SONY

Multi Format Switcher System

MFS-2000 System

(With MKS-2010/MKS-2015/MKS-2017 Control Panel)

User's Guide English

1st Edition

Software Version 1.00 and Later

NOTICE TO USERS

Table of Contents

Chapter 1 Overview

Introduction

This manual is the User's Guide for the MFS-2000 Multi Format Switcher system.

The MFS-2000 system is comprised of the MFS-2000 Multi Format Switcher Processor, the main unit, and optional system devices such as control panels and system boards.
In place of the official device names, this manual refers to the devices in the system by the names shown in the following table.

Official device name	Name used in this manual
MFS-2000 Multi Format Switcher Processor	The processor
MKS-2010 1 M/E Control Panel	1 M/E panel
MKS-2015 1.5 M/E Control Panel	1.5 M/E panel a)
MKS-2017 1.5 M/E Wide Control Panel	1.5 M/E wide panel a)
MKS-2470 DME Board Set	DME option

a) The term "1.5 M/E system" refers to systems using either the 1.5 M/E panel or the 1.5 M/E wide panel.

System Features

The MFS-2000 system is a compact multi-format switcher system supporting numerous HD and SD signal formats. The principal features of this system are as follows.

Multi-format support

Support for the 480i/59.94 and 576i/50 formats is standard. The optional BZS-2000M Switcher Upgrade Software can be installed to provide support for the following formats.
- 1080i/50, 59.94
- 1080PsF/23.976, 24, 25, 29.97
- 720p/59.94

State of the art special effects

In its standard configuration, the system supports a wide variety of effect patterns, including advanced wipes. Installation of the optional MKS-2470 DME Board Set makes a further array of advanced effects available, such as flip tumble, page turn, and 2ch P in P (two-channel picture-in-picture).

Comprehensive keying capabilities

The system is equipped with two keyers and two downstream keyers. All keyers support chroma keying and special key transitions, independent of background transitions ("independent key transitions").

Optimal for use in live broadcast environment

Compact and lightweight

Both control panels and processor are compact and lightweight, designed for use where space is limited. This is the optimal system for use in small-scale outdoor broadcast vans and editing suites.

Outstanding ease of use

Buttons and other controls on the control panels are grouped in easy to understand functional blocks, facilitating the quick decisions that must be made in a live broadcast environment.
The menu control block features a 6.5-inch color LCD touch panel, for quick menu operation.

Selection of optimal control panel

Any of the following three control panels can be selected for the optimal match to the intended applications and working environment.

- MKS-2010
- MKS-2015
- MKS-2017

See page 8 for the principal differences between these control panels.

Options

The following options are available for the MFS-2000 system.

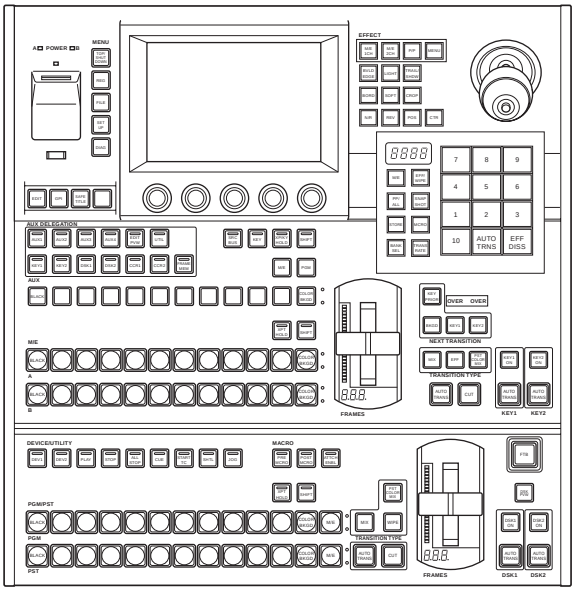
- MKS-2010 1 M/E Control Panel
- MKS-2015 1.5 M/E Control Panel
- MKS-2017 1.5 M/E Wide Control Panel
- MKS-2110M Input/Output Connector Board
- MKS-2470 DME Board Set
- BZS-2000M Switcher Upgrade Software
- BZS-2470M DME Upgrade Software
- HK-PSU02 Power Supply Unit (for MFS-2000)
- HK-PSU11 Power Supply Unit (for control panels)

For more information about these options, refer to the MFS-2000-C Operation Manual supplied with the MFS-2000 Multi Format Switcher Processor.

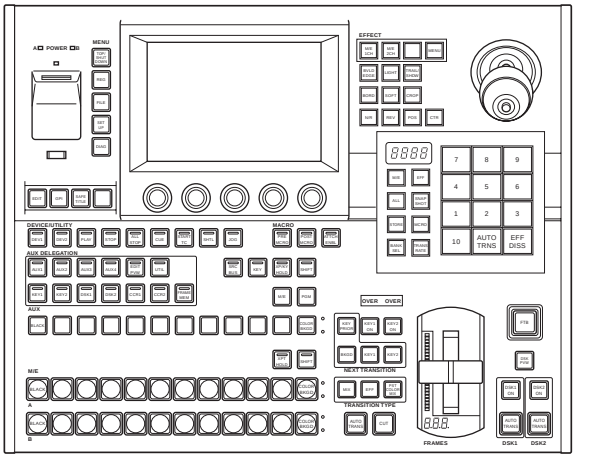
Chapter 2 Names and Functions of Parts

Control Panel Types

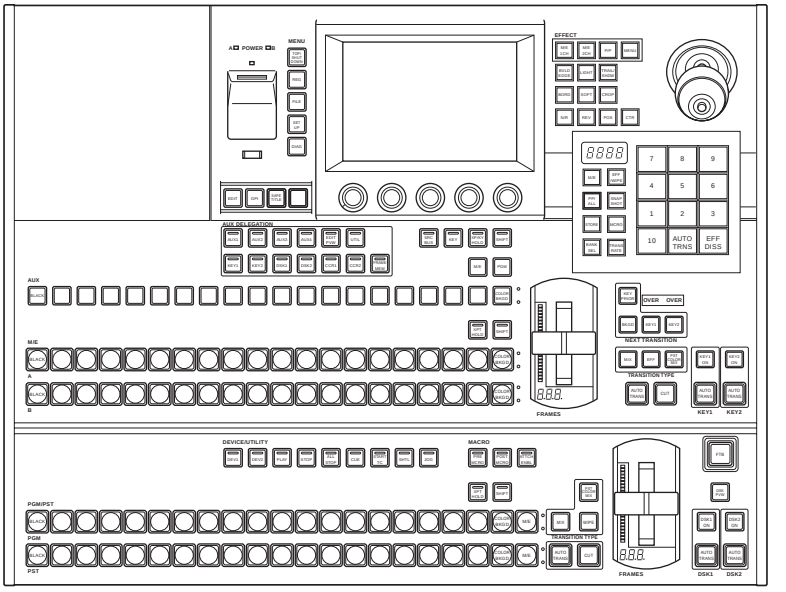
In this system, you can use any one of the three control panels shown on the following page. This manual refers to these control panels by the names shown in parentheses ( ) in the figure on that page.



MKS-2015 Control Panel (1.5 M/E panel)



MKS-2010 Control Panel (1 M/E panel)



MKS-2017 Wide Control Panel (1.5 M/E wide panel)

Principal differences

The principal differences between the three control panels are as follows.

Control panel	PGM/PST cross-point control block, PGM/PST transition control block	Number of cross-point buttons
1 M/E panel	No	12 per row
1.5 M/E panel	Yes	12 per row [a)]
1.5 M/E wide panel	Yes	20 per row [a)]

b) The 1.5 M/E panel and the 1.5 M/E wide panel differ in the number of cross-point buttons. They are identical in all other respects.

Operation button positions

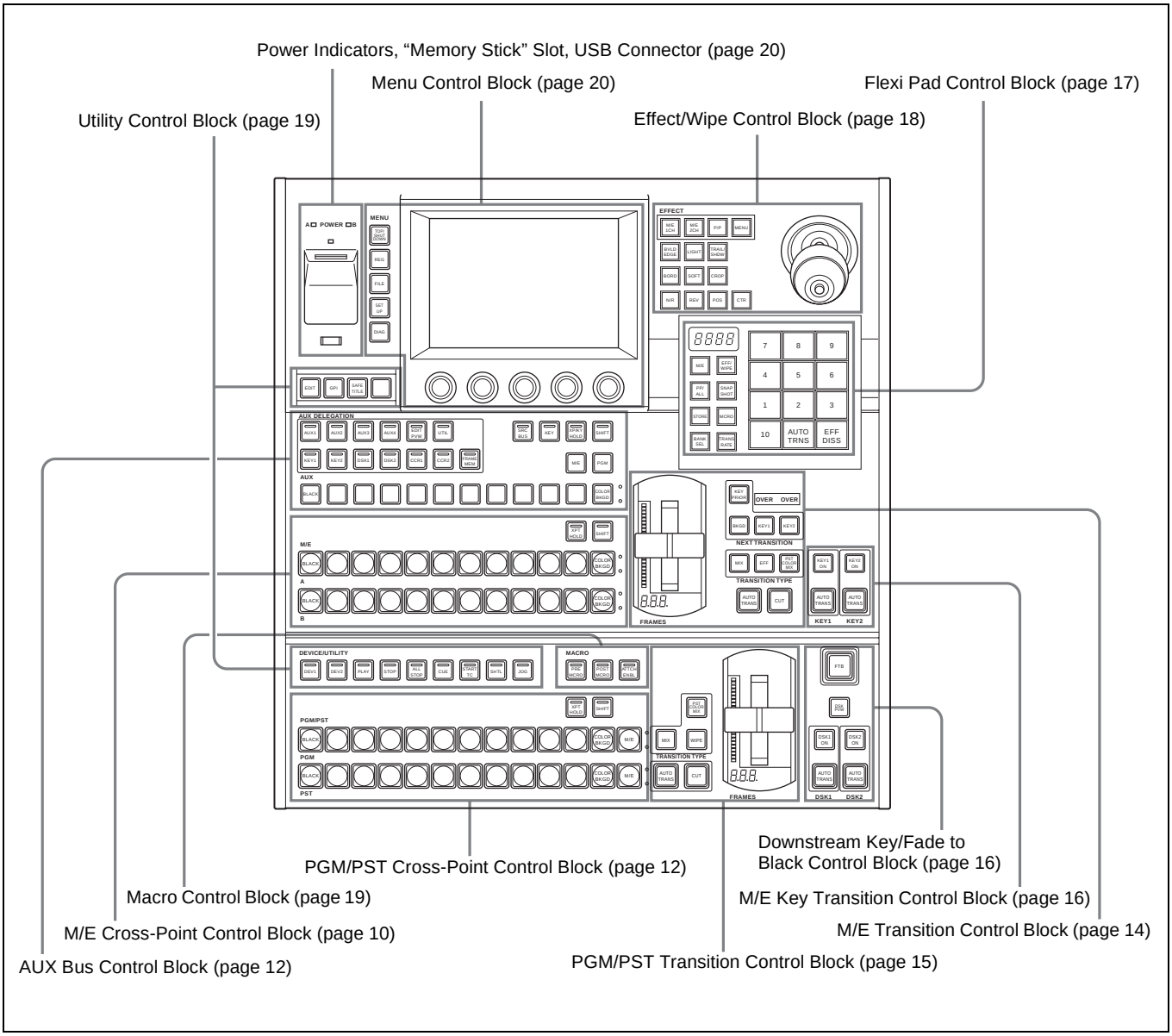
The positions of some operation buttons on the 1 M/E panel are different from the positions of the buttons with the same functions on the 1.5 M/E panel and 1.5 M/E wide panel. This manual explains how to operate using the 1.5 M/E panel, but figures are also provided for the 1 M/E panel when the buttons employed are in different positions.

Control Panel Configuration

1.5 M/E panel and 1.5 M/E wide panel

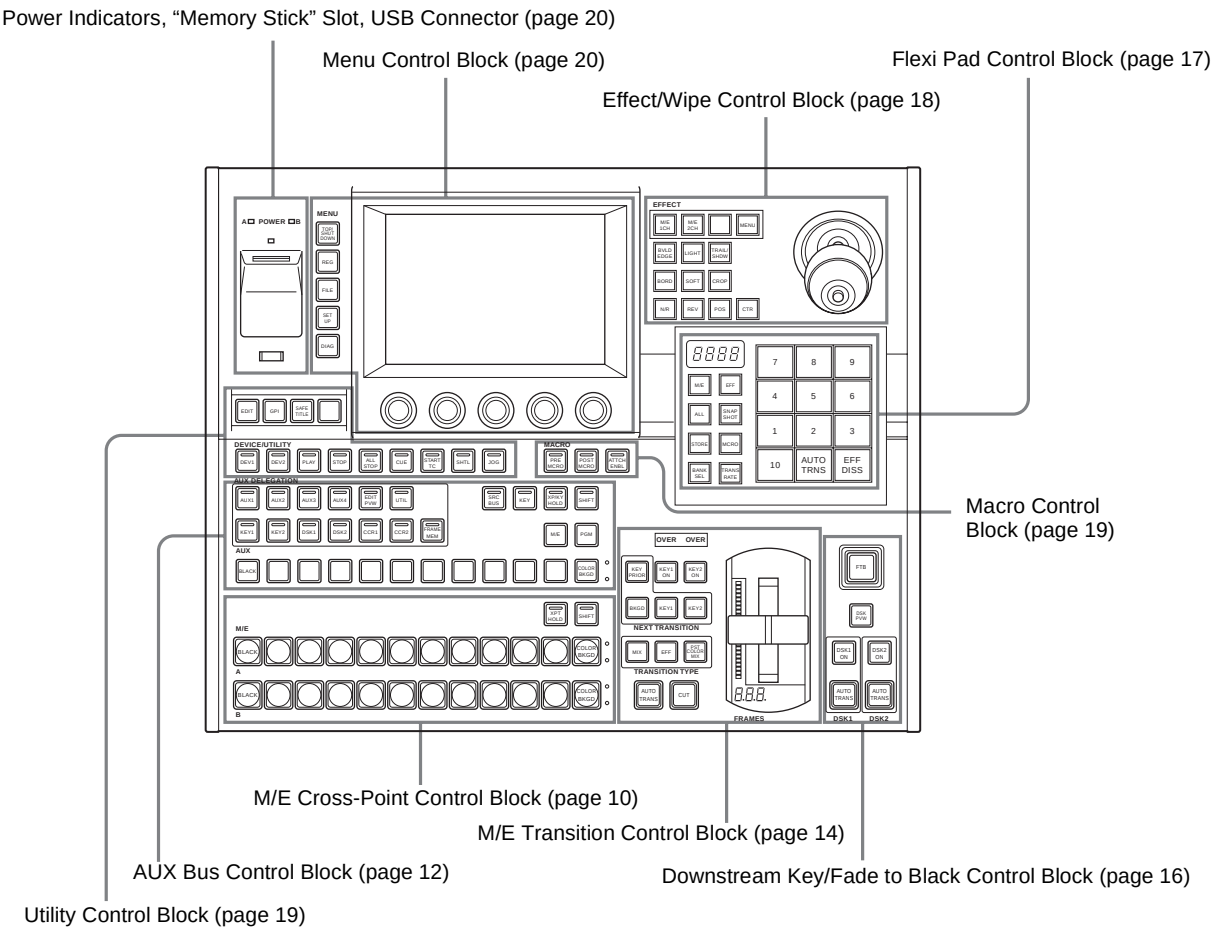
The sole difference between these control panels is the number of cross-point buttons per row. Most of the illustrations in this manual show the configuration of the 1.5 M/E panel.

See the pages in parentheses ( ) for the functions of the illustrated parts.



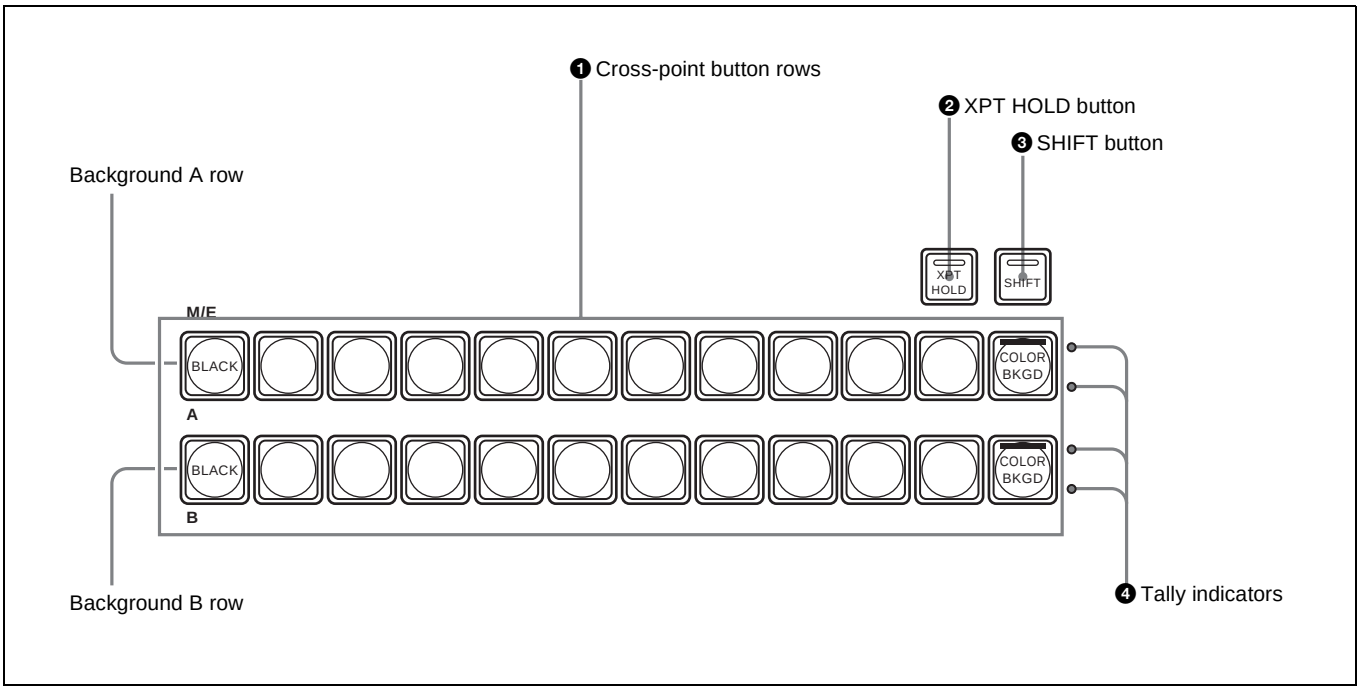
1 M/E panel

See the pages in parentheses ( ) for the functions of the illustrated parts.



