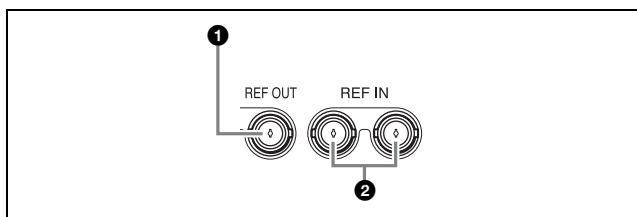
a **REF OUT (reference signal output) connector (BNC type)**

Always outputs black burst (BB) signals (*page I-44*).

b **REF IN (reference signal input) connectors (BNC type)**

Input an external reference sync signal here. One of the connectors can be used as a loop-through output connector. If you will not be using loop-through output, terminate the connector with a 75 Ω terminator. *(page I-18)*

5 Video Input Block
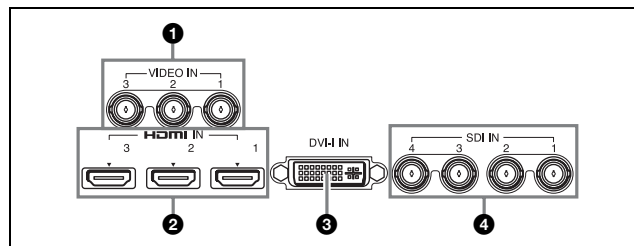
a **VIDEO IN (video input) 1 to 3 connectors (BNC type)** *(page I-21)*

b **HDMI IN (HDMI input) 1 to 3 connectors** *(page I-21)*

c **DVI-I IN (DVI-I input) connector (DVI-I type)** *(page I-21)*

d **SDI IN (SDI input) 1 to 4 connectors (BNC type)** *(page I-21)*

Preparations

Connecting Devices

Connect each device to the rear panel of the unit.

Connection example: HD system
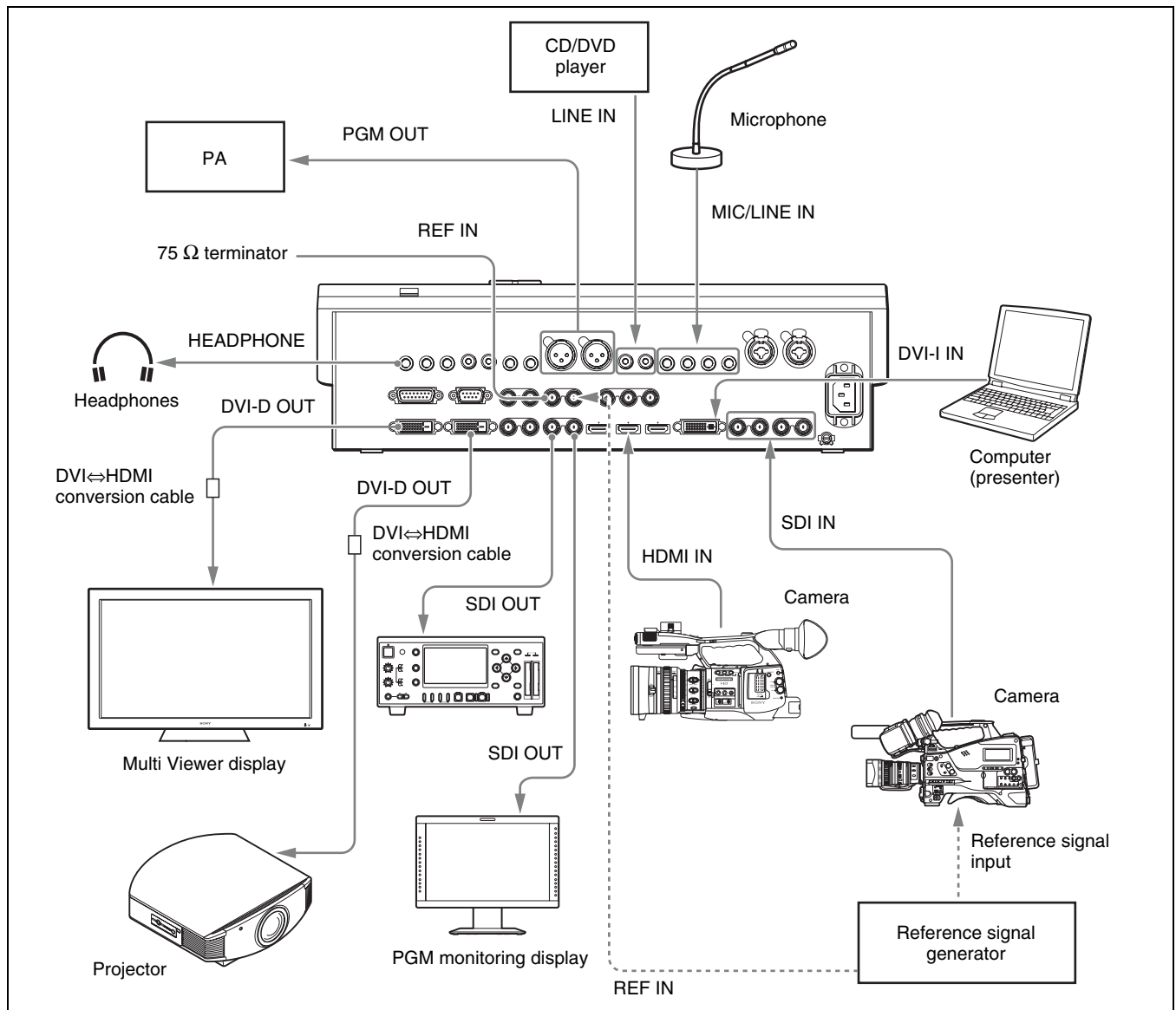
Notes

• When you are using a reference signal generator, and do not want to perform loop-through output of the reference signal input to one of the REF IN connectors of the unit, attach a 75 Ω terminator to the other connector *(see page I-16)*. In addition, be sure to install termination resistors of 75 Ω on each device connected to the unit. For details on how to install the termination resistors, refer to the operating instructions for each device.

• When the unit is connected to a device that cannot input external reference signals, you can enable synchronization by enabling the frame synchronizer function of the SDI input connector connected to the device (default: enabled). *For details on configuration, see the "Operating Instructions (→ Advanced Settings)."* This is always enabled for the VIDEO IN 1 to 3 connectors.

Turning the Unit On/Off

Turning the unit on

1 Connect the power cord (sold separately) to the AC IN connector on the rear panel of the unit, and connect the other end of the cord to an AC power supply.

2 Set the power switch to the **I** position.

Power switch
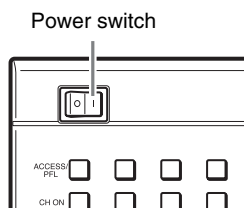
The unit turns on and starts up.
After startup is complete, a menu screen appears in the menu display and the unit is ready for operations.

Tip

The [Misc] (miscellaneous) menu appears after startup is complete.

3 Raise or lower the fader lever all the way up or down.

Fader lever
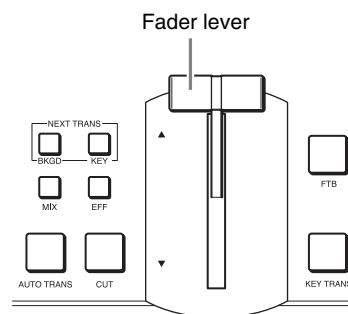
Turning the unit off

Set the power switch to the ○ position.

Note

When you turn off the unit, the configurations for the current effects, keys, and setup are not saved. To save the current configurations, perform [Startup Define] in the [Setup] menu.

For details on this operation, see "Saving Settings" (page I-40).

Configuring System Settings

Configure the system mode, system date and time, and other system settings in the menu control block.
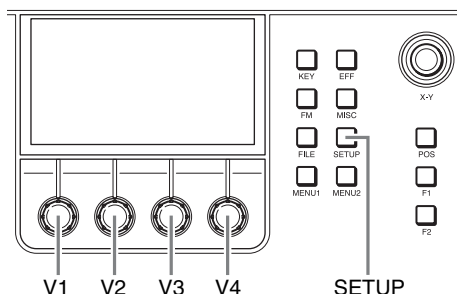
For details on operations, see "Menu operations" (page I-12).

Configuring the Signal Format and Aspect Ratio

Specify the image signal format and aspect ratio to be used by the unit.

1 Press the SETUP button to display the [Setup] menu.

2 Turn the V1 knob to select [System], and press the knob.

3 Turn the V1 knob to select [System Format], and select the signal format and aspect ratio with the respective knobs.

Knob	Parameter	Meaning	Setting values
V3	Format	Signal format	**108059**, 108050, 720p59, 720p50, 480i59, 576i50, Test1, Test2, Test3
V4	Aspect	Aspect ratio	**16:9**, 4:3

Notes on setting values
108059: 1080i/59.94 (HD mode)
108050: 1080i/50 (HD mode)
720p59: 720p/59.94 (HD mode)
720p50: 720p/50 (HD mode)
480i59: 480i/59.94 (SD mode)
576i50: 576i/50 (SD mode)
Test1: Used for tests.[1]
Test2: Used for tests.
Test3: Used for tests.
1) When [Test1] is selected while VGA signals (640 × 480/59.94p, 60p) are input to HDMI IN 1 to 3, and you select HDMI inputs 1 to 3 using the PGM cross-point buttons 6 to 8, 480i/59.94 signals will be output to PGM OUT.

Note

Under normal circumstances, do not use the Test1 to Test3 settings as they are intended for tests. Functioning and performance are not guaranteed if you use Test1 to Test3.

4 Press the V3 or V4 knobs.

A confirmation message appears.

5 Press the V3 knob.

The confirmation message disappears.

6 Turn off the unit and turn it on again.

The unit will restart with the specified signal format and aspect ratio applied.

Notes

- When the signal format is set to an HD mode, the 4:3 aspect ratio cannot be selected.
- To save effects, keys, and other setup configurations, perform [Startup Define] in the [Setup] menu before turning off the unit *(see page I-40)*.
- If you want to configure other settings that require a system restart, configure all of the settings before restarting the unit.

Configuring the Date and Time

Configure the unit's internal clock.

