Panasonic

Operating Instructions Vol.1

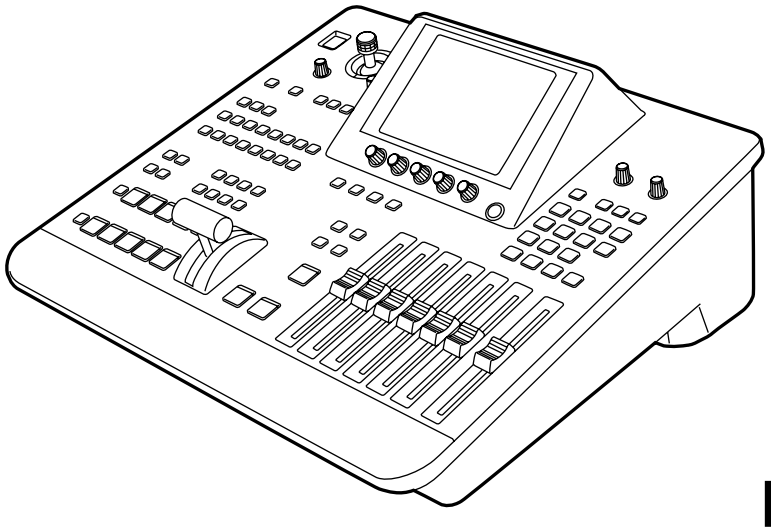
Digital AV Mixer

Model No. AG-HMX100P

Model No. AG-HMX100E

Volume 1

Note that Operating Instructions Vol. 1 describes basic operations of the digital AV mixer.
For instructions on advanced operations of the digital AV mixer, refer to Operating Instructions Vol. 2 (pdf file) contained in the supplied CD-ROM.



3D PROFESSIONAL

HDMI™ HIGH-DEFINITION MULTIMEDIA INTERFACE

Before operating this product, please read the instructions carefully and save this manual for future use.

SS0810RI0 -PS D
Printed in Japan

ENGLISH
VQT2U23

Read this first! (For AG-HMX100P)

CAUTION

RISK OF ELECTRIC SHOCK DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

This equipment must be grounded.
To ensure safe operation, the three-pin plug must be inserted only into a standard three-pin power outlet which is effectively grounded through normal household wiring.
Extension cords used with the equipment must have three cores and be correctly wired to provide connection to the ground. Wrongly wired extension cords are a major cause of fatalities.
The fact that the equipment operates satisfactorily does not imply that the power outlet is grounded or that the installation is completely safe. For your safety, if you are in any doubt about the effective grounding of the power outlet, please consult a qualified electrician.

WARNING:

- To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.
- To reduce the risk of fire or electric shock, keep this equipment away from all liquids. Use and store only in locations which are not exposed to the risk of dripping or splashing liquids, and do not place any liquid containers on top of the equipment.

CAUTION:

The mains plug of the power supply cord shall remain readily operable.
The AC receptacle (mains socket outlet) shall be installed near the equipment and shall be easily accessible.
To completely disconnect this equipment from the AC mains, disconnect the mains plug from the AC receptacle.

CAUTION:

In order to maintain adequate ventilation, do not install or place this unit in a bookcase, built-in cabinet or any other confined space. To prevent risk of electric shock or fire hazard due to overheating, ensure that curtains and any other materials do not obstruct the ventilation.

CAUTION:

To reduce the risk of fire or electric shock and annoying interference, use the recommended accessories only.

CAUTION:

This apparatus can be operated at a voltage in the range of 100 – 240 V AC.
Voltages other than 120 V are not intended for U.S.A. and Canada.
Operation at a voltage other than 120 V AC may require the use of a different AC plug. Please contact either a local or foreign Panasonic authorized service center for assistance in selecting an alternate AC plug.

CAUTION:

Excessive sound pressure from earphones and headphones can cause hearing loss.

indicates safety information.

IMPORTANT SAFETY INSTRUCTIONS

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with dry cloth.
7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.


S3125A

13) Unplug this apparatus during lightning storms or when unused for long periods of time.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

FCC NOTICE (U.S.A.)

Declaration of Conformity

Model Number:	AG-HMX100P
Trade Name:	Panasonic
Responsible Party:	Panasonic Corporation of North America One Panasonic Way, Secaucus, NJ07094
Support contact:	1-800-524-1448

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.
To assure continued compliance, follow the attached installation instructions and do not make any unauthorized modifications.

Note:

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the booklet “Something About Interference” available from FCC local regional offices helpful.

Warning:

To assure continued FCC emission limit compliance, follow the attached installation instructions and the user must use only shielded interface cables when connecting to host computer or peripheral devices. Also, any unauthorized changes or modifications to this equipment could void the user’s authority to operate this device.

Read this first! (For AG-HMX100E)

WARNING:
This equipment must be earthed.
To ensure safe operation, the three-pin plug must be inserted only into a standard three-pin power point which is effectively earthed through normal household wiring.
Extension cords used with the equipment must have three cores and be correctly wired to provide connection to the earth. Wrongly wired extension cords are a major cause of fatalities.
The fact that the equipment operates satisfactorily does not imply that the power point is earthed or that the installation is completely safe. For your safety, if you are in any doubt about the effective earthing of the power point, please consult a qualified electrician.

WARNING:
- To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.
- To reduce the risk of fire or electric shock, keep this equipment away from all liquids. Use and store only in locations which are not exposed to the risk of dripping or splashing liquids, and do not place any liquid containers on top of the equipment.

CAUTION:
Do not remove panel covers by unscrewing them.
To reduce the risk of electric shock, do not remove the covers. No user serviceable parts inside.
Refer servicing to qualified service personnel.

CAUTION:
The mains plug of the power supply cord shall remain readily operable.
The AC receptacle (mains socket outlet) shall be installed near the equipment and shall be easily accessible.
To completely disconnect this equipment from the AC mains, disconnect the mains plug from the AC receptacle.

CAUTION:
In order to maintain adequate ventilation, do not install or place this unit in a bookcase, built-in cabinet or any other confined space. To prevent risk of electric shock or fire hazard due to overheating, ensure that curtains and any other materials do not obstruct the ventilation.

CAUTION:
To reduce the risk of fire or electric shock and annoying interference, use the recommended accessories only.

CAUTION:
Excessive sound pressure from earphones and headphones can cause hearing loss.

indicates safety information.

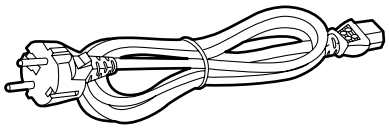
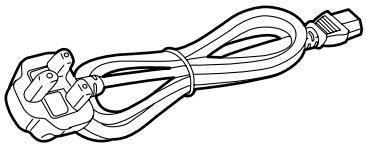
If the unit is not going to be used for length of time, turn the power OFF and disconnect the power from the AC outlet.

Caution for AC Mains Lead

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.

This product is equipped with 2 types of AC mains cable. One is for continental Europe, etc. and the other one is only for U.K.

Appropriate mains cable must be used in each local area, since the other type of mains cable is not suitable.

FOR CONTINENTAL EUROPE, ETC.	**FOR U.K. ONLY**
Not to be used in the U.K.	
	

FOR U.K. ONLY

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 13 amp fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 13 amps and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark or the BSI mark on the body of the fuse.

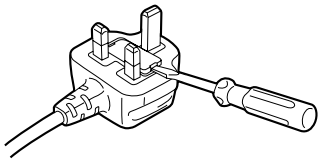
If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

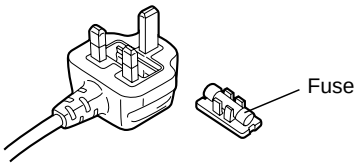
A replacement fuse cover can be purchased from your local Panasonic Dealer.

How to replace the fuse

1.Open the fuse compartment with a screwdriver.



2.Replace the fuse.



indicates safety information.

EEE Yönetmeliğine Uygundur.

EEE Complies with Directive of Turkey.

EMC NOTICE FOR THE PURCHASER/USER OF THE APPARATUS

1. Applicable standards and operating environment (AG-HMX100E)

The apparatus is compliant with:

- standards EN55103-1 and EN55103-2 1996.11, and
- electromagnetic environments E1, E2, E3 and E4

2. Pre-requisite conditions to achieving compliance with the above standards

<1> Peripheral equipment to be connected to the apparatus and special connecting cables

- The purchaser/user is urged to use only equipment which has been recommended by us as peripheral equipment to be connected to the apparatus.
- The purchaser/user is urged to use only the connecting cables described below.

<2> For the connecting cables, use shielded cables which suit the intended purpose of the apparatus.

- Video signal connecting cables
  Use double shielded coaxial cables, which are designed for 75-ohm type high-frequency applications, for SDI (Serial Digital Interface).
  Coaxial cables, which are designed for 75-ohm type high-frequency applications, are recommended for analog video signals.
- Audio signal connecting cables
  If your apparatus supports AES/EBU serial digital audio signals, use cables designed for AES/EBU.
  Use shielded cables, which provide quality performance for high-frequency transmission applications, for analog audio signals.
- Other connecting cables (IEEE1394, USB)
  Use shielded cables, which provide quality performance for high-frequency applications, as connecting cables.
- When connecting to the DVI signal terminal, use a cable with a ferrite core.
- If your apparatus is supplied with ferrite core(s), they must be attached on cable(s) following instructions in this manual.

3. Performance level

The performance level of the apparatus is equivalent to or better than the performance level required by these standards.

However, the apparatus may be adversely affected by interference if it is being used in an EMC environment, such as an area where strong electromagnetic fields are generated (by the presence of signal transmission towers, cellular phones, etc.). In order to minimize the adverse effects of the interference on the apparatus in cases like this, it is recommended that the following steps be taken with the apparatus being affected and with its operating environment:

1. Place the apparatus at a distance from the source of the interference.
2. Change the direction of the apparatus.
3. Change the connection method used for the apparatus.
4. Connect the apparatus to another power outlet where the power is not shared by any other appliances.

Pursuant to at the directive 2004/108/EC, article 9(2)
Panasonic Testing Centre
Panasonic Service Europe, a division of Panasonic Marketing Europe GmbH
Winsbergring 15, 22525 Hamburg, F.R. Germany

Contents

Volume 1 (This Book)

Volume 2 (CD)

Reference pages

■ See pages shown as “→ page 00” to obtain more information.

Requests on Use

Do not use this equipment near radio transmitters or high-voltage equipment or do not generate static electricity to this equipment as it may adversely affect the recorded images, sound, operation, LED (indication), and the like.

Keep this equipment away from equipment that generates magnetic fields or electromagnetic waves.
The powerful magnetic fields generated by speakers or large motors may adversely affect the recorded images and/or sound.

The liquid crystal parts are highly precise with 99.99 % of the pixels effective. This leaves less than 0.01 % of pixels that may not light or may remain on all the time. These phenomena are normal.

- The response speed, brightness, and color contrast of the liquid crystal parts vary with the operating temperature and viewing angle.
- Operate the CONTRAST control to get the clear display when necessary.

Do not give any vibration, impact, or static electricity to this equipment during operation.
When you need to transport this equipment, use great care not to give excessive vibration or impact.

OVERVIEW

Panasonic AG-HMX100P/HMX100E is an HD/SD-compatible digital Audio Visual mixer equipped with the essential functions of video switchers, digital video effectors, and audio mixers.

Features

Video switching/combining effects

Video can be processed with wipe, mix, chroma key, luminance key, and digital video effect (DVE) combinations as well as downstream key (DSK) and fade functions.

Various digital effects

Desired effects can be added to video including still, strobe, negative, monochrome, multi-strobe (division into 4, 9, or 16), mirror, mosaic, and paint. The screen display mode can be selected from Field and Frame for the still, strobe, and multi-strobe effects.

Audio mixing

Ten sets of audio input sources can be adjusted and mixed.

Event memory

Up to 100 patterns for the settings of this unit can be stored as “events.”

Multi-view and auxiliary (AUX) outputs

In addition to the connectors for program output*1 and preview output*2, this unit is equipped with multi-view connectors used to display all input sources on the same screen and AUX connectors used for various outputs.

Waveform display

Multi-view output displays waveforms for input signal check on the monitor.

3D camera supported

Two pairs of L and R channels are available to input 3D camera video sources and can be switched between them.

External controller connection

GPI and RS-232C connectors are equipped to connect an external controller.

Projector control

Panasonic projector connected can be controlled from this unit to turn on/off the power and shutter (RS-232C control).

Frame synchronizer

The built-in frame synchronizer can be used for frame alignment of all input sources, requiring no synchronization of input signals.

Advanced reference

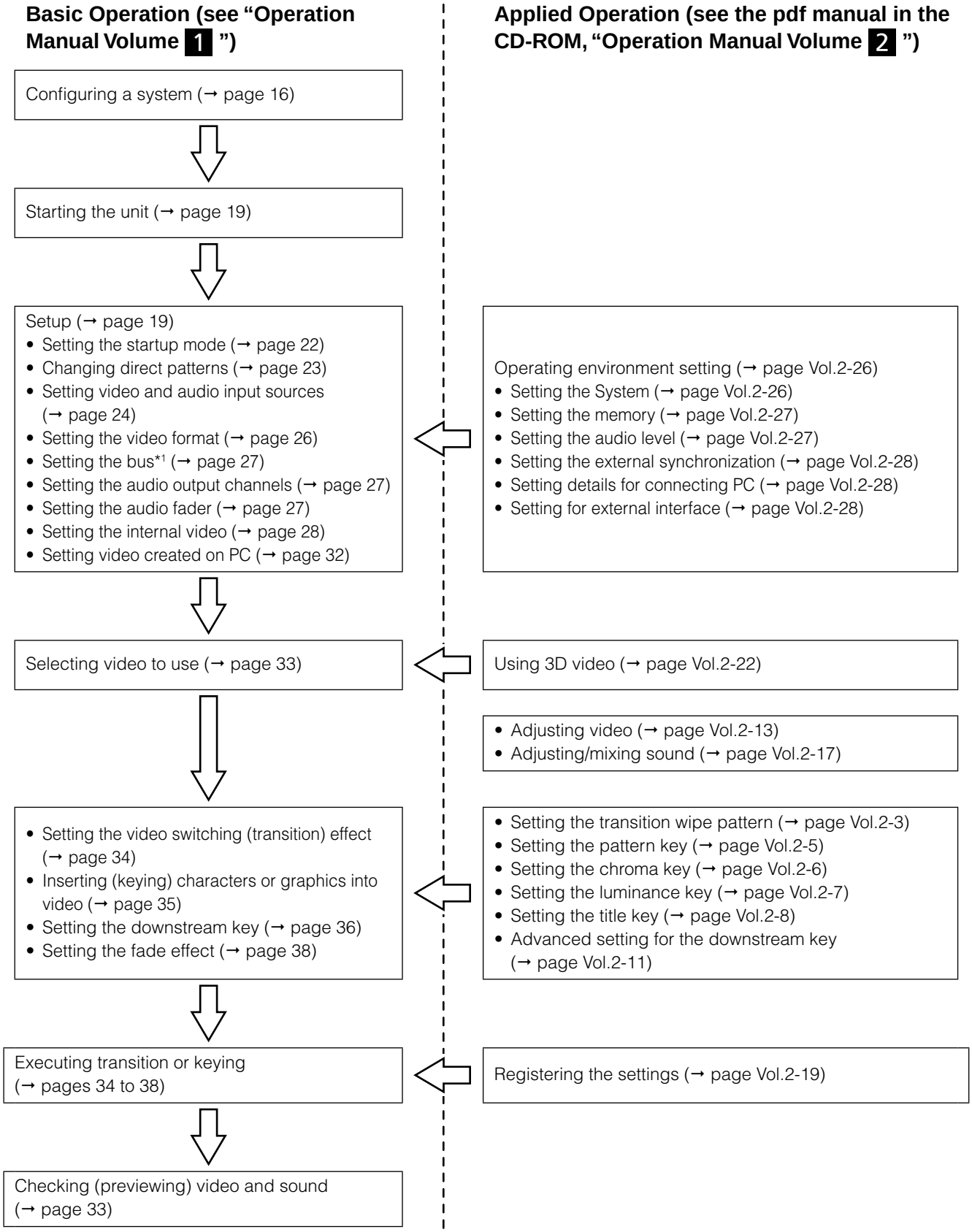
The reference signal is output with the vertical phase advanced for input signals.

*1 Program output: Final video and sound output from this unit with effects applied.

*2 Preview output: Video and sound output for checking the effects before actually applying them.

AV Mixer Functions

The following shows the operation examples for video production with the AV mixer functions.



*1 Bus: Refers to a path of signals input/output to/from this unit. You can select the bus system from the AB bus system and the Preset/Program bus system on this unit (→ page 27).

Accessories

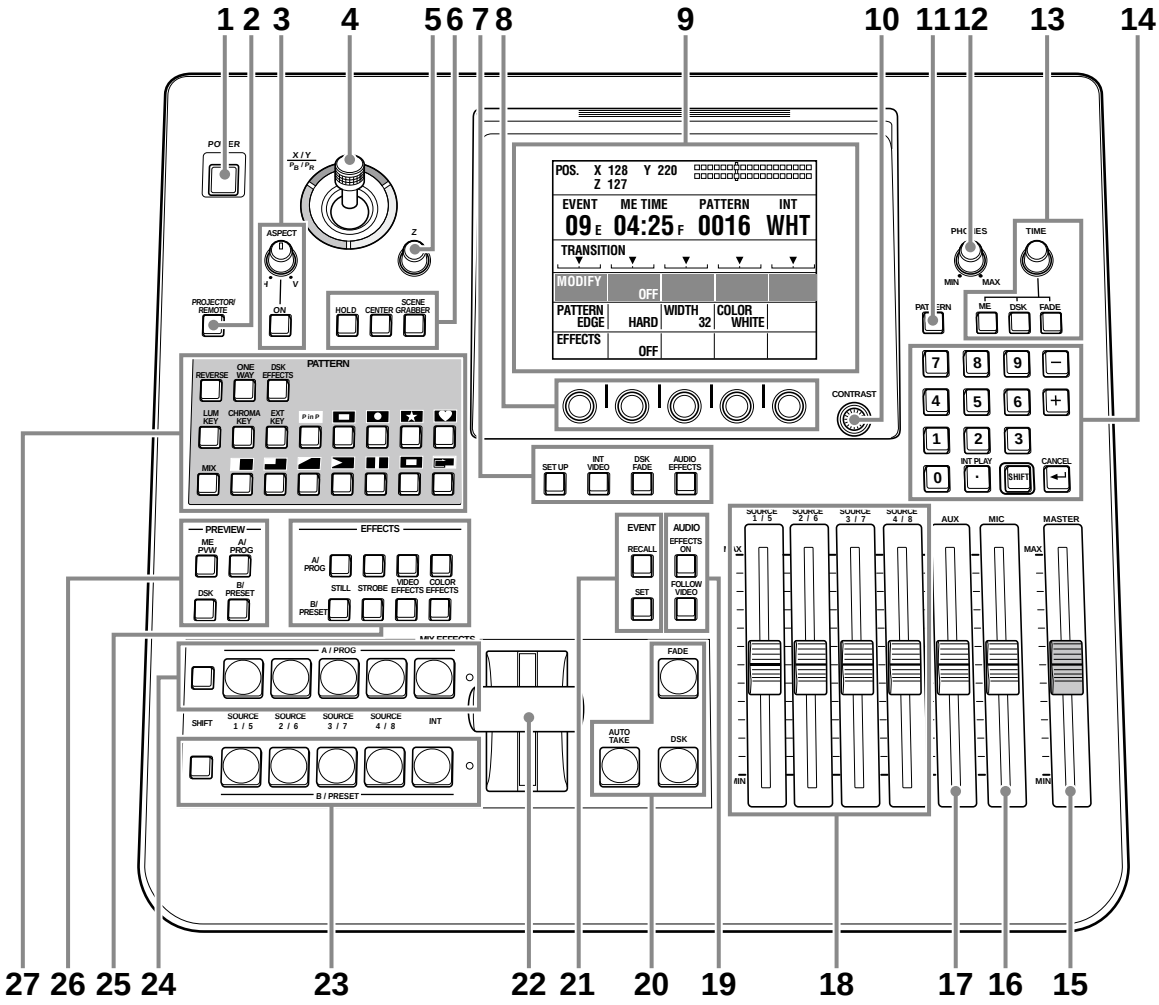
Power cable ×1 for AG-HMX100P, ×2 for AG-HMX100E
CD-ROM ×1

◆ **NOTE**

- **Be sure to appropriately dispose of the packing material when you have unpacked the product.**
- **Consult your supplier regarding purchase of accessories.**

Components and Functions

Operation Panel (Front)



1 **POWER button (→ page 19)**

2 **PROJECTOR/REMOTE button (→ pages 18, Vol.2-28)**

3 **ASPECT control and button (→ page 36)**

4 **Joystick (→ pages 20, 28, 30, 34, 36, Vol.2-4, Vol.2-6, Vol.2-13)**

5 **Rotary Z control (→ pages 20, 28, 30, 36, Vol.2-13)**

6 **HOLD button (→ pages 34, 36)**

CENTER button (→ pages 34, 36, Vol.2-13)

SCENE GRABBER button (→ page 36)

7 **Menu buttons**

- **SETUP button (→ page 22)**
- **INT VIDEO button (→ page 28)**
- **DSK FADE button (→ page Vol.2-11)**
- **AUDIO EFFECTS button (→ page Vol.2-17)**

8 **Rotary 1 (leftmost), 2, 3, 4, and 5 (rightmost) controls (→ page 21)**

9 **LCD screen (→ page 20)**

10 **CONTRAST control (→ page 21)**

11 **PATTERN button (→ page 35)**

12 **PHONES control (→ page 33)**

13 **TIME rotary control and buttons**

- **TIME rotary control (→ pages 35, 37, 38, Vol.2-9)**
- **ME*1 setting button (→ page 35)**
- **DSK setting button (→ page 37)**
- **FADE setting button (→ page 38)**

14 **Numeric key area**

- **Numeric (0 to 9) keys (→ pages 35, 37, 38, Vol.2-6, Vol.2-9, Vol.2-20)**
- **− (minus) key (→ pages 35, Vol.2-20)**
- **+ (plus) key (→ pages 35, Vol.2-20)**

*1 ME: M and E stand for Mix and Effect, respectively. This function is used to mix or switch two inputs of A and B.

- **. (period) key*1 (→ pages 32, Vol.2-21)**
- **SHIFT key (→ pages 27, 28, 30, 32, 33, Vol.2-4, Vol.2-9, Vol.2-10, Vol.2-13, Vol.2-15)**
- **↵ (confirm) key*2**

15 MASTER fader (→ page 33)

16 MIC fader (→ page 27, 28, 33)

17 AUX fader (→ page 27, 28, 33)

18 SOURCE 1/5, 2/6, 3/7, 4/8 faders (→ page 27)

19 AUDIO EFFECTS execution button (→ page Vol.2-17)

AUDIO FOLLOW VIDEO button (→ pages 33, 34, 38, Vol.2-17)

20 FADE execution button (→ page 38)

DSK execution button (→ page 37)

AUTO TAKE button (→ pages 34, 35, Vol.2-20)

21 EVENT RECALL button (→ page Vol.2-20)

EVENT SET button (→ page Vol.2-20)

22 Transition lever (→ pages 23, 34, 35)

23 B/PRESET bus source selector buttons (→ page 24)

- **SHIFT button**
- **SOURCE 1/5, 2/6, 3/7, 4/8 buttons**
- **INT button**

24 A/PROG bus source selector buttons (→ page 24)

- **SHIFT button**
- **SOURCE 1/5, 2/6, 3/7, 4/8 buttons**
- **INT button**

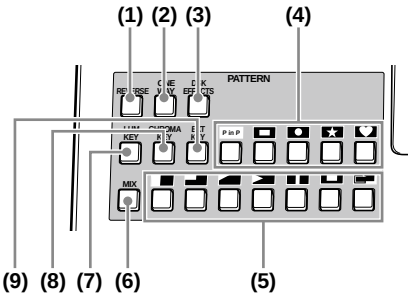
25 EFFECTS buttons for A/PROG and B/PRESET buses (→ pages Vol.2-13, Vol.2-15)

- **STILL buttons (→ page Vol.2-15)**
- **STROBE buttons (→ page Vol.2-15)**
- **VIDEO EFFECTS buttons (→ page Vol.2-13)**
- **COLOR EFFECTS buttons (→ page Vol.2-13)**

26 PREVIEW buttons (→ page 33)

- **ME PVW button**
- **A/PROG selector button**
- **B/PRESET selector button**
- **DSK selector button**

27 PATTERN area (→ pages 23, 34, 36, Vol.2-6, Vol.2-7)



(1) REVERSE button (→ page 36)

(2) ONE WAY button (→ page 34)

(3) DSK EFFECTS button (→ page 37)

(4) Direct key pattern buttons (→ pages 23, 35)

(5) Direct transition pattern buttons (→ pages 23, 34)

(6) MIX button (→ page Vol.2-3)

(7) LUM KEY button (→ page Vol.2-7)

(8) CHROMA KEY button (→ page Vol.2-6)

(9) EXT KEY button (→ page Vol.2-7)

*1 Factions as the INT PLAY key when pressed with the SHFIT key.

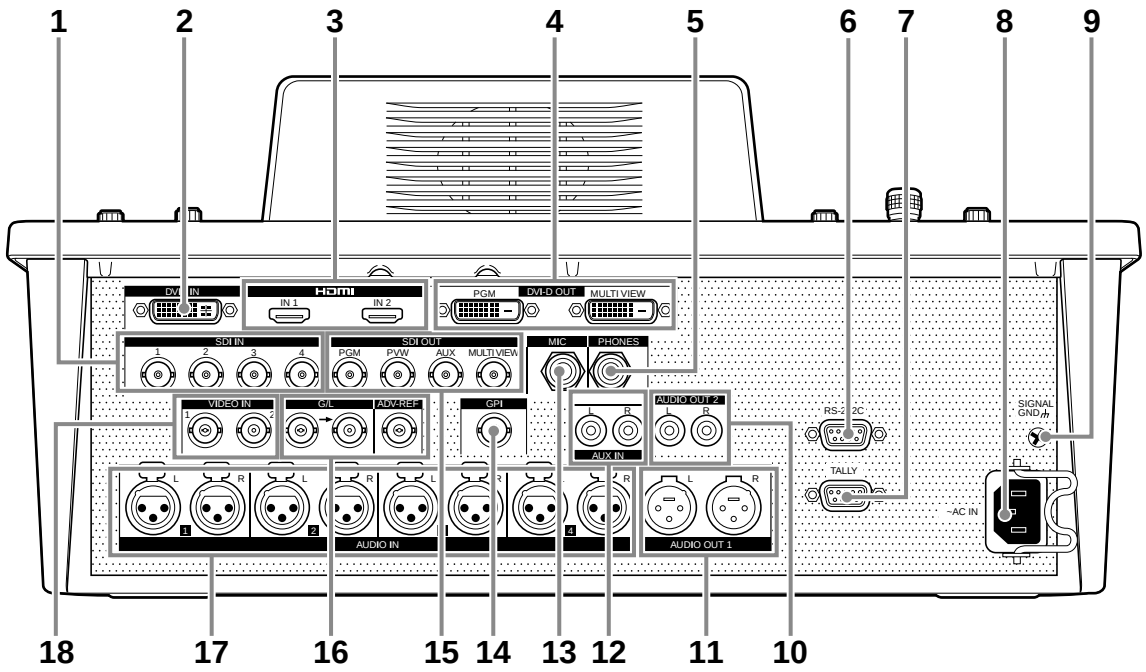
*2 Factions as the CANCEL key when pressed with the SHFIT key.

Connector Area (Rear)

For devices and signals which can be connected to each connector, see “System Configuration Examples” (→ page 16) and “Example Connections with 3D Camera” (→ pages Vol.2-22 to 24).

