Panasonic®

Operating Instructions Vol.1

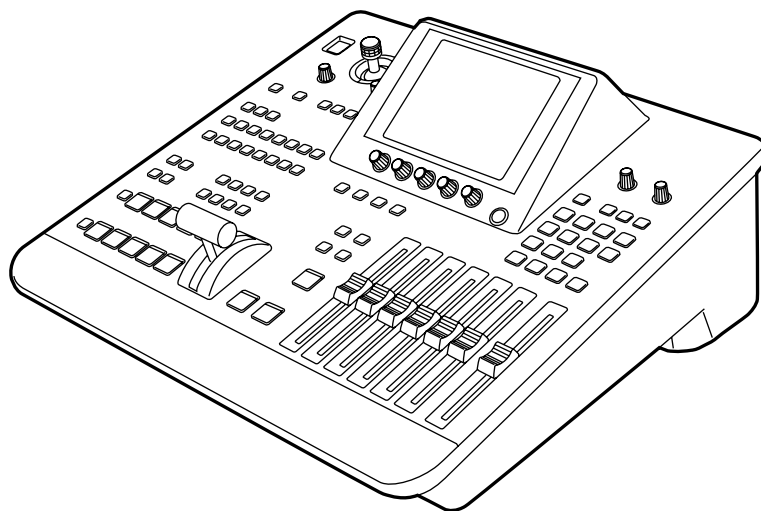## Digital AV Mixer

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.

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.
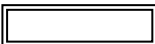
CAUTION:

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.

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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.
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.
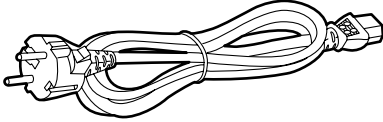
Caution for AC Mains Lead

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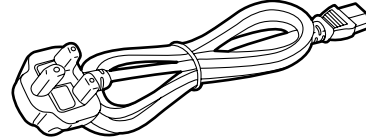
Appropriate mains cable must be used in each local area, since the other type of mains cable is not suitable.

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

FOR U.K. ONLY

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.
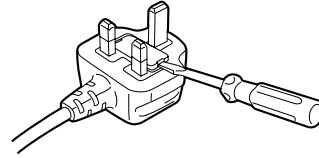
2.Replace the fuse.

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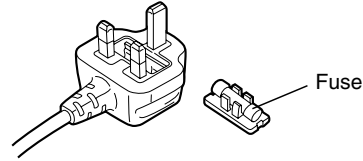- The purchaser/user is urged to use only equipment which has been recommended by us as peripheral equipment to be connected to the apparatus.
- The purchaser/user is urged to use only the connecting cables described below.

<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.

Contents

- "HDMI", the HDMI logo, and "High-Definition multimedia interface" are trademarks or registered trademarks of HDMI Licensing LLC.
- All other company names and product names are trademarks or registered trademarks of their respective companies.

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.

Basic Operation (see "Operation Manual Volume 1 ")

Applied Operation (see the pdf manual in the CD-ROM, "Operation Manual Volume 2 ")

Configuring a system (→ page 16)

Starting the unit (→ page 19)

Setup (→ page 19)
- 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*1 (→ page 27)
- Setting the audio output channels (→ page 27)
- Setting the audio fader (→ page 27)
- Setting the internal video (→ page 28)
- Setting video created on PC (→ page 32)

Operating environment setting (→ page Vol.2-26)
- Setting the System (→ page Vol.2-26)
- Setting the memory (→ page Vol.2-27)
- Setting the audio level (→ page Vol.2-27)
- Setting the external synchronization (→ page Vol.2-28)
- Setting details for connecting PC (→ page Vol.2-28)
- Setting for external interface (→ page Vol.2-28)

Selecting video to use (→ page 33)

Using 3D video (→ page Vol.2-22)

- Adjusting video (→ page Vol.2-13)
- Adjusting/mixing sound (→ page Vol.2-17)
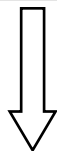
- Setting the video switching (transition) effect (→ page 34)
- Inserting (keying) characters or graphics into video (→ page 35)
- Setting the downstream key (→ page 36)
- Setting the fade effect (→ page 38)

- Setting the transition wipe pattern (→ page Vol.2-3)
- Setting the pattern key (→ page Vol.2-5)
- Setting the chroma key (→ page Vol.2-6)
- Setting the luminance key (→ page Vol.2-7)
- Setting the title key (→ page Vol.2-8)
- Advanced setting for the downstream key (→ page Vol.2-11)

Executing transition or keying (→ pages 34 to 38)

Registering the settings (→ page Vol.2-19)

Checking (previewing) video and sound (→ page 33)

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*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.