1 Press the SETUP button to display the [Setup] menu.

2 Turn the V1 knob to select [System], and press the knob.

```
┌──────────┬──────────┬──────┬──────────┐
│ ■        │ Rate     │ SS   │ Mon      │
│     0001 │      30  │      │      PGM │
├──────────┴──────────┴──────┴──────────┤
│ Setup                           2/11  │
│  Startup Define                       │
│  System                          ►    │
│  Audio                           ►    │
│  Video (Input)                   ►    │
├───────┬─────────┬─────────┬───────────┤
│ Select│         │         │           │
│ ⬓ Enter│        │         │           │
└───────┴─────────┴─────────┴───────────┘
```

3 Turn the V1 knob to select [Date], and set the date with the respective knobs.

```
┌──────────┬──────────┬──────┬──────────┐
│ ■        │ Rate     │ SS   │ Mon      │
│     0001 │      30  │      │      PGM │
├──────────┴──────────┴──────┴──────────┤
│ System                           6/8  │
│  Date                                 │
│  Time                                 │
│  LCD Backlight                        │
│   �befBack                             │
├───────┬─────────┬─────────┬───────────┤
│ Select│ Year    │ Month   │ Day       │
│       │   2011  │      1  │        1  │
└───────┴─────────┴─────────┴───────────┘
```

Knob	Parameter	Meaning	Setting values
V2	Year	Year	2000 to 2099
V3	Month	Month	1 to 12
V4	Day	Day	1 to 31

4 Press the V2, V3, or V4 knobs.

5 Turn the V1 knob to select [Time], and set the clock with the respective knobs.

```
┌──────────┬──────────┬──────┬──────────┐
│ ■        │ Rate     │ SS   │ Mon      │
│     0001 │      30  │      │      PGM │
├──────────┴──────────┴──────┴──────────┤
│ System                           7/8  │
│  Date                                 │
│  Time                                 │
│  LCD Backlight                        │
│   ↶ Back                              │
├───────┬─────────┬─────────┬───────────┤
│ Select│         │ Hour    │ Min       │
│       │         │     12  │        0  │
└───────┴─────────┴─────────┴───────────┘
```

Knob	Parameter	Meaning	Setting values
V3	Hour	Hour	0 to 23
V4	Min	Minute	0 to 59

6 Press the V3 or V4 knobs.

Configuring Video Signal Settings

Configure settings for handling video signals on the unit.

Assigning Video Signals to the Cross-Point Buttons

Assign the video signals that are input to the video input connectors on the rear panel of the unit and the unit's internal signals to cross-point buttons 1 to 8 (PGM and PST/KEY) in the cross-point control block.

Signal name	Description
SDI 1 to 4	The signals that are input differ depending on the system mode. For SD mode: 　Assign the video of the SDI signals that are input to the SDI IN 1 to 4 connectors. For HD mode: 　Assign the video of the HD SDI signals that are input to the SDI IN 1 to 4 connectors.
HDMI 1 to 3	For HD mode: 　Assign the video of the HDMI signals that are input to the HDMI 1 to 3 connectors. **Notes** • These signals cannot be used in SD mode. • Content with High-bandwidth Digital Content Protection (HDCP) cannot be used.
VIDEO 1 to 3	For SD mode: 　Assign the video of the analog composite signals that are input to the VIDEO 1 to 3 connectors. **Note** These signals cannot be used in HD mode.
DVI-I	The signals that are input differ depending on the system mode. Assign the video of the DVI-I signals that are input to the DVI-I connector. Analog: XGA (1024 × 768) 60 Hz, 　　　SXGA (1280 × 1024) 60 Hz, 　　　WXGA (1280 × 768) 60 Hz Digital: 　When the system format is 720p/59.94, 720p/50, 480i/59.94, 576i/50: Cannot be used. 　When the system format is 1080i/59.94, 1080i/50: 1080p/50, 1080p/60

Note

Only signals of the format that is specified under [System Format] in the [Setup] menu can be input for SDI 1 to 4, HDMI 1 to 3, and VIDEO 1 to 3.

1 Press the SETUP button to display the [Setup] menu.

2 Turn the V1 knob to select [Video (XPT)], and press the knob.

■□ 0001	Rate 30	SS	Mon PGM

Setup　　　　　　　　　　　　　　　5/11
Audio　　　　　　　　　　　　　　　▶
Video (Input)　　　　　　　　　　　▶
Video (XPT)　　　　　　　　　　　　▶
Video (Output)　　　　　　　　　　▶
Select
± Enter

3 Turn the V1 knob to select the number of the cross-point button ([XPT Assign 1] to [XPT Assign 14]) to which you want to assign the video signal, and turn the V4 knob to select the video signal source.

■□ 0001	Rate 30	SS	Mon PGM

Video (XPT)　　　　　　　　　　　1/15
⤺ Back
XPT Assign 1
XPT Assign 2
XPT Assign 3
Select　　　　　　　　　　　Source
　　　　　　　　　　　　　　　SDI1

Knob	Parameter	Meaning	Setting values
V4	Source	Video signal	Black, SDI1 to 4, DVI, H/V1 to 3, ColBg, FM, PGM

Notes on setting values
Black: Black video
SDI1 to 4: Video input from the SDI IN 1 to 4 connectors
DVI: Video input from the DVI-I IN connector
H/V1 to 3: Video input from the HDMI IN 1 to 3 connectors or VIDEO IN 1 to 3 connectors
ColBg: Color background video
FM: Frame memory video
PGM: Program video output

4 Repeat step **3** for assignments to other buttons.

Tip

The following assignments are set under factory default settings.

PGM, PST/KEY cross-point button	Default setting
1	SDI1
2	SDI2
3	SDI3
4	SDI4
5	DVI
6	H/V1
7	H/V2
8	H/V3

Configuring the Format of the Signal Input to the DVI-I Connector

To use DVI video inputs, configure the format of the signal input to the DVI-I connector on the rear panel of the unit.

1 Press the SETUP button to display the [Setup] menu.

2 Turn the V1 knob to select [Video (Input)], and press the knob.

```
┌──────────────────────────────────┐
│ ■□      Rate    SS     Mon       │
│    0001    30              PGM    │
│ Setup                      4/11   │
│ Audio                        ▶    │
│ Video (Input)                ▶    │
│ Video (XPT)                  ▶    │
│ Video (Output)               ▶    │
│ Select                            │
│ ± Enter                           │
└──────────────────────────────────┘
```

3 Turn the V1 knob to select [DVI], turn the V3 knob to select the signal format, and press the knob.

```
┌──────────────────────────────────┐
│ ■□      Rate    SS     Mon       │
│    0001    30              PGM    │
│ Video (Input)              5/11   │
│ DVI                               │
│ HDMI1                             │
│ HDMI2                             │
│ HDMI3                             │
│ Select         Format   Name      │
│                  XGA      DVI     │
└──────────────────────────────────┘
```

Knob	Parameter	Meaning	Setting values
V3	Format	Signal format of DVI-I video input	**XGA**, SXGA, WXGA, HDTV50, HDTV60

Notes on setting values
XGA: Analog, 1024 × 768/60
SXGA: Analog, 1280 × 1024/60
WXGA: Analog, 1280 × 768/60
HDTV50: Digital, 1080p/50
HDTV60: Digital, 1080p/60

Note

HDTV50 and HDTV60 can only be selected when the system format is set to 1080i/59.94 or 1080i/50. In such cases, only 1080p signals can be input for DVI video input.

Configuring Audio Signal Settings

Configure settings for handling audio signals on the unit.

Assigning Audio Input Signals to the Channel Faders

Assign the audio signals that are input to the audio input connectors on the rear panel of the unit to the channel faders (1 to 6).
Assigning separate audio to the left and right channels (L/R) of a fader creates a stereo fader, while assigning the same audio to the left and right channels creates a monaural fader.

Audio input signals

Signal	Description
MIC/LINE 1 to 6	Assign the audio that is input to the MIC/LINE IN 1 to 6 connectors.
LINE 7 and 8	Assign the audio that is input to the LINE IN 7 and 8 connectors.
SDI 1 to 4	Assign the embedded audio of the SDI signals that are input to the SDI IN 1 to 4 connectors. **Notes** • Embedded audio signals can only be assigned to channels 1 and 2. • These signals will be assigned as stereo.
HDMI 1 to 3	For HD mode: Assign the embedded audio that is input to the HDMI 1 to 3 connectors. **Notes** • Embedded audio signals can only be assigned to channels 1 and 2. • These signals will be assigned as stereo in HD mode. These signals cannot be used in SD mode.

1 Press the SETUP button to display the [Setup] menu.

2 Turn the V1 knob to select [Audio], and press the knob.

```
┌─────┬────────┬──────┬────────┐
│■    │Rate    │ SS   │ Mon    │
│  0001│   30  │      │   PGM  │
├─────┴────────┴──────┴────────┤
│Setup                    3/11 │
│  Startup Define              │
│  System                    ▶ │
│  Audio                     ▶ │
│  Video (Input)             ▶ │
│Select                        │
│↧ Enter                       │
└──────────────────────────────┘
```

3 Turn the V1 knob to select the channel fader number ([Audio Input Assign 1] to [Audio Input Assign 6]) to which you want to assign the audio signal, and select the audio signals for L and R with the respective knobs.

```
┌─────┬────────┬──────┬────────┐
│■    │Rate    │ SS   │ Mon    │
│  0001│   30  │      │   PGM  │
├─────┴────────┴──────┴────────┤
│Audio                    1/20 │
│  ↩ Back                      │
│ Audio Input Assign 1         │
│  Audio Input Assign 2        │
│  Audio Input Assign 3        │
│Select        Left    Right   │
│              M/L1    M/L1    │
└──────────────────────────────┘
```

Knob	Parameter	Meaning	Setting values
V3	Left	Left audio signal	NotUse, M/L1, M/L2, M/L3, M/L4, M/L5, M/L6, L7, L8, SDI1L, SDI2L, SDI3L, SDI4L, HDMI1L, HDMI2L, HDMI3L
V4	Right	Right audio signal	NotUse, M/L1, M/L2, M/L3, M/L4, M/L5, M/L6, L7, L8, SDI1R, SDI2R, SDI3R, SDI4R, HDMI1R, HDMI2R, HDMI3R

4 Repeat step **3** for assignments to other channel faders.

Tip

The following assignments are set under factory default settings.