M/E Cross-Point Control Block

Use the M/E (mix/effect) cross-point control block to select the video signals to be used as the video background.



❶ Cross-point button rows

Select background video by pressing the corresponding button.

The buttons in the background A row select the background video which is output before the start of a transition (A bus video). Pressing a button selects the signal assigned to that button (input signals to the IN1 to IN16 connectors [1] of the processor, or signals which the processor generates internally). The button lights in red (high tally) if the selected signal is being output to the program video (final output video). Otherwise it lights in amber (low tally).

1) The MKS-2110M Input/Output Connector Board must be installed to use the IN9 to IN16 connectors.

The buttons in the background B row select the background video which is output after a transition (B bus video). The button lights in red (high tally) if the selected signal is being output to the program video. It lights in amber (low tally) if the selected signal is not being output to the program video.

The buttons in the A row and the B row select the same signals. For example, the fifth button from left in the A row selects the same signal as the fifth button from left in the B row.

You can use the Xpt Assign menu to freely change the assignment of signals to cross-point buttons.

For details, see "Assigning Signals to Cross-Point Buttons (Operation Menu)" (page 116).

Cross-point button numbers

On the 1 M/E panel and the 1.5 M/E panel, there are 12 cross-point buttons in each row. On the 1.5 M/E wide panel, there are 20 cross-point buttons in each row. These buttons are numbered 1 to 12 or 1 to 20 from the left side of the panel. Pressing the [SHIFT] button ❸ to turn the shift function on makes more cross-point button numbers available: numbers 13 to 24, or 21 to 40. This manual refers to the buttons available when the shift function is on as "shift side buttons," and to the buttons available when the shift function is off as "non-shift side buttons."

See page 116 for more information about cross-point button numbers.

❷ XPT (cross-point) HOLD button

By pressing this button to turn it on (it lights in amber), you can recall a snapshot while retaining the current cross-point button selection state. (The cross-point selection information in the snapshot is ignored.)

❸ SHIFT button

Press this button, turning it on, to use the cross-point buttons as shift side buttons. Press it again, turning it off, to use the cross-point buttons as non-shift side buttons.

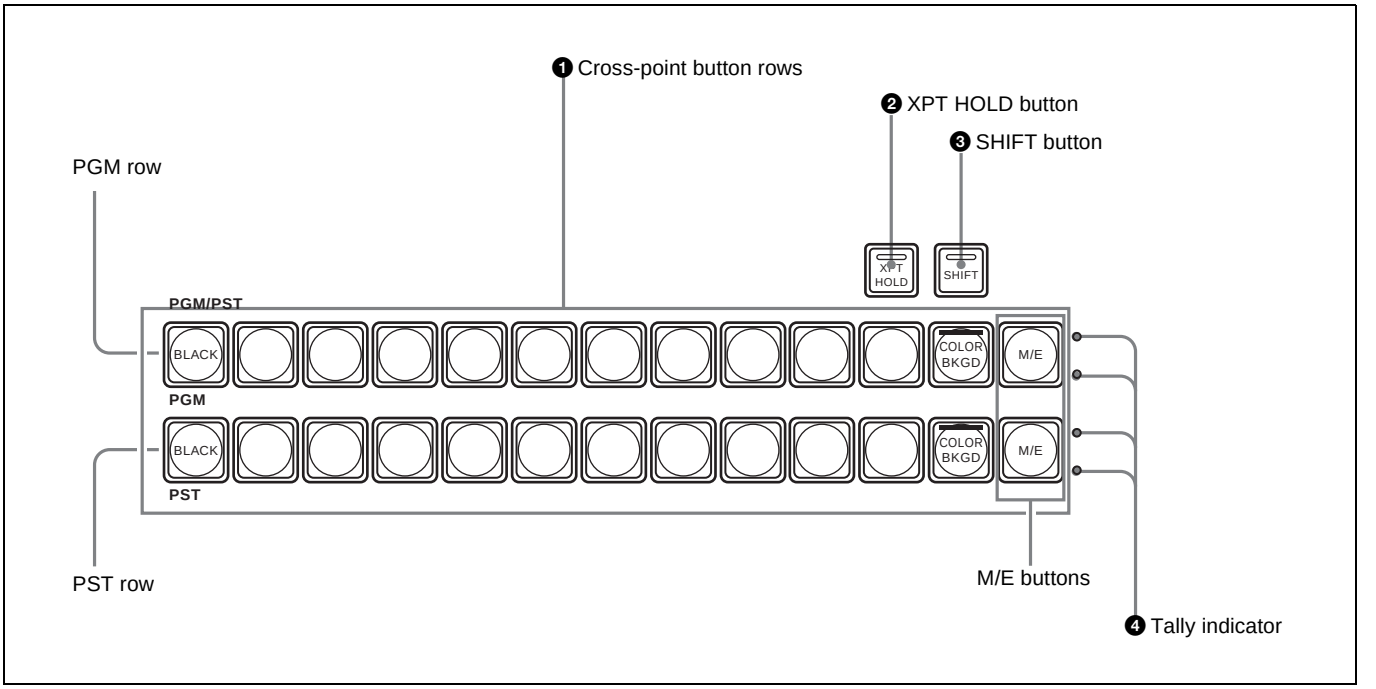
❹ Tally indicators

Currently not used.

PGM/PST Cross-Point Control Block

Use the PGM/PST (program/preset) cross-point control block to select the video signals to be used as the background in program video (final output video).

This control block is found only on the 1.5 M/E and 1.5 M/E wide panels.



❶ Cross-point button rows

The buttons in the PGM (program) row select the background video which is output before the start of a transition. The buttons in the PST (preset) row select the background video after the end of a transition.

The signals selectable with the cross-point buttons are the same as the signals selectable with the corresponding buttons in the M/E cross-point control block *(see page 10)*. The meaning of the colors in which buttons light and button numbers are also the same. The [M/E] buttons at the right edge of each cross-point button row are reentry buttons. They allow you to import video created in the M/E block and use it as background video in the PGM/PST block.

❷ XPT (cross-point) HOLD button

By pressing this button to turn it on (it lights in amber), you can recall a snapshot while retaining the current cross-point button selection state. (The cross-point selection information in the snapshot is ignored.)

❸ SHIFT button

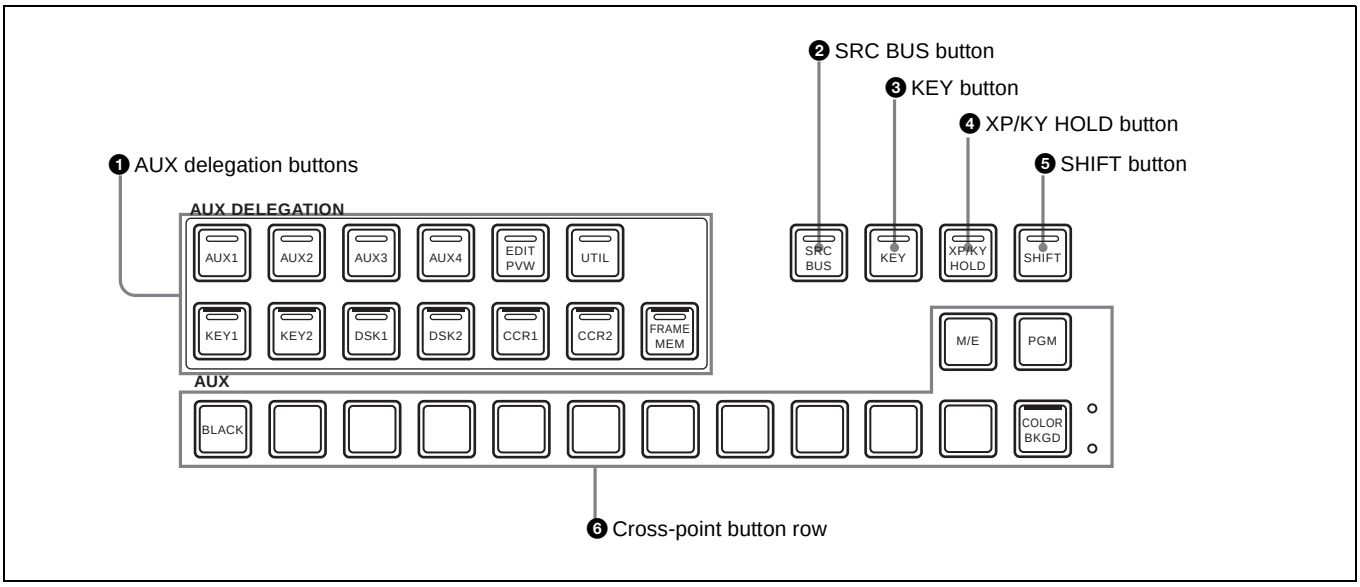
Press this button, turning it on, to use the cross-point buttons as shift side buttons. Press it again, turning it off, to use the cross-point buttons as non-shift side buttons

❹ Tally indicator

Currently not used.

AUX Bus Control Block

Use this block to select key signals and to select the signals to which a variety of functions are applied.



❶ AUX delegation buttons

By pressing one of the following buttons, lighting it, you select the bus to which the cross-point button row ❻ is assigned. Signals selected in the cross-point button row are output to the bus selected here.

The buses selectable by the various buttons are as follows.

AUX1 to 4: AUX1 to AUX4 buses

EDIT PVW: EDIT PVW (edit preview) bus

UTIL: Utility bus

KEY1: Key1 bus or Key1 Source bus. (The state of the [SRC BUS] button ❷ determines which of the two buses is selected.)

KEY2: Key2 bus or Key2 Source bus. (The state of the [SRC BUS] button ❷ determines which of the two buses is selected.)

DSK1: DSK1 (downstream key 1) bus or DSK1 Source (downstream key 1 source) bus. (The state of the [SRC BUS] button ❷ determines which of the two buses is selected.)

DSK2: DSK2 (downstream key 2) bus or DSK2 Source (downstream key 2 source) bus. (The state of the [SRC BUS] button ❷ determines which of the two buses is selected.)

CCR1 and CCR2: CCR1 (color correction 1) or CCR2 bus [1)]

FRAME MEM: Frame Memory bus, or Frame Memory Key bus. [2)] (The state of the [SRC BUS] button ❷ determines which of the two buses is selected.)

1) Currently the color correction function is not supported.
2) Currently the frame memory function is not supported.

The button lights in red (high tally) if signals on the selected bus are being output to the program video (final output video). Otherwise it lights in amber (low tally).

Buttons which target two buses ([KEY1], [KEY2], [DSK1], [DSK2], and [FRAME MEM]) light in red if signals on either of the buses are being output to program video.

❷ SRC (source) BUS button

When an AUX delegation button which targets two buses ([KEY1], [KEY2], [DSK1], [DSK2], and [FRAME MEM]) is turned on, the bus which is actually selected is determined by whether this button is on (lit) or off (not lit).

AUX delegation button	SRC BUS button off	SRC BUS button on
KEY1	Key1 bus	Key1 Source bus
KEY2	Key2 bus	Key2 Source bus
DSK1	DSK1 bus	DSK1 Source bus
DSK2	DSK2 bus	DSK2 Source bus
FRAME MEM	Frame Memory bus	Frame Memory Key bus

❸ KEY button

In the following cases, you can select the key signal in the cross-point button row by pressing this button to turn it on.

- When the AUX delegation button [AUX1], [AUX2], [AUX3] or [AUX4] is lit.
- When the AUX delegation button [KEY1], [KEY2], [DSK1], [DSK2], or [FRAME MEM] is lit with the [SRS BUS] button being on.

❹ XP/KY (cross-point/key) HOLD button

By pressing this button to turn it on (it lights in amber), you can recall a snapshot while retaining the current cross-point button selection state and key settings (“key disable”). (The cross-point selection and key setting information in the snapshot is ignored.)

❺ SHIFT button

Press this button, turning it on, to use the cross-point buttons as shift side buttons. Press this button again,

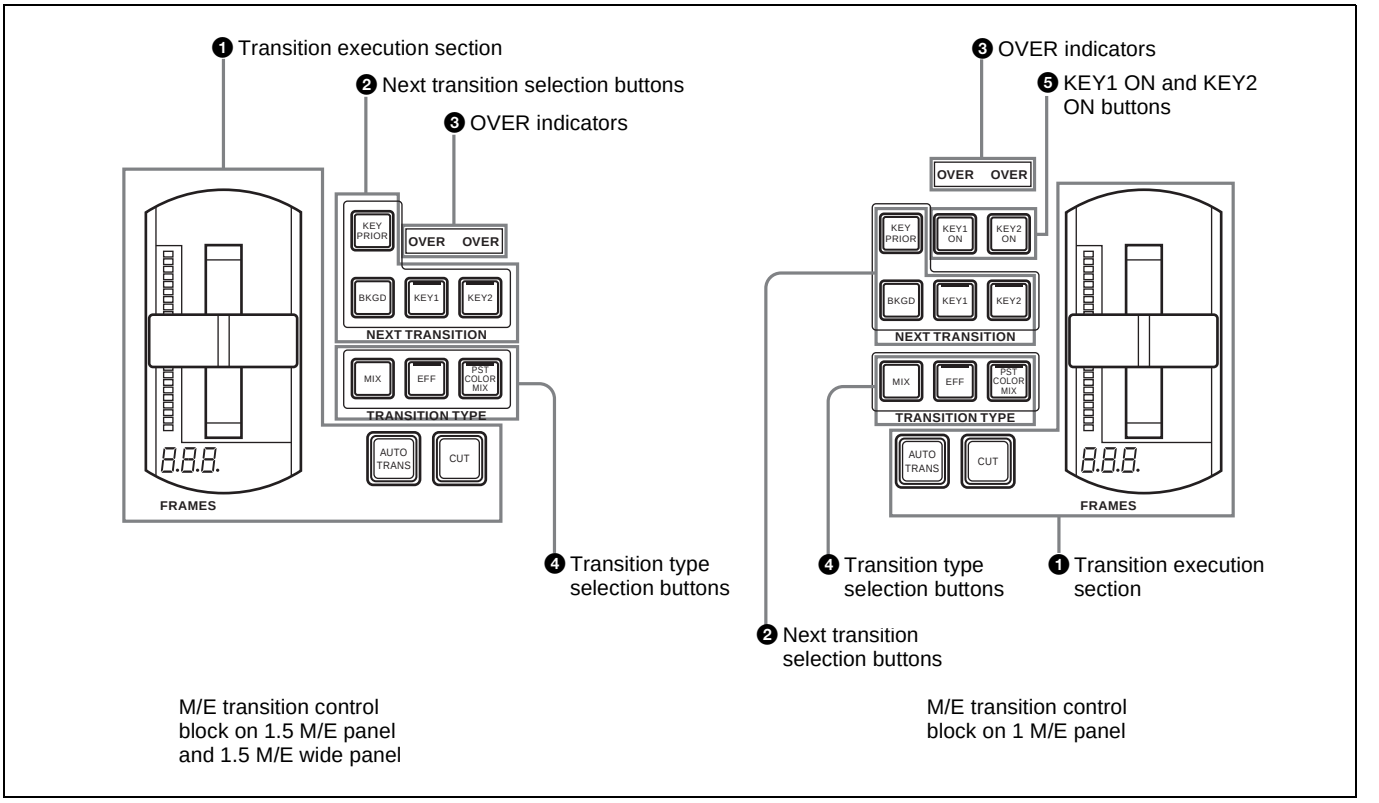
turning it off, to use the cross-point buttons as non-shift side buttons.