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- **. (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)
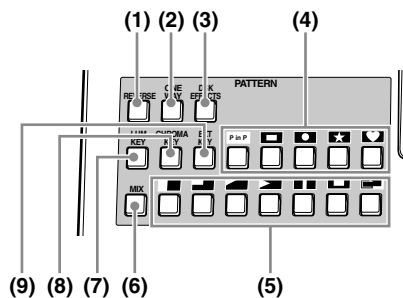
(1) REVERSE button (→ page 36)

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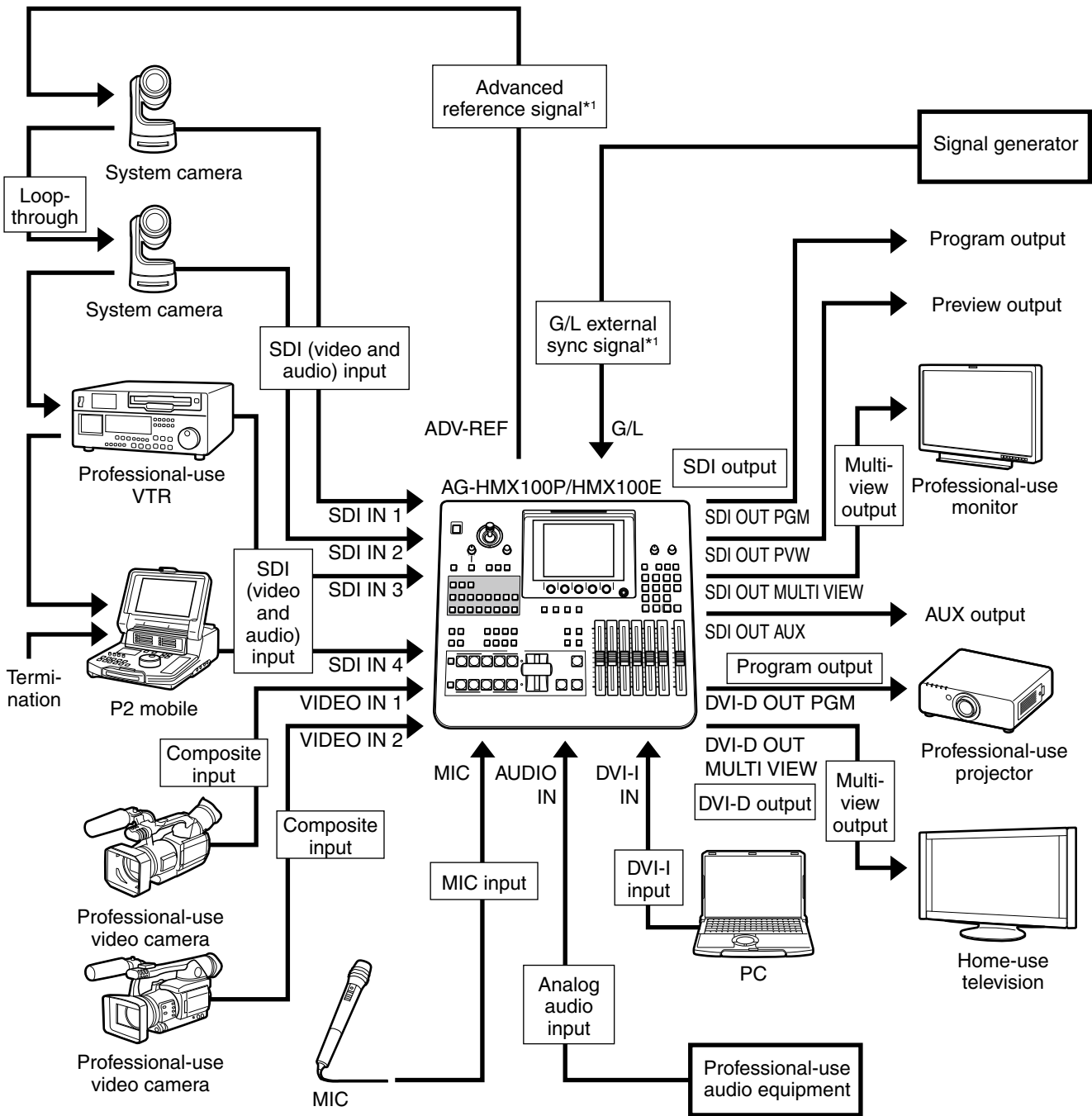
*¹   Advanced reference signal or G/L external sync signal need not necessarily be connected.