Channel fader (L/R)	Default setting
1 (L/R)	MIC/LINE IN 1
2 (L/R)	MIC/LINE IN 2
3 (L/R)	MIC/LINE IN 3
4 (L/R)	MIC/LINE IN 4
5 (L)	MIC/LINE IN 5
5 (R)	MIC/LINE IN 6
6 (L)	LINE IN 7
6 (R)	LINE IN 8

AV Link function

You can link PGM bus cross-point buttons 1 to 6 with audio channel faders of the same number (AV Link function). When AV Link is enabled and you press a cross-point button, the audio channel of the same number will be enabled. In such cases, other audio channels for which AV Link is enabled will be disabled. In addition, audio channels can be enabled or disabled, regardless of their AV Link setting.

Note

The AV Link function cannot be used when the cross-point button delegation is AUX 1 or AUX 2.

1 Press the SETUP button to display the [Setup] menu.

2 Turn the V1 knob to select [Audio], and press the knob.

```
┌──────────┬──────────┬──────┬──────────┐
│■□       │Rate      │SS    │Mon       │
│    0001  │    30    │      │      PGM │
├──────────┴──────────┴──────┴──────────┤
│Setup                            3/11  │
├───────────────────────────────────────┤
│  Startup Define                       │
│  System                          ▶    │
│  Audio                           ▶    │
│  Video (Input)                   ▶    │
├──────────┬──────────┬──────┬──────────┤
│Select    │          │      │          │
│⌅ Enter   │          │      │          │
└──────────┴──────────┴──────┴──────────┘
```

3 Turn the V1 knob to select the channel fader number ([Audio Input Assign 1] to [Audio Input Assign 6]) you want to configure, and turn the V2 knob to configure the AV Link function.

```
┌──────────┬──────────┬──────┬──────────┐
│■□       │Rate      │SS    │Mon       │
│    0001  │    30    │      │      PGM │
├──────────┴──────────┴──────┴──────────┤
│Audio                            1/20  │
├───────────────────────────────────────┤
│  ↰ Back                               │
│  Audio Input Assign 1                 │
│  Audio Input Assign 2                 │
│  Audio Input Assign 3                 │
├──────────┬──────────┬──────┬──────────┤
│Select    │AVLink    │Left  │Right     │
│          │    Off   │ M/L1 │    M/L1  │
└──────────┴──────────┴──────┴──────────┘
```

Knob	Parameter	Meaning	Setting values
V2	AV Link	Turns AV Link on/off	**Off**, On

4 Repeat step **3** for assignments to other channel faders.

Audio delaying

If the output image is delayed in relation to the audio, you can delay the audio so that it matches the image.

1 Press the SETUP button to display the [Setup] menu.

2 Turn the V1 knob to select [Audio], and press the knob.

```
┌──────────┬──────────┬──────┬──────────┐
│■□       │Rate      │SS    │Mon       │
│    0001  │    30    │      │      PGM │
├──────────┴──────────┴──────┴──────────┤
│Setup                            3/11  │
├───────────────────────────────────────┤
│  Startup Define                       │
│  System                          ▶    │
│  Audio                           ▶    │
│  Video (Input)                   ▶    │
├──────────┬──────────┬──────┬──────────┤
│Select    │          │      │          │
│⌅ Enter   │          │      │          │
└──────────┴──────────┴──────┴──────────┘
```

3 Turn the V1 knob to select the audio output ([Audio Output Delay 1] or [Audio Output Delay 2]) you want to delay, and turn the V3 and V4 knobs to configure the delay interval.

```
┌──────────┬──────────┬──────┬──────────┐
│■□       │Rate      │SS    │Mon       │
│    0001  │    30    │      │      PGM │
├──────────┴──────────┴──────┴──────────┤
│Audio                            1/20  │
├───────────────────────────────────────┤
│  SDI OUT MULTI VIEWER Assign          │
│  Audio Output Delay 1                 │
│  Audio Output Delay 2                 │
│  Output Level                         │
├──────────┬──────────┬──────┬──────────┤
│Select    │          │PGM   │MIX       │
│          │          │ 1.00 │    1.00  │
└──────────┴──────────┴──────┴──────────┘
```

Audio Output Delay 1

Knob	Parameter	Meaning	Setting values
V3	PGM	Delay interval for audio output from PGM OUT connectors	0.00 to 7.50 (**1.00**)
V4	MIX	Delay interval for audio output from MIX OUT connectors	0.00 to 7.50 (**1.00**)

Audio Output Delay 2

Knob	Parameter	Meaning	Setting values
V3	AUX1	Delay interval for audio output from AUX OUT 1 connector	0.00 to 7.50 (**1.00**)
V4	AUX2	Delay interval for audio output from AUX OUT 2 connector	0.00 to 7.50 (**1.00**)

Configuring the Mic/Line Levels for Audio Inputs

Adjustment of mic/line levels is necessary when the peak indicators light red, or when the input signal indicators do not light while audio signal input exists.
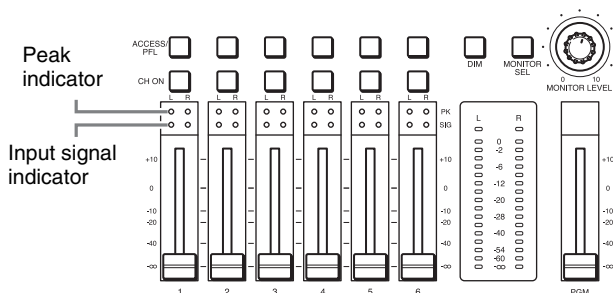
When the peak indicators light red

A channel fader's peak indicator will light red if the audio signal input is too loud. In this case, since the analog mic/line level exceeds the input level of the currently selected line, use the following procedure to adjust it.

1 Press the SETUP button to display the [Setup] menu.

2 Turn the V1 knob to select [Audio], and press the knob.

3 Turn the V1 knob to select the number of the MIC/LINE IN connector ([MIC/LINE 1 Level] to [MIC/LINE 6 Level]) for which you want to configure the mic/line level, and turn the V4 knob to select the level.

Knob	Parameter	Meaning	Setting values
V4	Level	Input level	–44 dB, **–20 dB**, +4 dB

4 Repeat step **3** to configure the levels for the other MIC/LINE IN connectors.

Setting example:
If a peak indicator lights at the default setting of [–20 dB], select the [+4 dB] setting. (However, the peak indicator may also light at the [+4 dB] setting in some cases.)

When the input signal indicators do not light

When the input signal indicators do not light even when audio signals are being input, the reference values for the mic/line levels are not being met. In such cases, perform the previous peak indicator procedure, and configure the lower mic/line levels for the respective channels.

Setting example:
If an input signal indicator does not light at the default setting of [–20 dB], select the [–44 dB] setting.

Adjusting the Audio Quality for Each Channel

You can adjust audio quality by adjusting the levels for the audio signals that are input to the unit and adjusting the high-, middle-, and low-frequency bands.

1 Press the ACCESS/PFL button in the same column as the channel fader to which the audio you want to adjust is assigned to display the [Audio Channel] menu.

2 Turn the V1 knob to select [Input Trim], and turn the V4 knob to adjust the input level.

Knob	Parameter	Meaning	Setting values
V4	Level	Adjusts input level	–15 dB to +15 dB (**0 dB**)

3 Turn the V1 knob to select the audio frequency ([Equalizer High], [Equalizer Mid], [Equalizer Low]) you want to adjust, turn the V2 knob to turn on the equalizer function, and turn the V3 and V4 knobs to configure the center frequency and level respectively.

Equalizer High

Knob	Parameter	Meaning	Setting values
V2	EQ H	Turns audio quality adjustment of high-frequency band on/off	**Off**, On
V3	Freq	Center frequency of high-frequency band (kHz)	1.30 k to 17.40 k (**4.75 k**)
V4	Level	Level of high-frequency band	–15 dB to +15 dB (**0 dB**)

Equalizer Mid

Knob	Parameter	Meaning	Setting values
V2	EQ M	Turns audio quality adjustment of middle-frequency band on/off	**Off**, On
V3	Freq	Center frequency of middle-frequency band (kHz)	260.0 k to 6.40 k (**1.28 k**)
V4	Level	Level of middle-frequency band	–15 dB to +15 dB (**0 dB**)

Equalizer Low

Knob	Parameter	Meaning	Setting values
V2	EQ L	Turns audio quality adjustment of low-frequency band on/off	**Off**, On
V3	Freq	Center frequency of low-frequency band (Hz)	31.0 to 420.0 (**114.1**)
V4	Level	Level of low-frequency band	–15 dB to +15 dB (**0 dB**)

Configuring Multi Viewer Settings

The Multi Viewer allows you to display multiple video inputs, program video outputs, and preview video outputs simultaneously on a monitor connected to the unit. A 4-screen layout and a 10-screen layout are available.

4-screen layout

1	2
3	4

10-screen layout

1		2	
3	4	5	6
7	8	9	10

(The numbers indicate the number assignments for each sub-screen.)

Multi Viewer output example: 10-screen layout
Red frames indicate the sub-screens for video inputs that are currently on air (i.e., the program video).

Preview video   Program video

Red frame

Note

If a frame memory key is on air, the red frame appears in the [FM-V] (video) sub-screen.

When using the Multi Viewer, specify the video output for each sub-screen.