❻ Cross-point button row

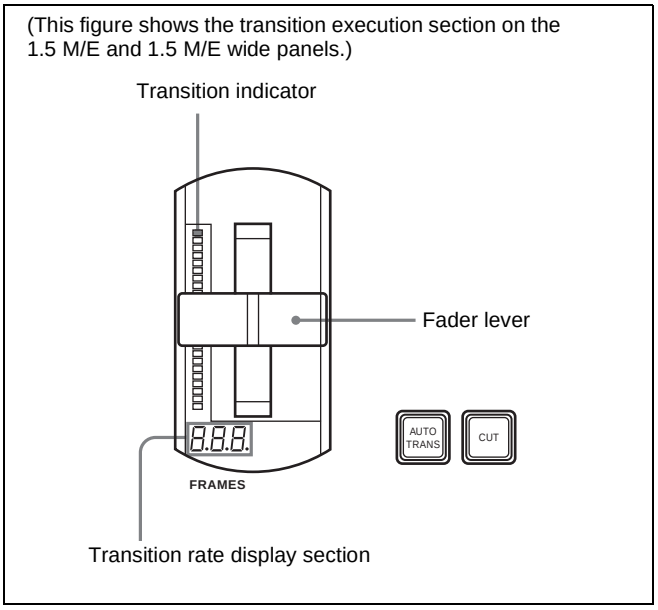
These buttons select the signals to be output to the bus selected with the AUX delegation buttons.
The signals which can be selected with each cross-point button are the same as the signals selected by the corresponding buttons in the M/E cross-point control block *(see page 10)*. Button numbers and the meaning of the colors in which the buttons light are the same as those of the buttons in the M/E cross-point control block. However, the cross-point button row in the AUX bus control block contains an [M/E] button and a [PGM] button, which are not present in the M/E cross-point button rows. The [M/E] button selects the M/E program video, and the [PGM] button selects the program video (final output video).

M/E Transition Control Block

Use this block to control transitions in M/E (mix/effect) program video.



❶ Transition execution section



Fader lever: Move the lever up and down to execute the transition.

Transition indicator: Displays the progress of the transition with 24 LEDs. The number of lit LEDs increases as the transition proceeds.

Transition rate display section: Displays the specified transition rate (the time from the start to the end of the transition, in units of frames).

See "Setting Transition Rates" (page 64) for more information about how to specify transition rates.

AUTO TRANS (transition) button: Press to execute a transition automatically at the specified transition rate. The transition begins immediately, and the button lights in amber. The button goes out when the transition finishes.

CUT button: Press to execute an instant transition.

❷ Next transition selection buttons

To specify which part of the video to switch (change) in the next transition, press one of the following buttons, turning it on.

BKGD (background): Switches the background video in the next transition.

KEY1, KEY2: Press the [KEY1] button, turning it on, to insert key 1 into the background in the next transition, or to delete it from the background. If key 1 is not currently inserted, the transition inserts it. If key 1 is currently inserted, the transition deletes it. The [KEY2] button works in the same way.

KEY PRIOR (priority): When key 1 and key 2 are inserted in an overlapping state, the key on top appears in front on the monitor. By pressing this button, turning it on, you can reverse the priority of the two keys in the next transition.

❸ OVER indicators

When key 1 and key 2 are inserted, the OVER indicator for the key on top lights.

❹ Transition type selection buttons

To select the type of transition, press one of the following buttons, turning it on.

MIX: In a background transition, the new video overlaps the current video, finally replacing it. During the transition, the sum of the output levels of the A bus and the B bus is maintained at 100%.
In a key transition, the key fades in (for insertion) or out (for removal).

EFF (effect): A transition using the selected effect pattern is executed.

See "Selecting Effects" (page 52) for more information about how to select effects.

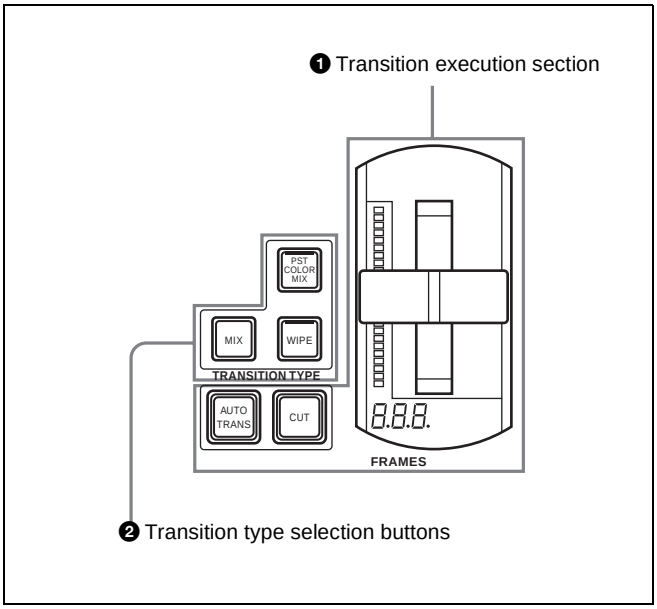
PST (preset) COLOR MIX : This is a two-stage mix (dissolve), comprising two transitions. In the first transition, a color matte is gradually mixed into the current video. In the second transition, the new video is gradually mixed into the color matte.

❺ KEY1 ON and KEY2 ON buttons

Press the corresponding button to instantly insert or delete key 1 or key 2. The [KEY1 ON] button lights in red when key 1 is inserted into the program video (final output video). Otherwise it lights in amber. The [KEY2 ON] button works in the same way.

PGM/PST Transition Control Block

Use this block to control program transitions.
This control block is provided only on the 1.5 M/E and 1.5 M/E wide panels.



❶ Transition execution section
This works in the same way as the transition execution section in the M/E transition control block *(see page 14)*.

❷ Transition type selection buttons
To select the type of transition, press one of the following buttons, turning it on.

MIX: In a background transition, the new video overlaps the current video, finally replacing it. During the transition, the sum of the output levels of the PGM bus and the PST bus is maintained at 100%.

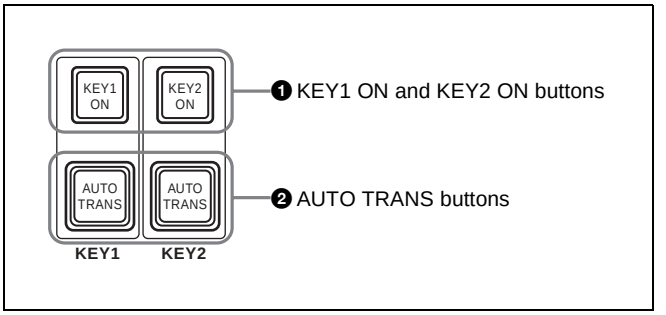
WIPE: A transition using the selected wipe pattern is executed, so that the new video wipes away the current video.

On how to select a wipe pattern, see "Selecting Effects" (page 52).

PST (preset) COLOR MIX: In the first transition, a color matte is gradually mixed into the current video. In the second transition, the new video is gradually mixed into the color matte.

M/E Key Transition Control Block

Use this block to insert and delete keys in independent M/E background video transitions. The transitions are independent of the transitions performed with the M/E transition control block *(see page 14)*.
This control block is provided only on the 1.5 M/E and 1.5 M/E wide panels. However, of the four buttons, the [KEY1 ON] and [KEY2 ON] buttons are also found on the 1 M/E panel, where they are located in the M/E transition control block *(see page 14)*.



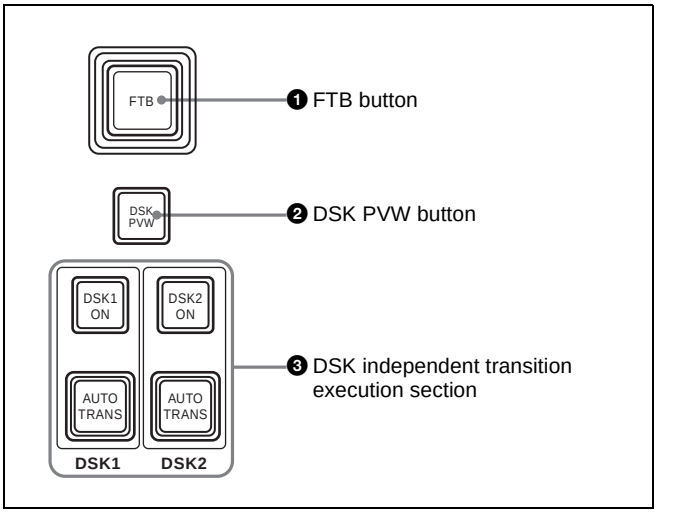
❶ KEY1 ON and KEY2 ON buttons
Press the corresponding button to instantly insert or delete key 1 or key 2. The [KEY1 ON] button lights in red when key 1 is inserted into the program video (final output video). Otherwise it lights in amber. The [KEY2 ON] button works in the same way.

❷ AUTO TRANS (transition) buttons
Press the corresponding button to insert or delete key 1 or key 2 at the specified transition rate. The key fades in (insert) or fades out (delete). The transition begins as soon as the button is pressed, and the button lights in amber. The button goes out when the transition finishes.

See "Setting Transition Rates" (page 64) for more information about how to specify transition rates.

Downstream Key/Fade to Black Control Block

Use this block to insert and delete downstream keys, and to fade to black.



❶ FTB (fade to black) button
Press this button to execute a fade to black at the specified transition rate. The button lights in amber when pressed. It lights in red when the fade to black is completed, for as long as black is output.

See "Setting Transition Rates" (page 64) for more information about how to specify transition rates.

❷ DSK PVW (downstream key preview) button
Currently not used.

❸ DSK independent transition execution section

DSK1 ON, DSK2 ON buttons: Press the [DSK1 ON] button to cut downstream key 1 in or out (insert or delete it instantly). The button lights in red when the key is inserted in program video (final output video). Otherwise it lights in amber. The [DSK2 ON] button works in the same way.

AUTO TRANS buttons: Press the corresponding button to insert or delete downstream key 1 or 2 at the specified transition rate. The key is mixed to fade in (insert) or out (delete). The transition begins as soon as the button is pressed, and the button lights in amber. When the transition finishes, the button goes out.

See "Setting Transition Rates" (page 64) for more information about how to specify transition rates.

Flexi Pad Control Block

Use the Flexi Pad control block in the following four operation modes.
- Effect snapshot mode
- Snapshot mode
- Macro mode (currently not supported)
- Transition rate input mode

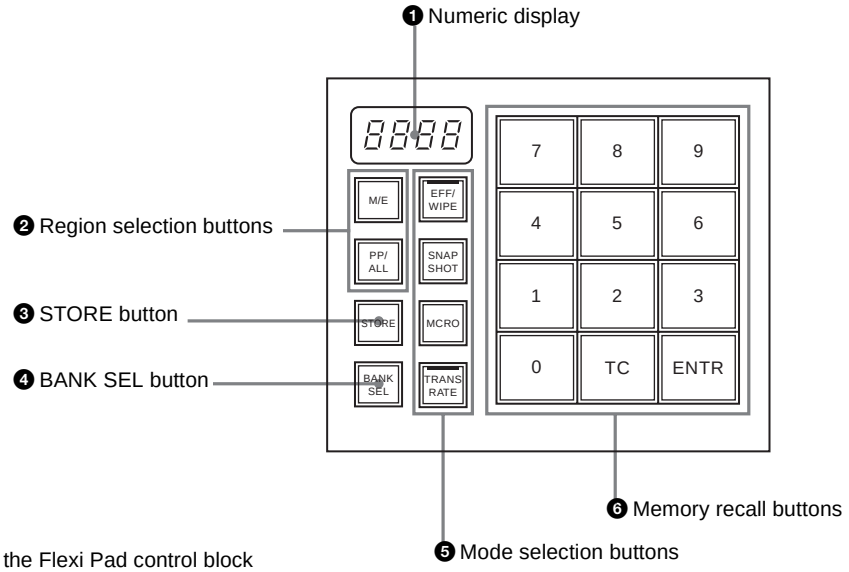
Depending on the operation mode, this control block allows you to do the following.

In effect snaphot mode:
- Recall, save, and delete effect snapshots
- Recall effect pattern numbers

In snaphot mode:
- Recall, save, and delete snapshots
- Set snapshot attributes

In macro mode:
Recall (execute) , save, delete, and edit macros

In transition rate input mode:
Enter transition rates (in transition rate input mode)



This figure shows the Flexi Pad control block in transition rate input mode.

❶ Numeric display
Depending on the operation mode, this shows an effect pattern number, a bank number, a register number, or a transition rate, in up to four digits.
In effect snapshot mode: Pattern number
In snapshot mode: Bank number and register number
Transition rate input mode: Transition rate
Macro mode: Currently not supported.

❷ Region selection buttons
Select the target function block of the operation. The button which is on lights in amber.
M/E button: Selects the M/E region.
PP/ALL (PGM/PST/all) button (on 1.5 M/E panel): In snapshot mode, selects all regions. In transition rate input mode and effect snapshot mode, selects the PGM/PST region.
ALL button (on 1 M/E panel): In snapshot mode, selects all regions. Has no effect in transition rate input mode and effect snapshot mode.

❸ STORE button
Used in modes other than transition rate input mode. This button lights in amber when on, to indicate that you can save the current snapshot or effect snapshot, or delete a saved snapshot or effect snapshot.

❹ BANK SEL (selection) button
Used in snapshot mode. Has no effect in other modes. This button lights in amber when on, to indicate that you can use the memory recall buttons to specify a snapshot register bank.

❺ Mode selection buttons
Select the operation mode of the Flexi Pad control block. The button currently turned on lights in amber.
EFF/WIPE (effect shapshot): Selects effect snapshot mode. You can also use this button when selecting effect patterns.
SNAPSHOT: Selects snapshot mode.
MCRO (macro): Currently not used.
TRANS RATE: Selects transition rate input mode.

❻ Memory recall buttons
The configuration of the memory recall buttons changes according to the operation mode selected with the mode selection buttons.

In effect snapshot mode: Comprised of the [0] to [9] buttons, a [PTN NO. (pattern number)] button, and an [ENTR (enter)] button.
The state and functions of the [0] to [9] buttons and the [ENTR] button change depending on the state of the [PTN NO.] button and the [STORE] button.

For details, see "Selecting Effects With the Flexi Pad Control Block" (page 53).

In snapshot mode: Comprised of the [0] to [9] buttons, an [EFF DISS (effect dissolve)] button, and an [AUTO TRNS (transition)] button. The state and functions of these buttons change depending on the state of the [BANK SEL] button and the [STORE] button.

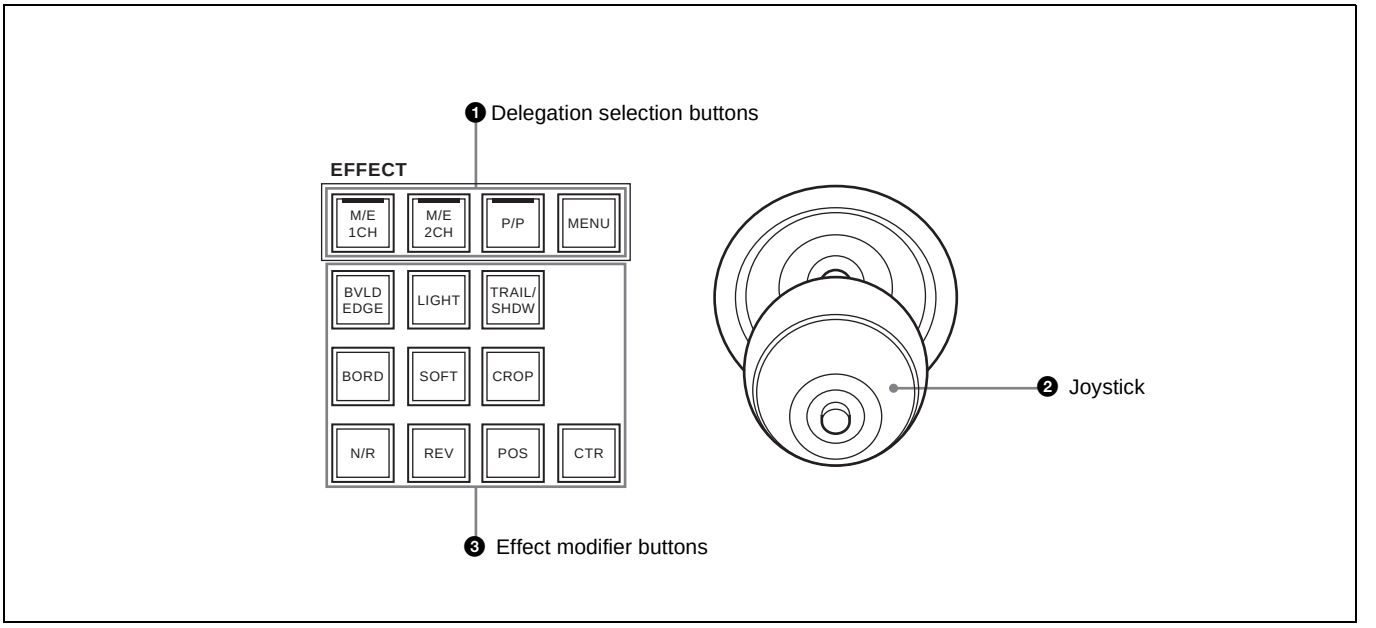
For details, see "Saving Snapshots" (page 103).

In transition rate input mode: Comprised of the [0] to [9] buttons, and an [ENTR (enter)] button.

For details, see "Setting Transition Rates" (page 64).

Effect/Wipe Control Block

Use this block to set the direction of effects and wipes. You can also add modifiers as required.



❶ Delegation selection buttons
Select operation targets.
M/E 1CH (M/E1 channel), M/E 2CH (M/E2 channel) buttons: Select M/E1 channel or M/E2 channel or both as the operation target(s).
P/P (PGM/PST) button (on 1.5 M/E panels only): Selects PGM/PST as the operation target.
MENU button: When this button is on, you can use the joystick to adjust the lefttmost three parameters assigned to the knobs in the menu control block.

❷ Joystick
When one of the [M/E 1CH], [M/E 2CH], and [P/P] buttons is lit, you can use the joystick to adjust the position of the currently selected effect pattern. For some effect patterns, the joystick can be used to change their size.
X-axis position: The X value increases when the joystick is moved to the right, and decreases when the joystick is moved to the left (–200.00 to +200.00).
Y-axis position: The Y value increases when the joystick is moved away from you, and decreases when the joystick is moved toward you (–200.00 to +200.00).
Size: The value increases when the knob of the joystick is rotated clockwise, and decreases when it is rotated counterclockwise (0.00 to 200.00).