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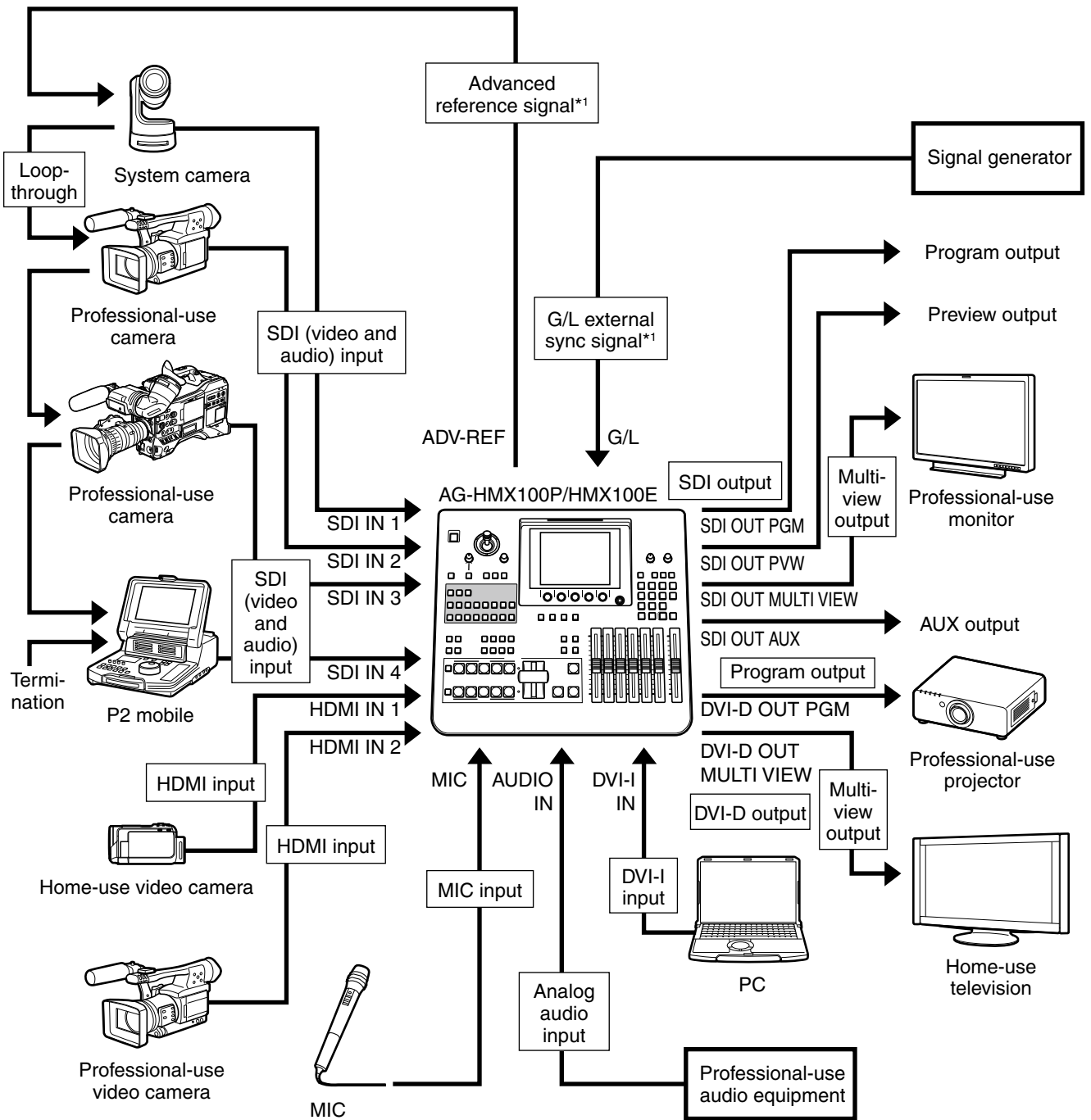
*1 Advanced reference signal or G/L external sync signal need not necessarily be connected.