1 Press the SETUP button to display the [Setup] menu.

2 Turn the V1 knob to select [Multi Viewer], and press the knob.

```
┌─┐      Rate  SS    Mon
│■│ 0001   30        PGM
└─┘
Setup                    8/11
  Video (Misc)              ▶
  Multi Viewer              ▶
  GPI/Tally                 ▶
  Information               ▶
Select
 ± Enter
```

3 Turn the V1 knob to select [Viewer Mode], and turn the V4 knob to select the split-screen layout.

```
┌─┐      Rate  SS    Mon
│■│ 0001   30        PGM
└─┘
Multi Viewer             1/11
  ↩ Back
  Viewer Mode
  Signal Assign 1
  Signal Assign 2
Select            Split
                      10
```

Knob	Parameter	Meaning	Setting values
V4	Split	Split-screen layout	4, **10**

4 Turn the V1 knob to select the sub-screen ([Signal Assign 1] to [Signal Assign 10]) to which you want to assign the video signal, and turn the V4 knob to select the video signal.

```
┌─┐      Rate  SS    Mon
│■│ 0001   30        PGM
└─┘
Multi Viewer             2/11
  ↩ Back
  Viewer Mode
  Signal Assign 1
  Signal Assign 2
Select            Source
                     PVW
```

Knob	Parameter	Meaning	Setting values
V4	Source	Video signal	Black, SDI1 to 4, DVI, H/V1 to 3, ColBg, FM-V, FM-K, PGM, PVW, Aux1PG, Aux1PV, Aux2PG, Aux2PV

Notes on setting values

Black: Black video

SDI1 to 4: Video input from the SDI IN 1 to 4 connectors

DVI: Video input from the DVI-I IN connector

H/V1 to 3: Video input from the HDMI IN 1 to 3 connectors or VIDEO IN 1 to 3 connectors

ColBg: Color background video

FM-V: Frame memory video

FM-K: Frame memory key

PGM: Program video output

PVW: Preview video output

Aux1PG: Program video output of the Aux1 bus

Aux1PV: Preview video output of the Aux1 bus

Aux2PG: Program video output of the Aux2 bus

Aux2PV: Preview video output of the Aux2 bus

5 Repeat step **4** to configure the other sub-screens.

Tip

The following video signals are assigned to each sub-screen under factory default settings.

Sub-screen	Video signal
1	PVW
2	PGM
3	SDI1
4	SDI2
5	SDI3
6	SDI4
7	DVI
8	H/V1
9	H/V2
10	H/V3

Basic Operations

Chapter **3**

Switching Video

Switch between video signals that are input to the unit, compose images, and output programs from the PGM output connector.
This section describes simple operations for switching video and applying effects while switching.

Frequently used effects can be saved as "snapshots" and recalled when necessary. For details, see "Snapshots" (page I-38).

Cross-Point Button Switching

This is the most basic form of switching. Switching between video A and video B occurs instantly without added effects.
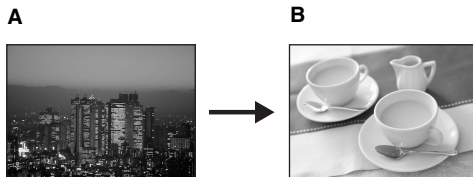
You can cut between videos by pressing a PGM cross-point button to which a different video is assigned.

1 In the cross-point control block, press the PGM cross-point button to which the video you want to switch is assigned.

The button you pressed lights red, and the video is output as the program output.

PGM cross-point buttons
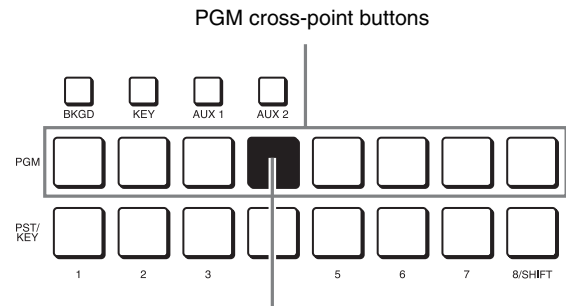
The button that is lit red indicates the current program video output.

2 Determine the next video to be used for program output, and press the corresponding PGM cross-point button.

The program video switches.

Checking the Preview Video before Switching with the CUT Button

Preview the next video that will be used for the program output before switching.

1 In the cross-point control block, press the PGM cross-point button to which the video you want to switch is assigned.

The PGM cross-point button you pressed lights red.

2 Press the PST/KEY cross-point button to which the next video to be used for program output (i.e., the target for switching) is assigned.

The PST/KEY cross-point button you pressed lights orange, and the selected video is used for PVW output.

3 Press the CUT button in the transition control block.
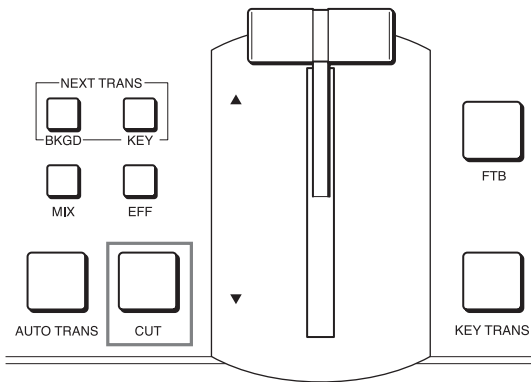
The program video interchanges with the preview video.
The lit PGM cross-point and PST/KEY cross-point buttons also interchange.

Applying Effects while Switching (Mix/Effect)

Instead of an instantaneous cut, you can gradually switch from one video to another through the various effects.

Mix *(page I-31)*
Transition into the next video by gradually overlapping the existing image.

Effect
You can use Wipe, NAM (non-additive mix), Slide, Squeeze, Door, Frame In/Out, Flip Tumble, PinP (picture-in-picture), Mosaic, and Defocus effects.

Example: Wipe *(page I-41)*
With this effect, the next video for output replaces the current program video output as if wiping it away.

Example: Frame In/Out *(page I-31)*
With this effect, the next video is superimposed as a frame within the current program video output and gradually expands to replace the current video.
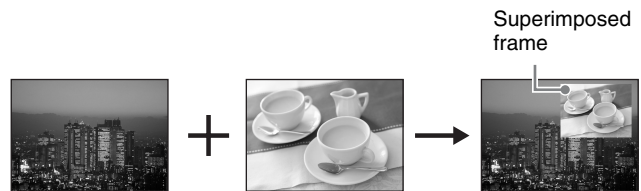
Multiple patterns may be available for certain effects. For details on the different patterns, see "Effect Pattern List" (page I-41).

Basic operation flow
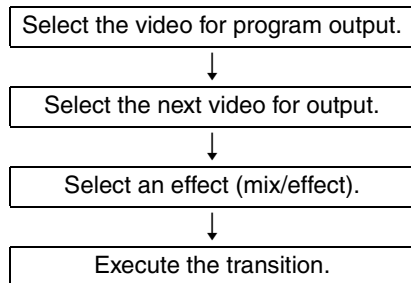
To execute the transition
Press the AUTO TRANS button in the transition control block, or operate the fader lever.
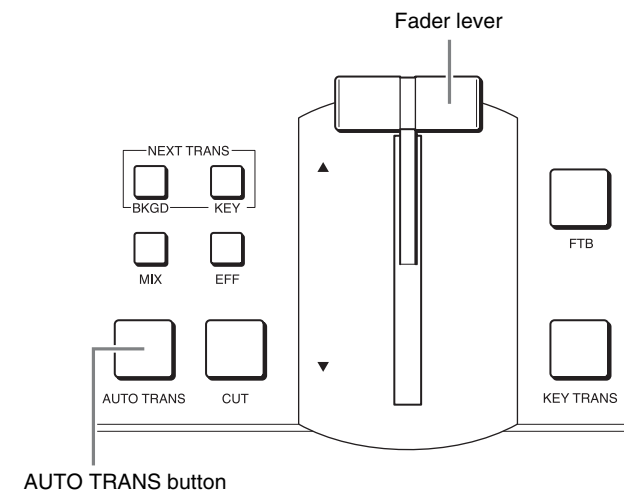
AUTO TRANS button (automatic execution)
The video switches automatically at the current speed (transition rate) setting.

You can change the transition rate under [Transition Rate (1/2)] in the [Misc] menu. For details on configuration, see "Configuring the Transition Rate" (page I-31).

Fader lever (manual execution)

The video switches over as you move the lever.
Move the lever in the direction of the lit transition indicator. The transition starts, and proceeds according to the rate at which you move the lever.
When the lever is completely raised or lowered, the transition is complete and the transition indicator for the opposite direction will light.

Note

If both the indicators are lit, completely raise or lower the fader lever in either direction.

Switching with mix

1 Press the PGM cross-point button of the video for program output.

2 Press the PST/KEY cross-point button for the next video for output.

3 Press the MIX button in the transition control block.

The button lights orange.
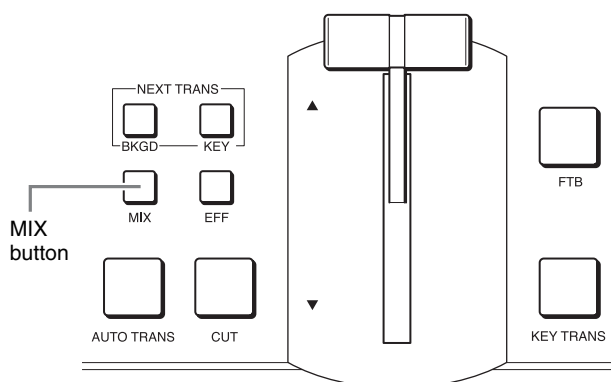
4 Execute the transition.

Configuring the Transition Rate

You can change the rate at which a video switches over (i.e., transition rate) when the AUTO TRANS button is used to execute a transition.

1 Press the MISC button to display the [Misc] menu.

2 Turn the V1 knob to select [Transition Rate (1/2)], and configure the transition rate with the V2 knob.

Knob	Parameter	Meaning	Setting values
V2	Effect	Effect transition	1 to 999 frames (**30**)
V3	Key	Key transition	1 to 999 frames (**30**)
V4	FTB	FTB (fade-to-black) transition	1 to 999 frames (**30**)

Selecting Effects with the Numeric Keypad (Direct Selection)

The following effect patterns are pre-assigned to the numeric buttons (0 to 9) in the numeric keypad block. These buttons make it easy for you to apply effects.

Numeric button	Effect pattern	Numeric button	Effect pattern
0	1251 (PinP)	5	0009 (Wipe)
1	0023 (Wipe: Diamond)	6	0021 (Wipe: Box)
2	0024 (Wipe: Circle)	7	0001 (Wipe: Horizontal)
3	1201 (Frame In/Out)	8	0005 (Wipe)
4	0017 (Wipe)	9	0007 (Wipe)

For details on specifying other effect patterns, see "Specifying effects by pattern number" (page I-32).