When the [MENU] button is lit, you can use this to adjust parameters. Operation of the joystick is linked with operation of the knobs in the menu control block.
Parameter assigned to knob 1: The value increases when the joystick is moved to the right, and decreases when the joystick is moved to the left.

Parameter assigned to knob 2: The value increases when the joystick is moved away from you, and decreases when the joystick is moved toward you.

Parameter assigned to knob 3: The value increases when the knob of the joystick is rotated clockwise, and decreases when it is rotated counterclockwise.

The adjustment range depends on the parameter.

❸ Effect modifier buttons

BVLD (beveled) EDGE: Currently not supported.

LIGHT (lighting): Currently not supported.

TRAIL/SHDW (shadow): Currently not supported.

BORD (border): When this button is on, you can add borders. The button lights in amber when no border parameters have been assigned to the knobs in the menu control block, and lights in green when they have been assigned.

SOFT (soft edges): When this button is on, you can add soft edges. The button lights in amber when no soft edge parameters have been assigned to the knobs in the menu control block, and lights in green when they have been assigned.

CROP button: When this button is on, you can perform cropping. The button lights in amber when no crop parameters have been assigned to the knobs in the menu control block, and lights in green when they have been assigned.

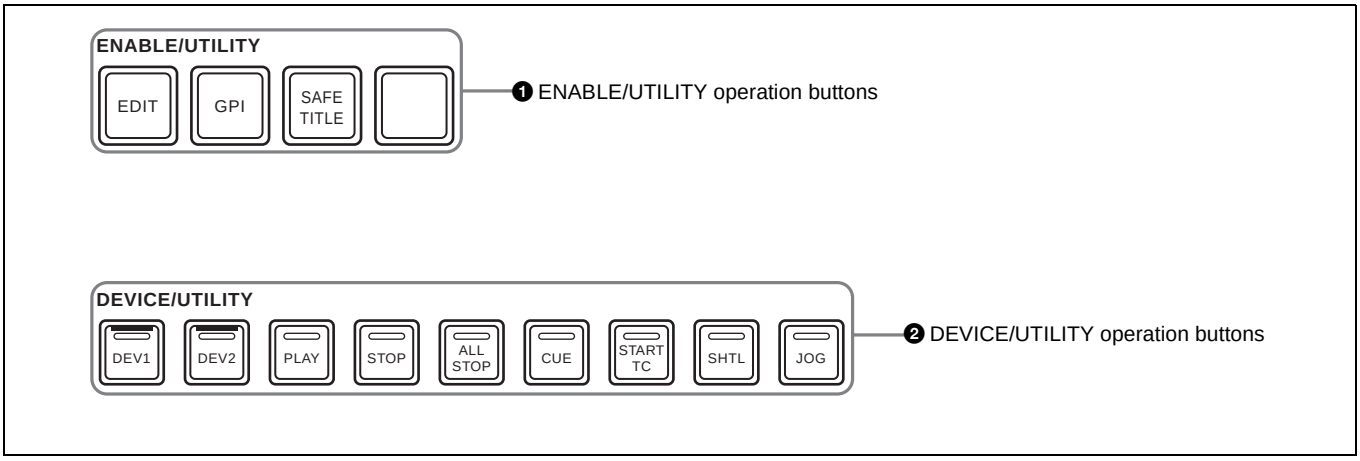
N/R (normal/reverse): When this button is on, it lights in amber and the transition direction reverses every time a transition finishes.

REV: When this button is on, it lights in amber and the transition direction reverses.

POS (position) button: You can turn the positioner on and use the joystick to move effect patterns in the x-axis and y-axis directions.

CTR (center) button: When the [POS] button is on, pressing this button returns an effect pattern to the default position.

Utility Control Block



❶ ENABLE/UTILITY operation buttons

Utility commands and menu shortcuts can be assigned to the buttons in this block (this function is not currently supported).

The following utility commands are assigned by default.

EDIT button: Enables and disables the switcher edit mode.

GPI button: Enables and disables switcher GPI.

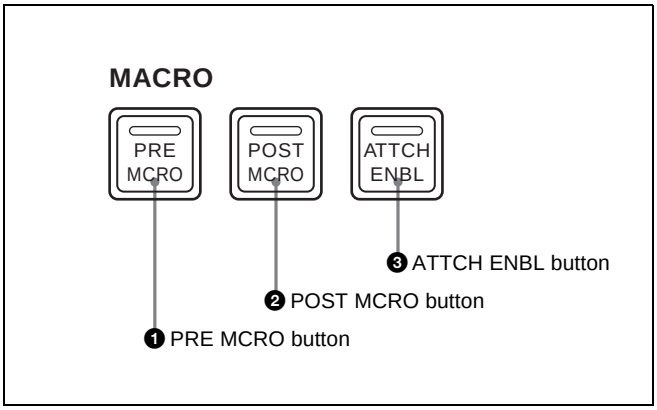
SAFE TITLE button: Currently not used.

Blank button: No function assignment.

❷ DEVICE/UTILITY operation buttons

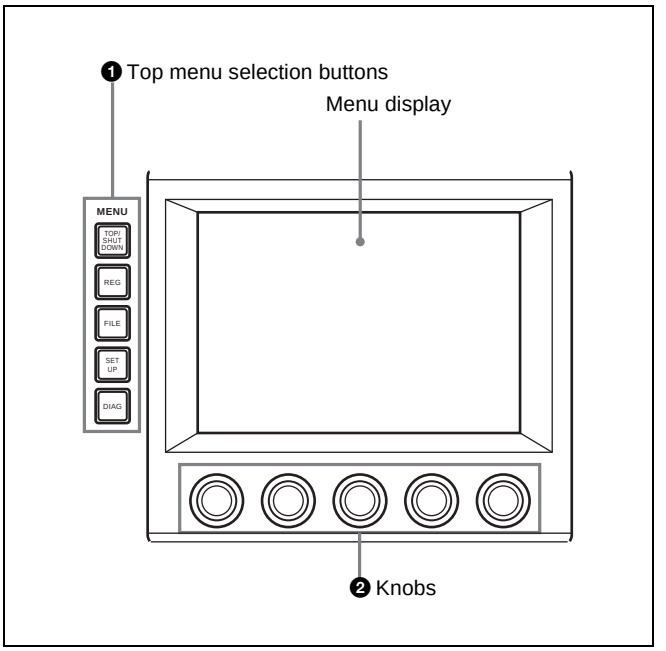
Currently not used.

Macro Control Block



Currently this block is not used.

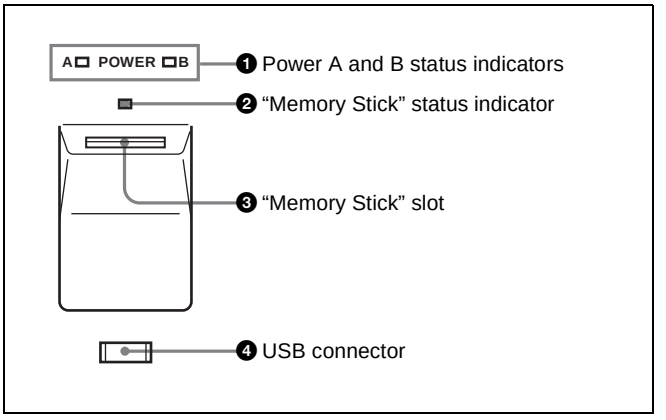
Menu Control Block



❶ Top menu selection buttons
Select the menu shown in the menu display.
- TOP/SHUTDOWN (top menu/shutdown) button
- REG (register menu) button
- FILE (file menu) button
- SET UP (setup menu) button
- DIAG (diagnostics menu) button

❷ Knobs
Use to adjust parameters shown in the menus.

Power Indicators, “Memory Stick” Slot, USB Connector



❶ Power A and B status indicators
Two power supplies (A and B) can be installed in the control panel. When the control panel is powered on, the indicators corresponding to the installed power supplies light in green.

Installing a second power supply requires the optional HK-PSU11 Power Supply Unit.

❷ “Memory Stick” status indicator
Lights in red during access to a “Memory Stick.”

❸ “Memory Stick” slot
Insert “Memory Sticks.”

See ““Memory Sticks”” (page 21) for more information about the usable “Memory Sticks” and their handling.

❹ USB connector
Devices compatible with the USB 1.0 standard can be connected. Currently this connector is not used.

“Memory Sticks”

Usable “Memory Sticks”

The following types of “Memory Stick” can be used with this system.

- MSA-32AN/64AN/128A “Memory Stick”
- MSX-256/512/1G “Memory Stick PRO”

Notes

- When using a “Memory Stick Pro,” high-rate data transfer using parallel interface is not supported.
- A “MagicGate Memory Stick” and a “Memory Stick Duo” cannot be used.

Handling “Memory Sticks”

When using “Memory Sticks,” pay attention to the following points.

- Do not touch the connector of the “Memory Stick” with anything, including your finger or metallic objects.
- Do not attach anything other than the supplied label to the “Memory Stick” labeling position.
- Attach the label so that it does not stick out beyond the labeling position.
- Carry and store the “Memory Stick” in its case.
- Do not strike, bend, or drop the “Memory Stick.”
- Do not disassemble or modify the “Memory Stick.”
- Do not allow the “Memory Stick” to get wet.
- Do not use or store the “Memory Stick” in a location that is:
  - Extremely hot, such as in a car parked in the sun
  - Under direct sunlight
  - Very humid or subject to corrosive substances

Chapter 3 Using Menus

Accessing Menus

The menus of this switcher enable you to make system settings and settings related to effects.
To access menus, you can use any of the following three methods.
- Access from the top menu *(see next section)*
- Access by double clicking *(see page 24)*
- Access by single clicking *(see page 25)*

Accessing Menus From the Top Menu

By pressing a top menu selection button in the menu control block *(see page 20)*, you can directly access the menu page for that button. The menus which can be accessed with top menu selection buttons are as follows.

Menus accessed with top menu selection buttons and their functions

Button	Menu	Function	Reference page
TOP/SHUTDOWN	Top/Shutdown	Display the top menu, and exit the menu system.	Page 37
REG	Register a), b)	Make register settings.	–
FILE	File a)	Make file settings.	Page 107
SET UP	Setup/Diagnosis a)	Make settings related to setup and error messages.	Page 113
DIAG	Diagnosis b)	Make settings related to error messages.	–

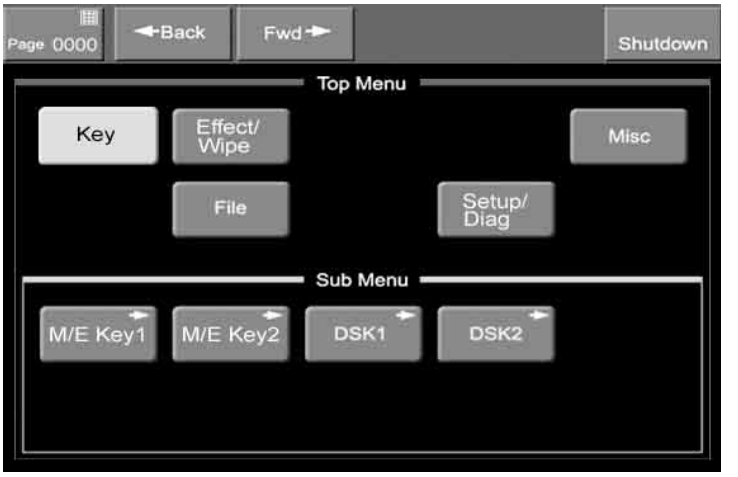
a) The most recently used menu is displayed.
b) Currently not supported.

To access a menu from the top menu, proceed as follows.

Note
The menu illustrations in this manual may differ in appearance from the menus actually shown in the menu display of the control panel.

1 Press the [TOP/SHUTDOWN] button in the menu control block.

The top menu appears.



Tip

If you press the [FILE] or [SET UP] button, the page for that button appears.

2 In the Top Menu area, select a menu.

The second-level menu of the menu selected in the Top Menu area appears in the Sub Menu area.

3 Select a menu in the Sub Menu area.

The page for the third-level menu appears.

Accessing Menus by Double Clicking

This manual uses the term “double click” to refer to the action of pressing a button on the control panel twice in rapid succession (comparable to double clicking a computer mouse button). You can double click many of the buttons on the control panel except the top menu selection buttons to directly access menus related to those buttons. The following table shows the buttons which access menus by double clicking and the accessed menus.

Tip

The ability to access menus by double clicking is indicated by a horizontal bar on the face of the button, located over the button name.

Menus accessed by double clicking

Button location	Button	Menu	Reference page
M/E cross-point control block	COLOR BKGD	MISC >Color Bkgd	Page 83
PGM/PST cross-point control block [b]	COLOR BKGD [a]	MISC >Color Bkgd	Page 83
AUX bus control block (cross-point button rows)	COLOR BKGD [a]	MISC >Color Bkgd	Page 83

Menus accessed by double clicking

Button location	Button	Menu	Reference page
AUX bus control block (AUX delegation buttons)	KEY1	Key >M/E Key1 >Main	Page 71
	KEY2	Key >M/E Key2 >Main	
	DSK1	Key >DSK1 >Main	
	DSK2	Key >DSK2 >Main	
M/E transition control block	KEY1	Key >M/E Key1 >Main	Page 71
	KEY2	Key >M/E Key2 >Main	
	EFF	Effect/Wipe >M/E Effect >Main	Page 57 Page 61 Page 66
	PST COLOR MIX	MISC >Transition	Page 50
PGM/PST transition control block [b]	WIPE	Effect/Wipe >P/P Wipe >Main	–
	PST COLOR MIX	MISC >Transition	Page 50
Flexi Pad control block	M/E + EFF/WIPE	Effect/Wipe >M/E Effect >Main	Page 57 Page 61 Page 66
	ALL/PP + EFF/WIPE [b]	Effect/Wipe >P/P Wipe >Main	–
	TRANS RATE	MISC >Transition	Page 65
Effect/Wipe control block	M/E 1CH	Effect/Wipe >M/E Effect >Main	Page 57 Page 61 Page 66
	M/E 2CH	Effect/Wipe >M/E Effect >Main	
	P/P [b]	Effect/Wipe >P/P Wipe >Main	–

a) Button assigned with Video/Key Pair Assign menu *(see page 119)*.
b) Not found on 1 M/E panel.

Accessing Menus by Single Clicking

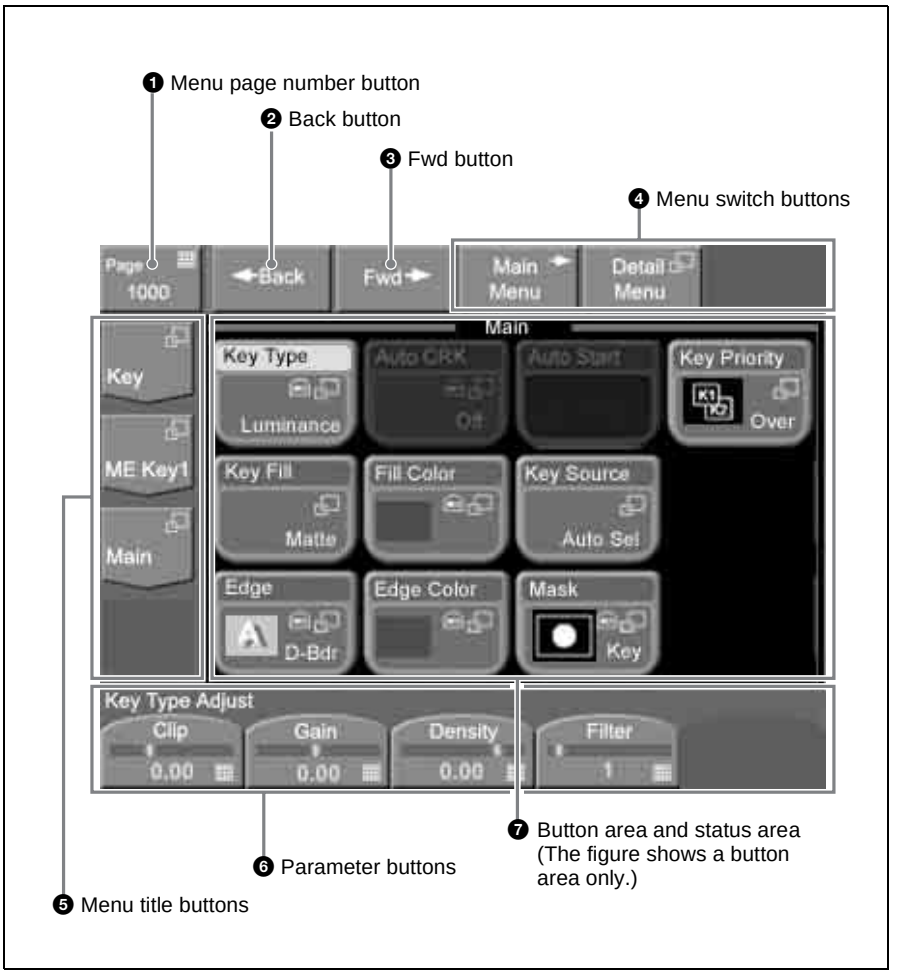
A menu appears when you single click a parameter adjustment button to turn the adjustment function on (and the knobs take on the parameters which can be assigned for the adjustment). The buttons which access menus by single clicking are the following buttons in the Effect/Wipe control block.