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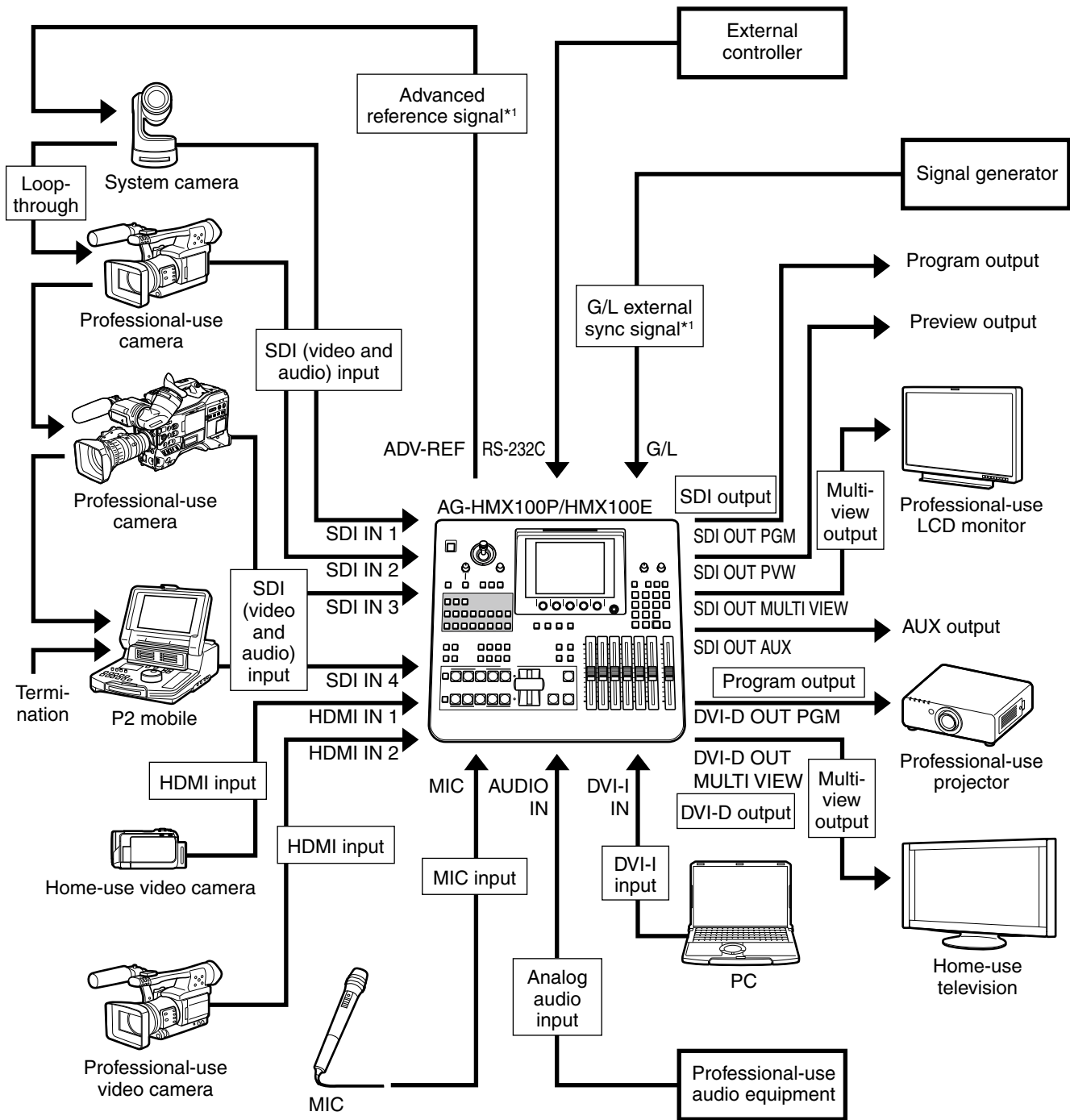
*1 Advanced reference signal or G/L external sync signal need not necessarily be connected.