1 Press the PGM cross-point button of the video for program output.

2 Press the PST/KEY cross-point button for the next video for output.

3 Select an effect in the numeric keypad block.
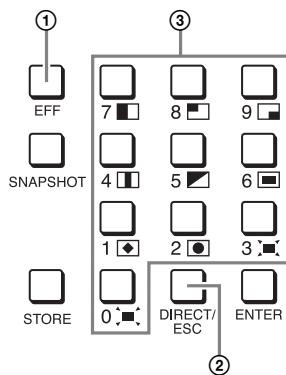
① Press the EFF button to light it.

② If the DIRECT/ESC button is not lit, press the button to light it.

③ Press the numeric button to which the effect pattern you want to use is assigned.

4 Execute the transition.

Specifying effects by pattern number

Perform the following to specify effects by entering effect pattern numbers.

For details on pattern numbers, see "Effect Pattern List" (page I-41).

1 Press the EFF button in the numeric keypad block to light it.

2 If the DIRECT/ESC button is lit, press the button to turn it off.

3 Use the numeric buttons (0 to 9) to enter the pattern number.

The pattern number entered appears at the top left of the menu screen.

4 Press the ENTER button.

The pattern icon of the number entered appears, and the effect pattern number changes to an orange display.

> **Tip**
>
> If you press the DIRECT/ESC button before pressing the ENTER button after entering the pattern number, the entry will be canceled and revert to the original pattern number.

Composing Images with Keys

Keying is a function in which part of the background image is replaced by another image or superimposed text. The following keys can be used with this unit to compose video.

Luminance key *(page I-33)*

Based on the brightness (luminance) of the key source[1], key fill[1] image B is cut out and superimposed on image A (i.e., the background).
In this composition example, the same image is selected as the key source and key fill.

1) The signal for cutting out the background is called a key source, and the signal for filling the cutout portion is called a key fill.

Linear key

This is a type of luminance key with a reduced variability in gain that allows more precise adjustment.

For details on operations, see "Making Detailed Adjustments to the Linear Key" (→ Advanced Settings).

Chroma key *(page I-34)*

A particular color (chroma) component is removed from image B, and image B is superimposed on image A (i.e., the background). Typically, a subject is shot in front of a blue screen and the portions of the background that contain blue components are later removed, leaving only the subject to be superimposed.
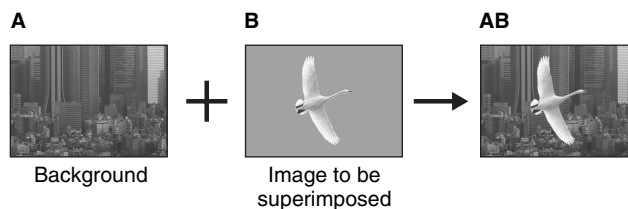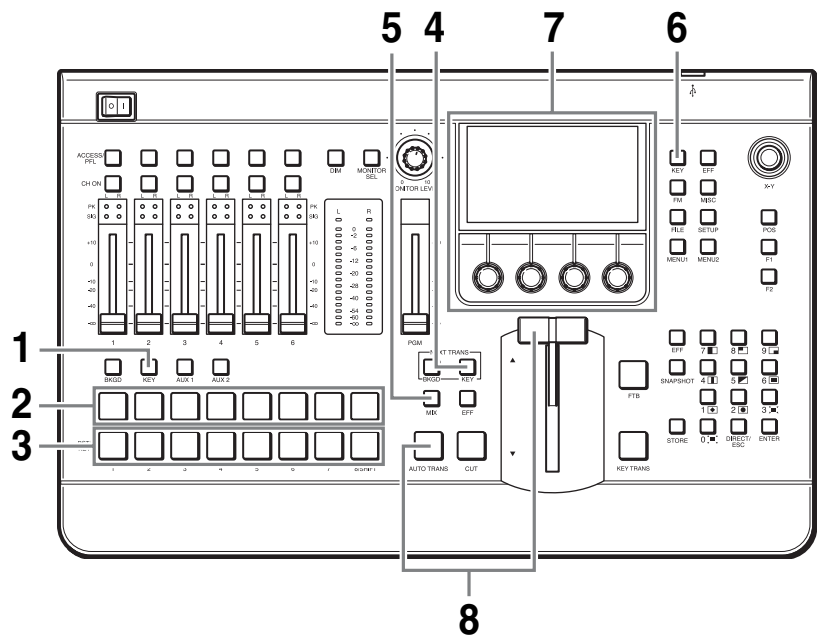
Background   Image to be superimposed

Composing Images with Luminance Keys

1 Press the KEY bus delegation button.

2 Press the PGM cross-point button of the video for program output.

3 Press the PST/KEY cross-point button of the key material (i.e., the image to be superimposed on the program video output).

4 Press the KEY next transition selection button.

The selected image in its "key on" state is used for PVW output.

5 Press the MIX button or EFF button.

6 Press the KEY button in the menu control block to display the [Key] menu.

7 Turn the V1 knob to select [Key Type Select], and turn the V4 knob to select [Lum].

Knob	Parameter	Meaning	Setting values
V4	Type	Key type selection	**Lum** (luminance key), Lin (linear key), Chr (chroma key)

If necessary, you can also configure the clip value (brightness), gain value, and key transparency.

For details on configuration, see "Making Detailed Adjustments to the Luminance Key" (→ Advanced Settings).

8 Execute the transition.

The image of the PST/KEY cross-point button is superimposed on the program video output.

You can also configure the duration for video composition (transition rate). For details on configuration, see the "Configuring the Transition Rate" (page I-31).

Luminance key settings can be saved as "snapshots" and recalled when necessary. For details, see "Snapshots" (page I-38).

Selecting the key fill and key source separately

Perform the following between step **7** and **8** of the previous procedure.

① Turn the V1 knob to select [Key Fill/Src Select], and turn the V3 knob to select [Split].

```
┌──────────────────────────────────────────────┐
│ ■□       Rate   SS      Mon                    │
│    0001     30           PGM                   │
├──────────────────────────────────────────────┤
│ Key                            4/27            │
│  Key Transition                                │
│  Key Type Select                               │
│  Resizer                                       │
│ ▐Key Fill/Src Select▌                          │
│ Select          Source  Fill                   │
│                  Split       Bus               │
└──────────────────────────────────────────────┘
```

Knob	Parameter	Meaning	Setting values
V3	Source	Key source selection mode	Self, **Auto**, Split

② Press the PST/KEY cross-point button to be used for the key source while holding down the KEY bus delegation button.

Composing Images with Chroma Keys

This section describes how to perform "auto chroma key" where you specify a portion of the foreground video (e.g., a blue background color) and use it as a reference signal for creating the chroma key image through automatic adjustment.

You can also adjust chroma keys manually (manual chroma key). For details, see "Making Detailed Adjustments to the Chroma Key" (→ Advanced Settings).

1 Press the KEY bus delegation button.

2 Press the PGM cross-point button of the video for program output.

3 Press the PST/KEY cross-point button of the key material (i.e., the image to be superimposed on the program video output).

4 Press the KEY next transition selection button.

The selected image in its "key on" state is used for PVW output.

5 Press the MIX button or EFF button.

6 Press the KEY button in the menu control block to display the [Key] menu.

7 Turn the V1 knob to select [Key Type Select], and turn the V4 knob to select [Chr].

```
┌─────────────────────────────────────┐
│ ■□      Rate │ SS   │ Mon            │
│      0001  30│      │       PGM      │
├─────────────────────────────────────┤
│ Key                          2/27    │
│   � Back                             │
│   Key Transition                     │
│   Key Type Select                    │
│   Resizer                            │
├─────────────────────────────────────┤
│ Select              │ Type           │
│                     │        Chr     │
└─────────────────────────────────────┘
```

Knob	Parameter	Meaning	Setting values
V4	Type	Key type selection	**Lum** (luminance key), Lin (linear key), Chr (chroma key)

8 Turn the V1 knob to select [Key Fill/Src Select], and turn the V3 knob to select [Self].

```
┌─────────────────────────────────────┐
│ ■□      Rate │ SS   │ Mon            │
│      0001  30│      │       PGM      │
├─────────────────────────────────────┤
│ Key                          4/27    │
│   Key Transition                     │
│   Key Type Select                    │
│   Resizer                            │
│   Key Fill/Src Select                │
├─────────────────────────────────────┤
│ Select      │ Source    │ Fill       │
│             │     Self  │     Bus    │
└─────────────────────────────────────┘
```

Knob	Parameter	Meaning	Setting values
V3	Source	Key source selection mode	Self, **Auto**, Split

9 Turn the V1 knob to select [Chromakey Auto Adj], and press the knob.

The menu changes to the [Auto Chromakey] menu for automatic chroma key adjustment.

10 Turn the V1 knob to select [Sample Mark], and press the V4 knob.

```
┌─────────────────────────────────────┐
│ ■□      Rate │ SS   │ Mon            │
│      0001  30│      │       PGM      │
├─────────────────────────────────────┤
│ Auto Chromakey               1/3     │
│   � Back                             │
│   Sample Mark                        │
│   Sample Mark Adjust                 │
│   Auto Adjust Execute                │
├─────────────────────────────────────┤
│ Select              │ Mark           │
│                     │   ⤓ Enter      │
└─────────────────────────────────────┘
```

Auto chroma key mode is enabled, and a white sample mark appears in the PVW image.

Sample mark

Tip

To disable auto chroma key mode, press the V4 knob again.

11 Turn the V1 knob to select [Sample Mark Adjust], and turn the respective knobs to move the sample mark to specify the color to remove (i.e., the reference signal for the chroma key).