- [CROP] button
- [BORD] button
- [SOFT] button

Interpreting Menu Screens

There are two types of menu screen.
- Basic screen *(see next section)*
- Popup windows
  - General popup windows *(see page 29)*
  - General popup windows (scrolling type) *(see page 30)*
  - Numeric keypad window *(see page 30)*
  - Keyboard window *(see page 31)*
  - Page number input window *(see page 33)*

Basic Screen



❶ Menu page number button
This shows the menu screen page number.
When you press this button, the page number input window *(see page 33)* appears. Enter a page number in that window to display the desired menu.

For details about operation, see "Selecting menus by entering page numbers" (page 35).

For details about page numbers, refer to "Menu Tree" in the Appendix (separate document).

❷ Back button

Returns to the most recently displayed menu. You can go back up to maximum of 50 menus.
This button is disabled when the display history has been erased and when you have backed up through the entire display history.

For details about operation, see "Selecting menus from the display history" (page 35).

❸ Fwd (forward) button

Redisplays the menu that was visible when you last pressed the [Back] button. This button is disabled when the display history has been erased, when you have moved forward through the entire display history, and when the display history has been updated by displaying a new menu.

For details about operation, see "Selecting menus from the display history" (page 35).

❹ Menu switch buttons

You can use the following buttons to switch between the menus when you have selected a Key menu or an Effect/Wipe menu.
Main Menu button: Displays a menu with frequently used items.
Detail Menu button: Displays a popup window for selecting menus to make detailed settings.

❺ Menu title buttons

Menu titles are shown on the buttons. The top button corresponds to an upper-level menu. In the figure above, [Key] is the first level, [M/E Key1] is the second level, and [Main] is the third level.
When you press one of these buttons, a popup window appears with other menus on the same level, allowing you to switch to another menu.

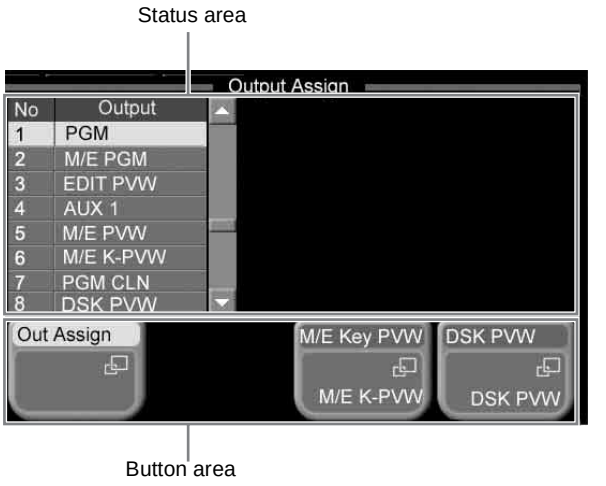
For details about operation, see "Selecting by navigating the menu tree" (page 34).

❻ Parameter buttons

Parameters adjustable by knobs and their values are shown on the buttons.
When you press one of these buttons, the numeric keypad window *(see page 30)* opens so that you can enter a setting value.

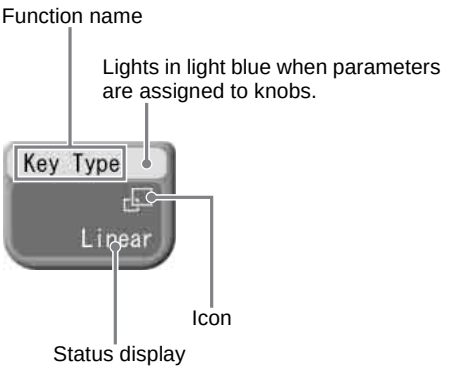
❼ Button area and status area

The button area displays the buttons of the operation target items in the selected menu.
In the setup menu and other menus, a status area may also be displayed to show lists for selecting setting values (see following figure).



Interpreting buttons

The following figure shows the information displayed on function buttons.



The following table shows how to interpret other buttons.

Name	Display	State
Parameter button		Value displayed. Value can be changed.
Execute button		Not executing function.
		Executing function (lit in light purple).

Icons displayed on buttons

The following table shows the icons which are displayed on buttons, and the functions which they represent. The functions are executed when a button with the corresponding icon is pressed.

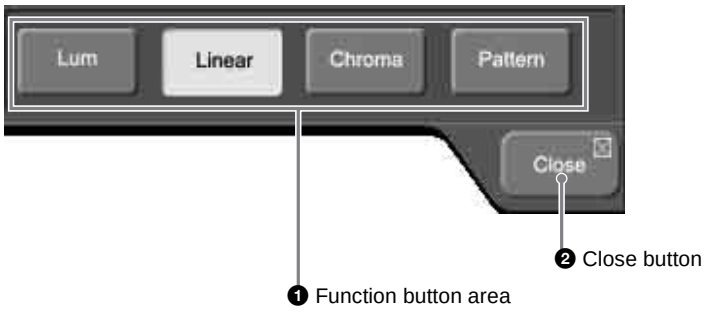
Name	Display	Function
Popup icon		Open a popup window.
Numeric keypad icon		Open the numeric keypad window or the page number input window.
Keyboard icon		Open the keyboard window.
Shortcut icons		Switch the menu display.
Close icon		Close a popup window.
Scroll icons		• Scroll the function button area. • Scroll the list in the status area. • Switch a pattern.
Knob assigner icon		Assign a parameter to a knob.
Window hold icon		Do not close a popup window even when a function selection button is pressed.

Popup Windows

General popup windows

When you press a button with the  icon, a popup window opens in the basic screen.

The popup window may be the scrolling type. For details, see the next section.



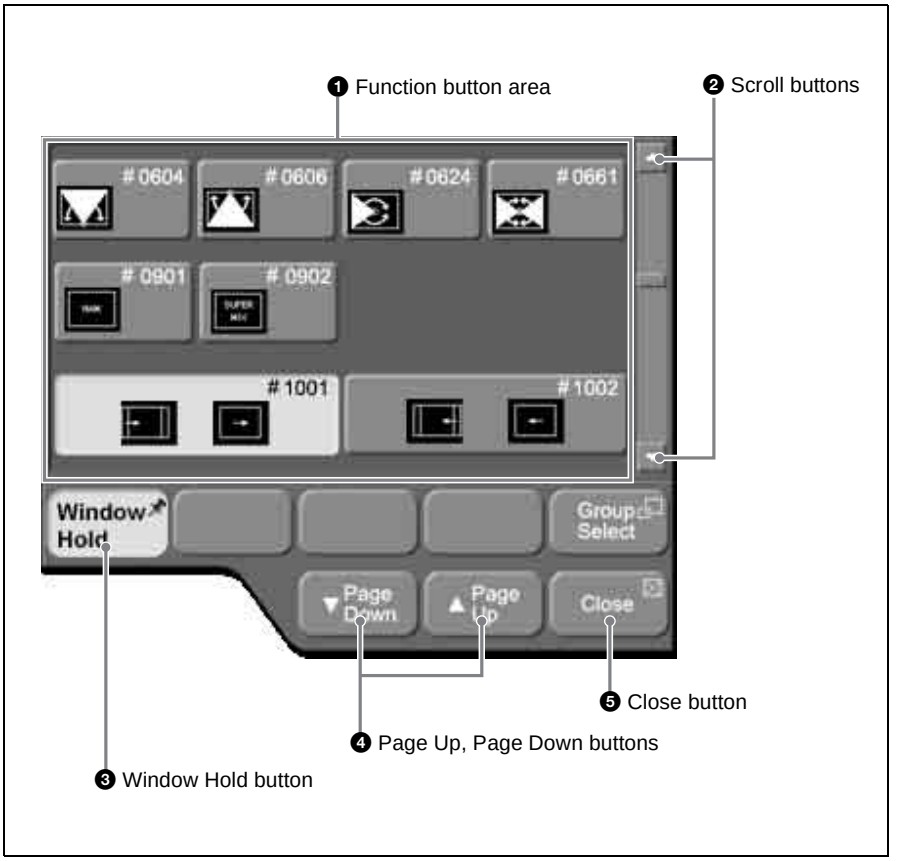
❶ Function button area

Displays functions and menus for selection. The currently selected button lights in light blue.

The popup window closes when you press a button in this area.

❷ Close button
Closes the popup window.

General popup windows (scrolling type)



❶ Function button area
Displays functions and menus for selection.
The popup window closes when you press a button in this area. However, it does not close if the [Window Hold] button is on.

❷ Scroll buttons
Scroll the function button area up and down.

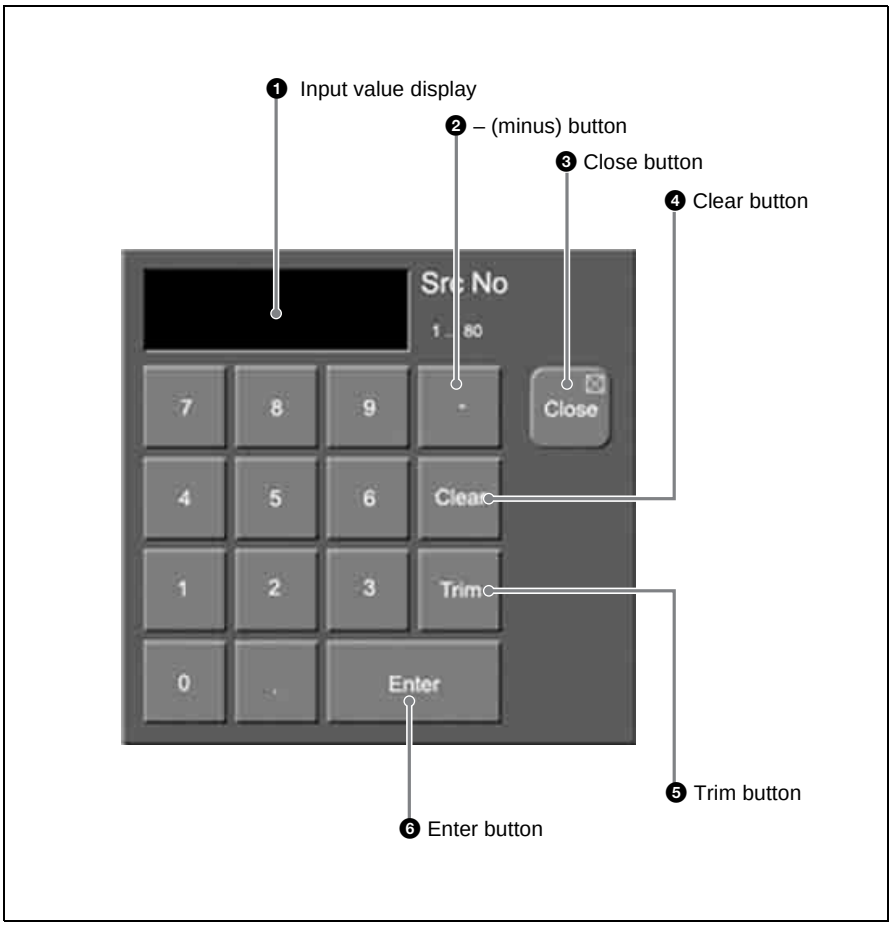
❸ Window Hold button
Press this button, turning it on, if you want to keep the window open even after pressing a button in the function button area.

❹ Page Up, Page Down buttons
Scroll the function button area up and down in page units.

❺ Close button
Closes the popup window (even when the [Window Hold] button is on).

Numeric keypad window

The numeric keypad window opens in the basic screen when you press a button with the icon. (The page number input window opens if the button was a menu page number button.)



❶ Input value display
Shows the value entered in the numeric keypad window.

❷ – (minus) button
Changes the sign of the input value.
Each press toggles between plus (+) and minus (–).

❸ Close button
Closes the numeric keypad window.

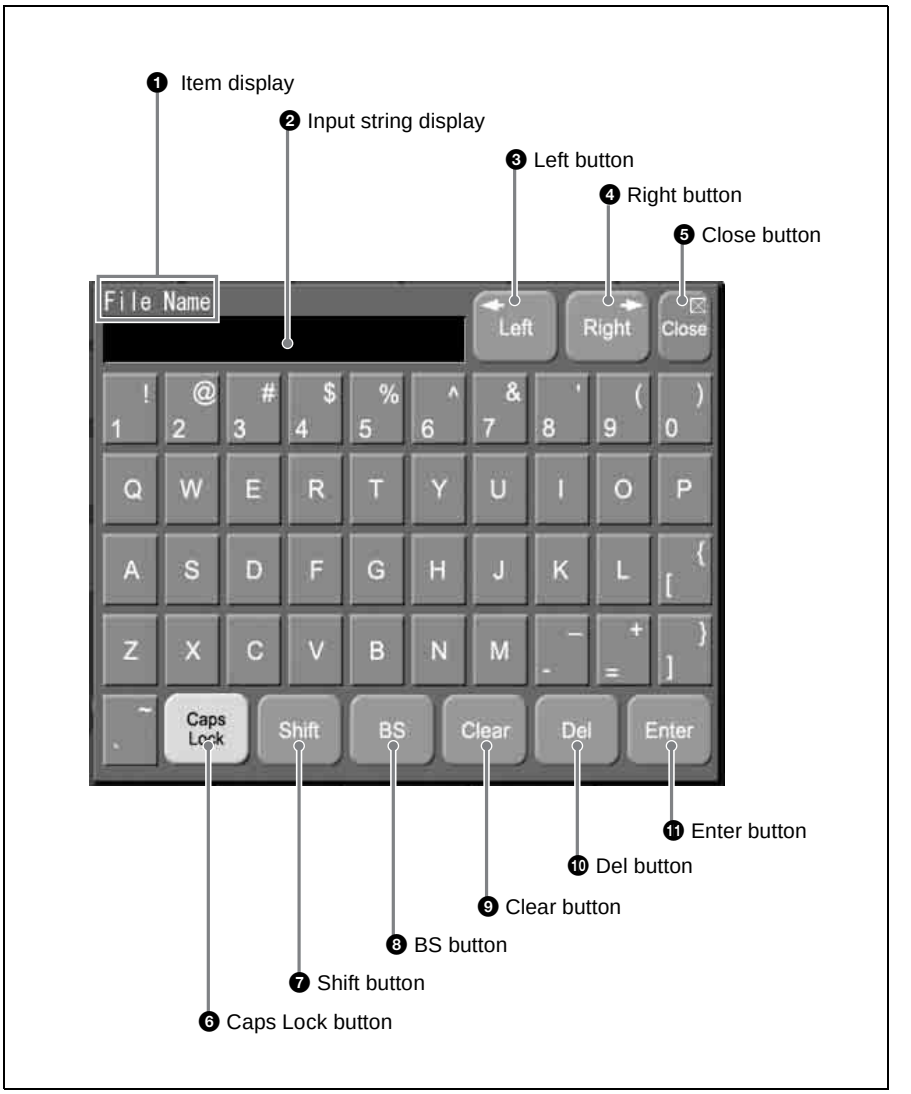
❹ Clear button
Clears the input. However, parameter settings are not changed.

❺ Trim button
Currently not supported.

❻ Enter button
Confirms the entered value.
If the value is valid, the numeric keypad window closes.
If the value is not valid, the window stays open and the color of the input value display changes to red.

Keyboard window

The keyboard window opens in the basic screen when you press a button with the  icon.



❶ Item display
Shows the name of the parameter being set in the keyboard window.

❷ Input string display
Shows the character string being input in the keyboard window.

❸ Left button
Moves the cursor one character to the left in the input string.

❹ Right button
Moves the cursor one character to the right in the input string.

❺ Close button
Closes the keyboard window.

❻ Caps Lock button
Switches between input of capital letters and lowercase letters.

❼ Shift button
Enables input of characters on the shift side of the buttons. The shift is released when you enter a character.

❽ BS (backspace) button
Clears the character immediately before the cursor in the input string.

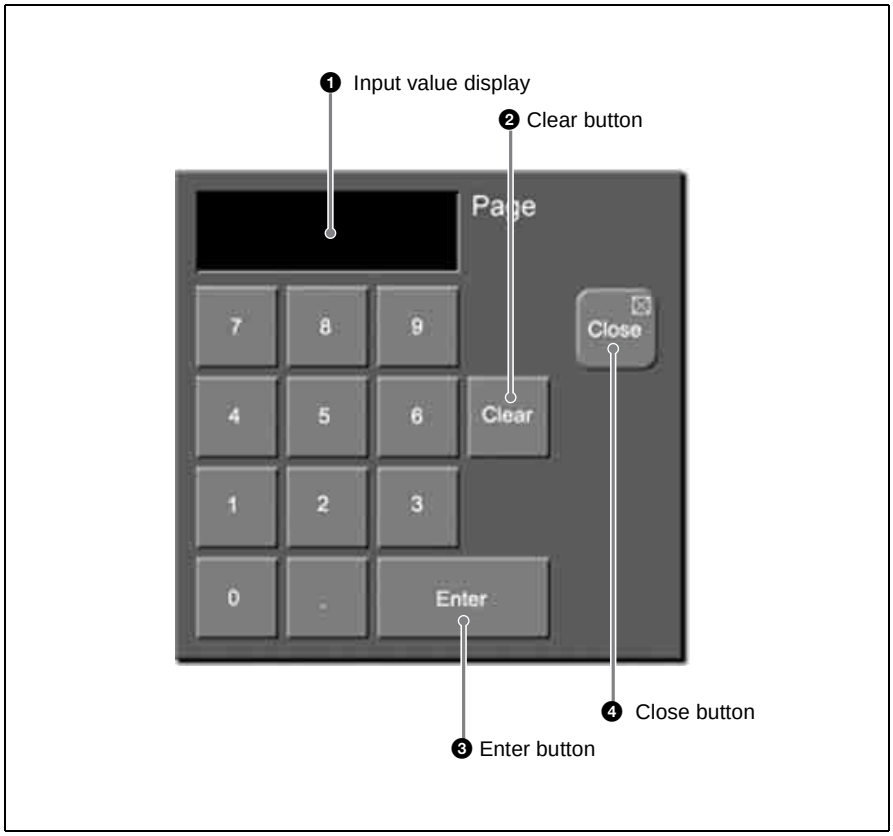
❾ Clear button
Clears all of the characters in the input string.