◆ NOTE

- **For the DVI-I IN connector and DVI-D IN connectors, shielded DVI cables with noise suppression core are recommended.**
- **For transmitting HD-SDI signals via the SDI IN 1 to 4 connectors and SDI OUT connectors, cables equivalent or superior to the 5C-FB or 5C-FW cable are recommended.**
- **When signals with the Copy Guard function applied are input to the HDMI IN, DVI-I IN or VIDEO IN connector, neither image nor sound is output (a black image appears).**



1 **SDI IN 1 to 4 connectors**

2 **DVI-I IN connector (→ pages 32, Vol.2-28)**

3 **HDMI IN 1, 2 connectors (→ pages 17, 18)**

4 **DVI-D OUT connectors**

- **PGM connector**
- **MULTI VIEW connector**

5 **PHONES connector (→ page 33)**

6 **RS-232C connector (→ page Vol.2-28)**

7 **TALLY connector (→ page Vol.2-29)**

8 **AC IN power socket**

9 **GND terminal**

10 **AUDIO OUT 2 L and R connectors (unbalanced output)**

11 **AUDIO OUT 1 L and R connectors (balanced output)**

12 **AUX IN L and R connectors**

13 **MIC connector**

14 **GPI connector (→ page Vol.2-26)**

15 **SDI OUT connectors**

- **PGM connector**
- **PVW connector**
- **AUX connector**
- **MULTI VIEW connector**

16 **G/L connector (→ page Vol.2-28)**

ADV-REF connector (→ page Vol.2-28)

17 **AUDIO IN 1 to 4 L and R connectors**

18 **VIDEO IN 1, 2 connectors**

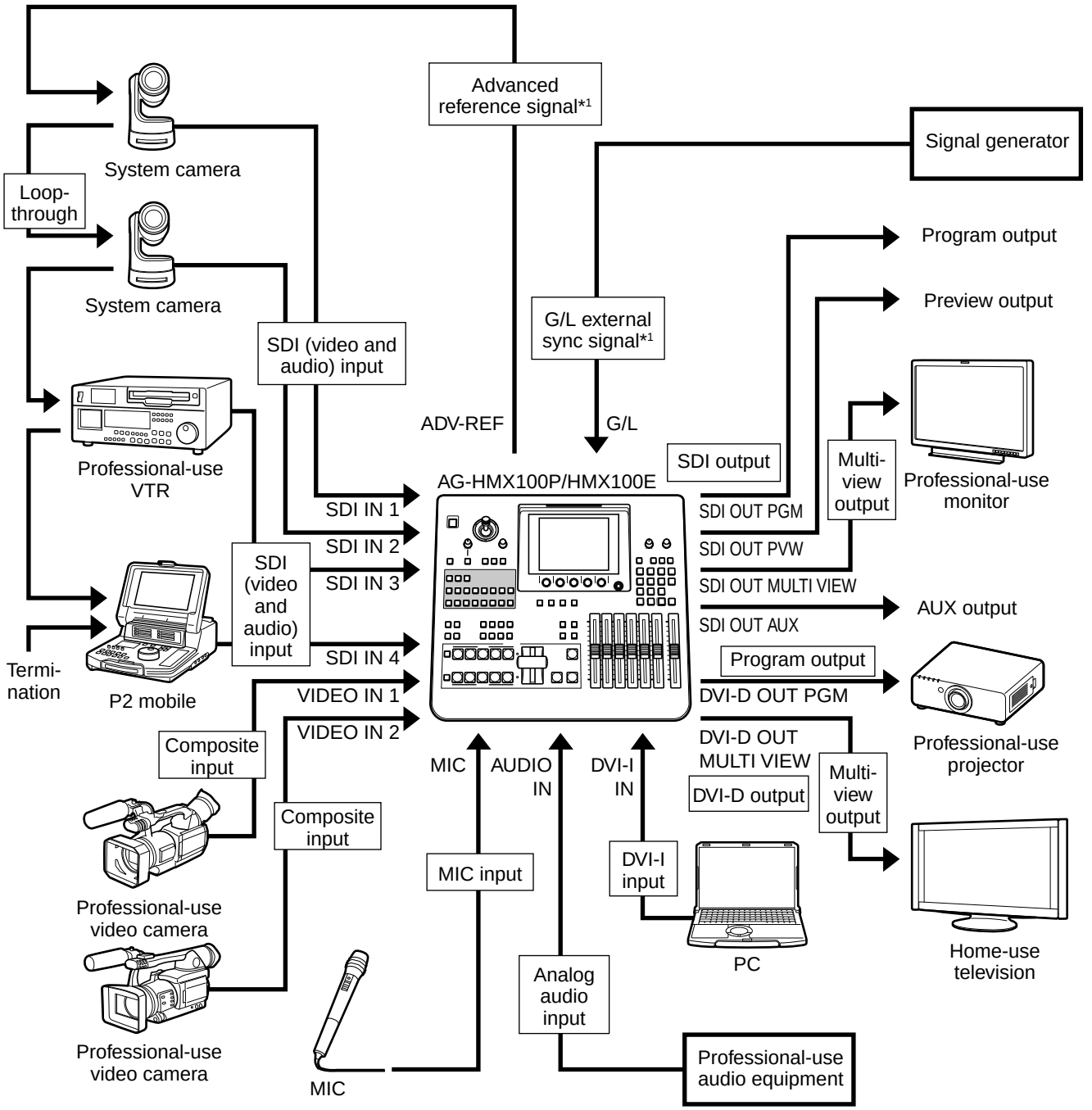
Basic Operation

This chapter describes the initial setup operation for video processing and audio mixing, and the operation of selecting video and audio sources, and setting the basic video switching effects.

System Configuration Examples

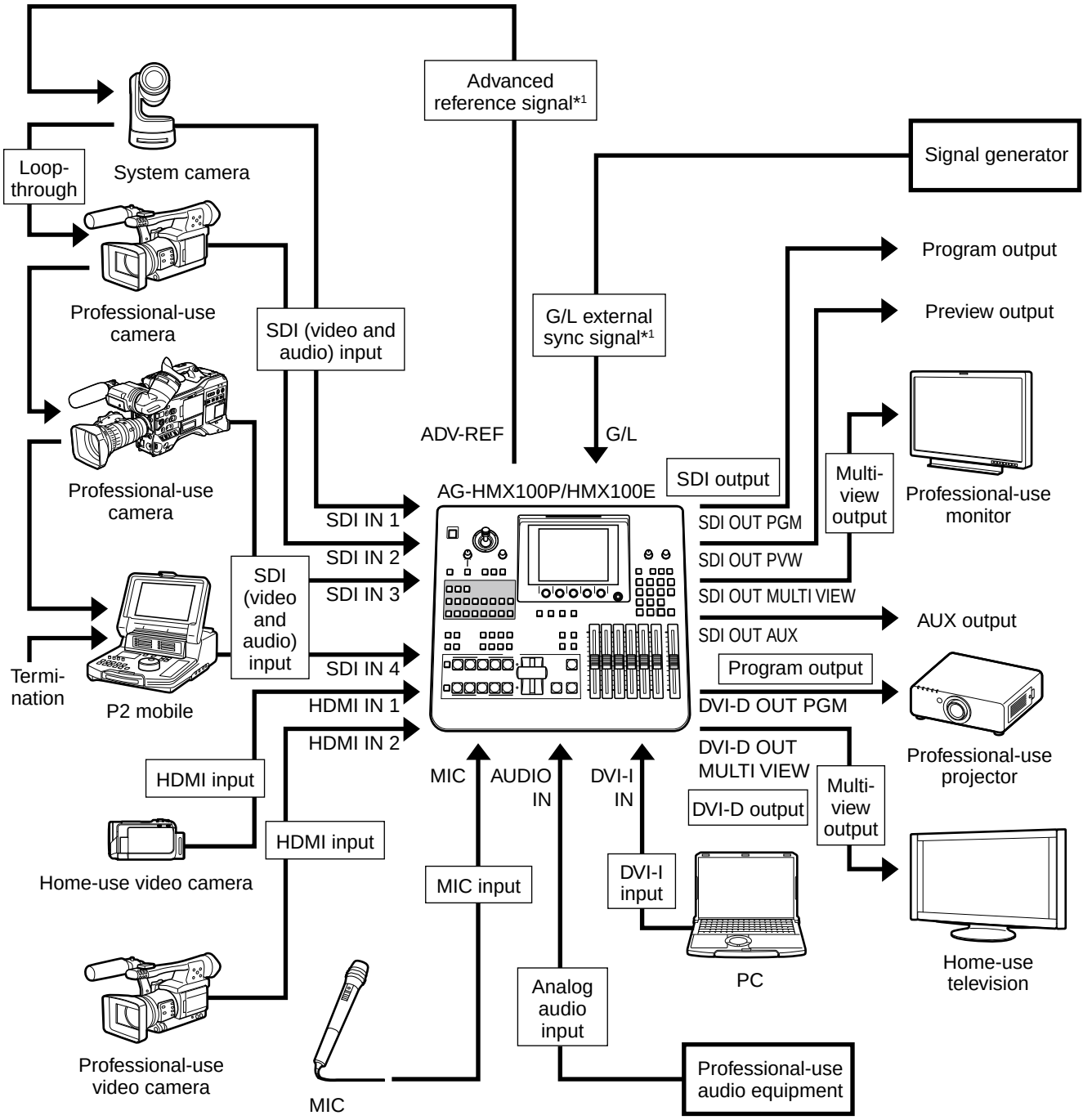
This unit can be connected to video equipment including cameras, P2 devices and VTRs to digitally process video and sound input sources.
The following shows the connection examples of this unit with external equipment in three types of system configurations: a system for processing SD video, a system for processing HD video, and a system operated from an external controller.

SD Video Processing System



*1 Advanced reference signal or G/L external sync signal need not necessarily be connected.

HD Video Processing System

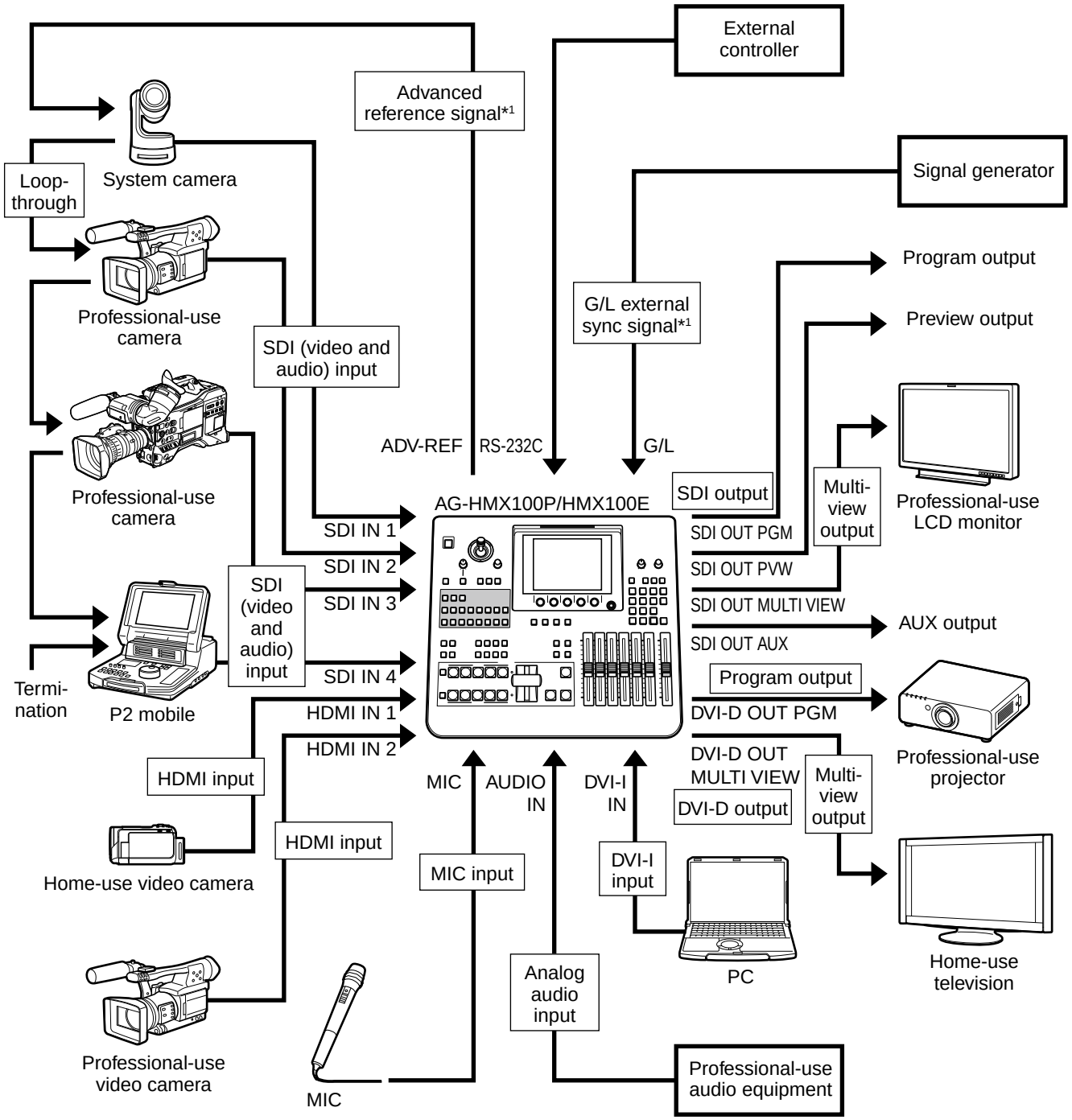


*1 Advanced reference signal or G/L external sync signal need not necessarily be connected.

System with External Controller

For using an external controller, it is necessary to perform the following operations in advance:

- Enter this unit to remote mode using the [RS-232C] submenu of the [SETUP] menu (→ page Vol.2-29).
- Press the PROJECTOR/REMOTE button to turn on to activate RS-232C control.



*1 Advanced reference signal or G/L external sync signal need not necessarily be connected.

Power-On

1 Use the supplied power cord to connect this unit to an AC power source.

2 Press the POWER button.

To specify the initial state of the unit when it is restarted

Use the [MODE] submenu of the [SETUP] menu to set the startup mode (→ page 22).
Preset mode: The last settings are restored when the unit is restarted. The factory default setting is this mode.
Reset mode: The factory default settings are restored when the unit is restarted. However, some settings remain in the previous state including those of the [SETUP] menu.
Factory default mode: The factory default settings are restored when the unit is restarted.

Power-Off

Keep pressing down the POWER button for 3 seconds or more, and the power of this unit is turned off.

Initial Setup

When you use Panasonic AG-HMX100P/HMX100E for the first time, you need to make the settings as described below with the [SETUP] menu (→ page 22) and [INT VIDEO] menu (→ page 28) to set up this unit.

- Setting the startup mode (→ page 22)
- Changing direct patterns (→ page 23)
- Setting video and audio input sources (→ page 24)
- Setting the video format (→ page 26)
- Setting the bus (→ page 27)
- Setting the audio output channels (→ page 27)
- Setting the audio fader (→ page 27)
- Setting the back matte video (→ page 29)
- Outputting the color bars (→ page 30)
- Setting still pictures or movies (→ page 30)
- Setting video created on PC (→ page 32)

HD/SD Settings

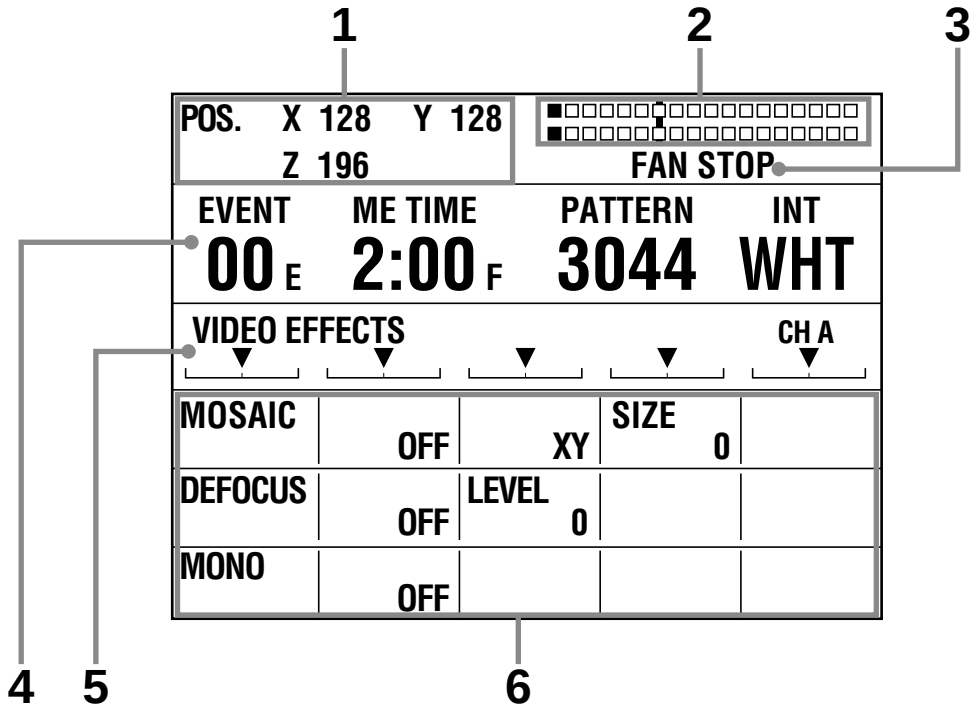
This unit is not available for mixing different formats of input signals. Thus, it cannot input HD video and SD video at the same time to perform the mixing operation.
Depending on whether to input HD video or SD video as an input source, the system format of this unit must be set to “HD” or “SD,” respectively in the following way.

The system format can be changed from the [VIDEO FORMAT] submenu of the [SETUP] menu (→ page 25).
To set the system format to HD: Select 720/50p, 720/59p, 1080/50i, or 1080/59i.
To set the system format to SD: Select 480/59i or 576/50i.

Setting Screen

When setting up this unit or adjusting functions, you need to check the current settings on the LCD screen.

The following shows the basic configuration of the setting screen.



1 Joystick, rotary Z control settings, and 3D display area

Shows the setting values of the joystick and rotary Z control; X, Y, and Z values during position setting and P_B, P_R, and C GAIN values during color setting.
When this unit is in 3D mode (→ page Vol. 2-25), [3D] is displayed.

2 Audio level meter

Indicates the audio output level.

3 Error Message

An error message appears in the following cases.

Message	Condition and Action
FAN STOP	The fan has stopped from any cause. Immediately turn off the power and request a service call (→ page 39).
CHANGE HDMI FORMAT CHANGE HDMI1 FORMAT CHANGE HDMI2 FORMAT	HDMI input source in the format other than the system formats (→ page 19) available for this unit is being connected to this unit. **CHANGE HDMI FORMAT:** Input sources of both HDMI IN connectors are in unavailable formats. **CHANGE HDMI1 FORMAT:** Input source of the HDMI IN 1 connector is in unavailable format. **CHANGE HDMI2 FORMAT:** Input source of the HDMI IN 2 connector is in unavailable format. Change the system format setting or the input source setting.

◆ **NOTE**

The "FAN STOP" error message is also displayed on the multi-view screen. However, since the multi-view screen does not open when this unit is in 3D mode (→ page Vol.2-25), no error message is displayed even if the fan stops. Pay attention to a message which will appear on the LCD.
If two types of errors occur at the same time, "FAN STOP" is displayed preferentially.

4 Event number, transition time, pattern number, and internal video display area

EVENT: Shows the event number (→ page Vol.2-20).
ME TIME: Shows the setting value of transition time (→ page 35); DSK TIME value during downstream key setting (→ page 37) and FADE TIME value during fade setting (→ page 38).
To change the TIME type, press the applicable transition time setting button (ME, DSK, or FADE) to turn on.
PATTERN: Shows the number of the currently selected pattern (→ page 35).
INT: Shows the type of the currently selected internal (internally generated) video (→ page 28).

5 Menu title, related information, rotary 1 to 5 parameter display area

Shows the title of the currently selected menu (→ page 21) (e.g., VIDEO EFFECTS), bus settings (A/B), related information (color settings, etc), and setting positions of rotary 1 to 5 controls.

6 Menu display area

Shows the setting items and values of the currently selected menu.

The leftmost column has the setting items and the second to fourth columns have the setting values. (The leftmost column shows the setting values when the [COLOR EFFECTS] menu is displayed.)

The setting items and values are displayed three lines at a time.

The rotary 1 or 2 control can be used to scroll the display.

The currently selected setting item is displayed in reverse video (white on black).

To adjust the LCD contrast

Operate the CONTRAST control.

Before adjustment, see “Requests on Use” (→ page 9).

Basic Operation of Menus

Menus are used to set up this unit or adjust functions. This section describes how to select a menu and change the settings.

The following table shows the menu titles and settings available on this unit.

List of menus

Menu Title	Settings
[SETUP]	Setting up (→ page 22)
[INT VIDEO]	Setting internal video (→ page 28)
[DSK FADE]	Setting the downstream key/fade (→ page Vol.2-11)
[AUDIO EFFECTS]	Setting audio effects (→ page Vol.2-17)
[COLOR EFFECTS]	Setting color effects (→ page Vol.2-13)
[VIDEO EFFECTS]	Setting video effects (→ page Vol.2-13)
[LUMINANCE KEY]	Setting the luminance key (→ page Vol.2-7)
[CHROMA KEY]	Setting the chroma key (→ page Vol.2-6)
[EXT KEY]	Setting the external key (→ page Vol.2-7)
[BASIC PATTERN KEY]	Setting the basic pattern key (→ page Vol.2-5)
[PATTERN KEY]	Setting the pattern key (→ page Vol.2-5)
[TRANSITION]	Setting transition wipe (→ page Vol.2-3)
[KEY LEARN]	Setting key learn (→ page Vol.2-9)
[TITLE KEY]	Setting the title key (→ page Vol.2-8)
[PROJECTOR]	Setting the projector (→ page Vol.2-29)

To select the menu

For the [SETUP], [INT VIDEO], [DSK FADE], and [AUDIO EFFECTS] menus, press the corresponding menu button.

For other menus, press the operation button related to the settings.
For more information, see the description of each setting in List of Menus.

If the menu is selected, the menu title, setting items, and setting values are shown on the setting screen (→ page 20).

To select the setting item

Select the setting item in the menu display area using the rotary 1 control (leftmost).
The currently selected item is displayed in reverse video (displayed in white on black).

Three items each are displayed as the setting items.
When the setting item you want to select is not found, scroll the screen using the rotary 1 control. (When the [AUDIO EFFECTS] menu is selected, operate the rotary 2 control to scroll the screen.)

To change the setting values

For the setting item displayed in reverse video (displayed in white on black) in the menu display area, the setting values can be changed.

The rotary 2 to 5 controls are used to change the setting values in the second to fourth columns of the menu display area. (The rotary 1 control is used to change the setting value in the leftmost column when the [COLOR EFFECTS] menu is displayed.)

Setting value in 2nd column	Use the rotary 2 control.
Setting value in 3rd column	Use the rotary 3 control.
Setting value in 4th column	Use the rotary 4 control.
Setting value in 5th column	Use the rotary 5 control.

[SETUP] Menu (Setup Operation) Screen

When the SETUP button is pressed, the [SETUP] menu screen appears as shown below.

The [SETUP] menu is used to make the basic settings for the entire unit.

POS. X 128 Y 128 Z 196				
EVENT	ME TIME	PATTERN	INT	
00 E	01:00 F	3021	WHT	
SETUP				
MODE	POWER RESET			
AUDIO VIDEO	INPUT SETUP		AUX SDI1	WFM SDI1
VIDEO FORMAT	1080/59i	ASPECT - -	SETUP - -	
DIRECT PATTERN	SETUP			
BUS	TYPE AB			
MEMORY	INT V 3	TITLE 3		
AUDIO CH	CH SDI1	L-CH 1	R-CH 2	OSD ON
AUDIO FADER	SOURCE CP PAIR	AUX/MIC PAIR		
AUDIO LEVEL	ALIGN. 0dB			HEAD ■■dB*1
PC1	ANALOG	FORMAT SXGA		A.SET ON
PC2	H POSI 30	V POSI 10	PHASE 16	CLOCK 1688
GEN. LOCK	H PHASE 1000			
FILE	EMPTY 1	SAVE		
SYSTEM1	TIME SEC	GPI ME		
SYSTEM2	P.SAVE OFF	SCR SAVE 10		HOURS M. OFF
RS-232C	B.RATE 9.6k	DATA L. 8BITS	PARITY NONE	PJ
3D	MODE OFF	FORMAT - -		
Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5

Scroll the screen to display.

*1 20dB (AG-HMX100P) or 18dB (AG-HMX100E)

Setting the Startup Mode [MODE]

The [MODE] submenu of the [SETUP] menu is used to specify how to reproduce the stored settings when this unit is restarted (startup mode).

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
MODE	POWER RESET			

RESET
PRESET
FACTORY

To reset settings other than basic settings to the factory default settings when the unit is restarted

Set [POWER] to [RESET] (reset mode) using the rotary 2 control.
Settings other than [SETUP] menu settings, direct pattern settings, event memory settings, file settings, and key learn settings are reset to the factory default settings.

To reset all settings to the factory default settings when the unit is restarted

Reset all settings to the factory default settings.

1 Set [POWER] to [FACTORY] (factory default mode) using the rotary 2 control, and press the ↵ key.

2 When the message [OK?] appears, press the ↵ key.

To cancel the file save, press the ↵ key while holding down the SHIFT key.

3 When the message “Please Wait…” appears and then “TURN POWER OFF” appears, turn off the power and restart the unit.

To restore the last settings when the unit is restarted

Set [POWER] to [PRESET] (preset mode) using the rotary 2 control.
The following types of data are stored, and applied when the unit is started next time.

- [INT VIDEO] menu setting values
- [COLOR EFFECTS], [VIDEO EFFECTS], and [AUDIO EFFECTS] menu setting values
- Combinations of patterns registered as direct patterns and numbers
- Setting values of effects applied to the patterns registered as direct patterns

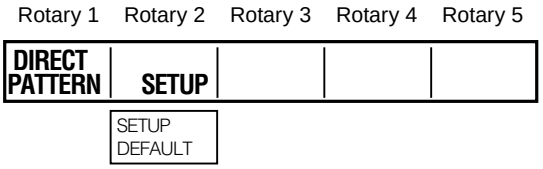
- Position setting values of patterns registered as direct patterns
- Button ON/OFF state
- Time setting values (transition, DSK, and fade)

The factory default setting is [PRESET].

Changing Direct Patterns [DIRECT PATTERN]

The patterns that are frequently used for transition and keys are registered as “direct patterns.” These patterns can be selected with the direct transition (or key) pattern buttons in the PATTERN area.
The effect and position settings applied to the respective patterns registered as direct patterns are saved in memory and applied when the patterns are called next time (if [MODE] in the [SETUP] menu is set to [PRESET]).
Any settings made for the patterns not registered as direct patterns are not saved in memory. In addition, when a pattern is called, the setting values common to the applicable patterns are displayed in the menu.

The [DIRECT PATTERN] submenu of the [SETUP] menu can be used to change direct pattern assignment to each button.



To change a direct pattern

1 Select [SETUP] using the rotary 2 control, and press the ↵ key.

2 When the message [OK?] appears, press the ↵ key again.

To stop the setting process, press the ↵ key while holding down the SHIFT key.

All the direct transition pattern buttons and direct key pattern buttons that can be selected flash in the PATTERN area.

3 Press the direct transition (or key) pattern button of the pattern you want to change.

The selected button flashes.

4 Enter the number of the pattern you want to set for transition or as the key using the numeric keys in the numeric key area.

You can select the number from 0XXX, 1XXX, and 2XXX for transition patterns, 3XXX for key patterns, and 9000 to 9019 for key learn.

The setting screen switches to the DIRECT PATTERN TRANSITION screen or DIRECT PATTERN KEY screen.
The entered number is displayed at the position of the pattern number.

→ For pattern numbers, refer to “List of Transition Patterns” and “List of Key Patterns” at the back of Volume 2.

◆ **NOTE**

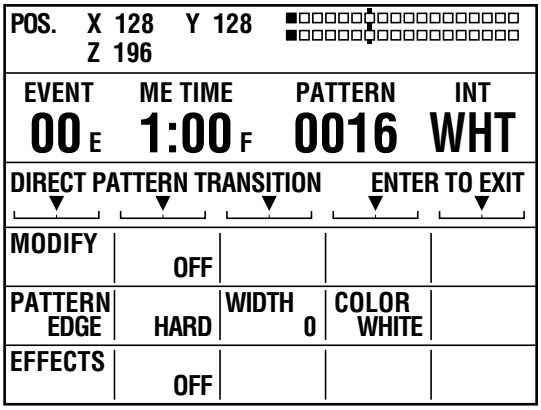
- **If the pattern corresponding to the entered number is already assigned to other button, the button flashes. In this case, return to Step 3, select the button, and enter other pattern number.**
- **Key patterns are assigned to the direct key pattern buttons and transition patterns are assigned to the direct transition pattern buttons. You cannot assign any transition pattern to a direct key pattern button or any key pattern to a direct transition pattern button.**

5 Slide the transition lever upward to check the selected pattern on the monitor connected to the SDI OUT PVW connector.

6 Press the ↵ key.

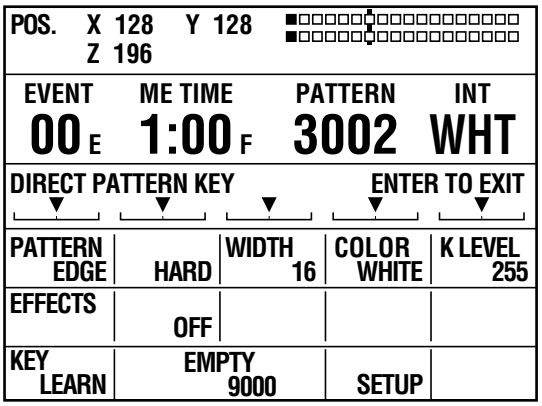
The display returns to the [SETUP] menu screen.

Example of DIRECT PATTERN TRANSITION screen



Up to seven transition patterns can be stored.
It is also possible to change the settings for the edge of each pattern or set and store effects for each pattern (→ page Vol.2-3).

Example of DIRECT PATTERN KEY screen



Up to six key patterns can be stored.
It is also possible to change the settings for the edge of each pattern or set and store effects for each pattern (→ page Vol.2-5).

To use the factory default settings

1 Select [DEFAULT] using the rotary 2 control, and press the ↵ key.

2 When the message [OK?] appears, press the ↵ key.

To stop the setting process, press the ↵ key while holding down the SHIFT key.

The display returns to the [SETUP] menu screen.

Setting Video and Audio Input Sources [AUDIO VIDEO]

The [AUDIO VIDEO] submenu of the [SETUP] menu is used to select video and audio input sources to be processed or mixed.

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
AUDIO VIDEO	INPUT SETUP		AUX SDI1	WFM SDI1
	SETUP DEFAULT V-LINK		SDI1 SDI2 SDI3 SDI4 HDMI1 (VIDEO1)*1 HDMI2 (VIDEO2)*1 PGM PVW M VIEW	SDI1 SDI2 SDI3 SDI4 HDMI1 (VIDEO1)*1 HDMI2 (VIDEO2)*1 DVI-I

*1 VIDEO1 and VIDEO2 are displayed as choices when the current system format is SD (→ page 19). HDMI1 and HDMI2 are displayed when the current system format is HD.

The video and audio input source settings are stored individually for the following three cases.
- When the system format setting is SD (→ page 19).
- When the system format setting is HD (→ page 19).
- 3D mode setting is other than [OFF].

The stored settings are read out each time the system format is changed.

To display the Audio/Video Input Source Setting screen

1 Set [INPUT] to [SETUP] using the rotary 2 control, and press the ↵ key.

2 When the message [OK?] appears, press the ↵ key again.

The Audio/Video Input Source Setting screen appears.

To cancel the setting, press the ↵ key while holding the SHIFT key.

The display returns to the [SETUP] menu screen.

Audio/Video Input Source Setting screen

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
1	V S-1	SDI	A S-1	SDI
2	V S-2	SDI	A S-2	SDI
3	V S-3	SDI	A S-3	SDI
4	V S-4	SDI	A S-4	SDI
5	V S-1	HDMI	A S-1	HDMI
6	V S-2	HDMI	A S-2	HDMI
7	V S-1	DVI-I	A S-1	ANALOG
8	V S-2	SDI	A S-2	ANALOG
	V S-1 V S-2 V S-3 V S-4	SDI HDMI VIDEO DVI-I	A S-1 A S-2 A S-3 A S-4	SDI HDMI ANALOG

◆ **NOTE**

If the 3D mode is set to [MODE3-M] or [MODE3-S], neither [INPUT] item nor setting screen appears.

To select the number of an input source

Use one of the following two methods:

- Select the input source number on the Audio/Video Input Source Setting screen using the rotary 1 control. The rotary 1 control allows you to select the program input source number of bus A.
- Use the A/PROG or B/PRESET bus source selector buttons.
  To select sources 5 to 8, press the corresponding A/PROG (or B/PRESET) bus source selector button while holding down the SHIFT button.
  The pressed button flashes.