You can adjust the size and position of the sample mark using the following knob operations.

```
┌─────────────────────────────────────┐
│ ■□      Rate │ SS   │ Mon            │
│      0001  30│      │       PGM      │
├─────────────────────────────────────┤
│ Auto Chromakey               2/3     │
│   � Back                             │
│   Sample Mark                        │
│   Sample Mark Adjust                 │
│   Auto Adjust Execute                │
├─────────────────────────────────────┤
│ Select │ Pos H  │ Pos V  │ Size      │
│        │  0.00  │  0.00  │  25.00    │
└─────────────────────────────────────┘
```

Knob	Parameter	Meaning	Setting values
V2	Pos H	Horizontal position	−100.00 to +100.00[1] (**0.00**)
V3	Pos V	Vertical position	−100.00 to +100.00[1] (**0.00**)
V4	Size	Size	1.00 to 100.00 (**25.00**)

1) The setting range will vary depending on the size setting.

Tip

You can also use the X-Y pointer to move the sample mark.

12 Turn the V1 knob to select [Auto Adjust Execute], and press the V4 knob.

```
┌──────────┬─────────┬────┬──────────┐
│ ■▢      │Rate     │SS  │Mon       │
│   0001  │      30 │    │      PGM │
├──────────┴─────────┴────┴──────────┤
│ Auto Chromakey              3/3    │
├────────────────────────────────────┤
│   ↰ Back                           │
│   Sample Mark                      │
│   Sample Mark Adjust               │
│   Auto Adjust Execute              │
├──────────────────────────┬─────────┤
│ Select                   │ Start   │
│                          │ ↧ Enter │
└──────────────────────────┴─────────┘
```

Auto chroma keying is executed using the color specified with the sample mark as a reference signal, and the composed image is output in the PVW area.

Tip

You can also use the F2 button to execute auto chroma key.

13 Execute the transition.

The image of the PST/KEY cross-point button is superimposed on the program video output.

You can also configure the duration for video composition (transition rate). For details on configuration, see the "Configuring the Transition Rate" (page I-31).

Chroma key settings can be saved as "snapshots" and recalled when necessary. For details, see "Snapshots" (page I-38).

Composing Images Using Picture-in-Picture (PinP)

With the picture-in-picture effect, you can compose an image by inserting another video image inside an existing image.

Inserted image

1 Press the BKGD bus delegation button.

2 Press the PGM cross-point button of the video for program output.

3 Press the PST/KEY cross-point button for the video you want to insert.

4 Press the BKGD next transition selection button to light it.

5 Press the EFF button in the numeric keypad block to light it.

6 Press the DIRECT/ESC button to light it, and press the 0 numeric button.

Tip

You can also specify the PinP effect by entering the effect pattern number (PinP: 1251).

7 If necessary, adjust the size and position of the inserted image in the [DME Wipe Modify] menu.

For details, see "Adjusting the size of the sub-screen used for Frame In/Out and PinP" (→ Advanced Settings).

8 Execute the transition.

Mixing Audio

Mix audio that is input to the unit, and output the final audio (i.e., program output) from the PGM OUT connector of the audio output block.

Input signals must be assigned to the channel faders (1 to 6) in the audio control block beforehand. For details on configuration, see "Assigning Audio Input Signals to the Channel Faders" (page I-23).
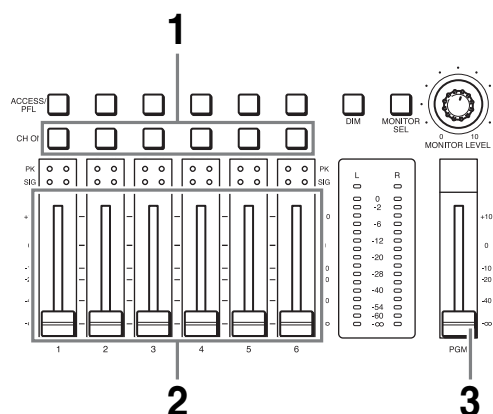
1 In the audio control block, press the CH ON buttons for the channels to which the audio signals you want to mix are assigned to light them.

The button lights green or turns off with each press.

CH ON button status

Button status		Meaning
Lit green	On	Audio is output
Not lit	Off (default)	Audio disabled

2 Adjust the audio levels using each channel fader to perform mixing.

3 Use the program fader to adjust the audio level of the program output.

If the peak indicators light red or the input signal indicators do not light, see "Configuring the Mic/Line Levels for Audio Inputs" (page I-25) and adjust the mic/line levels.

Switching audio for monitoring

Press the MONITOR SEL button to select [PGM].
The button lights orange for a moment and the audio for monitoring switches in the following sequence with each press.

$$PGM \rightarrow AUX1 \rightarrow AUX2 \rightarrow MIX$$
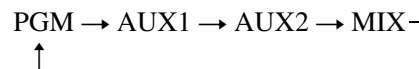
The current selection appears at the top right of the menu screen.
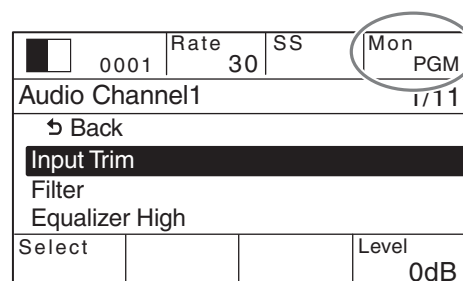
Audio for monitoring
PGM: Audio output from the PGM OUT L and R connectors

AUX1: Audio output from the AUX OUT 1 connector

AUX2: Audio output from the AUX OUT 2 connector

MIX: Audio output from the MIX OUT L and R connectors

Viewing the audio level meters

The audio level meters display the levels of the audio selected with the MONITOR SEL button within a 0 dB to –60 dB range (16 levels).

Over level display
Lights red when the level reaches 0 dB.

Each level lights green as it is exceeded.

The lowest level, –∞, is always lit green.
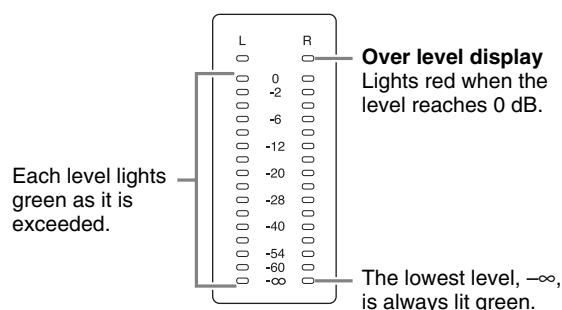
Tips

- Peak hold is performed.
- During PFL (pre-fade listen), the PFL audio levels are displayed.

Adjusting audio levels for monitoring

Use the MONITOR LEVEL adjustment knob and the DIM button to adjust the level of the audio that is output to devices connected to the MON OUT L and R connectors and the HEADPHONES connector.

DIM button   MONITOR LEVEL adjustment knob
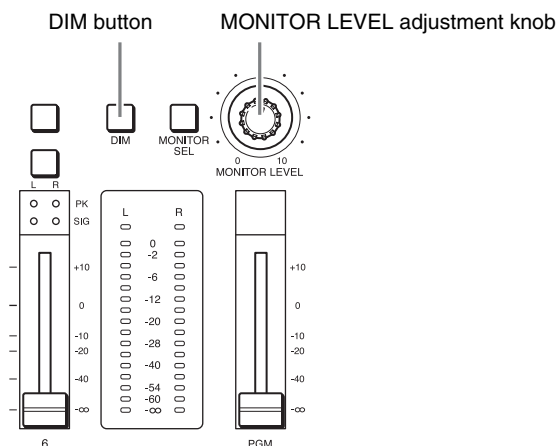
MONITOR LEVEL adjustment knob
Turn the knob to perform adjustment of the audio level for monitoring.

DIM button
Pressing the button lights it orange and enables the dimmer function, which lowers the monitor level 20 dB. Pressing the button again disables the dimmer function and returns the original monitor level.

Monitoring the Audio of a Particular Channel Only

Use the Pre-Fade Listening (PFL) function to check the audio on a channel without the channel fader adjustments. You can do this, for example, on the MON OUT L and R connectors and the HEADPHONES connector.
Hold down the ACCESS/PFL button for the channel you want to monitor for at least 0.5 seconds. While the button is held down, the audio for that channel is monitored.

When you release the ACCESS/PFL button, the monitoring is ended.

Tips

- If you press another ACCESS/PFL button for at least 0.5 second during PFL, the sound of the subsequently specified channel is added.
- This does not affect the program output, AUX output, or MIX output.

Snapshots

The snapshot function allows you to save effect and key settings for specific scenes. By saving frequently used settings as snapshots, you can quickly recall settings when necessary. Up to 20 snapshots can be saved.

The following information is stored in a snapshot.
- Cross-point button numbers
- Backgrounds/keys
- Effect patterns
- Key setting status
- Transition status
- Frame memory setting

Saving Snapshots
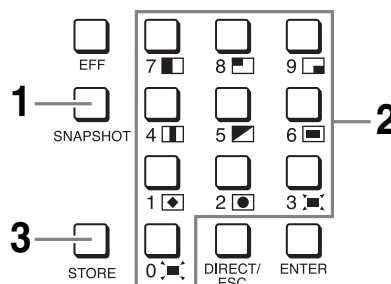
1 Press the SNAPSHOT button in the numeric keypad block to light it.

2 Use the numeric buttons to enter the number (1 to 20) under which to save the snapshot.

The number entered appears as the snapshot number in the menu screen.

Tip

If a snapshot is not currently registered to the number entered, "E" (empty) will appear to the left of the number.

3 Press the STORE button.

The snapshot is registered.

> **Tip**
>
> If you enter a number that is already in use, the previous snapshot will be overwritten.

Example: When registered to number 8

Snapshots can be exported to and imported from USB flash drive. For details on operations, see "Importing Snapshots" (→ Advanced Settings).

Recalling Snapshots

1 Press the SNAPSHOT button in the numeric keypad block to light it.

2 Use the numeric buttons to enter the number of the snapshot to recall.

The number entered appears as the snapshot number in the menu screen.

> **Tip**
>
> If a snapshot is not currently registered to the number entered, "E" (empty) will appear to the left of the number.

3 Press the ENTER button.

The snapshot is recalled.

> **Tip**
>
> To recall a snapshot without changing the cross-point, press the ENTER button while holding down the PGM cross-point button and/or PST/KEY cross-point button.