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   **2**   **3**

```
POS.   X 128   Y 128          ■□□□□□□□□□□□□□□
           Z 196              □□□□□□□□□□□□□□□
                                        FAN STOP
EVENT      ME TIME      PATTERN      INT
00 E       2:00 F       3044         WHT
VIDEO EFFECTS                              CH A
   ▼          ▼          ▼          ▼          ▼
┌─────────┬──────┬──────┬──────┬──────┐
│MOSAIC   │      │      │SIZE  │      │
│         │ OFF  │  XY  │   0  │      │
├─────────┼──────┼──────┼──────┼──────┤
│DEFOCUS  │      │LEVEL │      │      │
│         │ OFF  │   0  │      │      │
├─────────┼──────┼──────┼──────┼──────┤
│MONO     │      │      │      │      │
│         │ OFF  │      │      │      │
└─────────┴──────┴──────┴──────┴──────┘
```
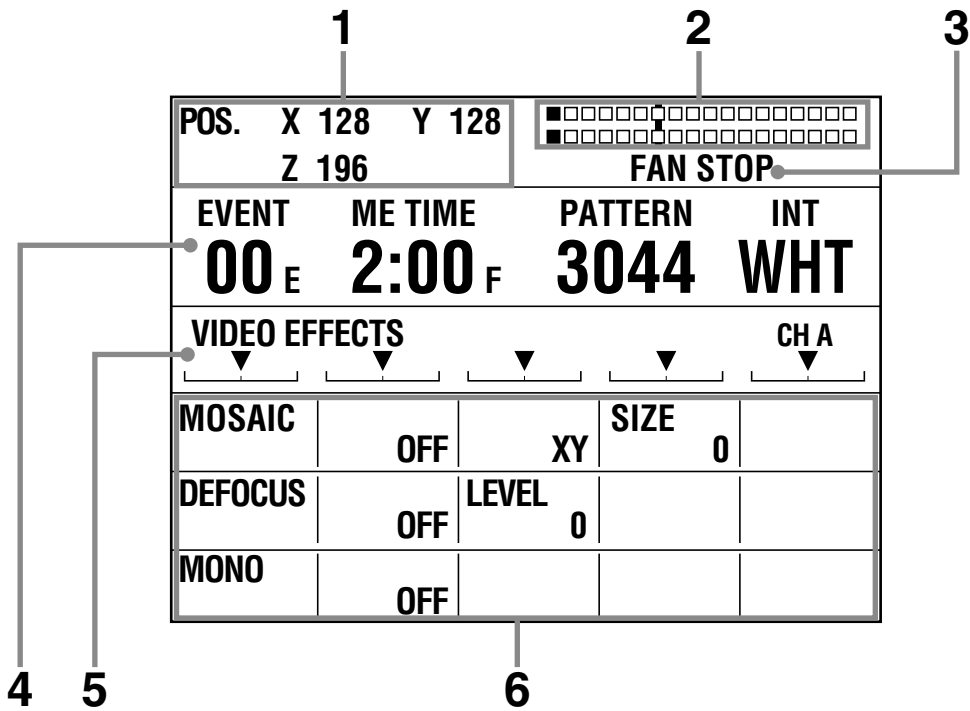
4 5   **6**

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.

Rotary 1   Rotary 2   Rotary 3   Rotary 4   Rotary 5

DIRECT PATTERN	SETUP			

SETUP
DEFAULT

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

POS.	X 128	Y 128	
	Z 196		
EVENT 00 E	ME TIME 1:00 F	PATTERN 0016	INT WHT
DIRECT PATTERN TRANSITION		ENTER TO EXIT	
MODIFY	OFF		
PATTERN EDGE	HARD	WIDTH 0	COLOR WHITE
EFFECTS	OFF		

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

```
POS.   X 128   Y 128   ■□□□□□:□□□□□□□□□□
               Z 196    ■□□□□□:□□□□□□□□□□
─────────────────────────────────────────
EVENT     ME TIME     PATTERN      INT
00 E      1:00 F      3002         WHT
─────────────────────────────────────────
DIRECT PATTERN KEY              ENTER TO EXIT
   ▼         ▼         ▼         ▼         ▼
─────────────────────────────────────────
PATTERN              WIDTH    COLOR     K LEVEL
   EDGE     HARD        16    WHITE        255
─────────────────────────────────────────
EFFECTS
           OFF
─────────────────────────────────────────
KEY            EMPTY
   LEARN          9000         SETUP
```