◆ NOTE

The same input sources are assigned to the A/PROG bus and the B/PRESET bus.
It is impossible to assign different sources to each bus.

You can check the input source currently assigned to the selected number on the monitor connected to the SDI OUT PVW connector.

To set the video and audio input sources

Video and sound are allocated to input source numbers 1 to 8 on the Audio/Video Input Source Setting screen.

- Allocate the video input sources named [V S-1], [V S-2], [V S-3], and [V S-4] to any of numbers 1 to 8, specifying the video input sources to use.
- Allocate the audio input sources named [A S-1], [A S-2], [A S-3], and [A S-4] to any of numbers 1 to 8, specifying the audio input sources to use.

It is also possible to make settings to establish the correspondence between video input sources and audio input sources. See “To associate video input with audio input” (→ page 25).

To allocate video and audio to the selected number

Select one of the video input sources [V S-1], [V S-2], [V S-3], and [V S-4] using the rotary 2 control.

Select one of the video [SDI], [HDMI], [VIDEO], and [DVI-I] (SDI input, HDMI input, composite input, and DVI input) as the video input sources [V S-1] to [V S-4] using the rotary 3 control.

Each input type supports the signal formats as shown below.

Input	Format
SDI	All formats
HDMI	720/50p, 720/59p, 1080/50i, 1080/59i, 1080/23.98PsF (when [3D]is set to [MODE1] or [MODE2])
VIDEO	480/59i, 576/50i
DVI-I	XGA, WXGA, SXGA, 1080/50p, 1080/60p

Select one of the audio input sources [A S-1], [A S-2], [A S-3], and [A S-4] (SDI input 1 to 4) using the rotary 4 control.

Select one of the audio [SDI], [HDMI], and [ANALOG] (SDI input, HDMI input, and analog input) as the audio input sources [A S-1] to [A S-4] using the rotary 5 control.

◆ NOTE

- **If the system format is set to SD (→ page 19), [HDMI] cannot be selected. If the system format is set to HD, [VIDEO] cannot be selected.**
- **You cannot set the combinations of video and audio input sources shown in the table below. (The settings are automatically changed to available values.)**
  When the video input is HDMI, only two channels of audio sources can be input.

Video Input	Audio Input
SDI1	SDI2, SDI3, SDI4, HDMI1, HDMI2
SDI2	SDI1, SDI3, SDI4, HDMI1, HDMI2
SDI3	SDI1, SDI2, SDI4, HDMI1, HDMI2
SDI4	SDI1, SDI2, SDI3, HDMI1, HDMI2
HDMI1	SDI1, SDI2, SDI3, SDI4, HDMI2
HDMI2	SDI1, SDI2, SDI3, SDI4, HDMI1
DVI-I	SDI1, SDI2, SDI3, SDI4, HDMI1, HDMI2

To fix the settings and return to the [AUDIO VIDEO] screen

Press the ↵ key.

To return to the [AUDIO VIDEO] screen without fixing the settings, press the ↵ key while holding down the SHIFT key.

◆ NOTE

If other menu screen is displayed without fixing of the settings on the Audio/Video Input Source Setting screen, those settings are revoked and not applied.

To associate video input with audio input

1 Set [INPUT] to [V-LINK] using the rotary 2 control, and press the ↵ key.

2 When the message [OK?] appears, press the ↵ key again.

Audio input sources corresponding to the video input sources assigned to 1 to 8 are set.

To cancel the setting, press the ↵ key while holding the SHIFT key.

The display returns to the [SETUP] menu screen.

◆ NOTE

For input settings in 3D mode, it is possible to select only combinations of image input sources and audio input sources which are associated with each other. When 3D mode is set to other than [OFF], [V-LINK] does not appear as the setting item.

To use the factory default settings

1 Set [INPUT] to [DEFAULT] using the rotary 2 control, and press the ↵ key.

2 When the message [OK?] appears, press the ↵ key again.

To cancel the setting, press the ↵ key while holding the SHIFT key.

The display returns to the [SETUP] menu screen.

To set the output of the AUX connector

The AUX connector of the SDI OUT connectors can output the input source as is regardless of the [AUDIO VIDEO] settings.

Operate the rotary 4 control to select the input terminal to which the source you want to output is connected.
If [PGM], [PVW], or [M VIEW] is selected, the same source as that of the PGM, PVW, or MULTI VIEW connector is also output from the AUX connector.

◆ NOTE

- **The [AUX] settings are saved in different memory for the respective cases in which the system format setting is SD (→ page 19) and HD (including 3D mode). The saved settings are called according to the system format when it is switched.**
- **No DVI-I input source can be selected.**

To set the input source for the waveform monitor (WFM)

Operate the rotary 5 control to select the input source for the waveform monitor with multi-view output.

◆ NOTE

The [WFM] setting values are saved separately for the respective cases in which the system format setting is HD (including 3D mode) and SD. The saved values are called according to the system format set in the [VIDEO FORMAT] submenu of the [SETUP] menu.

Setting the Video Format [VIDEO FORMAT]

It is necessary to make the settings for video signals output from the unit (video format setting) according to the location where this unit is used and the video output method.

To set the video format for the entire system in this unit (hereinafter called “system format”), use the [VIDEO FORMAT] submenu of the [SETUP] menu.

If the system format is changed, the current settings are initialized to clear the settings in the [INT VIDEO] menu (→ page 28) and the title memory setting (→ page 30).

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

VIDEO FORMAT	1080/59i	ASPECT 16:9	SET UP 7.5	

480/59i 576/50i 720/50p 720/59p 1080/50i 1080/59i HDMI	4:3 16:9	0 7.5

AG-HMX100P

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

VIDEO FORMAT	1080/59i	ASPECT 16:9	SET UP 0	

480/59i 576/50i 720/50p 720/59p 1080/50i 1080/59i HDMI	4:3 16:9	0 7.5

AG-HMX100E

To select the aspect ratio

When 480/59i or 576/50i has been selected with the rotary 2 control, [4:3] or [16:9] can be selected with the rotary 3 control.
When the system format in which the aspect ratio cannot be set has been selected, [---] appears.
The factory default setting is [4:3].

To select setup level (black level)

When 480/59i has been selected with the rotary 2 control, [0] or [7.5] can be selected with the rotary 4 control.
When the system format in which the setup level cannot be specified has been selected, [--] appears.
The factory default is [7.5] (AG-HMX100P) or [0] (AG-HMX100E).

Changing the system format

1 Select the system format that you want to set using the rotary 2 control.

If a setting value differing from the current system format is selected, * (asterisk) is added to the current setting value.

2 Press the ↵ key.

3 When the message [OK?] appears, press the ↵ key again.

When the ↵ key is pressed to fix the selection, because the signal format switching is performed, the operation of this unit is disabled for several seconds.

4 When the message “TURN POWER OFF” appears, turn off the power and restart the unit.

◆ NOTE

- **If other menu screen is displayed without fixing of the settings on this screen, those settings are revoked and not applied. When 3D mode is set to other than [OFF], “--” appears and the system format cannot be changed.**
- **If [HDMI] is selected, the HDMI input signal is output as is from the DVI-D OUT connector, disabling the AV mixer functions including video switching effects.**

- **When the 3D mode is [OFF] (→ page Vol.2-25), the system format of this unit is the one set in the [VIDEO FORMAT] submenu of the [SETUP] menu. When the 3D mode is other than [OFF], the system format of this unit is the one set under the [3DFORMAT] item in the [3D] submenu of the [SETUP] menu.**

Setting the Bus [BUS]

The [BUS] submenu of the [SETUP] menu is used to set the output method of this unit to either of the following:

- AB bus system: Switches between video A and video B.
- Program/Preset system: Switches between program output (base video) and preset output (video used as effects).

When the Program/Preset system is selected, the A/PROG bus source selector button corresponding to the source used for the transition pattern and output from a PGM connector is necessarily lighted or flashes. Thus, an input source that you want to display next can be selected only with the B/PRESET bus source selector buttons.
→ For more information about the input source selection operation, see page 33.

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
BUS	TYPE AB			
	AB PRG/PRE			

Set [TYPE] to [AB] (AB bus system) or [PRG/PRE] (Program/Preset system) using the rotary 2 control.
The factory default setting is [AB].

Setting Audio Channels [AUDIO CH]

The [AUDIO CH] submenu of the [SETUP] menu is used to select L channel or R channel of this unit for each audio channel of the selected SDI input source.
When the system format is HD (→ page 19), audio channels 1 to 8 can be assigned. When the system format is SD, audio channels 1 to 4 can be assigned.

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
AUDIO CH	CH SDI1	L-CH 1	R-CH 2	OSD ON
	SDI1 SDI2 SDI3 SDI4	1-8 (1-4)	1-8 (1-4)	OFF ON

1 Set [CH] to one of [SDI1], [SDI2], [SDI3], or [SDI4] (SDI inputs 1 to 4) using the rotary 2 control.

2 Use the rotary 3 control to select the audio input (of the SDI input selected in Step 1) which you want to assign the L channel by setting [L-CH] to the desired audio input number.

3 Use the rotary 4 control to select the audio input (of the SDI input selected in Step 1) which you want to assign the R channel by setting [R-CH] to the desired audio input number.

4 Repeat Steps 1 to 3 to assign each audio input of SDI inputs 1 to 4 to the L channel or R channel.

◆ **NOTE**

The set channel is stored in memory separately between the cases in which the system format is SD and HD (→ page 19), and is called according to the format when the system format is changed.

To hide the audio level meter during multi-view output

Set [OSD] to [OFF] using the rotary 5 control.
The factory default setting is [ON], in which the audio level meter is displayed when the multi-view output is monitored.

Setting the Audio Faders [AUDIO FADER]

The audio input level is adjusted with the SOURCE 1/5, 2/6, 3/7, 4/8 faders (audio faders).
When adjusting the audio level of input sources 5 to 8, operate the corresponding fader while holding down the SHIFT key.

Operate the AUX fader to adjust the AUX input level and the MIC fader to adjust the MIC input level.

The operation of the audio faders, AUX fader, and MIC fader can be set from the [AUDIO FADER] submenu of the [SETUP] menu.

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
AUDIO FADER	SOURCE BUS SEP1	AUX/MIC PAIR		
	CP PAIR BUS SEP1 BUS SEP2 12 PAIR 12 SEPA.	PAIR SEPA.		

To set the audio output format and the operation of audio faders

Set [SOURCE] to [CP PAIR], [BUS SEP1], [BUS SEP2], [12 PAIR], or [12 SEPA.] using the rotary 2 control.

The following table shows the output method and audio input sources assigned to the faders for each setting.

Setting	Output Method	SOURCE 1/5 Fader	SOURCE 2/6 Fader	SOURCE 3/7 Fader	SOURCE 4/8 Fader
CP PAIR	Sound output of the selected input source	L and R channels of source 1 (or 5)	L and R channels of source 2 (or 6)	L and R channels of source 3 (or 7)	L and R channels of source 4 (or 8)
BUS SEP1		L channel of A/PROG source	R channel of A/PROG source	L channel of B/PRESET source	R channel of B/PRESET source
BUS SEP2	When AB bus system is selected	L channel of A bus source	R channel of A bus source	L channel of B bus source	R channel of B bus source
	When Program/ Preset system is selected	Preview button lighted: L channel of PROG source Preview button flashing: L channel of PRESET source	Preview button lighted: R channel of PROG source Preview button flashing: R channel of PRESET source	Preview button lighted: L channel of PRESET source Preview button flashing: L channel of PROG source	Preview button lighted: R channel of PRESET source Preview button flashing: R channel of PROG source
12 PAIR	Fixed to sound of input sources 1 and 2.	L and R channel of source 1	L and R channel of source 2	Not available	Not available
12 SEPA.		L channel of source 1	R channel of source 1	L channel of source 2	R channel of source 2

To set the operation of AUX and MIC faders

Set [AUX/MIC] to [PAIR] or [SEPA.] (separate) using the rotary 3 control. The operation of each fader varies with the setting as described in the table shown below.

Setting	AUX fader	MIC fader
PAIR	L and R channels of AUX input source	L and R channels of MIC input source
SEPA.	L channel of AUX (or MIC) input source*1	R channel of AUX (or MIC) input source*1

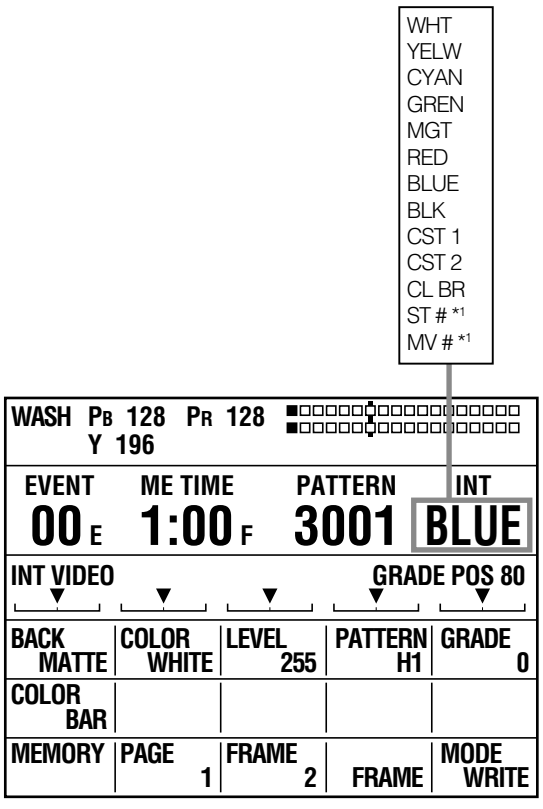
*1 To adjust the audio level of the microphone, operate the fader while holding down the SHIFT key.

[INT VIDEO] Menu (Internal Video Setting) Screen

When the INT VIDEO button is pressed, the [INT VIDEO] menu screen appears as shown below.

This menu is used to set the internal video signal built in this unit.

During color setting in the [INT VIDEO] menu, the joystick and rotary Z control are in the color setting mode.
The color set from this menu is indicated in the internal video display area.



*1 # stands for a numeric value. (The maximum value varies with the memory size (the number of frames) set in the [MEMORY] submenu of the [SETUP] menu.)

Use the rotary 1 control to set the internal video output type to back matte video ([BACK MATTE]) or color bar output ([COLOR BAR]).

If [MEMORY] is selected, an external video input source can be saved in internal memory and used as internal video (→ page 30).

Setting the Back Matte [BACK MATTE]

To create back matte video as internal video, use the [BACK MATTE] submenu of the [INT VIDEO] menu.

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
BACK MATTE	COLOR WHITE	LEVEL 255	PATTERN H1	GRADE 0
	WHITE YELLOW CYAN GREEN MAGENTA RED BLUE BLACK CUSTOM1 CUSTOM2	LEVEL 0-255 SET BACK M WASH	OFF H1 H2 H3 V1 V2 V3 DIAG1 DIAG2	0-255

To set the back matte video color

1 To check the back matte video color, press the A/PROG INT (or B/PROG INT) button to set the currently displayed bus to the internal video.

2 Use the rotary 2 control to set [COLOR] to one of the colors shown in the table below.

Setting	Color
[WHITE] (factory default setting)	White
[YELLOW]	Yellow
[CYAN]	Cyan
[GREEN]	Green
[MAGENTA]	Magenta
[RED]	Red
[BLUE]	Blue
[BLACK]	Black
[CUSTOM1] or [CUSTOM2]	Grey as the factory default setting

The P_B, P_R, and Y values are shown in the joystick and rotary Z control settings, and 3D display display area (→ page 20).

3 If [CUSTOM1] or [CUSTOM2] is selected in Step 2, set [SET] to [BACK M] (back matte) using the rotary 3 control and set [PATTERN] to [OFF] using the rotary 4 control.

4 If [CUSTOM1] or [CUSTOM2] is selected in Step 2, use the joystick and rotary Z control to set the [P_B] and [P_R] values in the range of 0 to 255 and the [Y] value in the range of 16 to 235 for selecting the back matte video color.

If other than [CUSTOM1] and [CUSTOM2] is selected, set the color level (the Y signal level for white) using the rotary 3 control.

To set the color gradation for back matte video

1 To check the back matte video color, press the A/PROG INT (or B/PROG INT) button to set the currently displayed bus to the internal video.

2 Use the rotary 2 control to set [COLOR] to one of the colors shown in the table below.

Setting	Color
[WHITE] (factory default setting)	White
[YELLOW]	Yellow
[CYAN]	Cyan
[GREEN]	Green
[MAGENTA]	Magenta
[RED]	Red
[BLUE]	Blue
[BLACK]	Black
[CUSTOM1] or [CUSTOM2]	Grey as the factory default setting

The P_B, P_R, and Y values are shown in the joystick and rotary Z control, and 3D display settings display area (→ page 20).

3 Set [PATTERN] (gradation pattern) using the rotary 4 control.

Setting	Gradation pattern
[OFF]	No gradation
[H1]	Horizontal gradation 1
[H2]	Horizontal gradation 2
[H3]	Horizontal gradation 3
[V1]	Vertical gradation 1
[V2]	Vertical gradation 2
[V3]	Vertical gradation 3
[DIAG1]	Diagonal gradation 1
[DIAG2]	Diagonal gradation 2

4 If [CUSTOM1] or [CUSTOM2] is selected in Step 2, set [SET] to [WASH] (wash color meaning companion color for gradation) using the rotary 3 control.

If other than [CUSTOM1] and [CUSTOM2] is selected in Step 2, [WASH] is automatically selected.

5 Use the joystick and rotary Z control to set the [P_B] and [P_R] values in the range of 0 to 255 and the [Y] value in the range of 16 to 235 for selecting the wash color.

If other than [CUSTOM1] and [CUSTOM2] is selected, set the color level (the Y signal level for white) using the rotary 3 control.

6 Set the [GRADE] value (gradation composition level) in the range of 0 to 255 using the rotary 5 control.

7 Set the gradation position using the rotary 5 control while holding down the SHIFT key.

◆ **NOTE**

The back matte settings are saved with the menu setting values ([P_B], [P_R], and [Y]) for each color.
(However, if [PRESET] is selected in the [POWER] submenu of the [SETUP] menu, the settings are reset to the factory default settings when the unit is restarted.)

Outputting Color Bars [COLOR BAR]

To output color bars as internal video, select [COLOR BAR] of the [INT VIDEO] menu using the rotary 1 control.

Using Still Pictures or Movies as Internal Video [MEMORY]

In addition to using the back matte video (→ page 29) and color bar output (→ the previous section) built in this unit, it is possible to store external video input sources in internal memory and create still pictures and movies.

Created still pictures and movies are saved with one-frame video as one page. The number of pages (frames) available for saving a created picture or movie varies with the video format (→ page 26) for the video input.

Format	Max. pages (number of frames)
480i	30
576i	30
720p	14
1080i	6

However, if a title created as a title key or downstream key is saved as a page, a reduced number of pages are available for saving the still picture or movie.

The page count ratio for the title and still picture or movie can be changed from the [MEMORY] submenu of the [SETUP] menu (→ page Vol.2-27).

Use the [MEMORY] submenu of the [INT VIDEO] menu to create and display still pictures and movies.
If a still picture is created, “ST (STILL)” and the number of pages are displayed in the internal video display area in the upper portion of the Setting screen. If a movie is created, “MV (MOVIE)” and the number of pages are displayed.

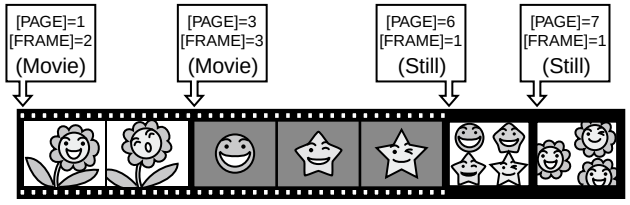
Relationship between Internal Video Save and Internal Memory

When internal video is saved, the [MEMORY] submenu of the [SETUP] menu is used to set the following to save the video in internal memory.

- PAGE: First page to save
- FRAME: No. of pages to save

If the number of saved pages is 1 (“FRAME” is set to 1), the video is saved as a still picture. If the number of saved pages is 2 or more (“FRRAME” is set to 2 or more), the video is saved as a movie.
Both a still picture and a movie can be saved in internal memory. In this case, however, the total of saved pages must be equal to or less than the maximum number of frames.
For example, if the memory size (the number of frames) assigned for internal video is set to 4 in the [MEMORY] submenu of the [SETUP] menu, four still pictures can be saved in memory when a still picture (FRAME: 1) is created; only one movie can be saved in memory when a movie consisting of four pages (FRAME: 4) is created.

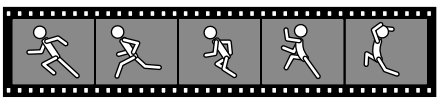
Example of Video Save in Internal Memory of Maximum 8 Frames



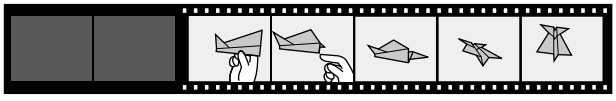
◆ **NOTE**

If video is saved in the memory areas overlapping those in which other video is already saved, the overlapping areas are overwritten by new data and the remaining areas for the previous video are cleared and filled with black image.

Before new video save (currently saved video of PAGE: 1 and FRAME: 5)



After new video save (PAGE: 3 and FRAME: 5)



To save still pictures used as internal video

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
MEMORY	PAGE 1	FRAME 1	FRAME	MODE WRITE
	1-30 (480i) 1-30 (576i) 1-14 (720p) 1-6 (1080i)	1-30 (480i) 1-30 (576i) 1-14 (720p) 1-6 (1080i)	FIELD FRAME	WRITE PREVIEW EXIT

◆ NOTE

The number of pages set under the [INT V] item in the [MEMORY] submenu of the [SETUP] menu is displayed as the [PAGE] setting value and can be set up to the maximum value.

1 Set [PAGE] (page number) using the rotary 2 control.

2 Set [FRAME] (number of frames) to 1 using the rotary 3 control.

3 Press one of the A/PROG (or B/PRESET) bus source selector buttons to select video for creating a still picture and to output the selected video from a PGM connector.

4 Set [MODE] to [WRITE] using the rotary 5 control.

5 Start playback of the video selected in above Step 3 on the equipment used for source input to this unit.

6 Monitor the video being played back. When the image from which you want to create a still picture appears, press the ↵ key.

The program output video is created and saved as a still picture with the page number selected in Step 1.

7 Press the A/PROG INT (or B/PRESET INT) button to switch the display source to the internal video, check the saved still picture.

◆ NOTE

When the system format is set to 720, no change is given to video due to progressive video even if switching is made between FIELD and FRAME.

To save movies used as internal video

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
MEMORY	PAGE 1	FRAME 2	REPEAT	MODE WRITE
	1-30 (480i) 1-30 (576i) 1-14 (720p) 1-6 (1080i)	1-30 (480i) 1-30 (576i) 1-14 (720p) 1-6 (1080i)	REPEAT ONCE	WRITE PREVIEW EXIT

1 Set [PAGE] (page number) using the rotary 2 control.

2 Set [FRAME] (number of frames) to 2 or more using the rotary 3 control.

3 Press one of the A/PROG (or B/PRESET) bus source selector buttons to select video for creating a movie and to output the selected video from a PGM connector.

4 Set [MODE] to [WRITE] using the rotary 5 control.

5 Start playback of the video selected in above Step 3 on the equipment used for source input to this unit.

6 Monitor the video being played back. When the image from which you want to create a movie appears, press the ↵ key.

A movie is created according to the number of frames (number of pages) selected in above Step 2 and saved. The page number selected in Step 1 will specify the start frame of the movie.

7 Press the A/PROG INT (or B/PRESET INT) button to switch the display source to the internal video, check the saved movie.

To preview (check) the created still picture or movie

1 Set [MODE] to [PREVIEW] using the rotary 5 control.

2 Set [PAGE] (page number) using the rotary 2 control.

3 Set [FRAME] to the number of frames to preview using the rotary 3 control.

To preview the movie, select a value equivalent to or smaller than the number of frames of the movie.

4 To preview the still picture, select [FRAME] (frame display) or [FIELD] (field display) using the rotary 4 control.

To preview the movie, select [REPEAT] (repeat playback) or [ONCE] (only-once playback) using the rotary 4 control.

5 Press the ↵ key.

During still picture preview, the still picture on the page selected in above Step 2 is displayed.
During movie preview, the movie contains frames the number of which is selected in Step 2 is played back.

◆ **NOTE**

- **Upon save of a still picture or movie, set [MODE] to [EXIT] to prevent the saved data from being overwritten.**
- **If you select [EXIT] during playback of a saved movie and press the ↵ key, the image of the last frame is displayed and the playback of the movie stops.**
- **Even if other internal video (back matte or color bar) is selected in the [INT VIDEO] menu, [MEMORY] can be selected again to call the previously saved still picture or movie. However, the saved still pictures and movies are deleted when the power is turned off.**

To start/stop playback of a movie without using the [INT VIDEO] menu

1 Press the . (period) key while holding the SHIFT key.

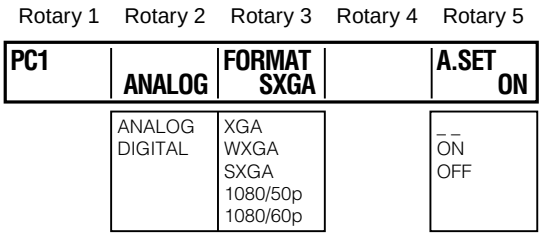
2 Start playback in the confirmed playback method for internal video.

3 To stop playback, press the . (period) key while holding the SHIFT key again.

Using Video Input from PC [PC1]

Video can be input from PC to this unit via the DVI-I IN connector.
For using video created on PC, it is necessary to allocate the DVI-I input to an input source number in the [AUDIO VIDEO] submenu of the [SETUP] menu in advance (→ page 24).

The source input from PC is set from the [PC1] submenu of the [SETUP] menu.



To select the DVI-I IN connector input

Select [ANALOG] or [DIGITAL] using the rotary 2 control.

To select the input signal format

Set [FORMAT] using the rotary 3 control.

The source input from PC is displayed in the selected signal format. However, it is resized according to the settings of the video format (→ page 26).

To execute auto setup of analog input

Select ON using the rotary 5 control, and press the ↵ key.

When the message [OK?] appears, press the ↵ key again. To cancel the execution, press the ↵ key while holding down the SHIFT key.

◆ **NOTE**

- **When switching is being made between [ANALOG] and [DIGITAL], the message "Please Wait…" appears, and disappears upon completion of switching.**
- **When auto setup is executed, the image must be shown in the entire display area of the screen. When auto setup is being executed, the message "Please Wait…" appears, and disappears upon completion of auto setup.**
  If auto setup is not successful, * appears under [A.SET]. Auto setup may become unsuccessful due to insufficient automatic screen adjustment depending on the input image. In this case, use the rotary 1 control to select [PC2] and adjust [H POSI], [V POSI], [PHASE], and [CLOCK].
- **If the system format is 1080/50p or 1080/60p when DIGITAL or ANALOG is selected, auto setup is disabled. In this case, "---" appears under [A.SET].**

Switching or Combining of Video

Procedures of switching or combining video are described below.

Selecting Source Video and Sound

This section describes the procedure of selecting source video and sound to be provided with effects or mixed on this unit.

To select input sources

1 Allocate video and sound to eight channels of input sources in the [AUDIO VIDEO] submenu of the [SETUP] menu (→ page 24).

2 Set [TYPE] to [AB] or [PRG/PRE] in the [BUS] submenu of the [SETUP] menu (→ page 27).

3 Press one of the A/PROG (or B/PRESET) SOURCE 1/5, 2/6, 3/7, 4/8 buttons according to the input source you want to select.

To select one of the input sources 5 to 8, press the corresponding SOURCE button while holding down the SHIFT key.

The pressed button is lighted.

To select internal video

1 Display any of the following internal videos using the [INT VIDEO] menu:

Back matte video: Select [BACK MATTE] (→ page 29).
Color bar output: Select [COLOR BAR] (→ page 30).
Still picture or movie: Select [MEMORY] (→ page 30).

2 Press the A/PROG (or B/PRESET) INT button.

The A/PROG SOURCE (or B/PRESET SOURCE) INT button is lighted and the currently selected one of the A/PROG SOURCE (or B/PRESET SOURCE) 1/5, 2/6, 3/7, and 4/8 buttons is blinked.
The internal video selected in Step 1 is called and played back.

Checking (Previewing) Video and Sound

A preview monitor can be connected to the SDI PVW OUT connector to check video. If the monitor can output an audio source input as an SDI signal, sound can also be checked.
In addition, headphones can be connected to the PHONES connector to check sound.

The output from the SDI PVW OUT connector can be changed with the following PREVIEW buttons.

ME PVW button: Used to check switching and combined effects. Allows you to check the switched image and the image currently being switched (→ page 34) or the image to be combined and the image currently being combined (→ page 35).
A/PROG selector button: Allows you to check the input (program input) source of bus A.
B/PRESET selector button: Allows you to check the input (preset input) source of bus B.
DSK selector button: Allows you to check the image with DSK combined when using DSK (downstream key).

Adjusting the Audio Level

The audio input level is adjusted with the SOURCE 1/5, 2/6, 3/7, 4/8 faders (audio faders).
When adjusting the audio level of input sources 5 to 8, operate the corresponding fader while holding down the SHIFT key.
Operate the AUX fader to adjust the AUX input level and the MIC fader to adjust the MIC input level.
Settings for audio input sources are made from the [AUDIO VIDEO], [AUDIO CH], and [AUDIO FADER] submenus of the [SETUP] menu (→ pages 24 and 27).

The audio level of the program output is adjusted with the MASTER fader.
The audio output level can be checked with the audio level meter on the setting screen (→ page 20).

The [AUDIO EFFECTS] menu is used to apply effects to audio (→ page Vol.2-17).

The output level of the sound to be monitored with headphones can be adjusted with the PHONES control.

To link sound with video effects

When adjusting the audio input level by linking to video during execution of transition (→ page 33) or fade (→ page 38), press the AUDIO FOLLOW VIDEO button to turn on. When the transition lever is operated, the audio faders are moved accordingly.

◆ NOTE

If the AUDIO FOLLOW VIDEO button has been pressed to turn on to interlock the audio faders with the transition lever or the audio level of input source 5 to 8 has been adjusted with the SHIFT key pressed, the audio fader settings may not match the actual audio level.
In such a case, the audio level is adjusted as follows according to the operation of the audio faders:

- **When the audio fader is moved in the direction in which a difference with the actual audio level decreases, the audio level does not change until the fader position matches the actual audio level.**
- **When the audio fader is moved in the direction in which a difference with the actual audio level increases, the audio level changes according to the fader position.**
- **The audio level adjusted by the MASTER fader changes according to the fader position.**

AB Transition

AB transition is an effect of switching from source video A to source video B, and vice versa.