❿ Del (delete) button
Clears the character immediately after the cursor in the input string.

⓫ Enter button
Sets the input string as a parameter value.
Closes the keyboard window if the value was valid. If the value was not valid, the window stays open and the color of the input value display changes to red.

Page number input window

The page number input window opens in the basic screen when you press a menu page number button.



❶ Input value display
Shows the value entered in the page number input window.

❷ Clear button
Clears the input value.

❸ Enter button
Confirms the input value.

❹ Close button
Closes the page number input window.

Basic Menu Operations

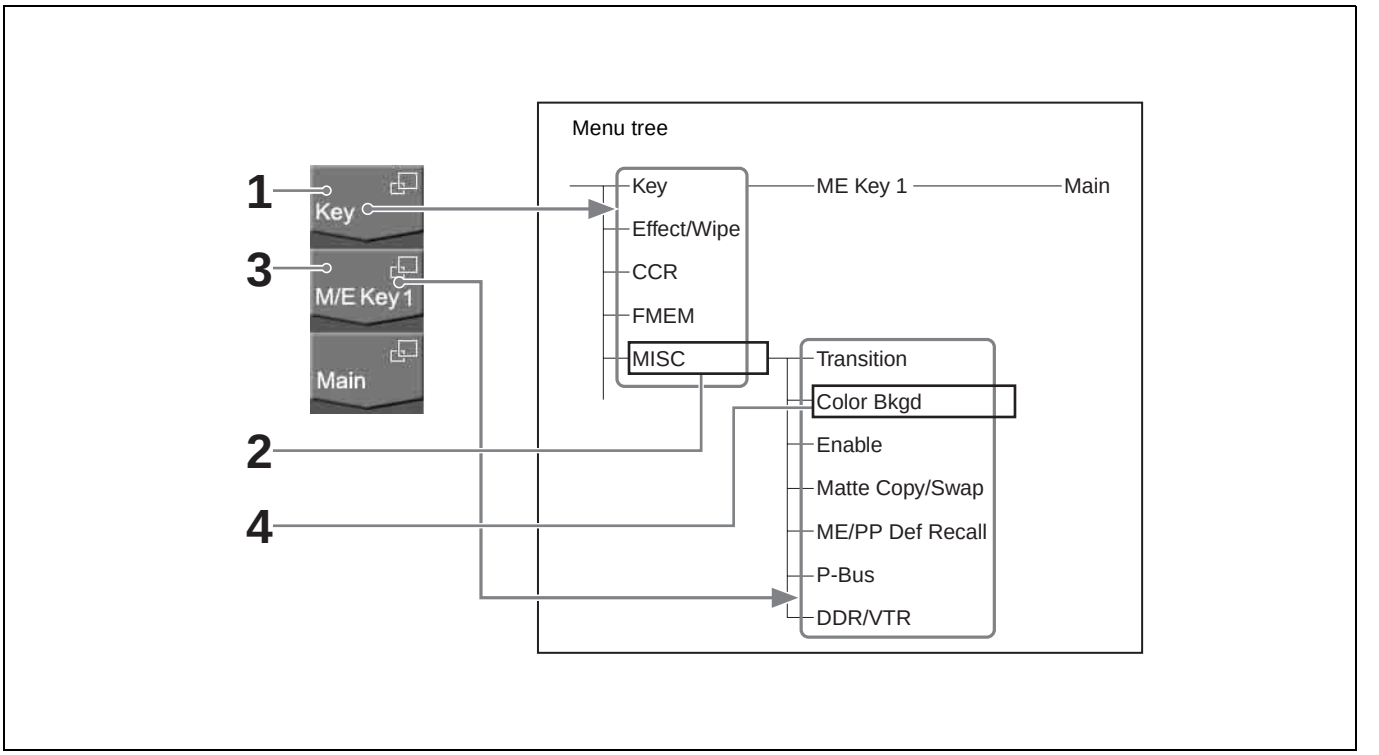
Selecting Menus

There are three ways to select menus.
- Navigate the menu tree *(see next section)*
- Enter a page number *(see page 35)*
- Select from the display history *(see page 35)*

Selecting by navigating the menu tree

You can display a desired menu by navigating to it through the menu tree from the currently displayed menu.
The following example shows how to select the Color Bkgd menu under the MISC menu when you are in the Main menu under a Key menu for the M/E bank.

In this manual, menu names and paths are indicated in the fashion “Key >M/E Key1 >Main.”



1 Press the menu title button at the top.

A popup window for selection of first-level menus appears.

2 Select [MISC].

The popup window closes and the display changes to the MISC menu. The menu title button display changes to the MISC menu.

3 Press the second menu title button from the top.

A popup window for selection of second-level menus appears.

4 Select [Color Bkgd].

The popup window closes and the display changes to the Color Bkgd menu.

Selecting menus by entering page numbers

You can display a desired menu by entering its page number.

For more information about page numbers, refer to "Menu Tree" in the Appendix (separate document).

1 Press the menu page number button.

The page number input window *(see page 33)* appears.

2 Enter the page number of the desired menu and press the [Enter] button.

The page number input window closes and the display changes to the desired menu.

Selecting menus from the display history

You can redisplay menus that have appeared in the past.
For example, if you have displayed menus in the order 1000 → 2000 → 3000 → 4000, you can go back to menu 2000 by pressing the [Back] button twice. After using the [Back] button, you can return in the reverse direction by using the [Fwd] button. In the above example, press the [Fwd] button twice to return to menu 4000.

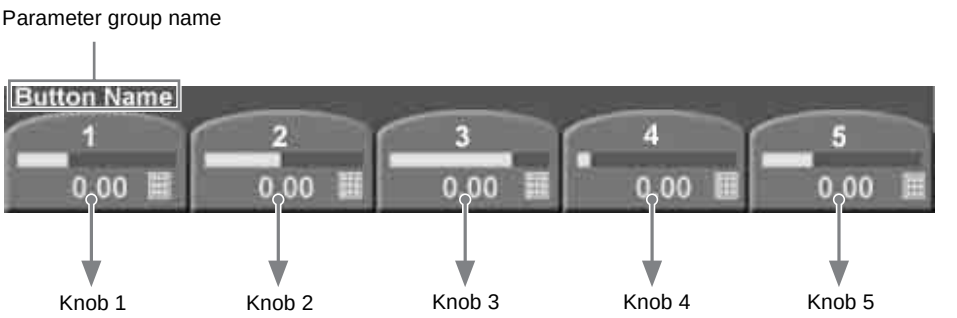
Selecting Functions

To select a function, press the corresponding button in the button area of the basic screen.
The selected button lights in light blue.
Depending on the button, a popup window may appear so that you can select further items. Functions may also be assigned to knobs.

See "Interpreting buttons" (page 28) for illustrations of how buttons change in appearance when they are selected.

Setting Parameters

Parameter buttons light in light blue when they are pressed, and the parameters are assigned to knobs. Also, the parameter group name appears above the parameter button group. When you press a button to which a parameter has been assigned, the numeric keypad window opens so that you can input a numeric value. Or you may be able to set the parameter by rotating a knob. Parameters are assigned to knobs 1 to 5 in the order of parameter buttons from the left. When 6 or more parameters have been assigned, the 5th button functions as a page switch button (the [More] button). For example, when 8 parameters have been assigned, buttons 1 to 4 on menu page 1/2 are assigned to knobs 1 to 4 initially, and buttons 5 to 8 on menu page 2/2 are assigned to knobs 1 to 4 by page switching.



Parameter values can be set with either of the following methods.
- Rotate the knobs (1 to 5) corresponding to the parameters.
- Press the parameter button corresponding to a parameter, and enter a numeric value in the numeric keypad window.

Parameter values are indicated by the length of the bars on the buttons and by the numeric values under the bars.

In explaining specific operations, this manual gives examples of typical knob settings, expressed as shown below.

Example 1: When a pattern key is selected

Knob	Description	Setting values
1 (Size)	Size of pattern	0.00 to 100.00
2 (Soft)	Softness of edge width	0.00 to 100.00
3 (Density)	Key density	0.00 to 100.00
4 (Pattern)	Pattern number	1 to 24

Example 2: When a video process is selected
(The buttons of parameter group 1/2 are shown first, changing to parameter group 2/2 when the [More] button in the position of knob 5 is pressed.

Parameter group 1/2

Knob	Description	Setting values
2 (Video Gain)	Overall gain of video signals	–200.00 to +200.00
3 (Y Gain)	Gain of luminance signals	–200.00 to +200.00
4 (Black Level)	Black level	–7.30 to +109.58

Parameter group 2/2

Knob	Description	Setting values
2 (Video Gain)	Overall gain of video signals	–200.00 to +200.00
3 (C Gain)	Gain of chrominance signals	–200.00 to +200.00
4 (Hue Delay)	Amount of hue offset	–180.00 to +180.00

Exiting the Menu System

To exit the menu system, proceed as follows.

Note

Always exit the menu system before powering the control panel off.

1. In the menu control block, press the [TOP/SHUTDOWN] button.

   The top menu appears.

2. Press [Shutdown].

   A confirmation popup window appears.

3. Press [Yes].

   This shuts down the menu system after a while, and the menu display changes to black. Now power off the system.

   To cancel the exit
   Press [No].

To restart the menu system

Power on the control panel once more.

Chapter 4 Basics of Video Switching

This chapter begins by explaining how to switch background signals on the M/E bank (how to perform transitions). Then it explains basic background video switching on the PGM/PST bank when a 1.5 M/E panel or 1.5 M/E wide panel is used.
The examples in this chapter assume that the following signals are currently selectable with the 2nd, 3rd, and 4th cross-point buttons from the left.

Signal selectable with the 2nd button from the left: Landscape video signal

Signal selectable with the 3rd button from the left: Lion video signal

Signal selectable with the 4th button from the left: Castle video signal

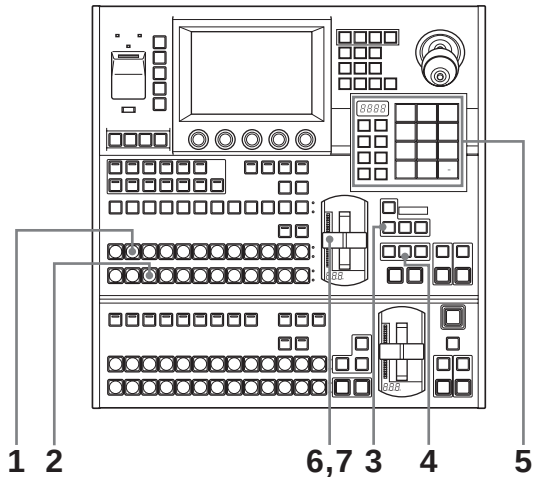
Basic Operations (1): Video Switching on the M/E Bank

Let’s begin by using the M/E bank to select video signals showing a landscape and a lion as background video, and to switch between them with an effect. As the effect, we will use effect number 0024 (circular wipe). A wipe is an effect which the current video is wiped away by new video using a selected pattern. The video changes as follows.

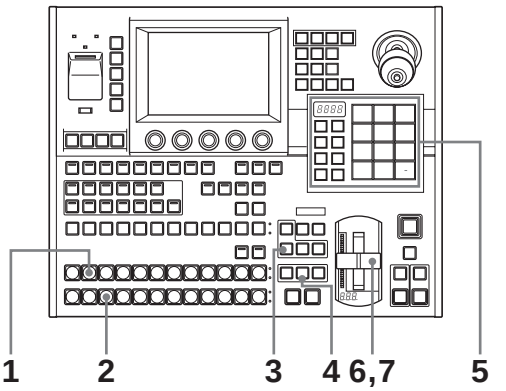
Preparations for operation

- If you are using the 1.5 M/E panel or 1.5 M/E wide panel, press and light the [M/E] buttons at the right edge of the PGM and PST button rows of the PGM/PST cross-point control block.
- Before starting, move the fader lever from one end of its range to the other, and stop it at the top position.

After finishing the above preparations, proceed as follows.



1.5 M/E panel



1.5 M/E wide panel

1 In the background A row of the M/E cross-point control block, select the A bus video.
For this example, press the 2nd button from the left to select the landscape video signal.

The landscape video appears on the video monitor connected to the processor's program output (final output) connector. The pressed button lights in red to indicate that the signal assigned to the button is being output to the program video.

2 In the background B row, select the B bus video.
For this example, press the 3rd button from the left to select the lion video signal.

The pressed button lights in amber to indicate that the signal assigned to the button has only been selected. It is not yet being output to the program video.

3 In the M/E transition control block, press the [BKGD] next transition selection button, lighting it. (Skip this step if the button is already lit.)

The background video is selected as the target of the transition.

4 In the M/E transition control block, press the [EFF] transition type selection button, lighting it. (Skip this step if the button is already lit.)

An effect is selected as the transition type.

5 Select the effect pattern (number 0024).

There are three ways to select effect patterns. In this example, we will use the Flexi Pad control block.

1) Press the [M/E] button in the Flexi Pad control block, lighting it.
2) Press the [EFF/WIPE] button in the Flexi Pad control block, lighting it.
3) Press the [PTN NO.] button, lighting it in green.
4) With the numeric buttons, enter the digits 2,4, in that order.
The number that you entered appears in the numeric display.
5) Press the [ENTR] button.
Pattern number 0024 is selected.

6 Slowly move the fader lever down from the top position.

A wipe transition using pattern number 0024 begins. A circle showing part of the video of the B bus (the lion) appears at the center of the A bus video (the landscape). The circle gradually grows larger, increasing the area occupied by the B bus video. While this is happening, the transition indicator LEDs to the left of the fader lever begin to light, starting from the top. The number of lit LEDs increases as the transition progresses.

At this point, notice how the buttons in the background A row and the background B row are lit. The button in the A row remains lit in red, but the color of the lit button in the B row has changed from amber to red. This indicates that both of the video signals selected by the buttons are being output to the program video.

7 Stop the fader lever at the bottom position.

The landscape video vanishes from the screen, leaving only the lion video. This completes the wipe transition.

Now, notice again how the buttons in the background A and B rows are lit. With the transition complete, the 3rd button from the left in the A row is lit in red, and the 2nd button from the left in the B row is lit in amber. This means that the signal selections in the A and B rows have been exchanged. In other words, the lion video is now selected in the A row, and the landscape video is selected in the B row.

In this state, try moving the fader lever from the bottom to the top. The transition takes place in the same direction as last time (from A bus video to B bus video), but this time the lion is replaced by the landscape.

About auto transitions

An auto transition is executed if, in step **6**, you press the [AUTO TRANS] button in the transition execution control block instead of moving the fader lever.
The time from the start to the end of the transition is called the “transition rate” (unit: frames). The transition rate can be freely set in the range from 0 to 999 frames.

See “Setting Transition Rates” (page 64) for more information about how to specify transition rates.

About cut transitions

A cut transition is executed if, in step **6**, you press the [CUT] button in the transition execution control block instead of moving the fader lever. In this case, the transition type selected in step **4** (effect) and the effect pattern selected in step **5** (0024) are ignored.

Basic Operations (2): Video Switching on the PGM/PST Bank — For 1.5 M/E Systems

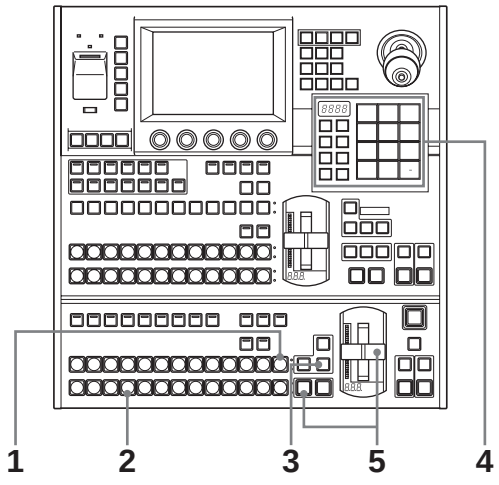
If you are using a 1.5 M/E panel or a 1.5 M/E wide panel, you can create the program video (final output video) on the PGM/PST bank. You can select background video and execute transitions with the same operations as the ones used on the M/E bank. You can also take video created on the M/E bank and use it as background video.

This section shows how to take the output of the M/E bank (for example, the lion video selected with the 3rd cross-point button from the left) and use it as background video. To replace it, we will use the castle video selected with the 4th cross-point button from the left. As the wipe pattern, we will use pattern number 0001, in which the new video gradually moves in from the left side of the screen.

Preparations for operation

Before starting, move the fader lever in the PGM/PST transition control block from one end of its range to the other, and stop it at the top position.

After finishing the above preparations, proceed as follows.



1.5 M/E panel

1 In the PGM row of the PGM/PST cross-point control block, press the [M/E] button at the right edge.

The [M/E] button lights in red, and the output video of the M/E bank (the lion) is selected as the PGM bus video. At this stage, the 3rd button from the left in the background A row on the M/E cross-point control block also lights in red.