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	LEVEL	OFF	0-255
	YELLOW	0-255	H1	
	CYAN		H2	
	GREEN		H3	
	MAGENTA	SET	V1	
	RED	BACK M	V2	
	BLUE	WASH	V3	
	BLACK		DIAG1	
	CUSTOM1		DIAG2	
	CUSTOM2			

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
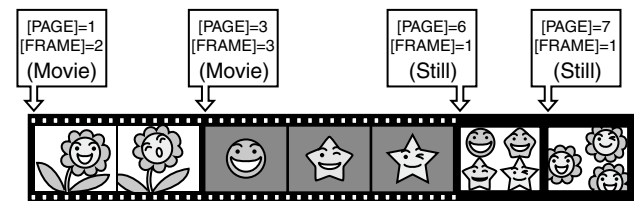
◆ **NOTE**

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)
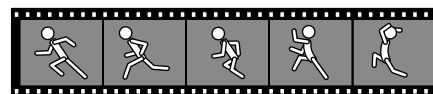
After new video save (PAGE: 3 and FRAME: 5)
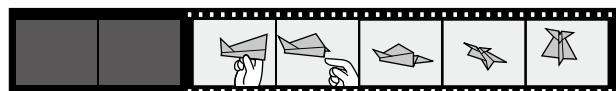
To save still pictures used as internal video

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

◆ **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 (480i)	REPEAT	WRITE	
	1-30 (576i)	1-30 (576i)	ONCE	PREVIEW	
	1-14 (720p)	1-14 (720p)		EXIT	
	1-6 (1080i)	1-6 (1080i)			

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.

Rotary 1   Rotary 2   Rotary 3   Rotary 4   Rotary 5

PC1	ANALOG	FORMAT SXGA		A.SET ON
	ANALOG DIGITAL	XGA WXGA SXGA 1080/50p 1080/60p		_ _ ON OFF

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).

```
PATTERN
0001
```

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].

```
ME TIME
02:00F
```

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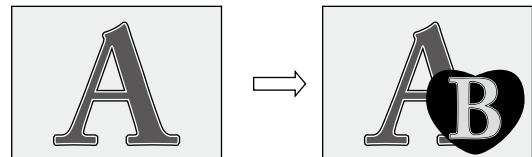
Keying is executed with the transition lever or AUTO TAKE button.

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.

P2 mobile

Professional-use camera

SDI (video and audio) input

SDI IN 3   SDI IN 4

AG-HMX100P/HMX100E

DVI-I IN

DVI-I input

HMX100

PC
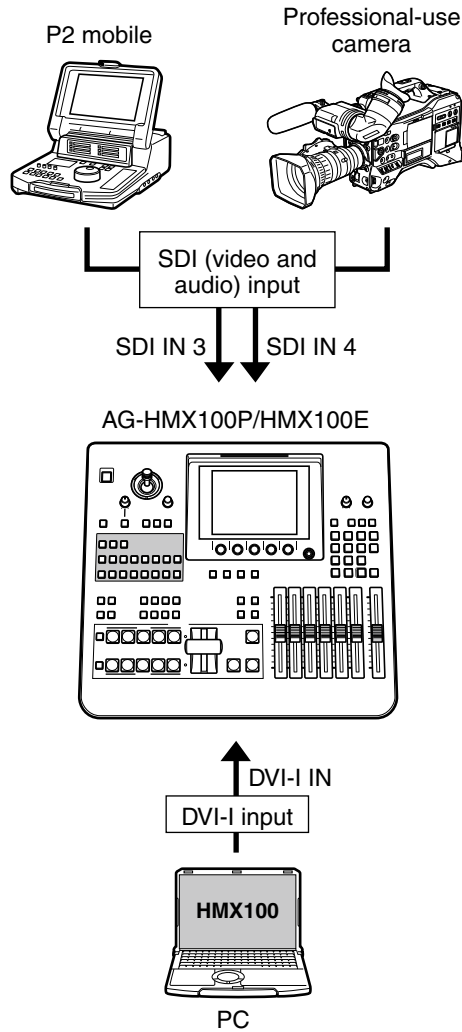
To execute DSK

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.

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[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)

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[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.)

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[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

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[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

Specifications

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

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MEMO

Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)
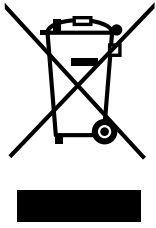
This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

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.

P E