There are two methods of video switching: "wipe" and "mix."

- **Transition wipe**
  Source video B (or A) appears by wiping out source video A (or B).
- **Transition mix**
  Source video B (or A) appears by overlapping source video A (or B).

The following diagram shows an example of transition wipe.

Transition is executed with the transition lever or the AUTO TAKE button.

1 Set [TYPE] to [AB] in the [BUS] submenu of the [SETUP] menu (→ page 27).

2 Select source video A and source video B (→ page 33).

3 Slide the transition lever to the A side (or B side).

4 Select the transition pattern to use (→ "To select a pattern" on page 35).

Patterns registered as direct patterns (→ page 23) can be used.

5 Process the selected pattern by applying effects including border, shadow, and trail (→ page Vol.2-3).

6 Set the pattern position (transition start position) using the joystick.

Press the CENTER button to turn on, and the pattern position is set to the center.
Press the HOLD button to turn on, and the joystick is fixed to the current position.

◆ NOTE

- **There are some patterns for which the position cannot be adjusted with the joystick.**
  → For more information, refer to "List of Transition Patterns" at the back of Volume 2.
- **For the patterns registered as direct patterns, the settings of the effects or position applied to each pattern are saved in memory and applied when the pattern is called next time (if [MODE] in the [SETUP] menu is set to [PRESET]). Any settings made for the patterns not registered as direct patterns are not saved in memory.**

7 Set the transition time (from switching start to end) (→ "To set the transition time" on page 35).

8 Slide the transition lever to the B side (or A side) or press the AUTO TAKE button.

When the AUTO TAKE button is pressed, it is lighted and the source video switching is automatically executed (auto transition) from A to B (or B to A).

To temporarily stop auto transition

Press the AUTO TAKE button again.
This button flashes and the video switching is paused. When the button is pressed again, it is lighted and the switching is resumed.

To limit the transition to one direction

When the ONE WAY button is pressed to turn on in the PATTERN area, the transition goes in the same direction regardless of the direction in which the transition lever is moved. (No transition is reversed.)
However, if a transition pattern which is not reversed intrinsically is selected, the ONE WAY button flashes when it is pressed.

To synchronize the audio faders to the transition lever

Press the AUDIO FOLLOW VIDEO button to turn on.

To select a pattern

The currently selected pattern number is shown in the event number, transition, pattern number, and internal video display area of the setting screen (→ page 20).

1 Press the PATTERN button to turn on.

2 Set the pattern number by entering a numeric value with the numeric keys or using the + and − keys.

3 Press the ↵ key.

◆ NOTE

If the number with no corresponding pattern (invalid number) is specified, the nearest valid pattern number appears.

To set the transition time

The currently set transition time (ME TIME) is shown in the area where the event number, transition time, pattern number, and internal video are displayed on the setting screen (→ page 20).
The factory default setting is [02:00F] [2 seconds].

The maximum value that can be set is [33:09F] (1080/59i, 720/59p, 480/59i) or [39:24F] (1080/50i, 720/50p, 576/50i) for the time display form "seconds+frames" and [00999F] for the time display form "frames."

◆ NOTE

Even if a value exceeding the maximum value is selected, the maximum value is automatically set.

1 Press the ME setting button to turn on.

2 Set the transition time by entering a numeric value with the numeric keys or using the TIME rotary control.

Example: To set "2:05" (2 seconds 5 frames), enter "2.5."

The [SYSTEM1] submenu of the [SETUP] menu can be used to select the transition time display form "seconds+frames" or "frames" (→ page Vol.2-26).

3 Press the ↵ key.

Program Preset Transition

Program preset transition is an effect of switching from program video (base video) to preset video (video used as an effect), and vice versa.

It is executed in the same method as described in "AB Transition" except for setting [TYPE] to [PRG/PRE] in Step 1. The ONE WAY button is disabled because it limits the switching direction only from preset video to program video (the button flashes when pressed).

◆ NOTE

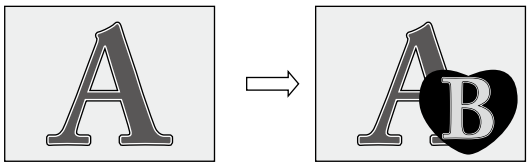
During program preset transition, the buses are switched to each other every time transition is carried out.
This state of bus switching can be checked with lighting and flashing of the ME PVW button.
When the buses are in the same state as the initialization, the ME PVW button is lighted. When transition is carried out once and the bus source is switched to the other, the ME PVW button flashes.

Keying

Keying is a combining effect of adding source video B as a "key" to source video A, and vice versa.

The keying methods included the basic pattern key (→ page Vol.2-5), chroma key (→ page Vol.2-6) , luminance key (→ page Vol.2-7), and title key (→ page Vol.2-8).

The following diagram shows an example of the basic pattern key.



Keying is executed with the transition lever or AUTO TAKE button.

1 Select source video A and source video B (→ page 33).

2 Slide the transition lever to the A side (or B side).

3 Select the key pattern to use (→ "To select a pattern" on this page).

Patterns registered as direct patterns (→ page 23) can be used.

4 Process the selected pattern by applying effects including border, shadow, and trail (→ page Vol.2-3).

For luminance keying, chroma keying or external keying, apply effects such as slice and slope to the key video (→ page Vol.2-6).

5 Set the pattern position (where the key is inserted) using the joystick.

Press the CENTER button to turn on, and the pattern position is set to the center.
Press the HOLD button to turn on, and the joystick is fixed to the current position.

◆ NOTE

- **There are some patterns for which the position cannot be adjusted with the joystick.**
  → For more information, refer to "List of Key Patterns" at the back of Volume 2.
- **For the patterns registered as direct patterns, the settings of the effects and position applied to each pattern are saved in memory and applied when the pattern is called next time (if [MODE] in the [SETUP] menu is set to [PRESET]). Any settings made for the patterns not registered as direct patterns are not saved in memory.**

6 Set the pattern size (key size) using the rotary Z control.

If a specific key pattern is selected. press the ASPECT button to turn on, and the aspect ratio of the pattern can be temporarily changed with the ASPECT control. (When it is turned in the H direction, the width (horizontal) is increased; when it is turned in the V direction, the height (vertical) is increased). When the button is turned off, the aspect ratio returns to the value before change.

→ For patterns to which the aspect change function can be applied, refer to "List of Key Patterns" at the back of Volume 2.

7 Set the transition time (from combining start to end) (→ page 35).

8 Slide the transition lever to the B side (or A side) or press the AUTO TAKE button.

When the AUTO TAKE button is pressed, it is lighted and source video A is combined with B (or source video B is combined with A).

To use the Scene Grabber function

Press the SCENE GRABBER button to turn on.
The scene grabber function allows you to move the image currently being displayed in the key together with the pattern if a specific key pattern is selected.
→ For patterns to which the Scene Grabber function can be applied, refer to "List of Key Patterns" at the back of Volume 2.

◆ NOTE

You cannot use multi-strobe effects (→ page Vol.2-15) and the scene grabber function at the same time. Whichever is selected later has priority and the other selected earlier is canceled.

To display the key inverted

Press the REVERSE button in the PATTERN area to turn on, and the key pattern or frame-in/-out is displayed inverted.

Downstream Key (DSK)

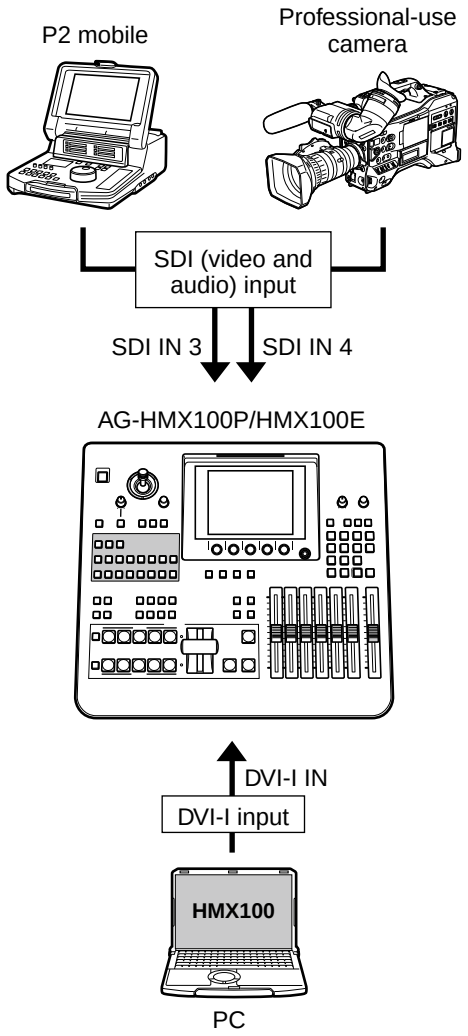
DSK is an effect of inserting a key to the video to which effects have already been applied.

The following diagram shows an example of the DSK.

To create DSK using material imported from PC

Input material such as characters created with a single color as a background on PC to the DVI-I IN connector, select the DVI-I input as key material for DSK (set [KEY] to [DVI-I] in the [DSK SOURCE] submenu of the [DSK FADE] menu), and you can insert a key onto video created by applying effects to an image taken with a camera.
It is also possible to embed other material as the key fill in the key extracted from the original material or apply effects such as SHADOW to the extracted key.

The following figure shows an example connection of source equipment, PC, and this unit.



To execute DSK

DSK is executed with the DSK execution button.

1 Confirm that the DSK execution button is off.

2 Select the video connector to which input video used for the key source to be inserted and for the key fill fit in the key is output (→ page Vol.2-11).

3 Press the DSK selector button.

You can preview output video to which the DSK is inserted.

4 Set the detection level of the key video by changing slice or slope setting (→ page Vol.2-6).

5 Set the DSK transition time (from insertion start to end) (→ "To set the DSK transition time" on this page).

6 Press the DSK execution button.

The button is lighted, and flashes while the key is being inserted.

To use a transition pattern as DSK

Press the DSK EFFECTS button to turn on and select a transition pattern instead of selecting preset video (→ page 35).
The dissolve effect is applied.

◆ **NOTE**

It is impossible to use a pattern other than transition patterns for DSK.
If a pattern unavailable for DSK is selected, the DSK EFFECTS button flashes.

To set the DSK transition time

The currently set DSK transition time (DSK TIME) is shown in the area where the event number, transition time, pattern number, and internal video are displayed on the setting screen (→ page 20).
The factory default setting is [02:00F] (2 seconds).

1 Press the DSK setting button to turn on.

2 Set the DSK transition time by entering a numeric value with the numeric keys or using the TIME rotary control.

Example: To set "2:05" (2 seconds 5 frames), enter "2.5."

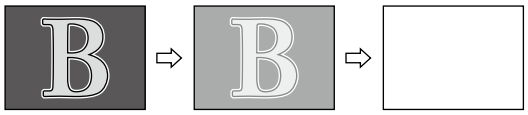
The [SYSTEM1] submenu of the [SETUP] menu can be used to select the transition time display form "seconds+frames" or "frames" (→ page Vol.2-26).

3 Press the ↵ key.

Fade

Fade is an effect of gradually erasing images or decreasing the sound level (fade-out) or gradually displaying images or increasing the sound level (fade-in).

The following diagram shows an example of fade-out.



Fade is executed with the FADE execution button.

1 Set the fading method in the [FADE] submenu of the [DSK FADE] menu (→ page Vol.2-11).

2 Set the FADE transition time (from fading start to end) (→ "To set the FADE transition time" on this page).

3 Press the FADE execution button.

The button is lighted, and flashes during fade-out.

4 Press the FADE execution button again.

The button goes off and fade-in is executed.

To synchronize the audio faders to the transition lever

Press the AUDIO FOLLOW VIDEO button to turn on.

To set the FADE transition time

The currently set FADE transition time (FADE TIME) is shown in the area where the event number, transition time, pattern number, and internal video are displayed on the setting screen (→ page 20).
The factory default setting is [02:00F] (2 seconds).

1 Press the FADE setting button to turn on.

2 Set the FADE transition time by entering a numeric value with the numeric keys or using the TIME rotary control.

Example: To set "2:05" (2 seconds 5 frames), enter "2.5."

The [SYSTEM1] submenu of the [SETUP] menu can be used to select the transition time display form "seconds+frames" or "frames" (→ page Vol.2-26).

3 Press the ↵ key.

Before Calling for Service

Troubleshooting

Contact your dealer if the problem persists even when you have checked the following items.

AG-HMX100P/HMX100E-related problems

Problem	What to Check
• **The power cannot be switched on.**	Is the plug of the power cable inserted properly in the outlet?
• **There is no picture.**	• Is the power of the connected equipment switched on? • Are the cables connected correctly? • Has fade has been applied? • Has the source been input correctly?
• **There is no color.**	• Is the video effect or color effect set to ON? • Is only component Y signal provided as input instead of the composite signal? • Has the source been input correctly?
• **There is no sound.**	• Has audio fade-out been applied? • Has the source been input correctly?
• **The image does not change even when the transition lever is moved.**	• Has the same signal been selected for A-side and B-side?

Specifications

Power source:	100–240 V AC, 50/60 Hz
Power consumption:	60 W

Indicates safety information.

[General]

Operating temperature:	5 °C to 40 °C (41 °F to 104 °F)
Operating humidity:	Between 10 % and 80 % (no condensation)
Storage temperature:	–20 °C to 60 °C (–4 °F to 122 °F)
Storage humidity:	Between 10 % and 80 % (no condensation)
Dimensions:	424 mm (W) x 197 mm (H) x 400 mm (D) 16-3/4 inches (W) × 7-3/4 inches (H) × 15-3/4 inches (D)
Mass:	7.9 kg (17.42 lb)

[SYSTEM]

System format:	480/59.94i, 576/50i, 720/59.94p, 720/50p, 1080/59.94i, 1080/50i, 1080/23.98PsF (only when 3D mode is set to [MODE1] or [MODE2]) (Operation is not guaranteed when different system formats are used in whole system.)

[VIDEO]

Sampling frequency

SD format:	Y: 13.5 MHz P_B/P_R: 6.75 MHz
HD format:	Y: 74.176 MHz P_B/P_R: 37.088 MHz (1080/59.94i, 720/59.94p, 1080/23.98PsF)
	Y: 74.25 MHz P_B/P_R: 37.125 MHz (1080/50i, 720/50p)
Video format:	SD 480/59.94i, 576/50i
	HD 720/59.94p, 720/50p, 1080/59.94i, 1080/50i, 1080/23.98PsF (for 3D video only)
Quantization:	10 bits
Internal processing:	4 : 2 : 2 : 4 12 bits

[AUDIO]

Sampling frequency:	48 kHz (digital input synchronizes with video signal)
Quantization:	Analog input: 20 bits, SDI input: 24 bits, HDMI input: 16 bits
Frequency response:	–1.0 dB to 1.0 dB at 20 Hz to 20 kHz (analog)
	–1.0 dB to 1.0 dB at 20 Hz to 20 kHz (digital)
Dynamic range:	85 dB or more at 1 kHz (analog)
	90 dB or more at 1 kHz (digital)
Distortion:	0.08 % or less at 1 kHz (analog)
	0.05 % or less at 1 kHz (digital)
Cross talk:	–70 dB or less at 1 kHz, between any two channels (analog)
	–80 dB or less at 1 kHz, between any two channels (digital)
Headroom:	20 dB and 18 dB switchable

[VIDEO INPUT/OUTPUT]

Analog composite input (VIDEO IN):	BNC x 2 sets, 1.0 V[p-p], 75 Ω termination	
SDI input:	BNC x 4 sets	
	SD serial digital signal: Complying with SMPTE259M-C/272M-A and ITU-R BT.656-4 standards	
	HD serial digital signal: Complying with SMPTE292M/296M/299M standards	
HDMI input:	HDMI connector x 2 sets (Type A connector), incompatible with HDCP	
DVI-I input:	TMDS single link (incompatible with HDCP), compatible with digital/analog RGB	
External sync signal input (G/L):	BNC x 2 (with loop-through), 1.0 V[p-p], 75 Ω auto termination	
	Analog composite signal (NTSC/PAL)	
Program (PGM) output:	SDI x 1	
	SD serial digital signal: Complying with SMPTE259M-C/272M-A and ITU-R BT.656-4 standards	
	HD serial digital signal: Complying with SMPTE292M/296M/299M standards	
	DVI-D x 1, TMDS single link (incompatible with HDCP)	
	3D mode: L-channel signal for MODE1, SIDE BY SIDE signal for MODE2	
Preview (PVW) output:	SDI x 1	
	SD serial digital signal: Complying with SMPTE259M-C/272M-A and ITU-R BT.656-4 standards	
	HD serial digital signal: Complying with SMPTE292M/296M/299M standards	
AUX output:	SDI x 1	
	SD serial digital signal: Complying with SMPTE259M-C/272M-A and ITU-R BT.656-4 standards	
	HD serial digital signal: Complying with SMPTE292M/296M/299M standards	
MULTI VIEW output:	SDI x 1	
	SD serial digital signal: Complying with SMPTE259M-C and ITU-R BT.656-4 standards	
	HD serial digital signal: Complying with SMPTE292M/296M/299M standards	
	DVI-D x 1, TMDS single link (incompatible with HDCP)	
	3D mode: R-channel signal for MODE1, SIDE BY SIDE signal for MODE2	
Advanced reference output (ADV-REF):	BNC x 1, 75 Ω	
	Analog composite signal	Sync: 0.286 V[p-p] (NTSC)/0.3 V[p-p] (PAL)
		Burst: 0.286 V[p-p] (NTSC)/0.3 V[p-p] (PAL)

[AUDIO INPUT/OUTPUT]

Audio input (AUDIO IN):	XLR: 4 sets (pair of L and R), +4/0/–3 dBu switchable, balanced, 10 kΩ
	SDI (Embedded Audio): 4 sets
	SD serial digital signal: Complying with SMPTE259M-C/272M-A and ITU-R BT.656-4 standards
	HD serial digital signal: Complying with SMPTE292M/296M/299M standards
	HDMI (Embedded Audio): 2 sets, TypeA connector (incompatible with HDCP)
AUX input:	Pin jack 1 set (pair of L and R), –10 dBV, high impedance, unbalanced
Microphone input (MIC):	M6 x 1, –60 dBV, 2 kΩ, monaural, unbalanced
Audio output (AUDIO OUT):	
Program (PGM) output:	XLR 1 set (pair of L and R), +4/0/–3 dBu switchable, low impedance, balanced
	SDI x 1 (Embedded Audio)
	SD serial digital signal: Complying with SMPTE259M-C/272M-A and ITU-R BT.656-4 standards
	HD serial digital signal: Complying with SMPTE292M/296M/299M standards
	Pin jack 1 set (pair of L and R), –10 dBV, low impedance, unbalanced
Preview (PVW) output:	SDI x 1 (Embedded Audio)
	SD serial digital signal: Complying with SMPTE259M-C/272M-A and ITU-R BT.656-4 standards
	HD serial digital signal: Complying with SMPTE292M/296M/299M standards
AUX output:	SDI x 1 (Embedded Audio)
	SD serial digital signal: Complying with SMPTE259M-C/272M-A and ITU-R BT.656-4 standards
	HD serial digital signal: Complying with SMPTE292M/296M/299M standards
Headphones output (PHONES):	M6 x 1, 8 Ω, stereo, unbalanced, –∞ dBu to –20 dBu

[OTHER]

TALLY output :	D-sub 9-pin, 8 cross points, open-collector
	Maximum current: 50 mA or less
	Maximum voltage: 35 V DC
GPI input:	BNC x 1, make-contact
RS-232C :	D-sub 9-pin

Signal Format Supported on the Unit

Format	VIDEO	SDI	HDMI	DVI-D	DVI-I
NTSC	Yes	—	—	—	—
PAL	Yes	—	—	—	—
480/59.94i	—	Yes	—	Yes	—
480/59.94p	—	—	Yes	—	—
576/50i	—	Yes	—	Yes	—
576/50p	—	—	—	—	—
720/50p	—	Yes	Yes	Yes	—
720/59.94p	—	Yes	Yes	Yes	—
1035/59.94i *1	—	Yes	—	—	—
1080/25p over 50i	—	Yes	—	—	—
1080/29.97p over 59.94i	—	Yes	—	—	—
1080/50i	—	Yes	Yes	Yes	—
1080/59.94i	—	Yes	Yes	Yes	—

*1 Treated as 1080/59.94i

Format	VIDEO	SDI	HDMI	DVI-D	DVI-I
640×480(60Hz)	—	—	Yes *1	—	—
1024×768(60Hz)	—	—	—	—	Yes
1280×768(60Hz)	—	—	—	—	Yes
1280×1024(60Hz)	—	—	—	—	Yes
1920×1080(50Hz)	—	—	—	—	Yes
1920×1080(60Hz)	—	—	—	—	Yes

*1 If [HDMI] is selected, the HDMI input signal is output as is from the DVI-D OUT connector, disabling the AV mixer functions including video switching effects.

Signal Format Supported on the Unit in 3D Mode

Format	VIDEO	SDI	HDMI	DVI-D	DVI-I
NTSC	—	—	—	—	—
PAL	—	—	—	—	—
480/59.94i	—	—	—	—	—
480/59.94p	—	—	—	—	—
576/50i	—	—	—	—	—
576/50p	—	—	—	—	—
720/50p	—	Yes	—	—	—
720/59.94p	—	Yes	—	—	—
1035/59.94i *1	—	—	—	—	—
1080/23.98PsF	—	Yes	—	—	—
1080/23.98p over 59.94i	—	Yes	—	—	—
1080/25PsF	—	Yes	—	—	—
1080/25p over 50i	—	Yes	—	—	—
1080/29.97PsF	—	Yes	—	—	—
1080/29.97p over 59.94i	—	Yes	—	—	—
1080/50i	—	Yes	—	—	—
1080/59.94i	—	Yes	—	—	—

*1 Treated as 1080/59.94i

Inrush current, measured according to European standard EN55103-1: 15 A

Mass and dimensions are approximate values.
Specifications are subject to change without notice.

Index

Symbols

Numbers

A

B

C

D

E

Bold and italicized page numbers (***00***) indicate pages in Volume 1, while the other page numbers (00) indicate pages in Volume 2.

F

G

H

I

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K

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M

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O

P

R

S

T

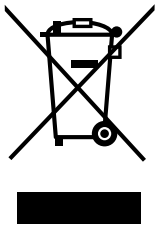
V

W

Bold and italicized page numbers (***00***) indicate pages in Volume 1, while the other page numbers (00) indicate pages in Volume 2.

MEMO

Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)



This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.
For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.
Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.
Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union
If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union
This symbol is only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

Panasonic Corporation
Web Site: http://panasonic.net

Panasonic Solutions Company
3 Panasonic Way, Secaucus, NJ 07094 Tel: 877-803-8492
www.panasonic.com/broadcast e-mail: MediaProServices.PSC@us.panasonic.com

Panasonic Canada Inc.
5770 Ambler Drive, Mississauga, Ontario L4W 2T3 Tel: 905-624-5010

Panasonic de México S.A. De C.V.
Casa Matriz: Moras No.313 Col. Tlacoquemecatl Del Valle Del.Benito Juárez México, D.F., C.P.03200
Tel: 55-5488-1000 Fax: 55-5575-6783

Panasonic Latin America, S.A.
P.O.Box 0816-03164 Panama, Republic of Panama Tel: +507-229-2955 Fax: 507-229-5352

Panasonic do Brasil Ltda.
Rua Cubatão, 320-6° andar-Paraíso CEP 04013-001- São Paulo -SP Tel: 11-3889-4000 Fax: 11-3889-4004

P E

Panasonic

Operating Instructions Vol.2

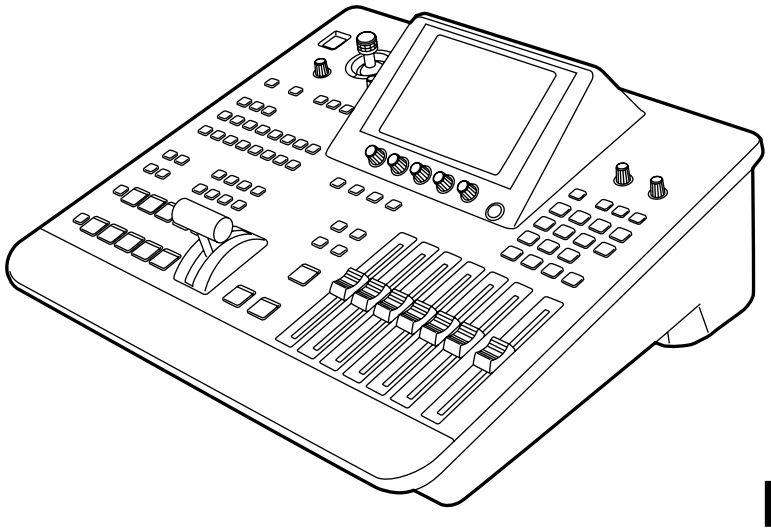
Digital AV Mixer

Model No. AG-HMX100P

Model No. AG-HMX100E

Volume 2

Note that Operating Instructions Vol. 2 describes advanced operations of the digital AV mixer.
For instructions on basic operations of the digital AV mixer, refer to Operating Instructions Vol. 1 (printed document) supplied with this unit.



3D PROFESSIONAL

HDMI™ HIGH-DEFINITION MULTIMEDIA INTERFACE

Before operating this product, please read the instructions carefully and save this manual for future use.

ENGLISH

M0810RI1100 -PS

VQT2U23A-1

Contents

Volume 1

Volume 2

Chapter 1 Applying Effects to Video and Sound

Chapter 2 Registering Settings and Effects

Chapter 3 Switching 3D Video

Chapter 4 Operating Environment Setting

Index

List of Transition Patterns

List of Key Patterns

Chapter 1 Applying Effects to Video and Sound

This chapter describes how to apply effects to video, give changes to transition, and perform various types of keying and title insertion as well as explaining audio mixing.

Setting of Video Switching and Combining Effects

This section describes the method of selecting and processing a pattern used for video switching.

Setting the Transition (Wipe) Pattern [TRANSITION]

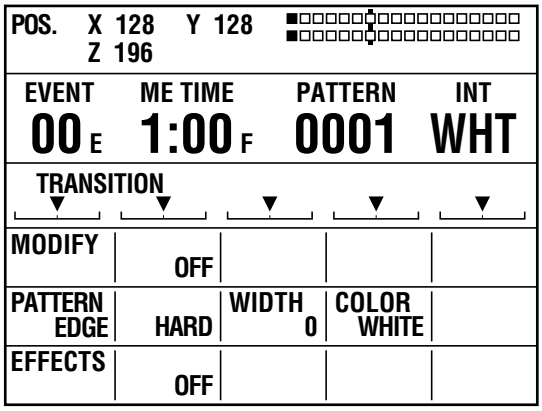
The [TRANSITION] menu is used to process a pattern used for transition wipe.
This menu appears when one of No. 1 to No. 1550 patterns is selected.

→ For pattern numbers, refer to “List of Transition Patterns” at the back of Volume 2.

→ For selecting patterns, refer to “To select a pattern” (page Vol.1-35).

[TRANSITION] menu

The items which can be set vary with the selected pattern.

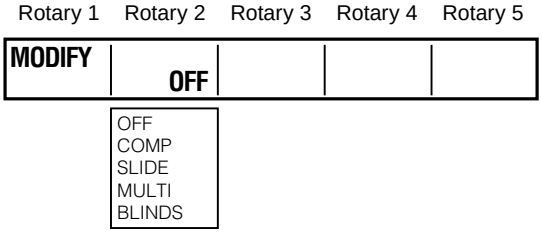


◆ NOTE

When a transition pattern in the range of No. 200 to No. 222 (1001 to 1004, 1021 to 1023, 1030 to 1034, and 1059 to 1069) is selected, transition mix is performed. (The MIX button is lighted.)
Of these patterns, when a pattern performing effects in which video and color effects are combined is selected, the VIDEO EFFECTS or COLOR EFFECTS button is lighted if turned off, and the [VIDEO EFFECTS] or [COLOR EFFECTS] menu appears.

[MODIFY]

Settings can be made only for the basic patterns (the patterns shown as “Basic” in “List of Transition Patterns” at the back of this document) and their related patterns.



Select the effect to be applied to the pattern using the rotary 2 control.
When [COMP] is selected, the effect level ([SINGLE] or [DOUBLE]) can be set with the rotary 3 control.

Modify	Description	Level	Example
COMP	Reduced wipe	[SINGLE]: Only one image is reduced in size.	
		[DOUBLE]: Both images are reduced in size.	
SLIDE	Sliding one image into another	None	
MULTI	Vertical-striped wipe	None	
BLINDS	Blind-type wipe	None	

The factory default setting is [OFF].

The List of Transition Patterns at the back of this document can be used to check the basic patterns and those with the Modify effects added. (Example: When SLIDE as the MODIFY effect is applied to the No. 1 basic pattern, the No. 43 pattern is generated.)

◆ NOTE

- **If any change is made to [MODIFY], the pattern number is also changed automatically.**
- **When the internal video is selected as the video source after switching, the image is not reduced in size, but becomes the same state as [SINGLE] is selected even if [BOTH] is selected for [COMP].**
- **When one of the patterns in the range of No. 28 to No. 41 (1501 to 1510 and 1521 to 1530), No. 32 to No. 35, and No. 130 to No. 133 (1541 to 1548) with the [COMP] effect set is selected to use an input video source reduced in size, the multi-strobe effect in the [VIDEO EFFECT] menu cannot be applied. Even if the multi-strobe effect is selected, it is disabled when the transition lever is operated.**

[PATTERN EDGE]

An edge can be added to a pattern.

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

PATTERN EDGE	HARD	WIDTH 32	COLOR WHITE	

HARD SOFT BORDER SOFT BORDER	1-255	WHITE YELLOW CYAN GREEN MAGENTA RED BLUE BLACK CUSTOM1 CUSTOM2

Select the edge of transition patterns from [HARD], [SOFT], [BORDER], and [SOFT BORDER] using the rotary 2 control. The factory default setting is [HARD].

Set [WIDTH] in the range of 1 to 255 using the rotary 3 control.
The factory default setting is 32.
For No. 701 to No. 707 (24 to 27) and No. 801 to No. 814 (183 to 196) patterns, [WIDTH] can be set only to 1 or 2.