2 In the PST row, press the 4th button from the left.

The button lights in amber, and the castle video is selected as PST bus video.

3 In the PGM/PST transition control block, press the [WIPE] transition type selection button, lighting it.

Wipe is selected as the transition type.

4 Select pattern number 0001.

When you use the Flexi Pad control block, procced as follows.

1) Press the [PP/ALL] button, lighting it.
2) Press the [EFF/WIPE] button, lighting it.
3) Press the [PTN NO.] button, lighting it in green.
4) With the numeric buttons, enter the digit 1.
The number that you entered appears in the numeric display.
5) Press the [ENTR] button.
Pattern number 0001 is selected.

5 In the PGM/PST transition control block, slowly move the fader lever down. Or, press the [AUTO TRANS] button.

The wipe transition starts. On the program monitor screen, the video of the castle gradually moves in from the left of the video of the lion. When the transition completes, the lion video is gone and the castle video occupies the entire screen.

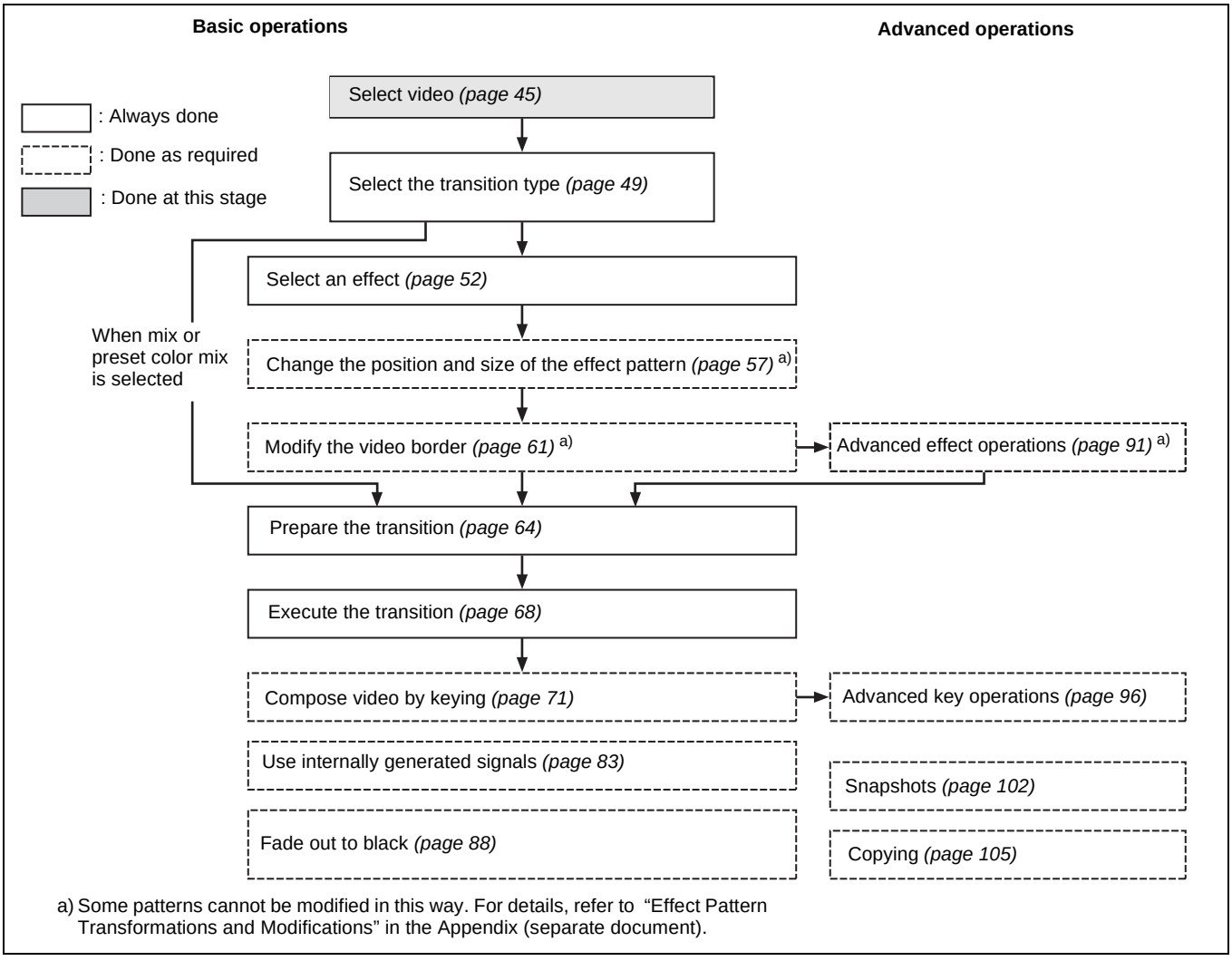
At this stage, the colors of the lit cross-point buttons are as follows.
- 4th button from the left in the PGM row (selecting the castle video signal): Red
- [M/E] button at the right edge of the PST row (selecting the M/E output signal): Amber
- 3rd button from the left in the background A row on the M/E cross-point control block: Amber

Chapter 5 Basic Operations

Selecting Video

Flow of Operations

The following figure shows a typical flow of operations when using the MFS-2000 system. For details about operations, see the pages in parentheses ( ).



a) Some patterns cannot be modified in this way. For details, refer to "Effect Pattern Transformations and Modifications" in the Appendix (separate document).

Selecting Video in the M/E Cross-Point Control Block

To execute a background video transition, you need to prepare by selecting the background video before and after the transition on the M/E cross-point control block.

When using the 1.5 M/E panel or 1.5 M/E wide panel

Program video (final output video) is created with the background video selected on the PGM/PST cross-point control block.

See the next section "Selecting Video in the PGM/PST Cross-Point Control Block" for more information about how to select video on the PGM/PST cross-point control block.

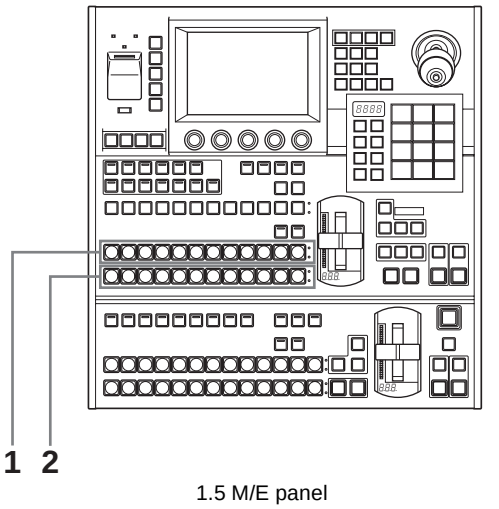
Select the background video displayed before the transition with the buttons in the background A row. Select the background video displayed after the transition with the buttons in the background B row.
The following table shows the correspondences between selectable signals and the cross-point buttons used to select them in the factory default configuration.

Selectable signal	Cross-point button used to select signal
Internally generated black signal	BLACK (left edge)
Internally generated color matte signal	COLOR BKGD (right edge)
Signals input to processor IN1 to IN8 connectors [a)]	Cross-point buttons other than the above

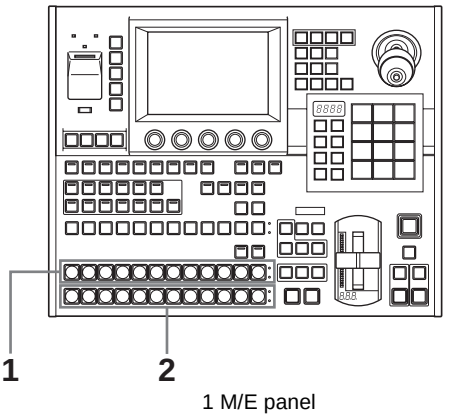
a) IN1 to IN16 when using the 1.5 M/E wide panel.

Assignments of signals to cross-point buttons can be freely changed using the Xpt Assign menu *(see page 118)*.

To select video, proceed as follows.



1.5 M/E panel



1 M/E panel

1 Press a button in the background A row to select the background video before the transition.

When the button pressed to select background video is lit in red, the video is displayed on the video monitor connected to the processor's program (final video) output connector.

2 Press a button in the background B row to select the background video after the transition.

The button lights in amber.

Selecting Video in the PGM/PST Cross-Point Control Block

Select the background video before the transition by pressing a button in the PGM row. Select the background video after the transition by pressing a button in the PST row. Except for the [M/E] buttons at the right edge of the rows, the buttons have the same names and select the same signals as the buttons in the M/E cross-point control block.

To import video created in the M/E bank as background video into the PGM/PST bank

Press the [M/E] button at the right edge of either row (PGM row or PST row).

Selecting Video in the AUX Bus Control Block

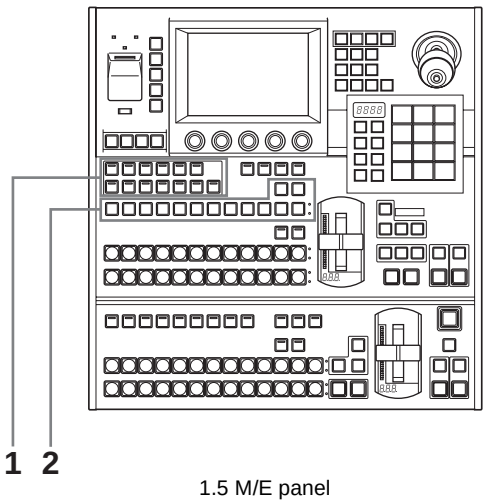
In the AUX bus control block, you can use the AUX delegation buttons to assign the cross-point button row to the desired bus, allowing you to select key signals and signals to apply a variety of other functions.
The buses which can be selected by the AUX delegation buttons are as follows.

Button	Selectable bus
AUX1 to 4	AUX1 bus to AUX4 bus
EDIT PVW	Edit Pvw (edit preview) bus
UTIL	Utility bus
KEY1	[SRC BUS] button off: Key1 bus [SRC BUS] button on: Key1 Source bus
KEY2	[SRC BUS] button off: Key2 bus [SRC BUS] button on: Key2 Source bus
DSK1	[SRC BUS] button off: DSK1 (downstream key 1) bus [SRC BUS] button on: DSK1 Source (downstream key 1 source) bus
DSK2	[SRC BUS] button off: DSK2 (downstream key 2) bus [SRC BUS] button on: DSK2 Source (downstream key 2 source) bus
CCR1, CCR2	CCR1 (color correction1) bus, CCR2 bus a)
FRAME MEM	[SRC BUS] button off: Frame Memory bus b) [SRC BUS] button on: Frame Memory Key bus

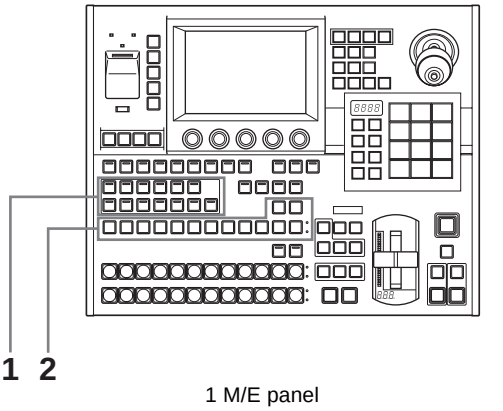
a) The color correction function is currently not supported.
b) The frame memory function is currently not supported.

For more information about the buttons in the AUX bus control block, see "AUX Bus Control Block" (page 12).

To select signals in the AUX bus control block, proceed as follows.



1.5 M/E panel



1 M/E panel

1 Press one of the AUX delegation buttons to select the bus to which the cross-point button row is assigned.

2 Press one of the buttons in cross-point button row to select the desired signal.

When a signal on the selected bus is being output to program video, the corresponding button lights in red (high tally). Otherwise the button lights in amber (low tally).

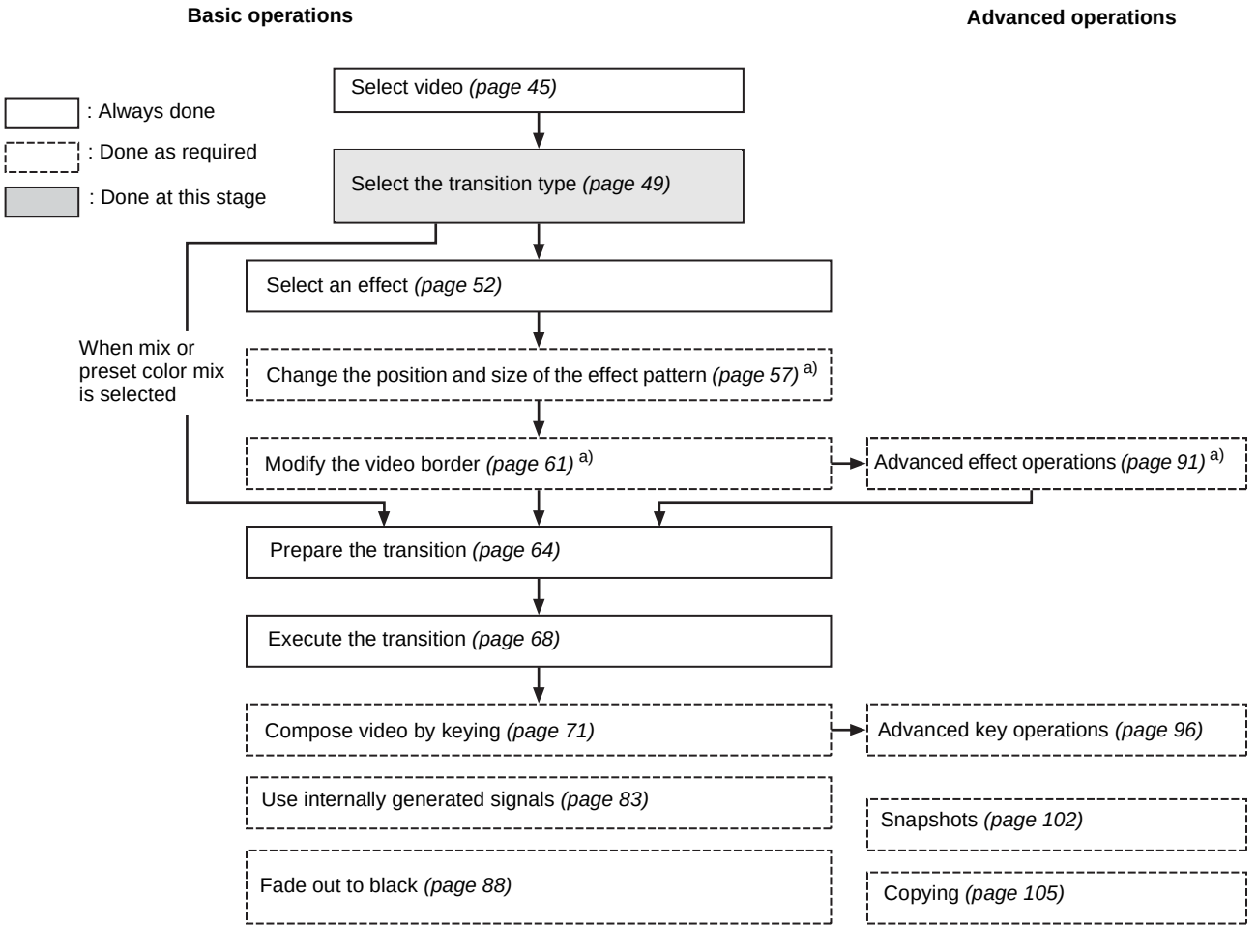
To select the background of a 2-channel effect

In some of the effect patterns from number 2001 to number 2999, utility bus signals are used as the background for the A bus and B bus video.
For such effect patterns, first press the AUX delegation button [UTIL] and then press a button in the cross-point button row to select the signal to input to the utility bus.

Selecting Transition Types

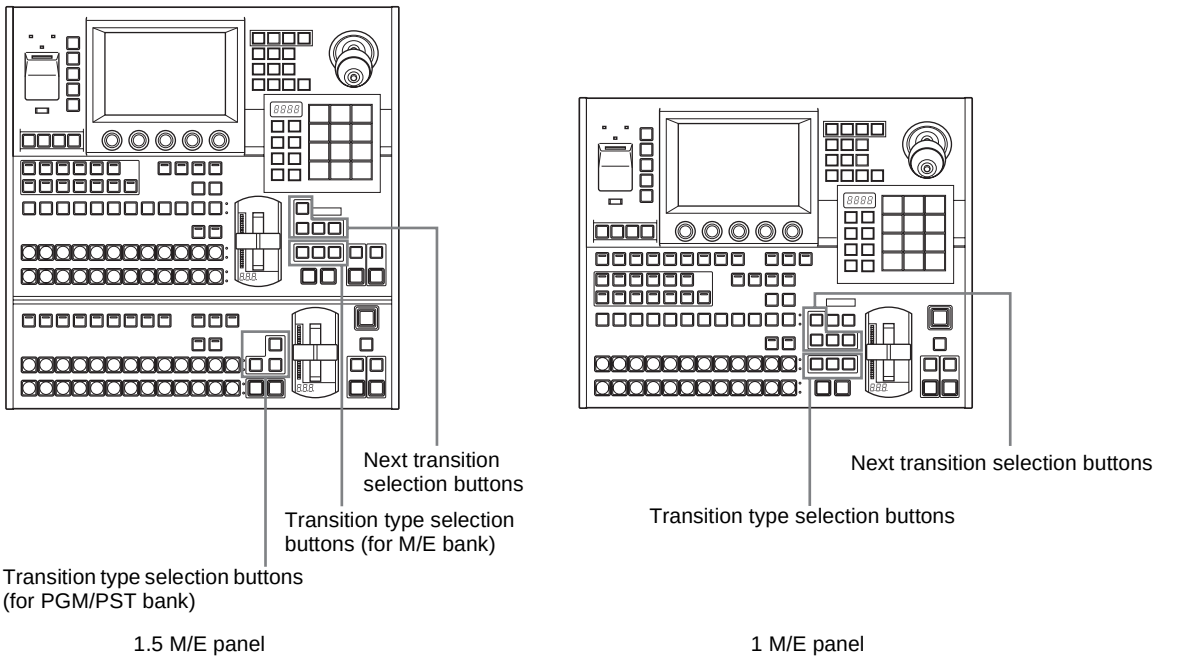
Flow of Operations

The following figure shows a typical flow of operations when using the MFS-2000 system. For details about operations, see the pages in parentheses ( ).



a) Some patterns cannot be modified in this way. For details, refer to “Effect Pattern Transformations and Modifications” in the Appendix (separate document).