Bus delegation	Cross-point row	Unchanged cross-point
BKGD	PGM	PGM bus
	PST/KEY	PST bus
KEY	PGM	PGM bus
	PST/KEY	KEY bus (Fill bus and Source bus)

Saving and Selecting Settings

You can save the current settings for effects, keys, and setup.

You can also select whether to start up the unit with the saved settings or with the factory default settings.

Saving Settings

1 Press the SETUP button to display the [Setup] menu.

2 Turn the V1 knob to select [Startup Define], and press the V4 knob.

```
┌─────────────────────────────────────┐
│ ■     0001 │Rate  30│SS  │Mon   PGM │
├─────────────────────────────────────┤
│ Setup                        1/11    │
├─────────────────────────────────────┤
│ Startup Define                       │
│ System                          ▶    │
│ Audio                           ▶    │
│ Video (Input)                   ▶    │
├─────────────────────────────────────┤
│ Select                     Store     │
│                            ± Enter   │
└─────────────────────────────────────┘
```

The effect, key, and setup settings are saved.

Tip

When settings are saved, the [Startup Mode] automatically changes to [User].

Note

The current settings will be lost if the unit is turned off without saving.

Selecting the Settings Recalled at Startup

1 Press the SETUP button to display the [Setup] menu.

2 Turn the V1 knob to select [System], and press the knob.

```
┌─────────────────────────────────────┐
│ ■     0001 │Rate  30│SS  │Mon   PGM │
├─────────────────────────────────────┤
│ Setup                        2/11    │
├─────────────────────────────────────┤
│ Startup Define                       │
│ System                          ▶    │
│ Audio                           ▶    │
│ Video (Input)                   ▶    │
├─────────────────────────────────────┤
│ Select                               │
│ ± Enter                              │
└─────────────────────────────────────┘
```

3 Turn the V1 knob to select [Startup Mode], turn the V4 knob to select the mode, and press the knob.

```
┌─────────────────────────────────────┐
│ ■     0001 │Rate  30│SS  │Mon   PGM │
├─────────────────────────────────────┤
│ System                        5/8    │
├─────────────────────────────────────┤
│ REF OUT Phase                        │
│ Startup Mode                         │
│ Date                                 │
│ Time                                 │
├─────────────────────────────────────┤
│ Select                     Def       │
│                            User      │
└─────────────────────────────────────┘
```

Knob	Parameter	Meaning	Setting values
V4	Def	Recalled settings	**Fact**, User

Notes on setting values
Fact: Factory default settings
User: Saved settings

Appendix

Effect Pattern List

Wipe

1		2		3	
4		5		6	
7		8		9	
10		11		12	
13		14		15	
16		17		18	
19		20		21	
22		23		24	

Mix

900	MIX

NAM (non-additive mix)

901	NAM

Slide

1001		1002		1003	
1004		1005		1006	
1007		1008			

Squeeze

1021		1022		1023	
1024		1025		1026	
1027		1028		1029	
1030		1031			

Door

1041		1042		1043	
1044					

Frame In/Out

1201		1202		1203	
1204		1205		1206	
1207		1208		1221	
1222		1223		1224	

Flip Tumble [1]

1101		1102	

PinP (picture-in-picture) [1]

1251	

Mosaic [1]

1701	MOSAIC

Defocus [1]

1702	DEFOCUS

1) Can only be used for BKGD transitions.

Troubleshooting

Please verify the problem again. If the problem persists, contact your local Sony representative.

Problem	Possible cause	Solution
The video output is not displayed and the display is black.	The FTB button is lit (on).	Turn the FTB button off.
The BKGD and KEY next transition buttons cannot be selected simultaneously.	DME wipe is selected for the effect transition type.	Select an effect transition type other than DME.
Cannot select DME wipe for the effect transition type.	DME is selected for the key transition type, or the resizer function is [On].	Select a key transition type other than DME, or turn the resizer function [Off].
Cannot select DME wipe for the key transition type.	DME is selected for the effect transition type, or the resizer function is [On].	Select an effect transition type other than DME, or turn the resizer function [Off].
[Resizer] cannot be turned [On].	DME wipe is selected for the effect transition or key transition type.	Select an effect transition or key transition type other than DME.
CG files do not appear in the list.	The file is not saved in the import folder.	Save the file in the "\Sony\MCS\FM" folder.
	The file name (including the extension) consists of 26 characters or more.	Edit the file name to 25 characters or less (including the extension).
Alpha channel video cannot be imported.	The CG files that include alpha channels were not created properly.	Create CG files that include alpha channels in TGA or TIFF format.
The FTB button in the transition control block does not function.	AUX 1 or AUX 2 is delegated to the cross-point control block (i.e., the AUX 1 or AUX 2 bus delegation button is selected).	Change the bus delegation button selection to BKGD or KEY.
	[Fade To Black] is set to [Disbl] in the [Setup] menu >[Video (Misc)] menu.	Set [Fade To Black] to [Enbl].
The KEY TRANS button in the transition control block does not function.	AUX 1 or AUX 2 is delegated to the cross-point control block (i.e., the AUX 1 or AUX 2 bus delegation button is selected).	Change the bus delegation button selection to BKGD or KEY.
The EFF button in the transition control block does not function.		
The KEY next transition button does not turn on (i.e., light).		
After configuring the date and time settings, the settings appear incorrectly after restarting the power.	If the date and time appear incorrectly, the internal battery may be weak.	Contact your local Sony representative.

Maintenance

Remove dust from the ventilation holes once a month or whenever the holes are dirty.

Specifications

General

Supported formats
- 1080i/ 50 Hz, 59.94 Hz
- 720p/ 50 Hz, 59.94 Hz
- 480i/ 59.94 Hz
- 576i/ 50 Hz

Power 100 to 240 V AC ±10%, 50/60 Hz

Power consumption
- 100 V: 0.7 A, 240 V: 0.3 A

Inrush current
(1) Maximum possible inrush current at initial switch-on (Voltage changes caused by manual switching): 40 A peak, 10 A r.m.s. (240 V AC)
(2) Inrush current after a mains interruption of five seconds (Voltage changes caused at zero-crossing): 10 A peak, 5 A r.m.s. (240 V AC)

Operation guarantee temperature
- 5 °C to 40 °C (41 °F to 104 °F)

Performance guarantee temperature
- 10 °C to 35 °C (50 °F to 95 °F)

Storage temperature
- –20 °C to +60 °C (–4 °F to +140 °F)

Dimensions $420 \times 122 \times 265$ mm
($16\,^5/_8 \times 4\,^7/_8 \times 10\,^1/_2$ in.)
(WHD, excluding protrusions)

Mass Approx. 5.0 kg (13 lb. 4 oz.)

420 mm ($16\,^5/_8$ in.)

265 mm ($10\,^1/_2$ in.)

58 mm ($2\,^3/_8$ in.)

122 mm ($4\,^7/_8$ in.)

265 mm ($10\,^1/_2$ in.)
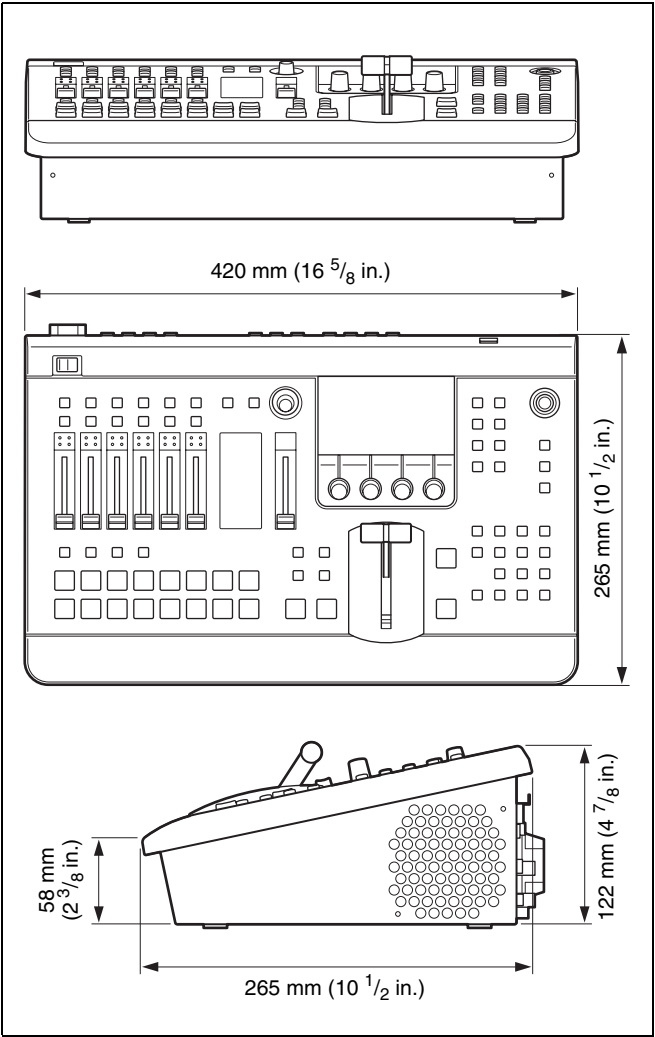
Video signals

Video input

SDI BNC (4), 75 Ω, 0.8 Vp-p ±10%, 1.5 Gbps, 270 Mbps
SMPTE-292M, SMPTE-299M, SMPTE-259M-C, SMPTE-272M-A

HDMI HDMI (Type A) (3)
HDCP not supported, CEC not supported

DVI-I DVI (1) (DVI-IN)
HDCP not supported, digital/analog RGB supported

Composite BNC (3), 1 Vp-p ±2 dB, negative sync (75 Ω)

Reference BNC (2), loop through 75 Ω
Analog black burst or tri-level sync signal +6 dB to –3 dB reference value

Supported input formats
• HD/SD system

System Format	Input	SDI IN 1 to 4	HDMI IN 1 to 3	DVI-I IN Digital	DVI-I IN Analog[1]	VIDEO IN 1 to 3	REF IN
SD	576i/50	576i/50	Not supported	Not supported	XGA (1024×768) / 60 SXGA (1280×1024) / 60 WXGA) 1280×768) / 60	PAL	PAL BB
	480i/59.94	480i/59.94	Not supported	Not supported	XGA (1024×768) / 60 SXGA (1280×1024) / 60 WXGA) 1280×768) / 60	NTSC	NTSC BB
HD	1080i/50	1080i/50	1080i/50	1080p/50	XGA (1024×768) / 60 SXGA (1280×1024) / 60 WXGA) 1280×768) / 60	Not supported	PAL BB 1080i/50 (tri-level)
	1080i/59.94	1080i/59.94	1080i/59.94	1080p/60	XGA (1024×768) / 60 SXGA (1280×1024) / 60 WXGA) 1280×768) / 60	Not supported	NTSC BB 1080i/59.94 (tri-level)
	720p/50	720p/50	720p/50	Not supported	XGA (1024×768) / 60 SXGA (1280×1024) / 60 WXGA) 1280×768) / 60	Not supported	PAL BB 720p/50 (tri-level)
	720p/59.94	720p/59.94	720p/59.94	Not supported	XGA (1024×768) / 60 SXGA (1280×1024) / 60 WXGA) 1280×768) / 60	Not supported	NTSC BB 720p/59.94 (tri-level)

1) WXGA (1280 × 768) supports only the following formats.