Use the rotary 4 control to set [COLOR] (color of the edge) to one of the colors in the table shown below.

Setting	Color
[WHITE] (factory default setting)	White
[YELLOW]	Yellow
[CYAN]	Cyan
[GREEN]	Green
[MAGENTA]	Magenta
[RED]	Red
[BLUE]	Blue
[BLACK]	Black
[CUSTOM1] or [CUSTOM2]	Grey as the factory default setting

When [CUSTOM1] or [CUSTOM2] is selected, the same color as set in the [BACK MATTE] submenu of the [INT VIDEO] menu is applied (→ page Vol.1-29).

◆ **NOTE**

- **If the PinP pattern is selected and Still is applied to source video B, Still is cancelled at the same time as the transition lever is operated. (The PinP pattern and Still cannot be used as the same time.)**
- **[SOFT BORDER] cannot be selected for No. 701 to No. 707 (24 to 27) and No. 801 to No. 814 (183 to 196) patterns.**

[EFFECTS]

Select the effect of [SHADOW] or [TRAIL] using the rotary 2 control.
SHADOW: Adds black shadow to the pattern.
TRAIL: Leaves trails of the moving pattern.
Select [OFF] to apply no effect.

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

EFFECTS	OFF			

OFF SHADOW TRAIL

If [SHADOW] is selected

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

EFFECTS	SHADOW			

Set the position of the shadow by operating the joystick while holding down the SHIFT key.
The CENTER, SCENE GRABBER, and HOLD buttons flash temporarily.

To cancel the shadow position setting, press the ↵ key while holding down the SHIFT key in the state where [FEECTS] is selected (inverted to black). At the same time as the setting becomes [OFF], the specified shadow position is reset.

If [TRAIL] is selected

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

EFFECTS	TARIL	SELF	TIME 16	

SELF SELF-SPARK BODM BODM-SPARK	1-32

Select the spark for the trail (the twinkling effect of trails) from [SELF] (original video), [SELF-SPARK] (spark of original video), [BODM] (border color), and [BODM-SPARK] (border spark) using the rotary 3 control.
When [BODM] or [BODM SPARK] is selected, the color set in the [PATTERN EDGE] submenu of the [TRANSITION] menu is used as the border color.

Set the continuation time of the trail in the range of 1 to 32 using the rotary 4 control.

To set the offset position of the trail, operate the joystick while holding down the SHIFT key.
The CENTER, SCENE GRABBER, and HOLD buttons flash temporarily.
The offset position setting can be cancelled in the same way as for canceling the shadow position setting.

◆ **NOTE**

The trail or shadow settings are canceled when TRAIL or SHADOW is selected in the [DSK EFFECTS] submenu of the [DSK FADE] menu or when the multi-strobe effect or DECAY is selected in the [VIDEO EFFECTS] menu.

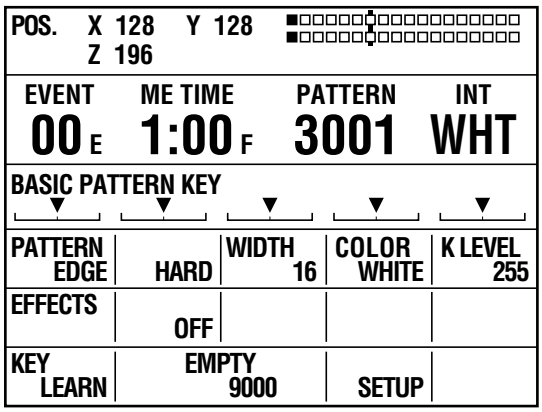
Setting the Basic Pattern Key [BASIC PATTERN KEY]/Pattern Key [PATTERN KEY]

The [BASIC PATTERN KEY] menu or [PATTERN KEY] menu is used to create a key with key patterns.
The [BASIC PATTERN KEY] menu appears when the selected pattern has a number in the range of 3001 to 3046, and the [PATTERN KEY] menu appears when the selected pattern has a number of 3301 or larger.

→ For pattern numbers, refer to “List of Key Patterns” at the back of Volume 2.

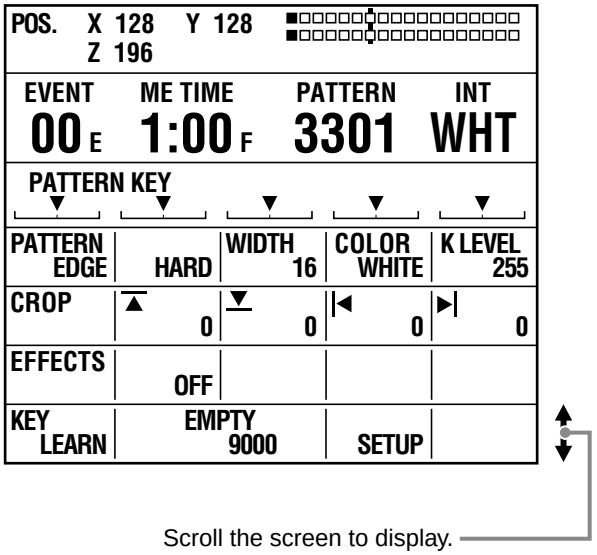
[BASIC PATTERN KEY] menu

This menu is displayed when the selected pattern has a number in the range of No. 3001 to No. 3046.



[PATTERN KEY] menu

This menu is displayed when the selected pattern has No. 3301 or larger.
The [PATTERN KEY] menu allows you to make settings for video cropping.



Scroll the screen to display.

[PATTERN EDGE]

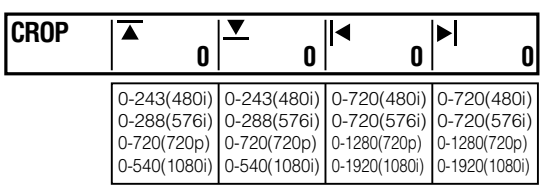
The items other than [K LEVEL] can be set in the same way as the transition (wipe) pattern (→ page 4).

For [K LEVEL], set the key level (transparency level of the key) in the range of 0 to 255 using the rotary 5 control.
The smaller the setting value, the higher the transparency.
When 0 is set, the key disappears entirely (becomes transparent).

The key registered in the direct patterns can be individually set for each pattern.

[CROP] (for [PATTERN KEY] menu only)

Video used as the key can be cropped.



Set the top edge of the video in the range of 0 to 243 (480i)/288 (576i)/720 (720P)/540 (1080i) using the rotary 2 control.
The factory default setting is 0.

Set the bottom edge of the video in the range of 0 to 243 (480i)/288 (576i)/720 (720P)/540 (1080i) using the rotary 3 control.
The factory default setting is 0.

Set the left edge of the video in the range of 0 to 720 (480i/576i)/1280 (720P)/1920 (1080i) using the rotary 4 control.
The factory default setting is 0.

Set the right edge of the video in the range of 0 to 720 (480i/576i)/1280 (720P)/1920 (1080i) using the rotary 5 control.
The factory default setting is 0.

For top and bottom edge settings, when one is increased, the other may be decreased to prevent the total value of both settings from exceeding the maximum value.
For right and left edge settings, when one is increased, the other may be decreased to prevent the total value of both settings from exceeding the maximum value.

[EFFECTS]

Settings can be made in the same way as in the [EFFECTS] submenu of the [TRANSITION] menu (→ page 4).

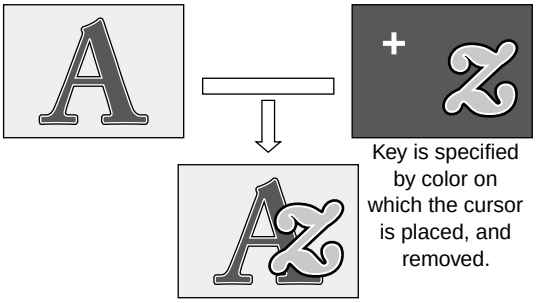
[KEY LEARN]

See “Setting Key Learn [KEY LEARN]” (→ page 9).

Setting the Chroma Key [CHROMA KEY]

Chroma keying is a function for removing a specified color range from one image and keying another image to the range.

The following diagram shows an example of the chroma key.



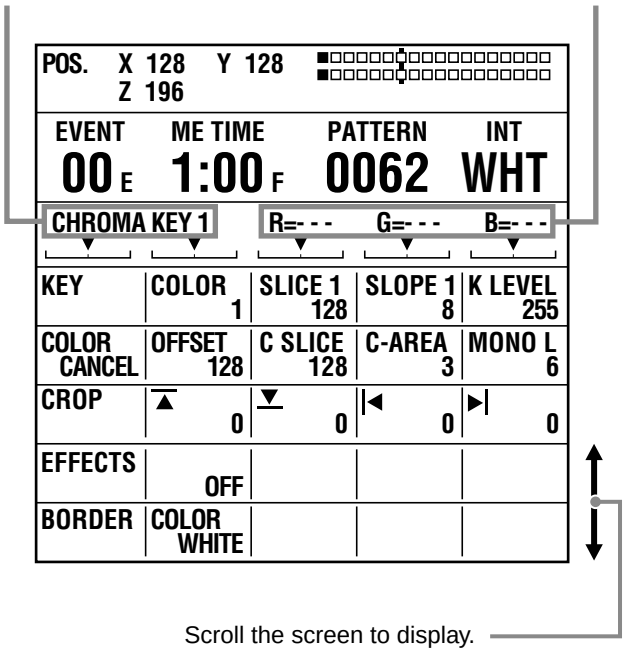
The [CHROMA KEY] menu is used to create a chroma key.

[CHROMA KEY] menu

The menu appears when the CHROMA KEY (chroma key) button is pressed in the PATTERN area (→ page Vol.1-14) or the pattern of No. 62 is selected.
ME preview is automatically chosen, and the video to be keyed with the chroma key cursor is output from the preview output connector.

Shows the selected number: 1, 2, or 3.

Shows the selected color.



Scroll the screen to display.

[KEY]

Up to three colors to be removed from an image can be stored.

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
KEY	COLOR 1	SLICE 1 128	SLOPE 1 8	K LEVEL 255
	1-3	0-255	0-15	0-255

After selecting the number using the rotary 2 control, move the chroma key cursor on the preview image to the color (blue for example) to be removed using the joystick, and press the ↵ key.
The numeric values of the stored color are displayed for R, G, and B, respectively, in the menu. ("---" appears when the color is not stored.)
The color can be stored any number of times by pressing the ↵ key. However, the color data is overwritten each time it is stored.
To cancel the stored color, enter the selected number using the numeric keys while holding down the SHIFT key.

To set the chroma key in detail

The color density and range can be specified to designate more precise keying.

Set [SLICE] of the selected color in the range of 0 to 255 using the rotary 3 control.
The slice is set to specify the color density (saturation) in the area to be removed. For example, if you specify blue using the joystick, the setting value can be increased to remove only blue darker than the specified blue.

Set [SLOPE] of the selected color in the range of 0 to 15 using the rotary 4 control.
The slope is set to specify the range (hue) of the color to be removed. For example, if you specify blue using the joystick, the setting value can be increased to remove only blue closest to the specified blue.

Set [K LEVEL] (transparency level of the key) in the range of 0 to 255 using the rotary 5 control.

◆ NOTE

The value set with the rotary 3 control is saved for each of the three key colors, while the value set with the rotary 5 control is applied to all stored colors.

[COLOR CANCEL]

The appearance of color blur can be diminished in the boundary area of the key.

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
COLOR CANCEL	OFFSET 128	C SLICE 128	C-AREA 3	MONO L 6
	0-255	0-255	0-3	0-15

Set [OFFSET] (offset from the key) in the range of [0] to [255] using the rotary 2 control.

Set [C SLICE] (cancel slice) in the range of [0] to [255] using the rotary 3 control.

Set [C-AREA] (cancel area) in the range of [0] to [3] using the rotary 4 control.

Set [MONO L] (mono level) in the range of [0] to [15] using the rotary 5 control.

[CROP]

Settings can be made in the same way as in the [CROP] submenu of the [PATTERN KEY] menu (→ page 5).

[EFFECTS]

Settings can be made in the same way as in the [EFFECTS] submenu of the [TRANSITION] menu (→ page 4).

[BORDER]

Use the rotary 2 control to set [COLOR] (color of the edge) to one of the colors in the table shown below.

Setting	Color
[WHITE] (factory default setting)	White
[YELLOW]	Yellow
[CYAN]	Cyan
[GREEN]	Green
[MAGENTA]	Magenta
[RED]	Red
[BLUE]	Blue
[BLACK]	Black
[CUSTOM1] or [CUSTOM2]	Grey as the factory default setting

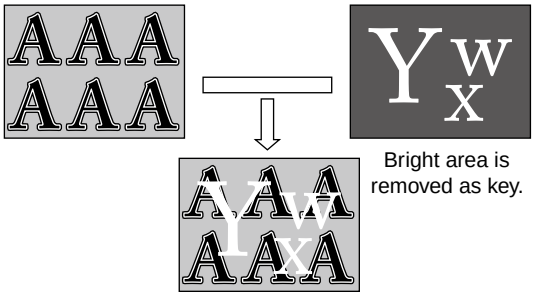
When [CUSTOM1] or [CUSTOM2] is selected, the same color as set in the [BACK MATTE] submenu of the [INT VIDEO] menu is applied (→ page Vol.1-28).

If [TRAIL] is selected in the [EFFECTS] submenu, the color set in the [BORDER] submenu is used as the border color when [BODM] or [BODM SPARK] is selected.

Setting the Luminance Key [LUMINANCE KEY] /External Key [EXT KEY]

Luminance keying is a function for creating a key with the specific brightness (luminance) of one image as the reference and keying to another image.
External keying is a function for keying a specified extraneous image. The external keying function enables keying of an image which is not assigned as the input source.

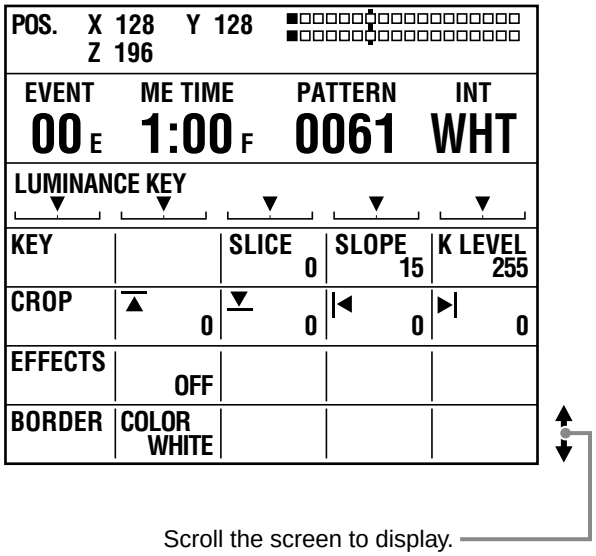
The following diagram shows an example of the luminance key.



The [LUMINANCE KEY] menu is used to create a luminance key.
The [EXT KEY] menu is used to create an external key.

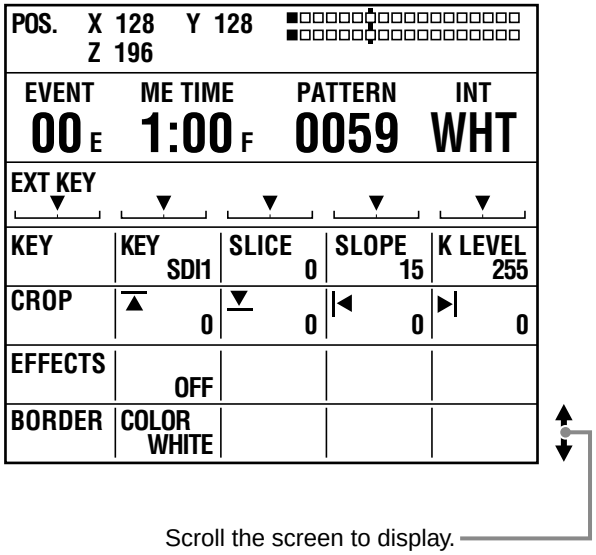
[LUMINANCE KEY] menu

The menu appears when the LUM KEY button is pressed in the PATTERN area (→ page Vol.1-14) or the pattern of No. 61 is selected.



[EXT KEY] menu

The menu appears when the EXT KEY button is pressed in the PATTERN area (→ page Vol.1-14) or the pattern of No. 59 is selected.



[KEY]

Set [KEY] (key signal) to one of the following using the rotary 2 control (for [EXT KEY] menu only).

When the system format is set to HD (→ page Vol.1-19):
SDI1, SDI2, SDI3, SDI4, HDMI1, HDMI2, DVI-I
When the system format is set to SD (→ page Vol.1-19):
SDI1, SDI2, SDI3, SDI4, VIDEO1, VIDEO2, DVI-I

The factory default setting is [SDI1] in each case.

To set the luminance key in detail

The color density and luminance level range can be specified to designate more precise keying.

Set [SLICE] (slice level) in the range of [0] to [255] using the rotary 3 control.
The factory default setting is [0].
The slice is set to specify the brightness level of the area to be removed. The setting value can be increased to remove only the area brighter than the specified area.

Set [SLOPE] in the range of [0] to [15] using the rotary 4 control.
The factory default setting is [15].
The slope is set to specify the luminance level range of the area to be removed. The setting value can be increased to remove only the area of the luminance level closest to the specified level.

Set [K LEVEL] (transparency level of the key) in the range of [0] to [255] using the rotary 5 control.
The factory default setting is [255].

[CROP]

Settings can be made in the same way as in the [CROP] submenu of the [PATTERN KEY] menu (→ page 5).

[EFFECTS]

Settings can be made in the same way as in the [EFFECTS] submenu of the [TRANSITION] menu (→ page 4).

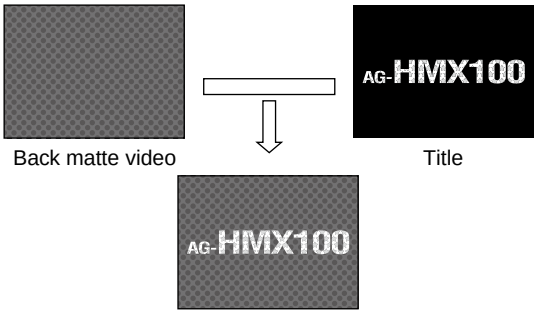
[BORDER]

Settings can be made in the same way as in the [BORDER] submenu of the [CHROMA KEY] menu (→ page 7).

Setting the Title Key [TITLE KEY]

A still picture saved in memory from the [DSK] menu can be keyed as a title.
Title keys are saved as patterns of the numbers with "1" as the last digit every 10th (9511, 9521,…) in the range of 9501 to 9791. (The number of patterns that can be saved varies with the setting in the [MEMORY] submenu of [SETUP] menu.)
See "[DSK SOURCE]" for saving title keys (→ page 11).

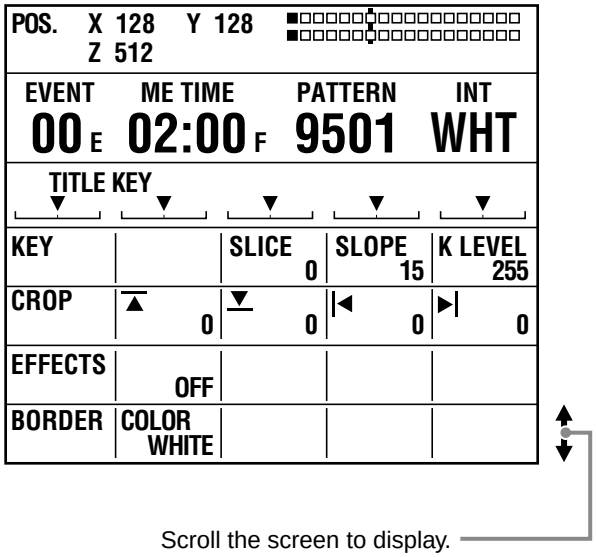
The following diagram shows an example of the title key.



The [TITLE KEY] menu is used to create a title key.

[TITLE KEY] menu

The menu appears when a still picture saved in title memory is called with the pattern number 9501 or larger from the [DSK SOURCE] > [MODE] submenu of the [DSK FADE] menu (→ page 11).



◆ NOTE

- **The title keys saved in memory are erased when the power is turned off. Since memory is empty when the unit is restarted, the [TITLE KEY] menu is not displayed even if a pattern number of the title key after No. 9501 is specified.**
- **When a title key is called during execution of the downstream key, [DSK EFECTS] (DSK effect) is set to [OFF].**
- **Title keys cannot be set if the title memory count is set to 0 in the [MEMORY] submenu of the [SETUP] menu (→ page 27).**

[KEY]

Settings can be made in the same way as in the [KEY] submenu of the [LUMINANCE KEY] menu (→ page 8).

[CROP]

Settings can be made in the same way as in the [CROP] submenu of the [PATTERN KEY] menu (→ page 5).

[EFFECTS]

Settings can be made in the same way as in the [EFFECTS] submenu of the [TRANSITION] menu (→ page 4).

[BORDER]

Settings can be made in the same way as in the [BORDER] submenu of the [CHROMA KEY] menu (→ page 7).

Setting Key Learn [KEY LEARN]

The key learn function allows storing the key frame settings (XYZ and key level) in memory and calling them to reproduce the animation effect.
A key frame refers to a frame which defines changes of the video used for animation. Several points where a shape or position of an object is changed can be set in the key frame to create smooth animation through interpolation between the points.

With the [(BASIC) PATTERN KEY] menu, the rotary 1 control can be operated to select [KEY LEARN] to set key learn in the currently selected key pattern and register the key pattern as a pattern in the range of No. 9000 to No. 9019.

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

KEY LEARN	EMPTY 9000	SETUP	

9000-9019	SETUP CLR ALL CLR

To select the number applied to the pattern in which key learn is set

Operate the rotary 2 control to select the pattern number in the range of 9000 to 9019.

When the number of the pattern with key learn set is selected, [SAVED] is diplayed. When the number of the pattern with no key learn set isselected, [EMPTY] is displayed.

To edit key learn

Select [SETUP] using the rotary 4 control, and press the ↵ key.

The Key Learn Editing screen appears.

When the ↵ key is pressed with [SAVED] displayed for the selected pattern, the message [OK?] appears.

In this case, press the ↵ key again to display the Key Learn Editing screen.

◆ **NOTE**

When key learn that is already registered in a pattern is edited, the settings of the original pattern before key learn was set are given priority. Thus, even if the pattern with key learn set is called and [SETUP] is selected, no change is given to the base pattern.
For key learn in a different pattern, it is recommended to use a pattern number for which EMPTY is displayed or to delete the existing key learn pattern once and set a new key learn pattern.

Key Learn Editing screen

POS. X 128 Y 128 Z 196			
EVENT 00 E	ME TIME 1:00 F	PATTERN 3001	INT WHT
KEY LEARN	9000		
INSERT REPLACE	BASIC		
CLR KF COPY	K FRAME 0		K LEVEL 255
PASTE EXIT			

To select the key frame number

The key frame number is shown under [K FRAME].
When selecting the key frame number to copy the key frame or specify a position for inserting the key frame, select it from the registered key frame numbers using the rotary 2 control while holding down the SHIFT key.

To set the key frame

Select the editing item including the key position (X, Y, and Z), aspect, and time using the rotary 1 control, and proceed with the setting of the key frame. To execute each editing item, press the ↵ key.

INSERT: Inserts a key frame in the place of the next key frame.
REPLACE: Replaces the current key frame.
CLR KF: Deletes the current key frame.
COPY: Copies the current key frame.
PASTE: Pastes a copied key frame by overwriting.
EXIT: Cancels the key learn editing mode and saves the key learn settings.

To set the time up to the current key frame, a value is input for [ME TIME] with the numeric keys or the TIME rotary control.

The set time is shown under [ME TIME] on the setting screen (→ page Vol.1-20).

Upon completion of registration, select [EXIT] using the rotary 1 control and press the ↵ key to fix the key frame settings.

The menu returns to the original [(BASIC) PATTERN KEY] menu.

◆ NOTE

The key position, time, and other items set for the key frames cannot be changed. To change those items, delete the applicable key frame and set a new key frame. When inserting a key frame, be sure to complete the time setting in advance.

To set the transparency level of the key

Set [K LEVEL] in the range of [0] to [255] using the rotary 5 control while holding down the SHIFT key.

To make settings for other key pattern

By using the rotary 1 control to select [EXIT] and pressing the ↵ key, cancel the key learn editing mode, select the key pattern, and display the key learn editing screen again.

To preview the operation of the key

Select the pattern with [SAVED] indicated, use the rotary 4 control to select [PREVIEW], and press the ↵ key

◆ NOTE

[PREVIEW] is displayed only when settings have been made in the menu for the same pattern as that with key learn set.

To delete a key learn pattern

Select the pattern with [SAVED] indicated, use the rotary 4 control to select [CLR] or [ALL CLR], and press the ↵ key. When the message [OK?] appears, press the ↵ key again. To cancel the pattern deletion, press the ↵ key while holding down the SHIFT key.

When [CLR] is selected, the currently selected key learn pattern is deleted. When [ALL CLR] is selected, all key learn patterns are deleted.

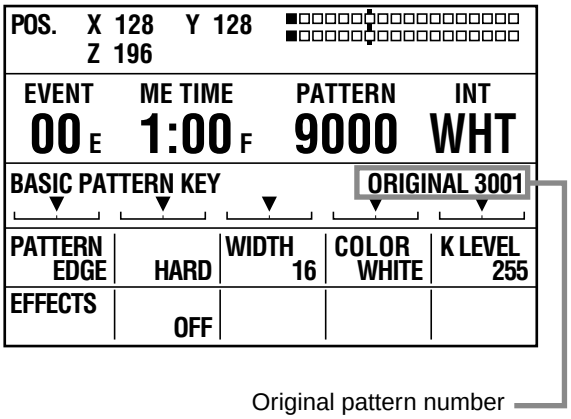
To use a pattern with key learn set

Key learn is set in the patterns in the range of No. 9000 to No. 9019.

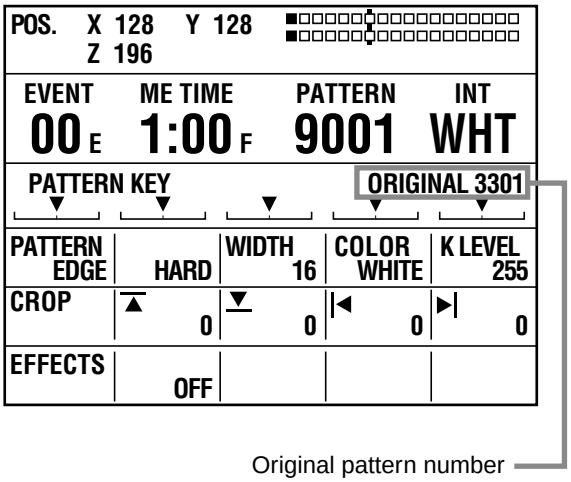
When one of those patterns is selected, [(BASIC) PATTERN KEY] menu for No. 9000 to No. 9019 patterns appears. ([KEY LEARN] is not displayed as the setting item.)

If key learn is set in the selected pattern in the range of No. 3001 to No. 3046, the [BASIC PATTERN KEY] menu appears. If key learn is set in the selected pattern of No. 3301 or larger, the [PATTERN KEY] menu appears.

[BASIC PATTERN KEY] menu (original pattern No. 3001 to No. 3046)



[PATTERN KEY] menu (original pattern No. 3301 or larger)



To execute key learn

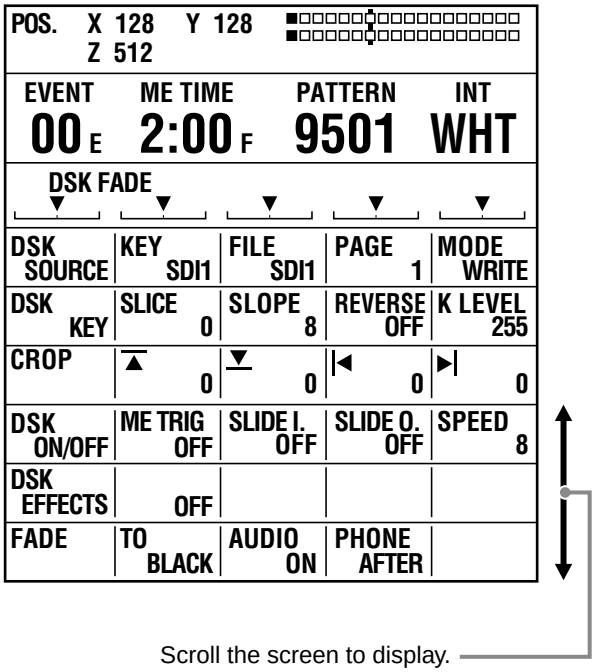
Set the items in the [(BASIC) PATTERN KEY] menu, and press the AUTO TAKE button.

Setting the Downstream Key (DSK)

A downstream key refers to a key which is mixed at the end of the effects including transition and keying. A key that you want to display in the foreground of an image is set as a downstream key.
The set downstream key can be saved as a title key in memory.
The [DSK FADE] menu is used to insert the downstream key.

[DSK FADE] menu

This menu appears when the DSK FADE button is pressed or the DSK selector button is pressed for preview of the downstream key.



[DSK SOURCE]

[KEY] and [FILL] can be set.
A key is material used as the downstream key, while a fill is video to be inserted to the material selected as the key.
For example, characters such as a text or material in the shape of a pattern are created on the background of a color and specified as the key. Other video can be inserted as the fill to the key.

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

DSK SOURCE	KEY SDI1	FILL SDI1	PAGE 1	MODE WRITE
	SDI1 SDI2 SDI3 SDI4 HDMI1 HDMI2 VIDEO1 VIDEO2 DVI-I TITLE	SDI1 SDI2 SDI3 SDI4 HDMI1 HDMI2 VIDEO1 VIDEO2 DVI-I TITLE BODMAT	1-30 (480i/59i) 1-30 (576i/50i) 1-14 (720p) 1-6 (1080i)	WRITE VIEW

To select the key video

Use the rotary 2 control.
The choices are [SDI1] to [SDI4], [HDMI1], [HDMI2], [VIDEO1], [VIDEO2], [DVI-I], and [TITLE] (still picture saved in title memory).

To select the key fill video

Use the rotary 3 control.
[BODMAT] (border matte) can also be selected as well as [SDI1] to [SDI4], [HDMI1], [HDMI2], [VIDEO1], [VIDEO2], [DVI-I], and [TITLE] (still picture saved in title memory).

To save DSK as a title key

1 Use the rotary 4 control to select the page number of memory where the title is saved.

2 Set [MODE] to [WRITE] using the rotary 5 control, and press the ↵ key.

The title is saved on the selected page.
However, if the preceding page of the selected page is unsaved (EMPTY), the preceding page, the selected page and the following pages can be used for saving the title.

◆ NOTE

- **Title keys cannot be set if the title memory count is set to 0 in the [MEMORY] submenu of the [SETUP] menu (→ page 27).**
- **Upon save of a title, set [MODE] to [VIEW] to prevent the saved title from being overwritten.**
- **All of the saved titles are erased when the power is turned off.**
- **If [KEY] and [FILL] are set during title key creation with a title or the star or heart pattern selected, the key fill settings are changed to a title using the MIX (56) pattern. (The selected title, star, or heart pattern is canceled.)**

[DSK KEY]

For the video for the downstream key selected in the [DSK SOURCE] submenu, it is possible to change the transparency level and select whether to reverse the video.

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

DSK KEY	SLICE 0	SLOPE 8	REVERSE OFF	K LEVEL 255
	0-255	0-15	OFF ON	0-255

Set [SLICE] (slice level) in the range of [0] to [255] using the rotary 2 control.
The factory default setting is [0].
The slice is set to specify the brightness level of the area to be removed. The setting value can be increased to remove only the area brighter than the specified area.

Set [SLOPE] in the range of [0] to [15] using the rotary 3 control.
The factory default setting is [0].

The slope is set to specify the luminance level range of the area to be removed. The setting value can be increased to remove only the area of the luminance level closest to the specified level.

Set [REVERSE] (reversing the key signal) to [ON] or [OFF] using the rotary 4 control.
The factory default setting is [OFF].

Set [K LEVEL] (transparency level of the key) in the range of [0] to [255] using the rotary 5 control.
The factory default setting is [255].

[CROP]

Settings can be made in the same way as in the [CROP] submenu of the [PATTERN KEY] menu (→ page 5).

DSK slide on/off [DSK ON/OFF]

The direction and time of the slide in/out operation can be set for executing the downstream key.
[SLIDE I.] and [SLIDE O.] are effective if [KEY] is set to [TITLE] in the [DSK SOURCE] submenu.

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
DSK ON/OFF	**ME TRIG OFF**	**SLIDE I. OFF**	**SLIDE O. OFF**	**SPEED 8**
OFF ON	OFF ◀ ▶ ▲ ▼	OFF ◀ ▶ ▲ ▼	2-64	

Operate the rotary 2 control to set whether or not to execute downstream key additionally during auto transition executed with the AUTO TAKE button.
The factory default setting is [OFF].

Operate the rotary 3 control to set the direction of the slide in operation when DSK is ON.
The factory default setting is [OFF].

Operate the rotary 4 control to set the direction of the slide out operation when DSK is ON.

◀: Sliding toward the left
▶: Sliding toward the right
▲: Sliding toward the top
▼: Sliding toward the bottom

The factory default setting is [OFF].

Operate the rotary 5 control to set the sliding speed.
Select an even number in the range of [2] to [64].
The factory default setting is [8].

[DSK EFFECTS]

Settings can be made in the same way as in the [EFFECTS] submenu of the [TRANSITION] menu (→ page 4).

Setting the Fade [FADE]

The [DSK FADE] menu is used to set the fade effect (→ page 11).

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
FADE	**TO BLACK**	**AUDIO ON**	**PHONE AFTER**	
	BLACK WHITE BLUE	ON OFF	AFTER PRE	

Select the video color after fading from [BLACK], [WHITE], and [BLUE] using the rotary 2 control.
The factory default setting is [BLACK].

Set [AUDIO] (sound fading) to [ON] or [OFF] using the rotary 3 control.
The factory default setting is [ON].

Set [PHONE] (fading of headphones output) to [AFTER] or [PRE] using the rotary 4 control. [AFTER] generates sound with fade applied, while [PRE] generates sound without fade.
The factory default setting is [AFTER].

Adjusting Input Video

Adjusting Colors of Video [COLOR EFFECTS]

The [COLOR EFFECTS] menu is used to make settings for applying effects to the colors of video for each bus.
The color effects to video can be set including color balance and brightness adjustment.

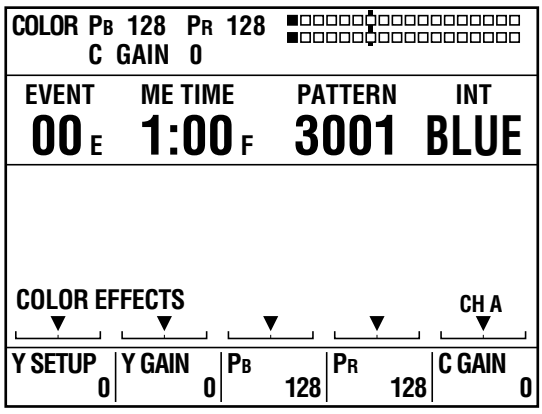
◆ NOTE

The color effect and MONO (monochrome) effect cannot be used at the same time. The color effect cannot be applied to the video to which MONO has been applied as the video effect.

[COLOR EFFECTS] menu

The menu appears when the A/PROG COLOR EFFECTS or B/PRESET COLOR EFFECTS button is pressed to turn on. The color effects set currently are applied at the same time.
To display the menu without applying the effects, press either COLOR EFFECTS button while holding down the SHIFT key.

When the preview output is executed, switching is automatically performed between video A and video B according to the pressed button.



Set [Y SETUP] (Y signal setup) in the range of [–128] to [+127] using the rotary 1 control.
The factory default setting is [0].

Set [Y GAIN] (Y signal gain) in the range of [–128] to [+127] using the rotary 2 control (0 dB=0).
The factory default setting is [0].

To adjust the color balance, adjust [PB] and [PR]. Use the rotary 3 (for X direction) and rotary 4 (for Y direction) controls or operate the joystick in the X and Y directions.

Set [C GAIN] (chroma gain) using the rotary 5 control or rotary Z control.
At that time, the joystick, rotary Z control settings, and 3D display area of the setting screen (→ page Vol.1-20) shows the P_B, P_R, and C GAIN values.

To set the color saturation to 0 temporarily

Press the CENTER button during operation of the [COLOR EFFECTS] menu, the color saturation can be set to zero temporarily.

◆ NOTE

- **If the No. 221 or 222 (1068 or 1069) pattern is selected, the MIX pattern with the color effects applied is set, the COLOR EFFECT button is lighted, and the [COLOR EFFECTS] menu appears.**
- **No color effects can be applied to internal video.**

Applying Effects to Video [VIDEO EFFECTS]

The [VIDEO EFFECTS] menu is used to apply changes to video or video switching effect for each bus.
Special video effects such as mosaic and paint can be set in this menu.

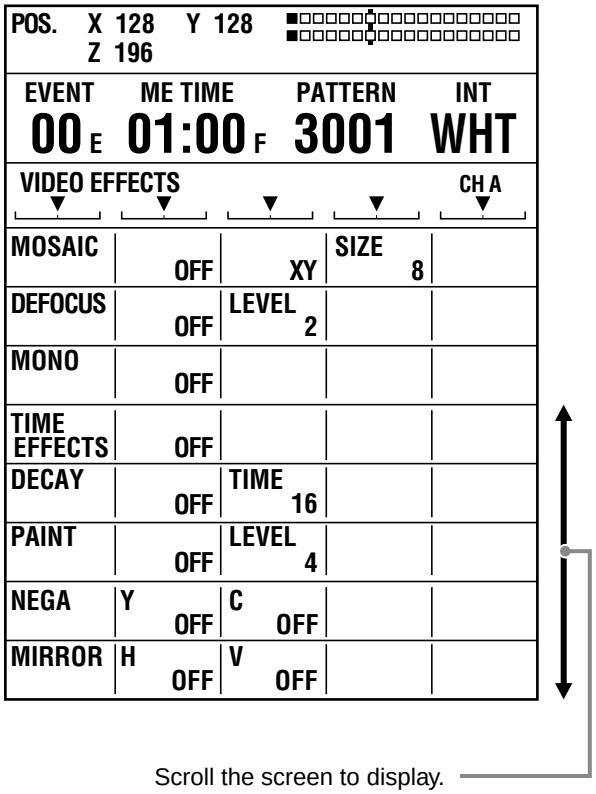
◆ NOTE

- **No video effects can be applied to internal video.**
- **Only one choice can be made from multi-strobe, decay, trail, and shadow. The effect selected last has priority, and the previously selected effect is canceled.**
- **Decay cannot be set to ON for both A/PROG and B/PRESET at the same time. The setting made last has priority and the other made earlier is turned OFF.**
- **Only one choice can be made from multi-strobe and mosaic. The effect selected last has priority, and the previously selected effect is canceled.**

[VIDEO EFFECTS] menu

The menu appears when the A/PROG VIDEO EFFECTS or B/PRESET VIDEO EFFECTS button is pressed to turn on. The video effects set currently are applied at the same time.
To display the menu without applying the effects, press either VIDEO EFFECTS button while holding down the SHIFT key.

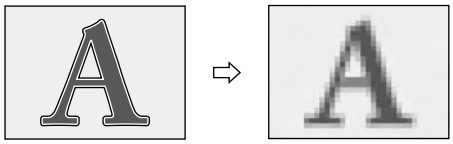
When the preview output is executed, switching is automatically performed between video A and video B according to the pressed button.



[MOSAIC]

The mosaic effect can be applied to input video.

The following diagram shows an example of the mosaic effect.



Mosaic effect

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

MOSAIC	OFF	XY	SIZE 0	
	OFF ON	XY X Y	0-31	

Select [ON] or [OFF] to specify whether or not to apply the effect using the rotary 2 control.
The factory default setting is [OFF].

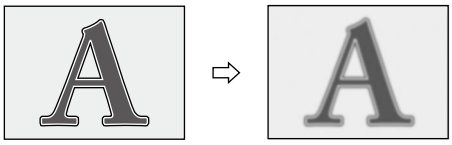
Set the direction of applying the mosaic effect to [XY] (horizontal and vertical), [X] (horizontal only), or [Y] (vertical only) using the rotary 3 control.

Set [SIZE] in the range of 0 to 31 using the rotary 4 control.
The factory default setting is 8.
This size setting is applied to Nos. 1001, 1002, and 1003 (200, 201, and 202) patterns.

[DEFOCUS]

The video effect of purposely displacing the focus can be set to perform fantastical rendering or get the attention of viewers.

The following diagram shows an example of the defocus effect.



Defocus effect

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

DEFOCUS	OFF	LEVEL 0		
	OFF ON	0-7		

Select [ON] or [OFF] to specify whether or not to apply the effect using the rotary 2 control.
The factory default setting is [OFF].

Set [LEVEL] in the range of 0 to 7 using the rotary 3 control.
The factory default setting is 2.
This level setting is applied to No. 1004 (203) transition pattern. This effect cannot be activated with any two-dimensionally compressed pattern at the same time.

◆ NOTE

Either mosaic or defocus can be selected. Whichever is selected later has priority and the other selected earlier is canceled.

[MONO]

Chroma (color) can be deleted to generate monochrome video.

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

MONO	OFF			
	OFF ON			

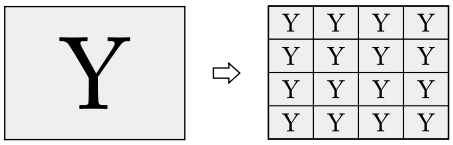
Select [ON] or [OFF] to specify whether or not to apply the effect using the rotary 2 control.
The factory default setting is [OFF].
This setting has a priority over the settings made in the [COLOR EFFECTS] menu (→ page 13).

[TIME EFFECTS]

The still, strobe, or multi-strobe effect can be set.

Still: Keeps the video still.
Strobe: Plays video frame by frame.
Multi-strobe: Divides the screen into 4, 9, or 16 screens and displays the strobe image on each divided screen.

The following diagram shows an example of the multi-strobe effect.



Multi-strobe effect (16 screens)

The still effect can be executed by pressing the A/PROG bus (or B/PRESET bus) STILL button.
The strobe effect can be executed by pressing the A/PROG bus (or B/PRESET bus) STROBE button.
When the STILL or STROBE button is pressed to turn on, the [VIDEO EFFECTS] menu appears (→ page 13).

◆ NOTE

When the STILL or STROBE button is pressed to execute the effect, the video effects set in the VIDEO EFFECTS menu are also executed at the same time.

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

TIME EFFECTS	OFF	FLEID	SCREEN 1	TIME 2
	OFF STILL STROBE	FIELD FRAME	1 @ 4 @ 9 @ 16 R 4 R 9 R 16	MANUAL 2-124

Select [STILL] or [STROBE] using the rotary 2 control.
Select [OFF] to apply no effect.
When [OFF] is selected, both the STILL and STROBE execution buttons are also set to off (turned off).

If [STILL] is selected

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

TIME EFFECTS	STILL	FIELD		
		FIELD FRAME		

Select [FIELD] or [FRAME] using the rotary 3 control.
The factory default setting is [FIELD].

If [STROBE] is selected

Rotary 1 Rotary 2 Rotary 3 Rotary 4 Rotary 5

TIME EFFECTS	STROBE	FIELD	SCREEN 1	TIME 2
		FIELD FRAME	1 @ 4 @ 9 @ 16 R 4 R 9 R 16	MANUAL 2-124

Select [FIELD] or [FRAME] using the rotary 3 control.
The factory default setting is [FIELD].

Set [SCREEN] (number of strobe screens) and the repeat count using the rotary 4 control.
The factory default setting is 1.

A numeric value such as [@ 4] is set to specify the number of screens into which the screen is divided for strobe image display.

When @ is given to a numeric value: The strobe image is sequentially displayed only once on each of the screens divided according to the value.
When R is given: It is repeated to sequentially display the strobe image on each of the screens divided according to the value.

Set [TIME] (strobe duration) in the range of [2] to [124] using the rotary 5 control.
Time can be changed in 2 steps.
The factory default setting is [20].

When [TIME] is set to [MANUAL], the screen can be stopped by pressing the A/PROG bus STROBE button or B/PRESET bus STROBE button while holding down the SHIFT key.
This time setting is applied to Nos. 1062, 1063, 1064, and 1065 (215, 216, 217, and 218) transition patterns.

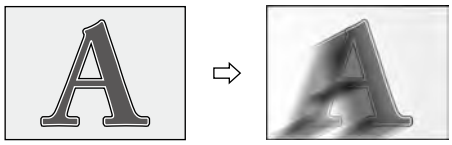
◆ NOTE

- **When any of the following patterns is selected, only one choice can be made from SOFT, BORDER, and SOFT BORDER for multi-strobe and pattern edge. The effect selected last has priority, and the previously selected effect is canceled.**
  Nos. 1541 to 1550 (32 to 35, 130 to 133, and 141 to 142)
  Nos. 3304, 3314, and 3324
- **Either strobe or still can be selected. Whichever is selected later has priority and the other selected earlier is canceled.**
- **Either multi-strobe or scene grabber can be selected. Whichever is selected later has priority and the other selected earlier is canceled.**
- **The multi-strobe effect cannot be enabled for both A/PROG and B/PRESET at the same time. The setting made last has priority and the other made earlier is disabled.**
- **When the still or strobe (including multi-strobe) effect is activated, selecting a two-dimensionally compressed pattern cancels the still or strobe effect. When a two-dimensionally compressed pattern is selected, applying the still or strobe effect changes the pattern being used to the MIX(56) pattern.**

[DECAY]

The afterimage effect can be added to video.

The following diagram shows an example of the decay effect.



Decay effect

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
DECAY	OFF	TIME 16		

Rotary 2	Rotary 3
OFF ON	0-32

Select [ON] or [OFF] to specify whether or not to apply the effect using the rotary 2 control.
The factory default setting is [OFF].

Set [TIME] in the range of [0] to [32] using the rotary 3 control.
The factory default setting is [16].
This time setting is applied to No. 1066 (219) pattern.

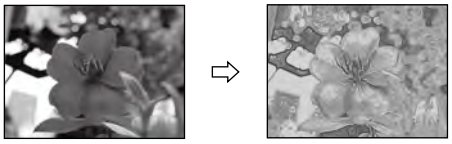
◆ **NOTE**

The decay effect cannot be applied to both input source video A and B at the same time. When the decay effect is enabled for one video, it is automatically disabled for the other video.

[PAINT]

The image tone can be decreased to generate painting-like video.

The following diagram shows an example of the paint effect.



Paint effect

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
PAINT	OFF	LEVEL 4		

Rotary 2	Rotary 3
OFF ON	0-7

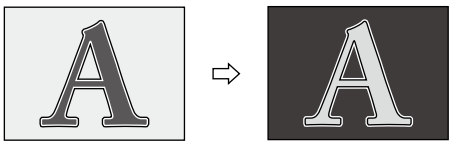
Select [ON] or [OFF] to specify whether or not to apply the effect using the rotary 2 control.
The factory default setting is [OFF].

Set [LEVEL] in the range of 0 to 7 using the rotary 3 control.
The factory default setting is 4.
This level setting is applied to No. 1034 (211) transition pattern.

[NEGA]

The brightness of video can be inverted.

The following diagram shows an example of the negative effect.



Negative effect

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
NEGA	Y OFF	C OFF		

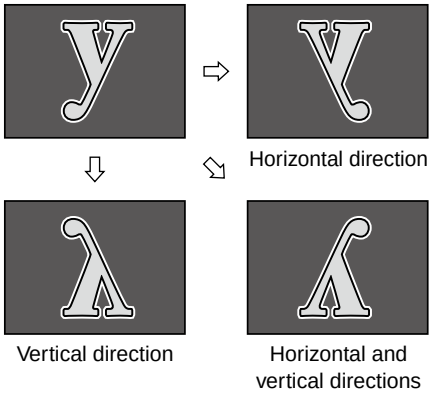
Rotary 2	Rotary 3
OFF ON	OFF ON

Select [ON] or [OFF] to specify whether or not to apply the Y signal negative setting [Y] using the rotary 2 control and the chroma signal negative setting [C] using the rotary 3 control, respectively.
The factory default setting is [OFF] for both items.

[MIRROR]

The mirror effect can be produced in the horizontal or vertical directions.

The following diagram shows an example of the mirror effect.



Mirror effect

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
MIRROR	H OFF	V OFF		

Rotary 2	Rotary 3
OFF ON	OFF ON

Select [ON] or [OFF] to specify whether or not to apply the mirror setting in the horizontal direction [H] using the rotary 2 control and in the vertical direction [V] using the rotary 3 control, respectively.
The factory default setting is [OFF] for both items.

Setting Audio Effects

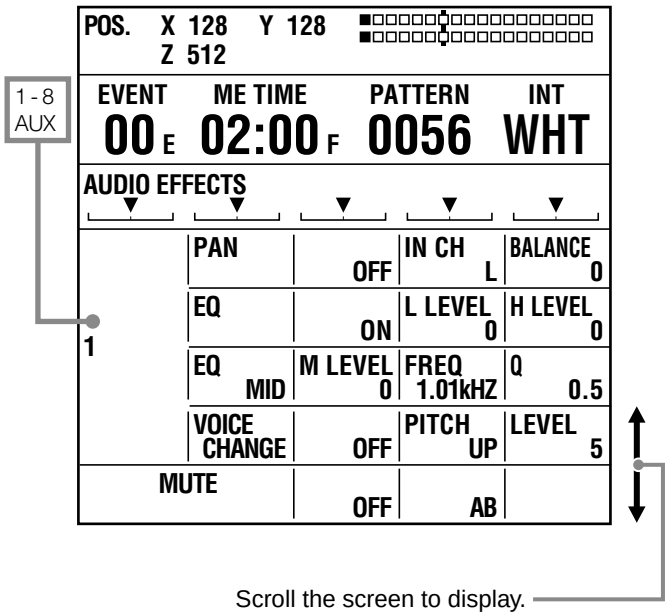
The [AUDIO EFFECTS] menu is used to process sound. Audio effects can be set for each input source.

To execute the audio effects

Press the AUDIO EFFECTS execution button.
The AUDIO FOLLOW VIDEO button can be pressed to turn on to link the video effects and the audio effects during execution of transition or fade.

[AUDIO EFFECTS] Menu

The menu appears when the AUDIO EFFECTS button is pressed.



Select the input source using the rotary 1 control.

[1] to [8]: Input sources 1 to 8
[AUX]: AUX input

Select the effect to set using the rotary 2 control.

[PAN]

[PAN] is set to change the audio balance between left and right.

Rotary 2	Rotary 3	Rotary 4	Rotary 5
PAN	OFF	IN CH L	BALANCE 0
OFF ON		L R L+R	L7 L6 ⋮ L1 0 R1 R2 ⋮ R7

Select [ON] or [OFF] to specify whether or not to apply the effect using the rotary 3 control.
The factory default setting is [OFF].

Set [IN.CH] to [L], [R], or [L+R] using the rotary 4 control. [IN.CH] is used to select the channel to be emphasized.

L: Left channel
R: Right channel
L+R: Both left and right channels

The factory default setting is [L].

Set [BALANCE] in the range of L7 to 0 and 0 to R7 using the rotary 5 control.
[BALANCE] is used to select whether to expose the channel selected with [IN.CH] toward the right direction (R) or left direction (L) and to set the gap from the center position using a numeric value.
The factory default setting is 0 (center).

[EQ]

[EQ MID] is used to adjust the high-range or mid-range audio level and set equalizer effects.

Rotary 2	Rotary 3	Rotary 4	Rotary 5
EQ	ON	L LEVEL 0	H LEVEL 0
OFF ON		–14dB - 14dB	–14dB - 14dB

Select [ON] or [OFF] to specify whether or not to apply all equalizer effects using the rotary 3 control.
The factory default setting is [ON].

Set the [L LEVEL] (low-range level in dB) in the range of [–14dB] to [14dB] in 2 dB steps using the rotary 4 control.
The factory default setting is [0].

Set the [H LEVEL] (high-range level in dB) in the range of [–14dB] to [14dB] in 2 dB steps using the rotary 5 control.
The factory default setting is [0].

[EQ MID]

Rotary 2	Rotary 3	Rotary 4	Rotary 5
EQ MID	M LEVEL 0	FREQ 1.01kHz	Q 0.5
	–14dB - 14dB	100Hz-10.2kHz	0.5 1 2 5

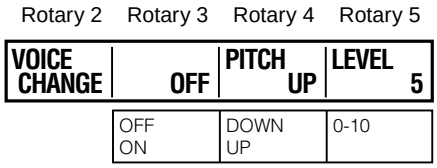
Set the [M LEVEL] (mid-range level in dB) in the range of [–14dB] to [14dB] in 2 dB steps using the rotary 3 control.
The factory default setting is [0].

Set the [FREQ] (Frequency to be emphasized) in the range of [100Hz] to [10.2kHz] using the rotary 4 control.
The factory default setting is [1.01kHz].

Set [Q] (Quality factor value: resonance level) to [0.5], [1], [2] or [5] using the rotary 5 control. As the value is larger, resonance lasts longer.
The factory default setting is [0.5].

[VOICE]

Settings can be made for the voice changer.

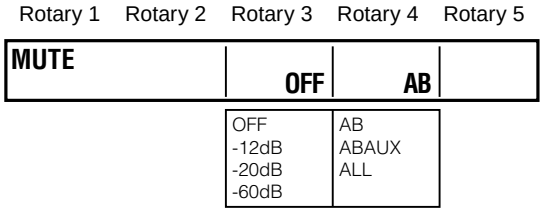


Select [ON] or [OFF] to specify whether or not to apply the effect using the rotary 3 control.
The factory default setting is [OFF].

Select [UP] or [DOWN] for [PITCH] to specify whether to increase or decrease the sound pitch using the rotary 4 control.
The factory default setting is [UP].

Set [LEVEL] in the range of 0 to 10 using the rotary 5 control.
The factory default setting is 5.

[MUTE]



Select the mute level from [–12dB], [–20dB], and [–60dB] using the rotary 3 control.
Select [OFF] to apply no effect.
The factory default setting is [OFF].

Select the channel to mute from [AB] (buses A and B), [ABAUX] (buses A and B and AUX output), and [ALL] (all channels) using the rotary 4 control.
The factory default setting is [ALL].

Chapter 2 Registering Settings and Effects

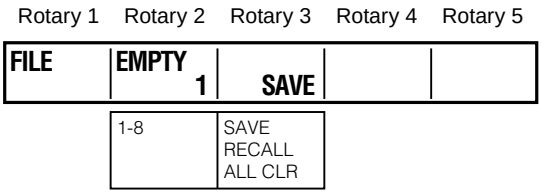
If the menu settings and created effects are stored in internal memory, the same settings and effects can be quickly reproduced.

The settings made on the setting screen (→ page Vol.1-20) are referred to as “events” on this unit, where up to 100 events with numbers allocated can be registered in memory (event memory).
The settings of the [SETUP] menu (→ page Vol.1-22) can be registered in up to eight files.

File operation [FILE]

In the [FILE] submenu of the [SETUP] menu, it is possible to save the settings of the [SETUP] menu in a file and call the file using the rotary 2 and 3 controls.
The following types of data are saved and called.

- [SETUP] menu setting values
- [AUDIO/VIDEO] input settings
- X, Y, and Z position settings (individual settings for direct patterns and common settings for other patterns)
- Registration contents of direct patterns



To select a file to operate

Select the file number from [1] to [8] using the rotary 2 control.

When the file of the selected number is null, [EMPTY] is shown. When the file is already saved, [SAVED] is shown.

To save the current settings in a file

Select [SAVE] using the rotary 3 control.

When the message [OK?] appears, press the ↵ key.
To cancel the file save, press the ↵ key while holding down the SHIFT key.

To call a saved file

Select [RECALL] using the rotary 3 control.

When the message [OK?] appears, press the ↵ key.
The file of the selected number is called and the settings of the [SETUP] menu are changed to those saved in the file.

◆ **NOTE**

- **If an empty file is selected ([EMPTY] is displayed), [RECALL] is not displayed.**
- **When the unit must be restarted due to the system format change caused by data call, the message “TURN POWER OFF” appears. In this case, turn off the power and restart the unit.**

To clear a saved file

Select [ALL CLR] using the rotary 3 control.

When the message [OK?] appears, press the ↵ key.

To cancel the file clear, press the ↵ key while holding down the SHIFT key.

Event Memory Operation

The EVENT SET and EVENT RECALL buttons are used to register and call events, respectively.

The currently selected event number is shown in the event number display area of the setting screen. [E] is shown for a null event.

Registering the Current Settings and Created Effects as Events

1 Press the EVENT SET button.

The button is lighted.

2 Select the event number in the range of 0 to 99. Enter the number using the numeric keys or increment or decrement the value using the + or – key, respectively.

3 Press the ↵ key.

The EVENT SET button flashes for approximately 2 seconds, and then goes off.

To register a series of effects as events

Up to 10 effects can be consecutively registered as events with numbers 50 to 59, 60 to 69, 70 to 79, 80 to 89, or 90 to 99.
Since those 10 events can be called and executed consecutively, the key frame settings can also be registered as events.

Calling Events

1 Press the EVENT RECALL button.

The button is lighted.

2 Select the event number. Enter the number using the numeric keys or increment or decrement the value using the + or – key, respectively.

3 To call the settings, press the ↵ key.

The EVENT RECALL button goes off.
The selected event is called and the settings of the setting screen are changed to those registered as the event.

4 Press the AUTO TAKE button.

The effects registered as the event are executed.

If one of the events in which a series of effects were registered is called

If 10 events are consecutively registered with event numbers in the range of 50 to 59, 60 to 69, 70 to 79, 80 to 89, or 90 to 99, the settings of the first event are reproduced when one of the 10 events is called.

◆ NOTE

When the event is called, the settings of the input source used during creation of the effects are not reproduced. The effects are executed with the currently available input source settings. Thus, first reproduce the same input source settings as those during effect creation, and then call the event to execute.

Clearing Event Memory

1 Press the EVENT RECALL button.

The button is lighted.

2 Select the event number. Enter the number using the numeric keys or increment or decrement the value using the + or – key, respectively.

3 Press the ↵ key while holding down the SHIFT key.

The EVENT RECALL button goes off.
The memory of the selected event is cleared.

Clearing All the Event Memory

1 Press the EVENT RECALL button.

The button is lighted.

2 Press the . (period) key twice.

"**" is displayed instead of an event number.

3 Press the ↵ key while holding down the SHIFT key.

Chapter 3 Switching 3D Video

When two different types of video for the left eye (L channel) and right eye (R channel) are monitored in the overlay state, adjustment is made for allowing the left eye and right eye to view the L-channel video and R-channel video, respectively, for example, wearing 3D glasses. This adjustment enables the brain to recognize the images on video as stereoscopic images.
When the parallax (distance between left and right eyes) is virtually increased, a 3D appearance and a sense of depth are enhanced.

When 3D video is used as the input source to this unit, two input connectors are paired to input one video for the left eye and the other for the right eye.