Resolution	Frequency (Hz)	fs (MHz)	fH (KHz)	fV (Hz)	H (pix)	V (line)
1280 × 768	60	68.250	47.396	59.995	1440	790

• 3D system (Single, Dual Stream)

System Format	Input	SDI IN 1 (L) 2 (R)	SDI IN 3 (L) 4 (R)	HDMI IN 1 to 3	DVI-I IN Digital	DVI-I IN Analog	VIDEO IN 1 to 3	REF IN
HD	1080i/50	1080i/50	1080i/50	Not supported	Not supported	Not supported	Not supported	PAL BB 1080i/50 (tri-level)
	1080i/59.94	1080i/59.94	1080i/59.94	Not supported	Not supported	Not supported	Not supported	NTSC BB 1080i/59.94 (tri-level)
	720p/50	720p/50	720p/50	Not supported	Not supported	Not supported	Not supported	PAL BB 720p/50 (tri-level)
	720p/59.94	720p/59.94	720p/59.94	Not supported	Not supported	Not supported	Not supported	NTSC BB 720p/59.94 (tri-level)

Video output

SDI	BNC (4), 75 Ω, 0.8 Vp-p ±10%, 1.5 Gbps, 270 Mbps SMPTE-292M, SMPTE-299M, SMPTE-259M-C, SMPTE-272M-A
DVI-D	DVI (2) (AUX, MULTI VIEWER) HDCP not supported
Composite	BNC (1), 1 Vp-p ±2 dB, negative sync (75 Ω) Output material identical to DVI-D (AUX) output
Reference	BNC (1), 75 Ω black burst signal, NTSC: 0.286 Vp-p ±2 dB, negative sync (75 Ω) PAL: 0.3 Vp-p ±2 dB, negative sync (75 Ω)

Supported output formats
• HD/SD system

System Format	Output	SDI OUT PGM, AUX1, AUX2, MV	DVI-D OUT AUX	DVI-D OUT MV[1]	VIDEO OUT AUX	REF OUT
SD	576i/50	576i/50	Not supported	576i/50	PAL	PAL BB
	480i/59.94	480i/59.94	Not supported	480i/59.94	NTSC	NTSC BB
HD	1080i/50	1080i/50	1080i/50	1080i/50	Not supported	PAL BB
	1080i/59.94	1080i/59.94	1080i/59.94	1080i/59.94	Not supported	NTSC BB
	720p/50	720p/50	720p/50	720p/50	Not supported	PAL BB
	720p/59.94	720p/59.94	720p/59.94	720p/59.94	Not supported	NTSC BB

• 3D system (Single, Dual Stream)

System Format	Output	SDI OUT PGM, AUX1, AUX2 MV[1]	DVI-D OUT AUX	DVI-D OUT MV[1]	VIDEO OUT AUX	REF OUT
HD	1080i/50	1080i/50	1080i/50	1080i/50	Not supported	PAL BB
	1080i/59.94	1080i/59.94	1080i/59.94	1080i/59.94	Not supported	NTSC BB
	720p/50	720p/50	720p/50	720p/50	Not supported	PAL BB
	720p/59.94	720p/59.94	720p/59.94	720p/59.94	Not supported	NTSC BB

1) MV: MULTI VIEWER

Audio signals

Audio input
Analog input 1 and 2
   XLR+TRS combo (2)
   (MIC/LINE 1 and 2), male
   Reference input level: –44 dBu, –20 dBu, +4 dBu, input impedance: 3.3 kΩ or more
Analog input 3 to 6
   TRS phone (4) (MIC/LINE 3 to 6)
   Reference input level: –44 dBu, –20 dBu, +4 dBu, input impedance: 3.3 kΩ or more
Analog input 7 and 8
   Phono jack (2) (LINE 7 and 8)
   Reference input level: –10 dBu, input impedance: 10 kΩ or more

Audio output
Analog output 1 and 2
   XLR (2) (PGM OUT L and R), female
   Reference level: +4 dBu (10 kΩ load), max. output level: +24 dBu, output impedance: 150 Ω
Analog output TRS phone (4)
   (AUX 1/AUX 2/MON L/MON R)
   Reference level: +4 dBu (10 kΩ load), max. output level: +24 dBu, output impedance: 150 Ω
Analog output Phono jack (2) (MIX L/MIX R)
   Reference level: 10 dBu (10 kΩ load), max. output level: 10 dBu, output impedance: 470 Ω

Headphones output
Standard stereo PHONE (1)
Max. output: 25 mW × 2 (16 Ω load)

Other interfaces

USB   Type A (1)
REMOTE   9-pin D-sub (1), male, RS-232C,
               38.4 k Baud
TALLY/GPI   15-pin D-sub (1), male
               Input: 4 ch, output: 8 ch Open Corrector
               (max. current 5 mA or less, max.
               voltage 5 V or less)

Supplied accessories

75-Ω termination resistor (1)
Operating Instructions (Volume I Basic Operation)
    (Japanese and English, 1 each) (this document)
CD-ROM (Operating Instructions (Volume I Basic
    Operation/Volume II Advanced Settings)) (1)
Warranty (1)

Optional accessories

① AC power code (for USA and Canada)
               125 V, 10 A, 2.4 m (7 ft. 10 $^1/_2$ in.)
               Part number: 1-551-812-31
① AC power code (for Europe)
               250 V, 10 A, 2.5 m (8 ft. 2 $^1/_2$ in.)
               Part number: 1-782-929-12
① AC power code (for China)
               250 V, 10 A, 1.83 m (6 ft. $^1/_2$ in.)
               Part number: 1-830-860-11
② Holder, Plug (Black)
               Part number: 2-990-242-01
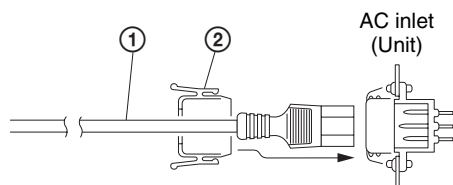
Design and specifications are subject to change without
notice.

- Always make a test recording, and verify that it was recorded successfully.
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Pin Configurations

TALLY/GPI connector

15-pin D-sub, male

Pin No.	Signal name	Description
1	GPO1	GPI output 1 / tally 1
2	GPO2	GPI output 2 / tally 2
3	GPO3	GPI output 3 / tally 3
4	GPO4	GPI output 4 / tally 4
5	GPO5	GPI output 5 / tally 5
6	GPO6	GPI output 6 / tally 6
7	GPO7	GPI output 7 / tally 7
8	GPO8	GPI output 8 / tally 8
9	GND	GND
10	GND	GND
11	GPI1	GPI input 1
12	GPI2	GPI input 2
13	GPI3	GPI input 3
14	GPI4	GPI input 4
15	GND	GND

REMOTE connector

RS-232C, 9-pin D-sub, male

Pin No.	Signal name	Description
1	–	No Connection
2	RX	Received Data
3	TX	Transmitted Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear to Send
9	–	No Connection

Tip

You can connect an external device to the REMOTE connector and control the unit from the device. For details on the communication protocol, contact your local Sony representative.

Example Connection of GPI Input

Switch or relay connection
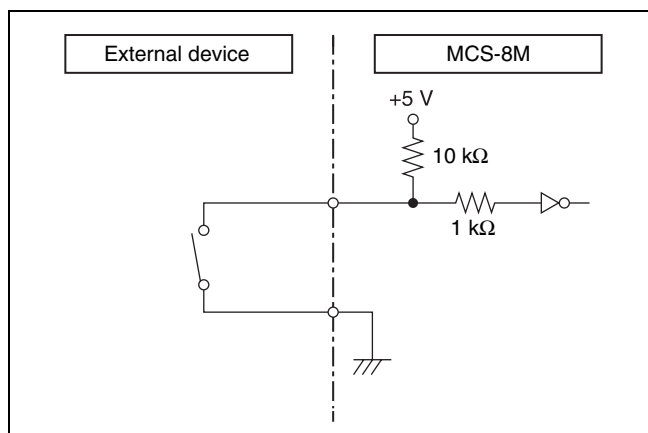
Open collector connection
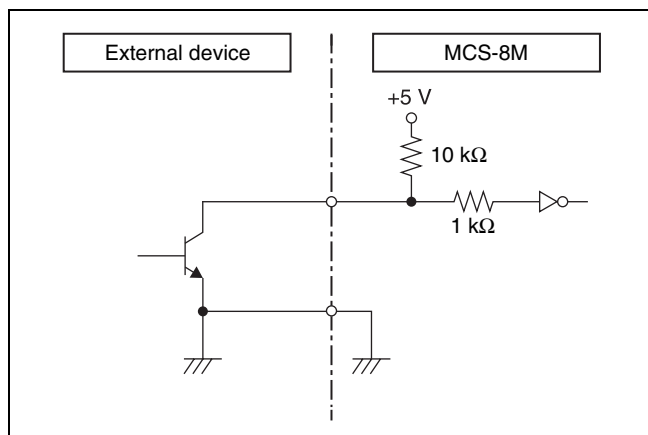
Example Connection of Tally/GPI Output

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