Example Connections with 3D Camera

This section shows examples of systems in which this unit and 3D camera are connected to create 3D video using each input video for the L and R channels.
The following are three system examples:

- System for displaying the program output and multi-view output of this unit on a single monitor (simultaneous display of L and R channels)
- System for individually displaying the program output and multi-view output on different monitors (use of SIDE BY SIDE signal)
- System for using video from four cameras as the input sources to two units of AG-HMX100P/HMX100E

◆ **NOTE**

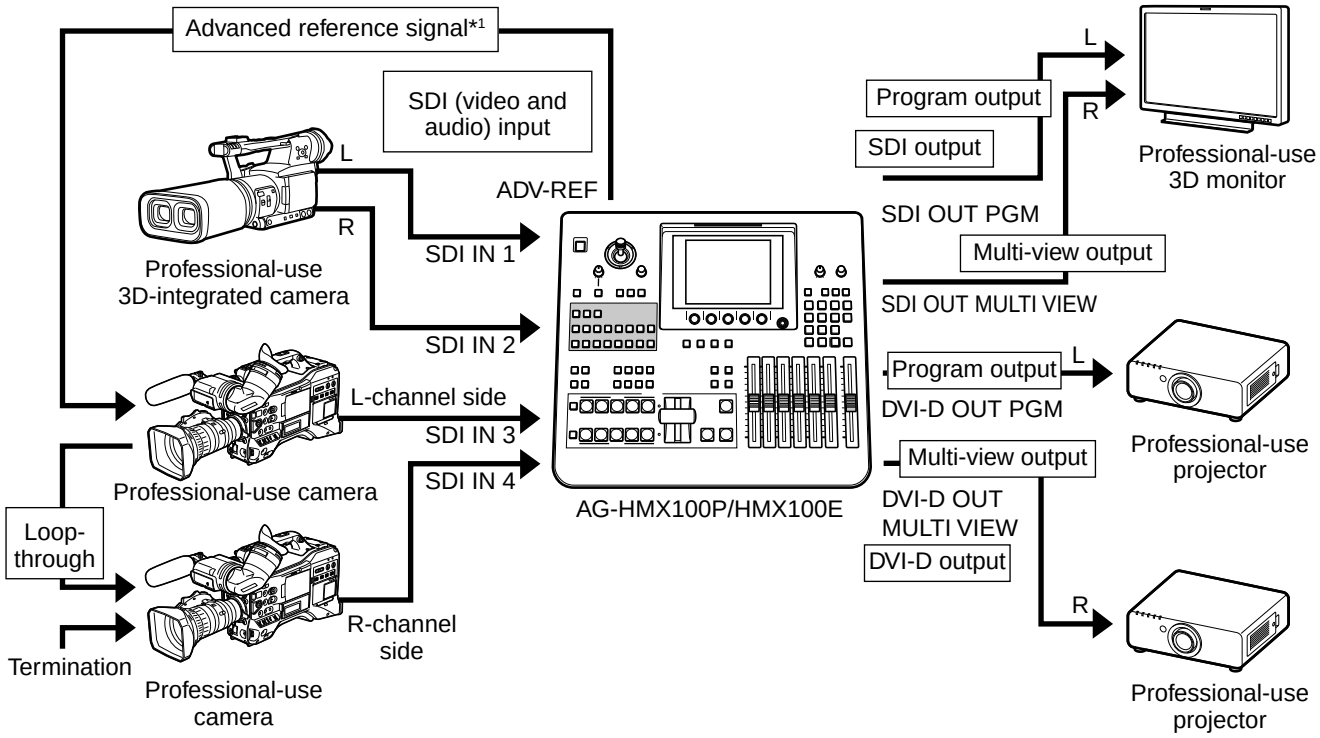
- **The 3D video production systems shown below cannot perform preview output. AUX output can be used only for input source check. Of the video switching effects, only cut can be executed.**
- **When [3DFORMAT] is set to [1080/23PsF] in 3D mode, this unit cannot be synchronized with an external signal generator.**

System for Monitoring Program Output as L channel and Multi-view Output as R Channel (Simultaneous Display of L and R Channels)

SDI input 1 and SDI input 2 are paired to be used as L-channel and R-channel input sources, respectively.
SDI input 3 and SDI input 4 are paired to be used as L-channel and R-channel input sources, respectively.

Program output and multi-view output are paired to be used as L-channel and R-channel outputs.

3D mode is set to [MODE1] (→ page 25).

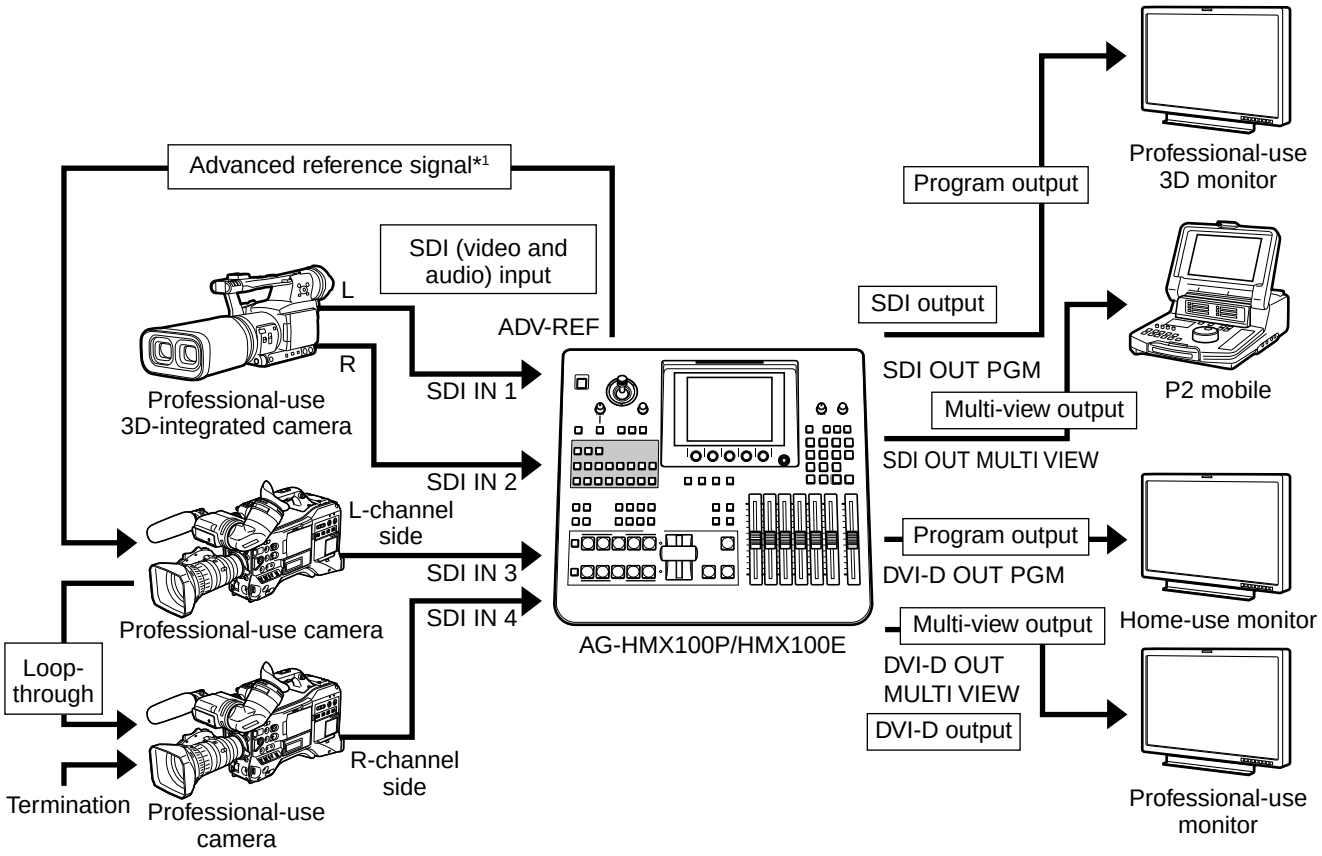


*1 Advanced reference signal need not necessarily be connected.

System for Displaying Program Output and Multi-view Output on Different Monitors (Use of SIDE BY SIDE Signal)

SDI input 1 and SDI input 2 are paired to be used as L-channel and R-channel input sources, respectively. SDI input 3 and SDI input 4 are paired to be used as L-channel and R-channel input sources, respectively. The output is the SIDE BY SIDE signal to be transferred as a single-channel signal generated by compression of L-channel and R-channel signals in the horizontal direction. Program output and multi-view output are the same signal.

3D mode is set to [MODE2] (→ page 25).



*1 Advanced reference signal need not necessarily be connected.

System Configured with 2 Units of AG-HMX100P/HMX100E and 4 Cameras

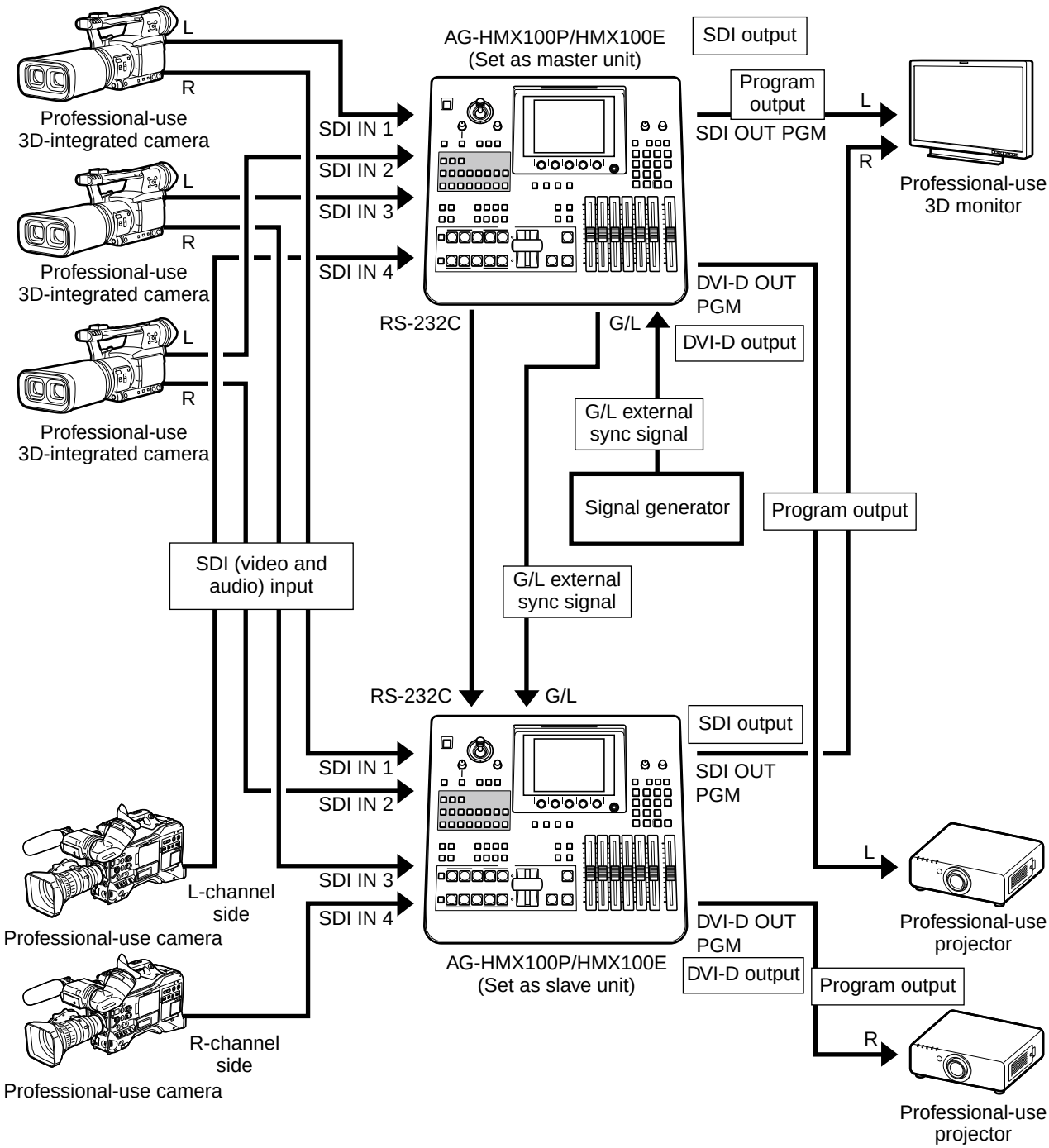
Two units of AG-HMX100P/HMX100E are used and the video from up to four cameras is switched to be used as the input source.

SDI inputs 1 to 4 of the first mixer are used as the L-channel input sources, while those of the second mixer are used as the R-channel input sources.
Program outputs from the first and second mixers are paired to be used as the L-channel and R-channel outputs, respectively.

3D mode is set to [MODE3-M] on the master unit and [MODE3-S] on the slave unit (→ page 25).

◆ **NOTE**

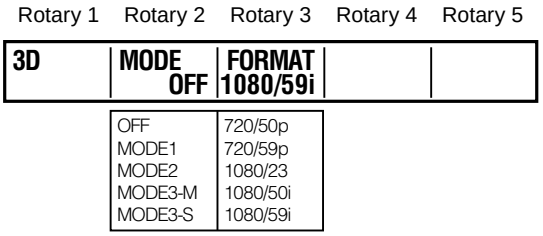
- **When 3D mode is set to [MODE3-S] on the slave unit, all audio outputs are muted. Make audio output from the master unit.**
- **In order to synchronize two units of AG-HMX100P/HMX100E, be sure to connect a signal generator and input the same synch signal.**



Setting 3D Mode [3D]

This function allows selection of 3D mode and 3D signal format.

Select [3D] in the [SETUP] menu using the rotary 1 control, and set the 3D mode and 3D signal format as described below using the rotary 2 and 3 controls.



To select 3D mode

Select 3D mode using the rotary 2 control.

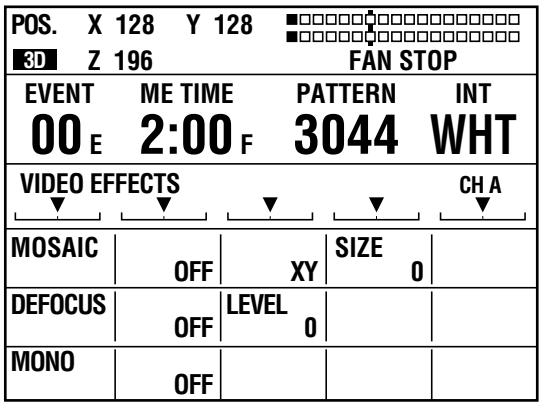
When the current setting is changed, * is added to the setting value.

If other menu screen is opened with * displayed, the setting value returns to the previous value without being changed.
When the message [OK?] appears, press the ↵ key.
To cancel the selection, press the ↵ key while holding down the SHIFT key.

Setting	Mode
OFF	Regular display mode
MODE1	2-channel switching, L and R outputs
MODE2	2-channel switching, Side By Side signal output
MODE3-M	4-channel switching, L and R outputs, master
MODE3-S	4-channel switching, L and R outputs, slave

Setting Screen in 3D Mode

If the 3D mode is set to other than [OFF], [3D] appears in the Joystick, Rotary Z Control Settings, and 3D Display Area.
The same content as in 2D mode is displayed in the area upper than the menu display area, but not used for the operation.



◆ NOTE

If [MODE3-M] or [MODE3-S] is selected, the settings of video input sources are fixed as follows: [SDI1] to source 1, [SDI2] to source 2, [SDI3] to source 3, and [SDI4] to source 4.
The [AUDIO VIDEO] submenu of the [SETUP] menu does not show any [INPUT] items (→ page Vol.1-24).

To select the 3D signal format

When the selected 3D mode is other than [OFF], set [FORMAT] using the rotary 3 control.
When the selected 3D mode is [OFF], the system format set in the [VIDEO FORMAT] submenu (→ page Vol.1-26) becomes effective.

◆ NOTE

- **If [MODE3-M] or [MODE3-S] is selected, [1080/23] is not displayed under the [FORMAT] item, and cannot be selected.**
- **If 3D mode and 3D signal format are changed, the system must be restarted.**
  When the message "TURN POWER OFF" appears, turn off the power and restart the unit.

Chapter 4 Operating Environment Setting

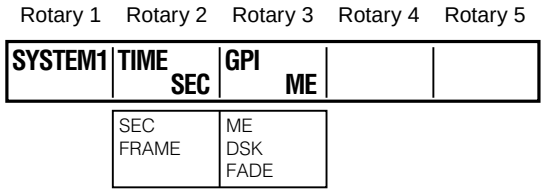
This chapter describes the settings for the operating environment of this unit, external synchronization, and external equipment.

Setting the System

The following describes the settings for the whole system.

The [SYSTEM1] and [SYSTEM2] submenus of the [SETUP] menu are used.

Setting [SYSTEM1]



To set the time display

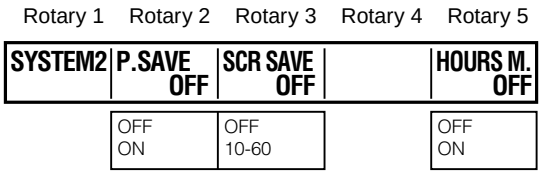
Set [TIME] to [SEC] (seconds + frames) or [FRAME] (frames only) using the rotary 2 control.
The factory default setting is [SEC].

To select the video effect for GPI control

The GPI trigger signal can be input to the GPI input connector to externally control one of the video effects: key/transition, downstream key, and fade. The system goes standby on the trailing edge of the GPI trigger signal, and executes the effect three frames later.

Set [GPI] to [ME] (key/transition), [DSK] or [FADE] using the rotary 3 control.
The factory default setting is [ME].

Setting [SYSTEM2]



To set the power management mode

Set [P.SAVE] to [ON] using the rotary 2 control.

If this unit is not operated for more than four hours, the power is automatically turned off.
To restart the unit, turn on the POWER button.

In one of the following cases, the time counter is reset and immediately restarted.

- A button has been operated on the operation panel.
- This unit has been externally operated through RS-232C or GPI control.
- Video signal is being input to a connector of this unit.

To set the time until the screen saver is executed

Operate the rotary 3 control to select the time until the screen saver is executed to protect the LCD.
The time can be set in the range of 10 to 60 in units of 10 minutes. If [SCRN SAVE] is set to [OFF], the screen saver is not displayed.
The factory default setting is [10].

The screen saver is disabled when any part on the operation panel or the external controller is operated.

◆ **NOTE**

In 3D mode, unnecessary buttons including those for operating patterns and events are disabled. Even if any of those buttons is pressed, the screen saver is not disabled. To disable the screen saver, operate a button available in 3D mode including source selector buttons.

To display the hours meter on a new screen

Set [HOURS M.] to [ON] using the rotary 5 control, and press the ↵ key.
The accumulated value of the energization time is displayed.
The screen is closed when the ↵ key is pressed again.

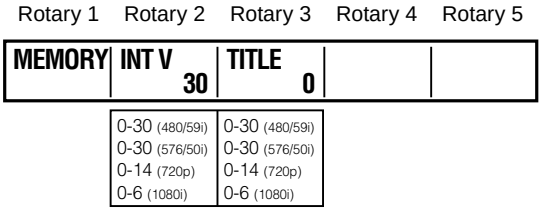
Setting [MEMORY]

This section describes the method of allocating memory for internal video and titles separately. The memory is used to save the internal video created from input video (→ page Vol.1-30) and title keys (→ page 8).

The [MEMORY] submenu of the [SETUP] menu is used.

◆ NOTE

If the memory settings are changed in this submenu, all data saved in the memory is cleared.



1 Set [INT V] (internal video memory size) using the rotary 2 control and [TITLE] using the rotary 3 control, respectively.

The total memory size (number of frames) varies with the video format (→ page Vol.1-26). When the size of either internal video memory or title memory is increased, the other may be automatically decreased to prevent the sum of the two values from exceeding the total memory size.

If the [INT V] or [TITLE] value is changed, * appears under [INT V] or [TITLE], respectively.

2 Press the ↵ key with * displayed.

The message [OK?] appears.

3 Press the ↵ key again to fix the change.

To cancel the change, press the ↵ key while holding down the SHIFT key.

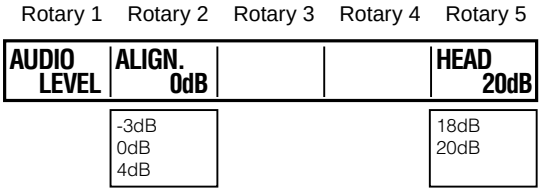
If other menu screen is displayed when * is being displayed, the settings return to the previous values without being updated.

The factory default settings are as shown below.

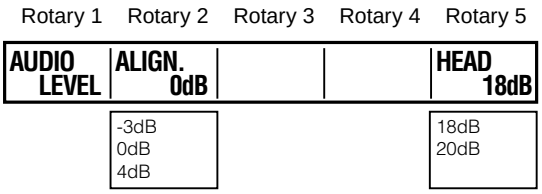
Video Format	[INT V]	[TITLE]
1080/59i	3	3
1080/50i	3	3
720/59p	7	7
720/50p	7	7
480/59i	15	15
576/50i	15	15

Setting the Audio Level [AUDIO LEVEL]

The audio level is indicated by the audio level meter on the setting screen (→ page Vol.1-20).
The [AUDIO LEVEL] submenu of the [SETUP] menu is used to make the settings for the audio level.



AG-HMX100P



AG-HMX100E

Set [ALIGN.] to [–3dB], [0dB] or [4dB] using the rotary 2 control.
The factory default setting is [0dB]

Set [HEAD] (head room) to [18dB] or [20dB] using the rotary 5 control.
The factory default setting is [20dB] (AG-HMX100P) or [18dB] (AG-HMX100E).

When the head room value is changed, the reference mark of the audio level meter (→ page Vol.1-20) is also changed on the Setting screen.

Setting for External Synchronization [GEN LOCK]

When the SD reference signal is input to this unit to perform external synchronization, it is necessary to connect a signal generator to the G/L (external synch reference input) connectors. These two G/L connectors are in the loop-through state, and automatically terminated when loop-through is disabled.
This unit is also equipped with the ADV-REF (advanced reference output) connector to output the reference signal with the vertical phase advanced for the input source. This reference signal can be used to minimize the delay of the output signal caused by the system.

◆ **NOTE**

When the reference signal is connected or disconnected, output images are distorted or sound is muted for several seconds.

The [GEN LOCK] submenu of the [SETUP] menu is used to make the settings for external synchronization.

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
GEN. LOCK	H PHASE 1000			
	0-2000			

To adjust the output phase of video, set [H PHASE] (horizontal phase) using the rotary 2 control. Set [H PHASE] (horizontal phase) using the rotary 2 control. The factory default setting is 1000.

Setting Details for Connecting PC [PC2]

When videos created on PC are input to the DVI-I IN connector of this unit, if the analog signal is input, it is necessary to make detailed settings in the [PC2] submenu of the [SETUP] menu.

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
PC2	H POSI 30	V POSI 10	PHASE 16	CLOCK 1000
	0-60 0-300*1	0-20	0-31	1200-1500*2 1500-1800*3 1500-1800*4

*1 When [PC1] is [1080/50] or [1080/60]
*2 When [PC1] is [XGA]
*3 When [PC1] is [WXGA]
*4 When [PC1] is [SXGA]

Set [H POSI] (horizontal position) using the rotary 2 control.

Set [V POSI] (vertical position) using the rotary 3 control.

Set [PHASE] using the rotary 4 control.

Set [CLOCK] using the rotary 5 control.
(Only an even number can be selected.)

◆ **NOTE**

The [PC2] parameters cannot be set in the following cases.

- **[DIGITAL] is selected in [PC1]: No parameter can be set.**
- **[ANALOG] is selected in [PC1] and [FORMAT] is set to 1080/50P or 1080/60P: [CLOCK] cannot be set.**

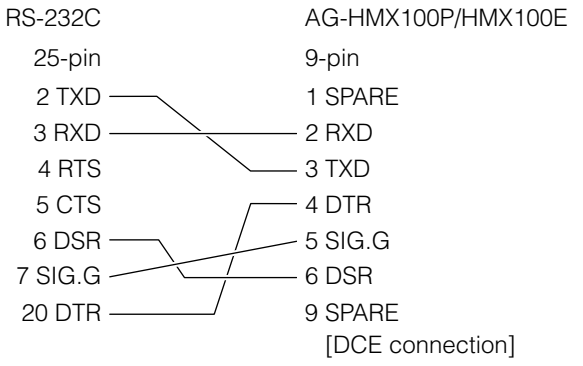
Setting for External Interface

This unit is equipped with the external interfaces as described below to allow operating this unit from an external controller or PC as well as operating a projector from this unit.

To perform the remote operation, select [RS-232C] or [PJ] (Projector) from the [RS-232C] submenu of the [SETUP] menu (→ page 29) and press the PROJECTOR/REMOTE button to turn on to activate RS-232C control.

RS-232C connector

Enables to control all functions except for AUX input and output. When using a conversion cable with 9-pin and 25-pin plugs, connect the cable as shown below.

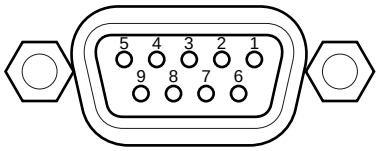


[DCE connection]

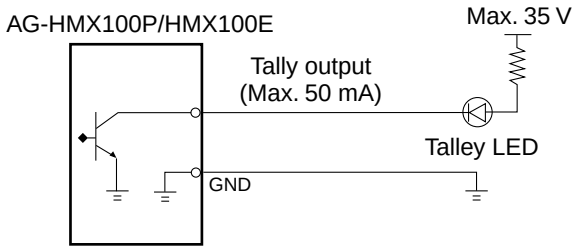
- Under RS-232C control, the operation is executed three frames after reception of the applicable command.
- When a transition pattern is selected, set the transition time to 2 frames or more. If it is set to less than 2 frames, frame accuracy is not certified.

TALLY connector

Open collector output connector for the tally lamp. When video of input source 1, 2, 3, 4, 5, 6, 7 or 8 is being used, the tally signal is output.



Pin No.	Signal
1	Input source 1
2	Input source 2
3	Input source 3
4	Input source 4
5	Input source 5
6	Input source 6
7	Input source 7
8	Input source 8
9	GND



Tally connection example

The Tally signal is output with max. 35 V and max. 50 mA.

Setting [RS-232C]

This section describes the settings required for operating this unit from an external controller via the RS-232C interface.
The RS-232C interface is also used to operate a projector from this unit.

Rotary 1	Rotary 2	Rotary 3	Rotary 4	Rotary 5
RS-232C	B. RATE 38.4k	DATA L. 8BITS	PARITY NONE	PJ
	9.6k 19.2k 38.4k 115.2k	8BITS 7BITS	NONE ODD EVEN	PJ RS-232C

To set the communication rate

Set [B. RATE] using the rotary 2 control.
The following speeds can be selected.

Setting	Baud Rate
[9.6 k]	9600 bps
[19.2 k]	19200 bps
[38.4 k]	38400 bps
[115.2 k]	115200 bps

The factory default setting is [9.6 k].

To set the data length

Set [DATA L.] to [8BITS] or [7BITS] using the rotary 3 control.
The factory default setting is [8BITS].

To set the communication parity

Set [PARITY] to [NONE] (not set), [ODD] (odd bit), or [EVEN] (even bit) using the rotary 4 control.

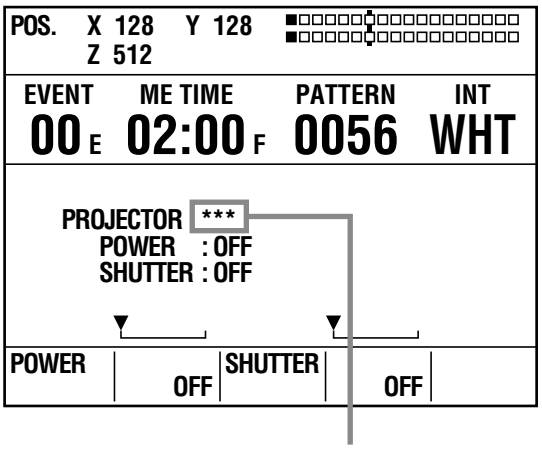
To select the communication mode

[PJ] (projector) and [RS-232C] can be selected with the rotary 5 control.

If [PJ] is selected, the Projector Setting screen appears when the PROJECTOR/REMOTE button is set to ON, enabling operation of a Panasonic projector from this unit.

Projector setting screen

The status of the projector connected to this unit is displayed.



Appears during projector monitoring.

When the projector is not compatible with the communication system of this unit or the unit cannot obtain any information due to differences in the communication protocol, "---" appears for [POWER] and [SHUTTER].
In addition, "---" appears for [SHUTTER] when the projector power is off.

To turn on or off the projector power

1 Select [ON] or [OFF] using the rotary 2 control, and press the ↵ key.

2 Press again the ↵ key when the message [OK?] appears.

To control the shutter function of the projector

1 Select [ON] or [OFF] using the rotary 3 control, and press the ↵ key.

2 Press again the ↵ key when the message [OK?] appears.

Black signals are output from the PGM connector of the SDI and DVI-D connectors to projectors without shutter function.

◆ **NOTE**

- **If the communication is interrupted during control of the projector, operational consistency may not be maintained between this unit and the projector. (For example, if the communication cable is disconnected after the shutter is turned off from the unit, the black signal is output from the PGM connector.)**
- **This unit monitors the condition of the projector at regular intervals.**
  During projector monitoring, * appears on the screen, disabling this unit to control the projector.**

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Bold and italicized page numbers (***00***) indicate pages in Volume 2, while the other page numbers (00) indicate pages in Volume 1.

O

P

R

S

T

V

W

List of Transition Patterns

Legends

- There is a case in which two or more numbers are set for one pattern (duplicate numbers).
  Example: The same Mtrix pattern is called regardless of whether 24 or 701 is specified.
- When transition is executed by specifying the number in the columns for which "+Diss" is shown, transition mix (Dissolve) is performed.
  Example: The same Slide1 pattern is called regardless of whether 43 or 1311 is specified. However, when transition is executed with 43 or 1311 specified, transition wipe or transition mix is performed, respectively.
- The COMP SINGLE, COMP BOTH, SLIDE, MULTI, and Blinds patterns are the basic patterns with the corresponding MODIFY effects applied as shown by the arrow marks (→ page Vol.2-3). (**Example:** When SLIDE as the MODIFY effect is applied to the No. 1 basic pattern, the No. 43, 1301, or 1304 pattern is generated.)

+Diss: This denotes a pattern to which the dissolve effect can be applied.
A: Temporary change of aspect ratio is available (→ page Vol.1-35).
O: One-way function is available (→ page Vol.1-34). (Only when [BUS] in the [SETUP] menu is set to [AB].)
R: Reverse function is available (→ page Vol.1-35).
XY: XY position adjustment with the joystick is available (→ page Vol.1-34).
Z: Z position adjustment with the joystick is available (→ page Vol.1-34).

*1 Any SLIDE pattern cannot be used for the downstream key.

Basic	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	A, O, R, XY	A, O, R, XY	A, O, R, XY	A, O, R, XY	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R

+COMP SINGLE

COMP SINGLE																					
Duplicated +Diss	28 1501 1521	29 1502 1522	30 1503 1523	31 1504 1524	36 1505 1525	37 1506 1526	38 1507 1527	39 1508 1528	40 1509 1529	41 1510 1530		42 1511 1531	128 1512 1532		129 1513 1533								
	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R		O,R	A, O, R, XY		A, O, R, XY								

+COMP BOTH

COMP BOTH																					
Duplicated	32 1541	33 1542	34 1543	35 1544	130 1545	131 1546	132 1547	133 1548													
	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R													

+SLIDE

SLIDE*1																					
Duplicated +Diss	43 1301 1311	44 1302 1312	45 1303 1313	46 1304 1314	51 1505 1315	52 1306 1316	53 1307 1317	54 1308 1318													
	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R													

+MULTI

MULTI																					
	63	64	65	66	67	68	69	70								71	72	73	74	75	76	77	78
	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R								O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R

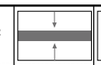
+Blinds

Blinds																							
	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	100	101	102
	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	A, O, R, XY	A, O, R, XY	A, O, R, XY	A, O, R, XY	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R

Basic2																LUM	CUT MIX	SAT MIX
Duplicated	183 801	184 802	185 803	186 804	187 805	188 806	189 807	190 808	191 809	192 810	193 811	194 812	195 813	196 814		197 1082	198 1083	199 1084
	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R	O,R				

Mtrix							
Duplicated	24 701	25 702	26 703	27 704	705	706	707
	O,R	O,R	O,R	O,R	O,R	O,R	O,R

MIX					NAM
Duplicated	55 1010	56 1080	57	58	60*3 1081
			O, R	O, R	

Tumble*2		
Duplicated	141 1549	142 1550
	O,R	O,R

DVE*1 BPreset*2	Mosaic XY	Mosaic X	Mosaic Y	Defocus	H Mirror	V Mirror	HV Mirror	Nega YC	Nega Y	Nega C	Mono	Paint	CUT	Still Field	Still Fram	Strobe	4Multi Strob	9Multi Strob	16Multi Strob	Decay	Video Fa B	Color Fa B	V+C Fa B
Duplicated	200 1001	201 1002	202 1003	203 1004	204 1021	205 1022	206 1023	207 1030	208 1031	209 1032	210 1033	211 1034	212 1059	213 1060	214 1061	215 1062	216 1063	217 1064	218 1065	219 1066	220 1067	221 1068	222 1069

Shutter*1*4				
Duplicated	223 1091	224 1092	225 1093	226 1094
	O,R	O,R	O,R	O,R

Direct Pattern	DT 1	DT 2	DT 3	DT 4	DT 5	DT 6	DT 7
	241	242	243	244	245	246	247

Panel	Panel	Panel
	0	99
	O,R	O,R

*1 Any DVE or Shutter pattern cannot be used for the downstream key.

*2 When a DVE Bpreset pattern is selected, the pattern with the effects corresponding to the number specified for the MIX (65) pattern is called.

*3 When the No. 60 (1081) pattern is being used, the switched video cannot be previewed even if the transition lever is set to the A or B side and the ME PVW button is pressed.

*4 When these patterns are used, it is not possible to execute transition with the transition lever. Use the AUTO TAKE button to execute transition.

List of Key Patterns

Legends

- There is a case in which two or more numbers are set for one pattern (duplicate numbers).
  Example: The same Basic Key pattern is called regardless of whether 62 or 3101 is specified.
- When the number in the columns for which "+Diss" is shown is specified, a pattern with the dissolve effect added is called.
  When the number in the columns for which "Exp" is shown is specified, a pattern with the expand effect (pattern appearance with expansion) added is called.
  When the number in the columns for which "Diss+Exp" is shown is specified, a pattern with the dissolve effect and expand effect added is called.

+Diss: This denotes a pattern to which the dissolve effect can be applied.
EXP: This denotes a pattern that appears as expanding.
EXP+Diss: This denotes a pattern that appears as expanding and with the dissolve effect.
A: Temporarily change of aspect ratio is available (→ page Vol.1-36).
K: Key learn setting is available (→ page Vol.2-9).
R: Reverse function is available (→ page Vol.1-36).
S: Scene Grabber function is available (→ page Vol.1-36).
XY: XY position adjustment with the joystick is available (→ page Vol.1-36).
Z: Z position adjustment with the joystick is available (→ page Vol.1-36).

Basic Pattern Key						
+Diss Exp Exp+Diss	3001 3021 3041	3002 3022 3042	3003 3023 3043	3004 3024 3044	3005 3025 3045	3006 3026 3046
	A, K, R, S, XY, Z	A, K, R, S, XY, Z	A, K, R, S, XY, Z	A, K, R, S, XY, Z	A, K, R, S, XY, Z	A, K, R, S, XY, Z

Basic Key	CHR	LUM	EXT
Duplicated	62 3101	61 3102	59 3103
	R	R	R

PinP				
+Diss Exp Exp+Diss	3301 3311 3321	3302 3312 3322	3303 3313 3323	3304 3314 3324
	A, K, XY, Z	A, K, XY, Z	A, K, XY, Z	A, K, XY, Z

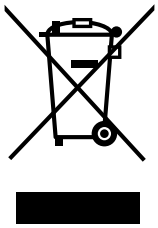
Spot Light		
+Diss Exp Exp+Diss	3305	3315 3325
	A, K, R, S, XY, Z	A, K, R, S, XY, Z

Key Learn	Key Learn1	Key Learn2	Key Learn3	Key Learn4	Key Learn5	Key Learn6	Key Learn7	Key Learn8	Key Learn9	Key Learn10	Key Learn11	Key Learn12	Key Learn13	Key Learn14	Key Learn15	Key Learn16	Key Learn17	Key Learn18	Key Learn19	Key Learn20
	9000	9001	9002	9003	9004	9005	9006	9007	9008	9009	9010	9011	9012	9013	9014	9015	9016	9017	9018	9019

Title	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8	T-9	T-10	T-11	T-12	T-13	T-14	T-15	T-16	T-17	T-18	T-19	T-20	T-21	T-22	T-23
+Diss	9501	9511	9521	9531	9541	9551	9561	9571	9581	9591	9601	9611	9621	9631	9641	9651	9661	9671	9681	9691	9701	9711	9721
Title	T-24	T-25	T-26	T-27	T-28	T-29	T-30																
+Diss	9731	9741	9751	9761	9771	9781	9791																

Direct Pattern	DK 1	DK 2	DK 3	DK 4	DK 5	DK 6
	248	249	250	251	252	253

Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)



This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.
For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.
Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.
Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union
If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union
This symbol is only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

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AG-HMX100

Digital AV Mixer

3D PROFESSIONAL

HD/SD and 3D Compatible Digital AV Mixer

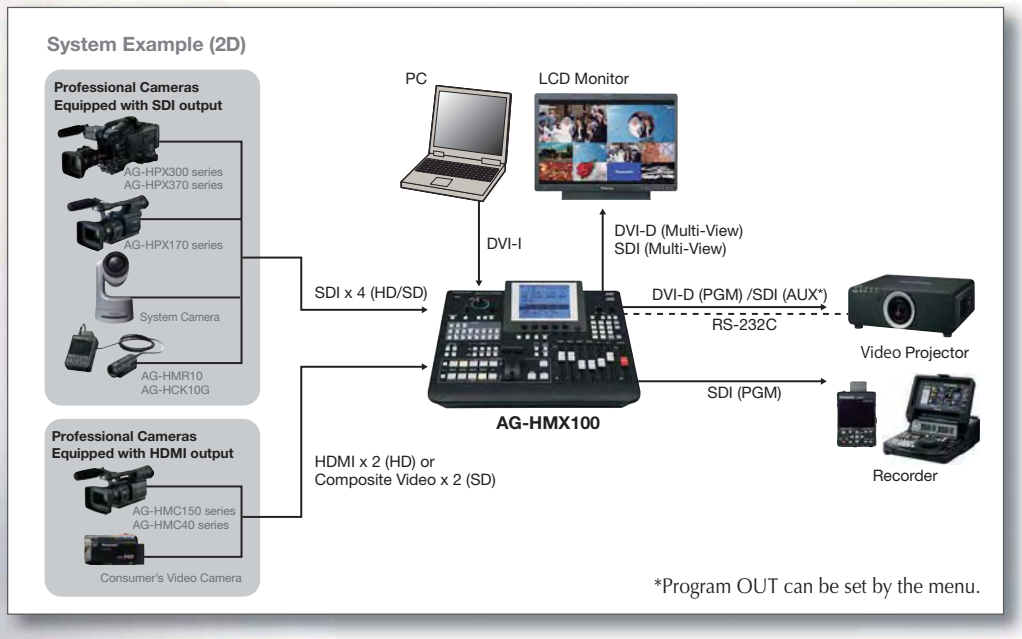
INTEGRATED DIGITAL A/V MIXER

Live Relays with a Com
Versatile HD

pact, All-in-One, Easy-to-Use, Low-Cost System.
/SD Multi-Format Use, and 3D Image Switching.

picture simulated

The AG-HMX100 is a compact, all-in-one, digital AV mixer with a built-in HD/SD multi-format*1 video switcher, audio mixer, frame synchronizer and digital effector. It serves as an audio/video switcher, adds a variety of effects, and transmits signals - all by itself.
A Multi-View function displays all source images on a single monitor, while keeping the system configuration simple and clean. Users benefit from easy delivery, set-up and removal at event sites, as well as low-cost operation. Wide-ranging SDI (HD/SD), PC (DVI-I) and HDMI (HD only) inputs, versatile digital effects, and comfortable Matrix Menu operation join with advanced functions, such as control of Panasonic professional projectors,*2 to configure a low-cost system that supports a wide variety of applications, from live relays and broadcasting to production.
The AG-HMX100 can also operate as a 3D video switcher with dual SDI inputs.*3 By combining it with several 3D cameras and 3D projectors, it can serve as a 3D live switching system for low-cost, easy-to-use, 3D image broadcasting and production systems.



- **HD/SD multi video format compatibility.*1**
- **Digital interfaces of SDI (HD/SD) input/output and HDMI (HD) input.**
- **DVI-I input accommodates both motion and still images from a PC.**
- **Multi-View function displays Preview (PVW), Program (PGM), and all source images on a single monitor.**
- **A waveform monitor (WFM) is built-in, and source names and audio levels are superimposed on the monitor.**
- **Remote control of power on/off and shutter on/off for the Panasonic projectors*2.**
- **Supports switching of 3D images, using dual SDI inputs.*3**

*1: Mixed operation of different video formats (1080i/720p, HD/SD and 50Hz/59.94Hz) is not possible.
*2: Limited to models with an RS-232C interface. *3: Effects are not supported.

HD/SD Digital AV Mixer Functions

HD/SD Multi-Format High-Quality Image Processing

The AG-HMX100 supports 1080i/720p HD and SD images (see table below). A wipe pattern lets you switch between 16:9 and 4:3 aspect ratios. Full 4:2:2:4 digital component 12bit internal processing ensures broadcast-grade images.

Supported Video Format

Video Input	Video Format	
HD (SDI/HDMI)	1080/59.94i	
	1080/50i	
	720/59.94p	
	720/50p	
SD (SDI/VIDEO)	480/59.94i	
	576/50i	
PC (DVI-I)	1080/60p	1920 x 1080 (60Hz)
	1080/50p	1920 x 1080 (50Hz)
	SXGA	1280 x 1024 (60Hz)
	WXGA	1280 x 768 (60Hz)
	XGA	1024 x 768 (60Hz)

* Mixed operation of different video formats (1080i/720p, HD/SD and 50Hz/59.94Hz) is not possible. PC (DVI-I) can be input to any system format, but it would be resized to match and displayed.

7 Video Inputs with PC Image Support and 6 Video Outputs

- **7 video inputs:** SDI (HD/SD switchable) x 4 channels, HDMI (HD only/HDCP and VIERA Link not supported) or video (composite) x 2 channels, and a DVI-I input capable of inputting motion or still images from a PC. This provides up to 7 channels of video input.
- **6 video outputs:** 4 SDI outputs (Program (PGM), Preview (PVW), Multipurpose (AUX), and Multi-View), and 2 DVI-D outputs (Program (PGM) and Multi-View).

Transitions and Digital Effects

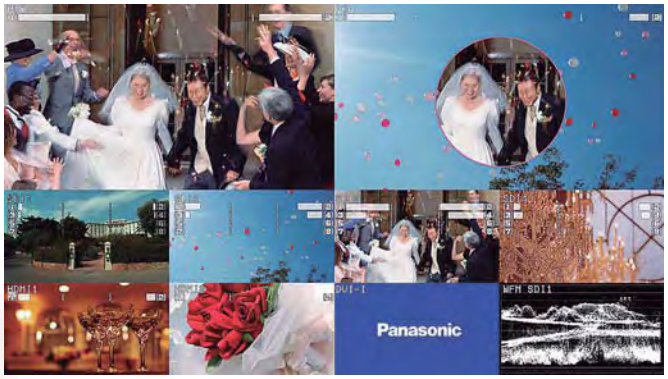
- **Transitions:** Over 100 wipe patterns and mixes combine with effects like chroma keying, luminance keying, DSK, and fading. M/E preview and DSK preview are also supported.
- **Digital Effects:** Built-in digital effects include mosaic, defocus, monocolor, still, strobe, multi-strobe, decay, paint, negative and mirror. Still, strobe and multi-strobe effects allow selection of field or frame displays.

Embedded Digital Audio and Analog Audio Mixing

• **10 audio inputs:** Select up to 8 audio inputs from 4 SDI embedded audio inputs (L/R), 2 HDMI embedded audio inputs (L/R), and 4 XLR audio inputs (L/R). You can mix the 10 audio sources, including AUX input and MIC input, using a fader control.
• **Audio output:** SDI embedded audio is output from PGM, PVW, and AUX terminals, and has XLR (L/R) and pin terminal (L/R) analog outputs.
• **Audio effects:** Pan, 3 band equalizer, voice changer (pitch/level), and mute.
• **Level meter:** Displayed as a Multi-View overlay on the LCD screen.

New Multi-View Function, Built-in Waveform Monitor

The Multi-View function and Multi-View output terminal (SDI/DVI-D) provide a split display of the PVW, PGM, and all source images on a single screen. Displays of each of the input signal names and audio level meters can also be overlaid. The built-in Waveform Monitor (WFM) function displays the waveforms of video Y signals, allowing multi-channel systems to be operated with a single monitor.



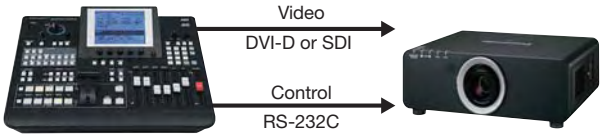
Multi-View Screen (simulated image)

Matrix Menu and Rotary Switch

The large LCD panel allows easy monitoring of system status.
The 5 column, 3 row matrix menu automatically displays setting items according to the operating status, so the relevant settings can be quickly checked or changed. Settings that have a large number of selections can also be quickly and intuitively displayed and set by using the rotary switch. This provides easy, comfortable settings control for the AG-HMX100's many diverse functions.

Projector Control Function

The power switch and shutter for Panasonic professional projectors can be turned on and off by RS-232C remote control. This allows convenient projector use during live events.



AG-HMX100 Projector

Functions for More Comfortable Operation

• **Pattern preset:** Up to 7 transition patterns and 6 key patterns can be directly registered, for retrieval with a single touch.
• **Event memory:** Records the setting conditions of the effects.
Over 100 settings can be stored in memory, and instantly retrieved with pattern numbers.
• **Key learn:** Records and retrieves the key frame settings (positions/levels/modifiers) and reproduces animation effects. Up to 20 patterns can be stored in memory, with a maximum of 20 frames per pattern.
• **Joystick controller:** Enables intuitive operation of effect position setting and color correction/color selection.
• **Numerical keypad:** For setting numbers, such as pattern numbers.

Versatile Interfaces

• **Tally:** Outputs support up to eight input sources. Ideal for live relays.
• **GPI:** Visual effects including key/transition, downstream key, and fading can be externally controlled with GPI trigger signal inputs.
• **AUX output:** Select from PGM/PVW/Multiview output signals, or an SDI/HDMI input through-out signal.

Power-Saving Eco Design

• **Power-saving design:** HD images are supported, while power consumption is decreased by 15% compared to our previous SD-Type AG-MX70 model.
• **Power management:** This function automatically switches the power off when there is no input or operation for a preset period of time. Can be powered on with a secondary switch on the control panel.

AG-HMX100 Rear

Professional HD 3D Production System Functions

A Professional HD 3D Production System

The AG-HMX100 Digital AV Mixer fully supports the Panasonic shift toward 3D world. Combined with the Panasonic AG-3DA1 Integrated Twin-Lens 3D Camera Recorder, and the 3D-compatible BT-3DL2550 Professional LCD Video Monitor, which lets you view 3D footage on-site, this professional HD 3D production system makes it easy to produce and transmit high-quality 3D images.

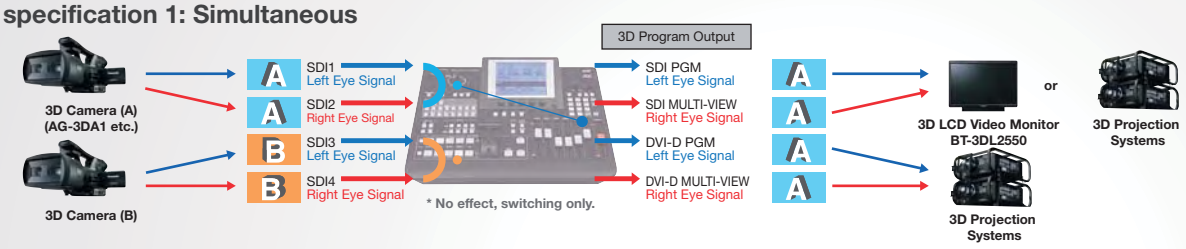
Supports Switched Transmission of 3D Camera Images

The AG-HMX100 can operate as a 3D video switcher with dual SDI signal inputs from 3D cameras. It comes with two pairs of inputs and one pair of outputs for 3D video signals. It is possible to configure a 3D live switching system by combining it with several 3D cameras and 3D projection systems. Both Simul and Side-by-Side 3D output methods are supported. When two AG-HMX100 units are connected, they can serve as a 3D video switcher for up to four 3D cameras.

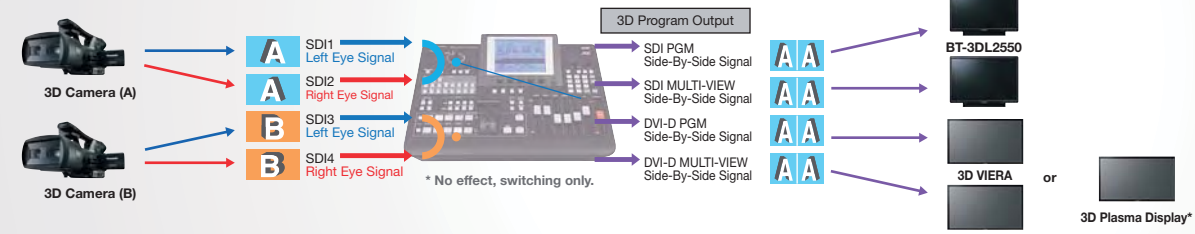
*Only the switcher function operates. Effects such as ME cannot be used. Other functions, such as Multi-View, WFM, and title mix, are not supported. For details, visit the 3D special site. (http://pro-av.panasonic.net/en/3d/)

Switching specifications in 3D mode

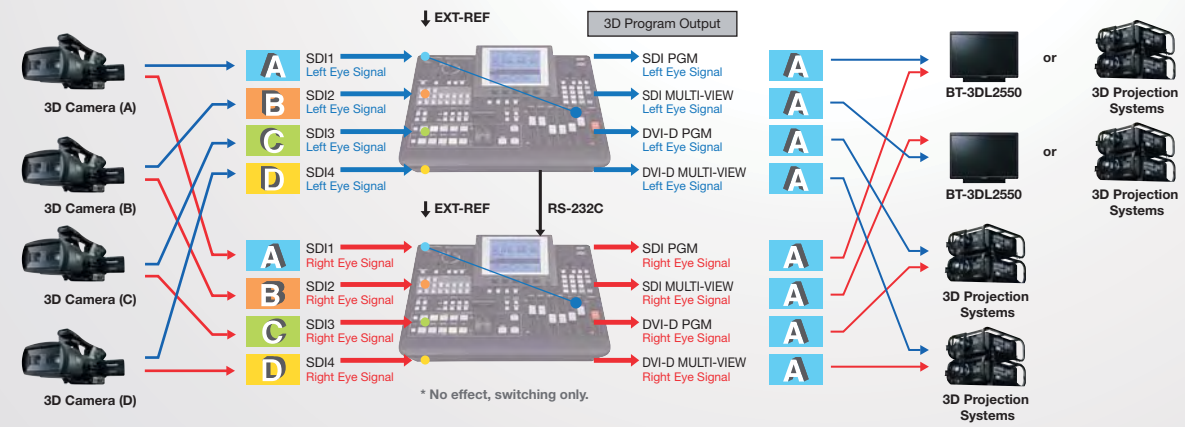
specification 1: Simultaneous



specification 1: Side-By-Side



specification 1: Simultaneous



Supported signals: 1080/59.94i, 1080/50i, 720/59.94p, 720/50p, 1080/23.98psf

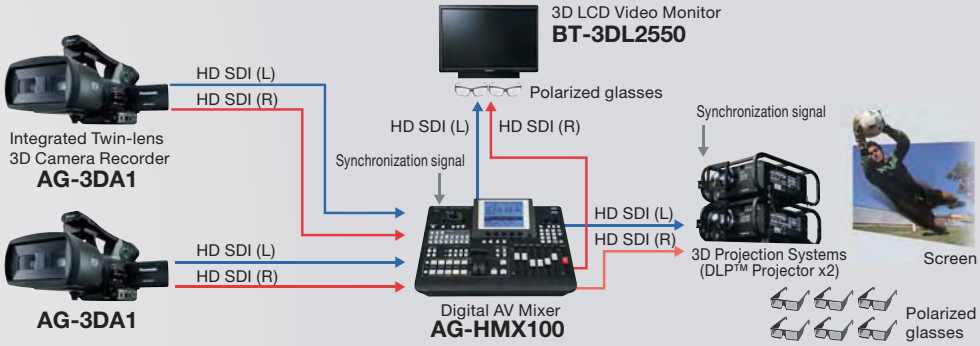
*3D Plasma Display is scheduled for release in Autumn of 2010. Please refer to the latest 3D Plasma Display Information at Panasonic website. < http://panasonic.net/proplasma/ >

picture simulated

3D system configuration example

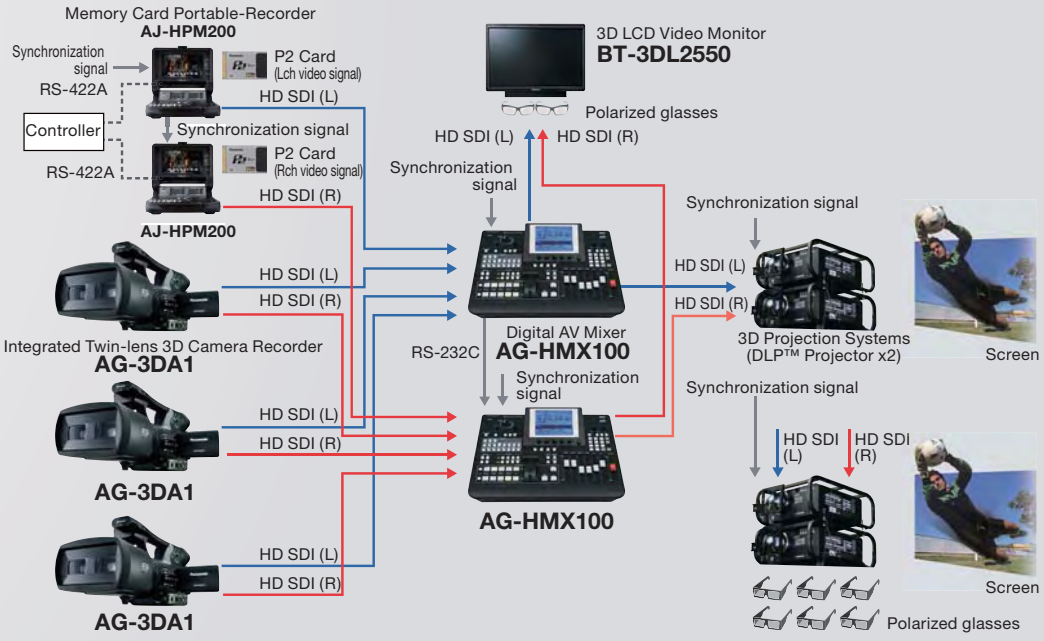
3D Live Display System

This system produces 3D live images by using two AG-3DA1 Integrated Twin-Lens 3D Camera Recorders and switching the image transmission for display on a professional DLP® projector. It is also possible to monitor the PGM image with the BT-3DL2550 3D-Compatible LCD Monitor.



3D x 4-Input System

This 4-input switching system creates 3D content by using two P2 Mobile units to combine the images from three 3D cameras. When two AG-HMX100 units are connected, they can serve as a 3D video switcher for up to four 3D cameras. Dynamic 3D live videos can be displayed on a large screen for high-brightness, high-contrast 3D projection by using two professional DLP® projectors.



Specifications (As of August, 2010)

GENERAL

Power Source:	100 V — 240 V AC, 50 Hz/60 Hz
Power Consumption:	60 W
Operating Temperature:	5 °C to 40 °C (41 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Storage Temperature:	–20 °C to 60 °C (–4 °F to 140 °F)
Storage Humidity:	10 % to 80 % (no condensation)
Weight:	7.9 kg (17.4 lbs)
Dimensions:	424 mm (W) x 197 mm (H) x 400 mm (D) 16-3/4 inches (W) x 7-3/4 inches (H) x 15-3/4 inches (D)

VIDEO SPECIFICATION

System Format*:	HD: 1080/23.98PsF (for 3D only) 1080/59.94i, 1080/50i, 720/59.94p, 720/50p SD: 480/59.94i, 576/50i *Mixed operation of different video formats (1080i/720p, HD/SD and 50Hz/59.94Hz) is not possible. .
Sampling Frequency:	HD: Y: 74.176 MHz, PB/PR: 37.088 MHz (1080/59.94i, 720/59.94p, 1080/23.98PsF) Y: 74.25 MHz, PB/PR: 37.125 MHz (1080/50i, 720/50p) SD: Y: 13.5 MHz, PB/PR: 6.75 MHz
Signal Processing:	4:2:2:4, 12 bit Internal process

AUDIO SPECIFICATION

Sampling Frequency:	48 kHz
Quantization:	16 bit for HDMI Input, 24 bit for SDI Input, 20 bit for analog input
Frequency Response:	–1.0 dB/1.0 dB at 20 Hz to 20 kHz (digital) –1.0 dB/1.0 dB at 20 Hz to 20 kHz (analog)
Dynamic Range:	More than 90 dB at 1 kHz (digital), More than 85 dB at 1 kHz (analog)
THD:	Less than 0.05 % at 1 kHz (digital), Less than 0.08 % at 1 kHz (analog)
Cross Talk:	Less than –80 dB at 1 kHz, between any two channels (digital) Less than –70 dB at 1 kHz, between any two channels (analog)
Headroom:	20 dB and 18 dB switchable

VIDEO INPUT/OUTPUT

Analog composite input (VIDEO IN):	BNC x 2 sets, 1.0 V [p-p], 75 Ω termination
SDI input:	BNC x 4 sets SD serial digital signal: SMPTE259M-C/272M-A and ITU-R BT.656-4 standards HD serial digital signal: SMPTE292M/296M/299M standards
HDMI input:	HDMI connector x 2 sets (Type A connector), incompatible with HDCP Link and VIERA Link
DVI-I input:	TMDS single link (incompatible with HDCP), compatible with digital/analog RGB
Reference input:	BNC x 2 (with loop-through), 1.0 V [p-p], 75 Ω auto termination Composite signal (NTSC/PAL)
Program (PGM) output:	SDI (BNC) x 1 SD serial digital signal: SMPTE259M-C/272M-A and ITU-R BT.656-4 standards HD serial digital signal: SMPTE292M/296M/299M standards DVI-D x 1, TMDS single link (imcompatible with HDCP)
Preview (PVW) output:	SDI (BNC) x 1 SD serial digital signal: SMPTE259M-C/272M-A and ITU-R BT.656-4 standards HD serial digital signal: SMPTE292M/296M/299M standards
AUX output:	SDI (BNC) x 1 SD serial digital signal: SMPTE259M-C/272M-A and ITU-R BT.656-4 standards HD serial digital signal: SMPTE292M/296M/299M standards
MULTI VIEW output:	SDI (BNC) x 1 SD serial digital signal: SMPTE259M-C and ITU-R BT.656-4 standards HD serial digital signal: SMPTE292M/296M standards DVI-D x 1, TMDS single link (imcompatible with HDCP)
Advanced reference output (ADV-REF):	BNC x 1, 75 Ω Composite signal Sync: 0.286 V [p-p] (NTSC) /0.3 V [p-p] (PAL) Burst: 0.286 V [p-p] (NTSC) /0.3 V [p-p] (PAL)

AUDIO INPUT/OUTPUT

Audio input (AUDIO IN):	XLR: 4 sets (L and R), 4/0/–3 dBm switchable, balanced, 10 kΩ SDI (BNC) (Embedded Audio): 4 sets SD serial digital signal: SMPTE259M-C/272M-A and ITU-R BT.656-4 standards HD serial digital signal: SMPTE292M/296M/299M standards HDMI (Embedded Audio): connector x 2 sets (Type A connector), incompatible with HDCP and VIERA Link
AUX input:	Pin jack x 1 (L and R), –10 dBv, High impedance, unbalanced
Microphone input (MIC):	M6 x 1, –60 dBV, 2 kΩ, monaural, unbalanced
Audio output (AUDIO OUT):	
Program (PGM) output:	XLR x 1 (L and R), 4/0/–3 dBu switchable, Low impedance, balanced SDI (BNC) (Embedded Audio) x 1 SD serial digital signal: SMPTE259M-C/272M-A and ITU-R BT.656-4 standards HD serial digital signal: SMPTE292M/296M/299M standards Pin jack x 1 (L and R), –10 dBV, Low impedance, unbalanced
Preview (PVW) output:	SDI (BNC) (Embedded Audio) x 1 SD serial digital signal: SMPTE259M-C/272M-A and ITU-R BT.656-4 standards HD serial digital signal: SMPTE292M/296M/299M standards
AUX output:	SDI (BNC) (Embedded Audio) x 1 SD serial digital signal: SMPTE259M-C/272M-A and ITU-R BT.656-4 standards HD serial digital signal: SMPTE292M/296M/299M standards
Headphones output (PHONES):	M6 x 1, 8 Ω, stereo, unbalanced, –∞ dBu to –20 dBu

OTHER PORT

TALLY:	D-sub 9 pin, Open-Collector x 8 CH Maximum Current: Less than 50 mA, Maximum Voltage: 35 VDC
GPI:	BNC x 1, Make-Contact
RS-232C:	D-sub 9 pin x 1

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Please refer to the latest Digital AV Mixer Information at Panasonic website.

http://pro-av.panasonic.net/

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Factories of Systems Business Group have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)