Selecting the Transition Type and the Next Transition



To select the transition type

Press one of the transition type selection buttons in the M/E transition control block or the PGM/PST transition control block, lighting the button.

MIX: The new video overlaps the current video, finally replacing it.

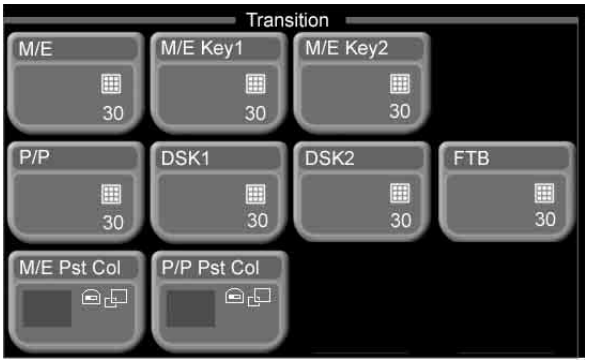
EFF: A transition using an effect pattern is executed.
(In the PGM/PST bank, this button is [WIPE].)

PST COLOR MIX: This is a two-stage mix (dissolve), comprising two transitions. In the first transition, a color matte (non-patterned color signal) is gradually mixed into the current video. In the second transition, the new video is gradually mixed into the color matte.
When this is selected, you can use the following procedure to select the matte color.

To select a color matte for preset color mix

1 In the top menu, select Misc >Transition. Or, double click the [PST COLOR MIX] button.

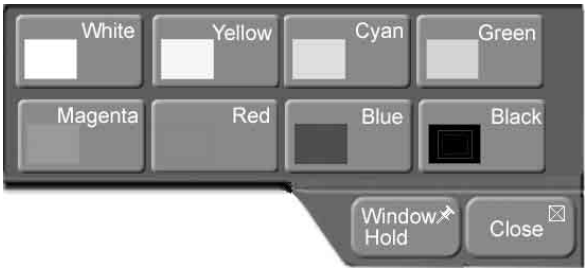
The Transition menu appears.



2 Select the target of the setting.

- Press [M/E Pst Col] to select a color matte for the M/E bank.
- Press [P/P Pst Col] to select a color matte for the PGM/PST bank (1.5M/E panel only).

A popup window appears, displaying the same 8 colors as a color bar.



3 Press the button for the color that is closest to the desired color.

The popup window closes.

4 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Lum)	Luminance	0.00 to 100.00
2 (Sat)	Saturation	0.00 to 100.00
3 (Hue)	Hue	359.99 to 0.00

To select the next transition

Select the part of the video which changes in the transition.
Press one of the next transition selection buttons in the M/E transition control block, lighting the button.
(This operation is not needed for a transition in the PGM/PST bank, since only the background changes.)
BKGD: The background changes.
KEY1: Insert or delete key 1.
KEY2: Insert or delete key 2.
KEY PRIOR: Reverse the priority of key 1 and key 2.

See "Composing Video With Keys" (page 71) for more information about working with keys.

Note
When using effect patterns numbered 1001 or higher *(see page 56)*, it is not possible to make multiple next transition selections. Also the [KEY PRIOR] button cannot be selected.

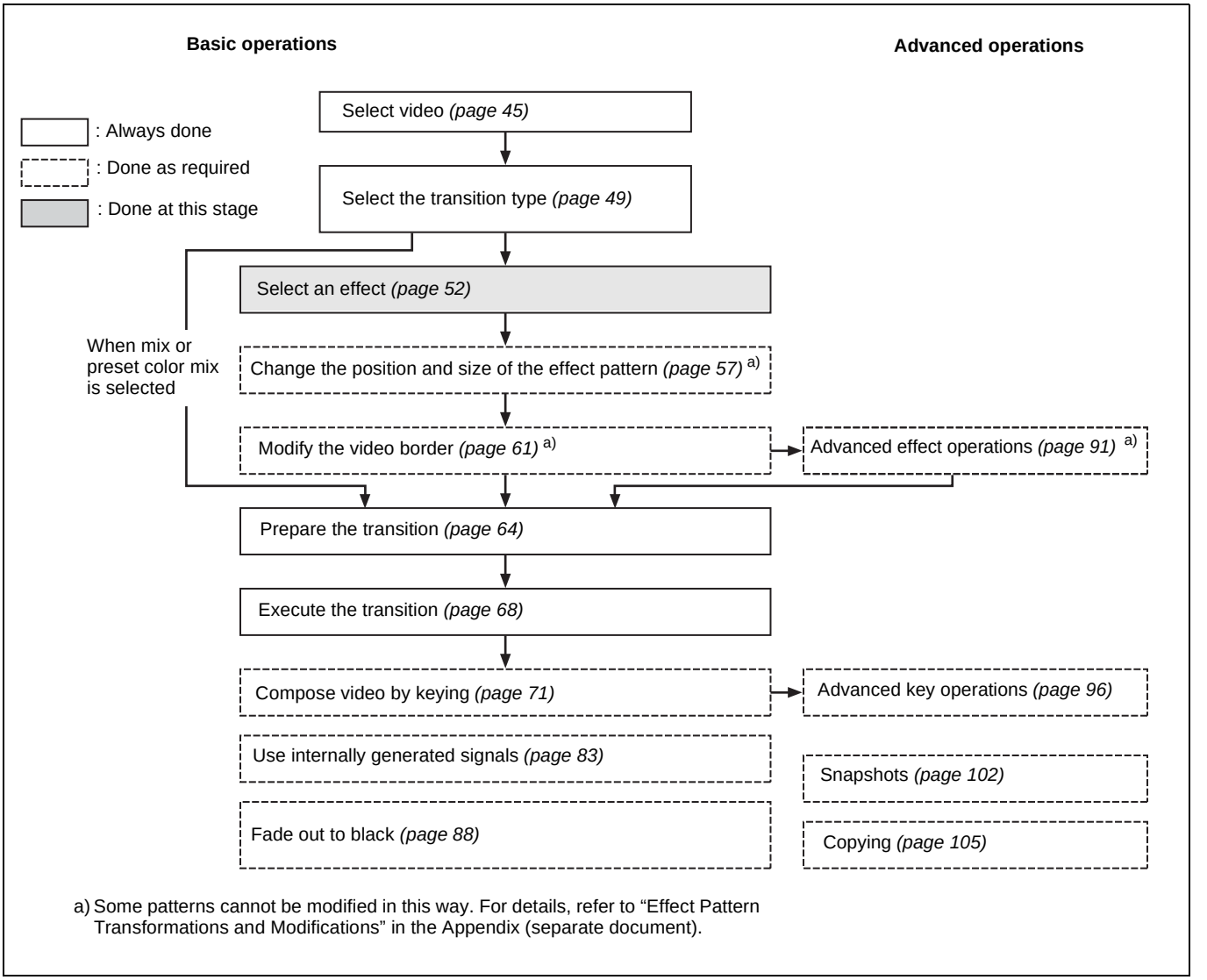
Selecting Effects

When you have selected [EFF] as the transition type *(see page 50)* or selected [WIPE] (in the PGM/PST bank of the 1.5M/E panel), select the effect to use. Effects selectable in the PGM/PST bank are limited to basic wipes. The M/E bank can select basic wipes and other effects as well. This section refers to all of these together as simply “effects.”

For more information about effects, see “Effect Types” (page 56).

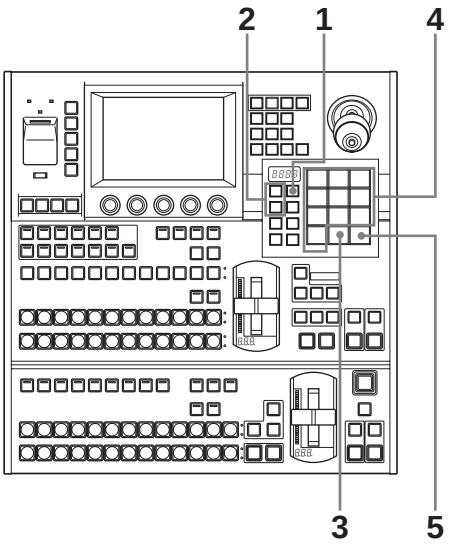
Flow of Operations

The following figure shows a typical flow of operations when using the MFS-2000 system. For details about operations, see the pages in parentheses ( ).

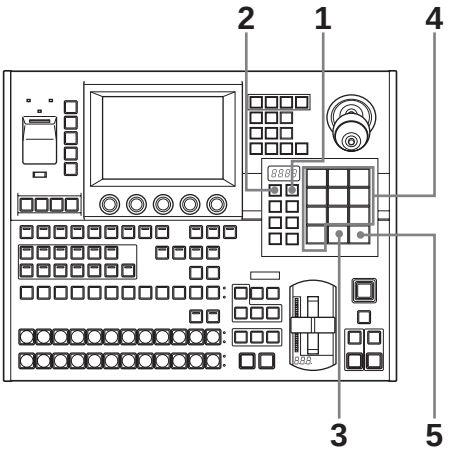


You can select effects using either the Flexi Pad control block or menus.

Selecting Effects With the Flexi Pad Control Block

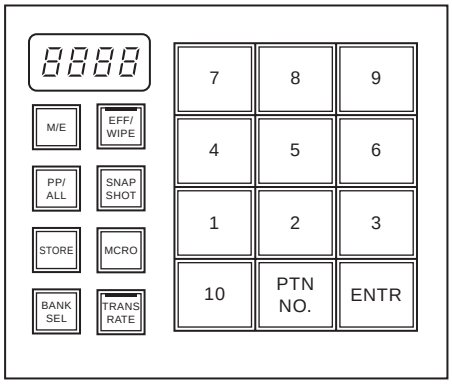


1.5 M/E panel



1 M/E panel

1 Press the [EFF/WIPE] button in the Flexi Pad control block.



2 Select the setting target with the delegation buttons.

- To set the M/E bank, press the [M/E] button.
- To set the PGM/PST bank, press the [PP/ALL] button (when using a 1.5 M/E panel).

3 Press the [PTN NO.] button, lighting it in green.
(The [PTN NO.] button lights alternately in green and orange each time it is pressed.)

An effect number can be entered now.

4 Enter the number of the desired effect pattern.

If the number begins by 0, 00, or 000, it is needless to input these zeros. For example, when the number is 0001, input the digit 1 only.
Wipe pratterns selectable in the PGM/PST bank are limited to 0001 to 0024, 0901, and 0902.

Refer to "Effect Pattern List" in the Appendix (separate document) for more information about effect patterns.

The entered effect pattern number appears in the numeric display.

Note

Effects numbered 1001 and higher cannot be used when:
• Multiple next transition selections have been made.
• Key priority (KEY PRIOR) has been selected as the transition type.

To re-enter the pattern number

Press the [PTN NO.] button so that it changes back to lit in orange, then repeat the procedure from step **3**.

5 Press the [ENTR] button.

This confirms the effect pattern number entered in step **4**.

When an invalid pattern number is entered

A warning tone sounds and the system exits pattern number input mode. Check the correct pattern number and repeat from step **3**.

Selecting Effects From Menus

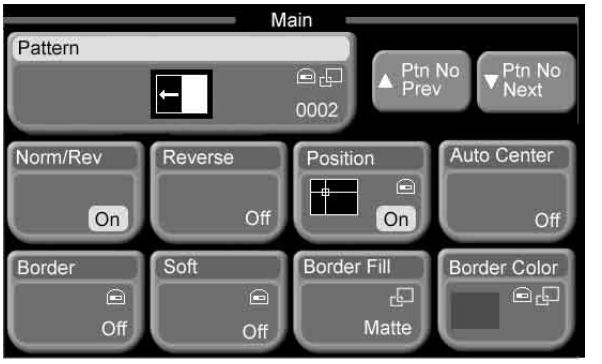
1 In the top menu, select Effect/Wipe >M/E Effect.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Main].

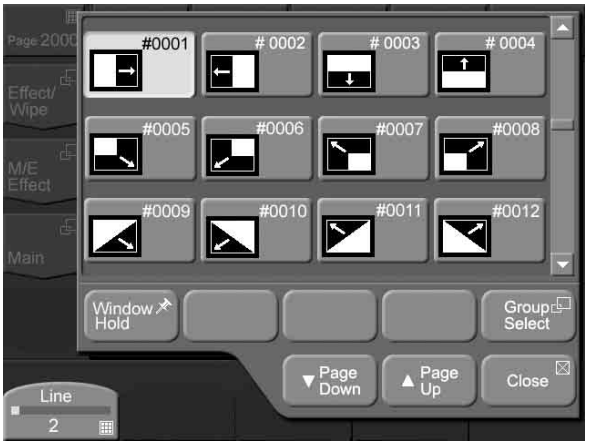
The Main menu appears.



(The example in the above figure shows effect pattern 0002 selected. *See page 58* for an example of the screen when a pattern numbered 1001 or higher is selected.)

4 Press [Pattern].

A popup window appears.



To scroll the popup window

Do one of the following.

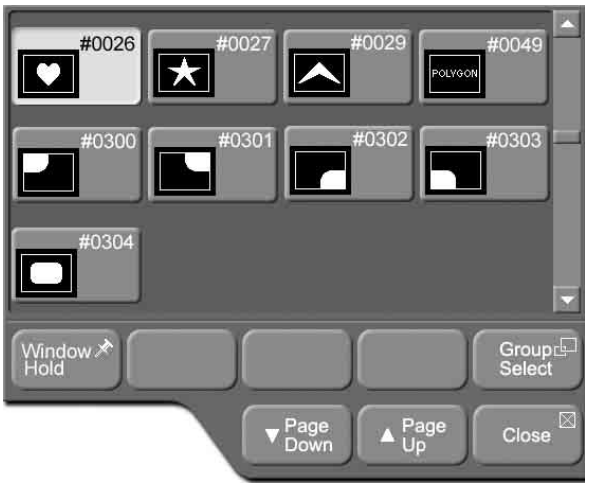
- Use the scroll bar on the right.
- Rotate knob 1. Each rotation scrolls 1 line up or down.
- Press [Page Down] or [Page Up]. Each press scrolls 3 lines up or down.

5 To select the desired pattern from a group of patterns, press [Group Select].

A popup window appears.

6 Select the name of the desired group.

The effect patterns in the selected group appear.
(The example in the following figure shows the Enhanced group.)



7 Press the button for the desired pattern.

The effect pattern is confirmed, the popup window closes, and you are returned to the Main menu.

Effect Types

About effect pattern numbers

The effects available on this system can be selected with 4-digit effect pattern numbers. These numbers can generally be classified as shown below. In general this manual calls all effects simply as “effects,” but when it refers to effects used on the PGM/PST bank, it calls them as “wipes.”

Yes: Available for use No: Not available for use

Type		Effect pattern numbers	M/E	PGM/PST
Wipes		0001 to 0274	Yes	Standard group patterns only (0001 to 0024)
NAM		0901	Yes	Yes
Super mix		0902	Yes	Yes
Effects using DME	1-channel effects	1001 to 1999	Yes a)	No
	2-channel effects	2001 to 2999	Yes a)	No

a) DME option must be installed.

Note

Effects numbered 1001 and higher cannot be used when:

- Multiple next transition selections have been made.
- Key priority ([KEY PRIOR]) has been selected as the transition type.

Transition effects and non-transition effects

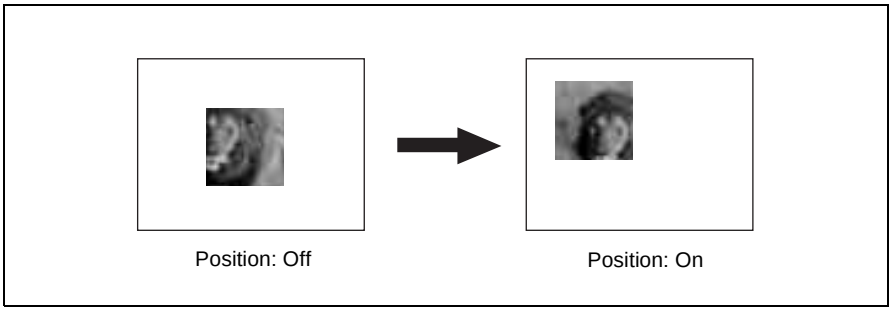
Effects numbered 1001 and higher fall into the following two types, depending on what occurs when the effect is executed.

Transition effects: A bus and B bus cross-points are switched by executing a transition. (Slides, page turn, etc.)

Non-transition effects: A bus and B bus cross-points are not switched, even after the effect ends. (Picture-in-picture)

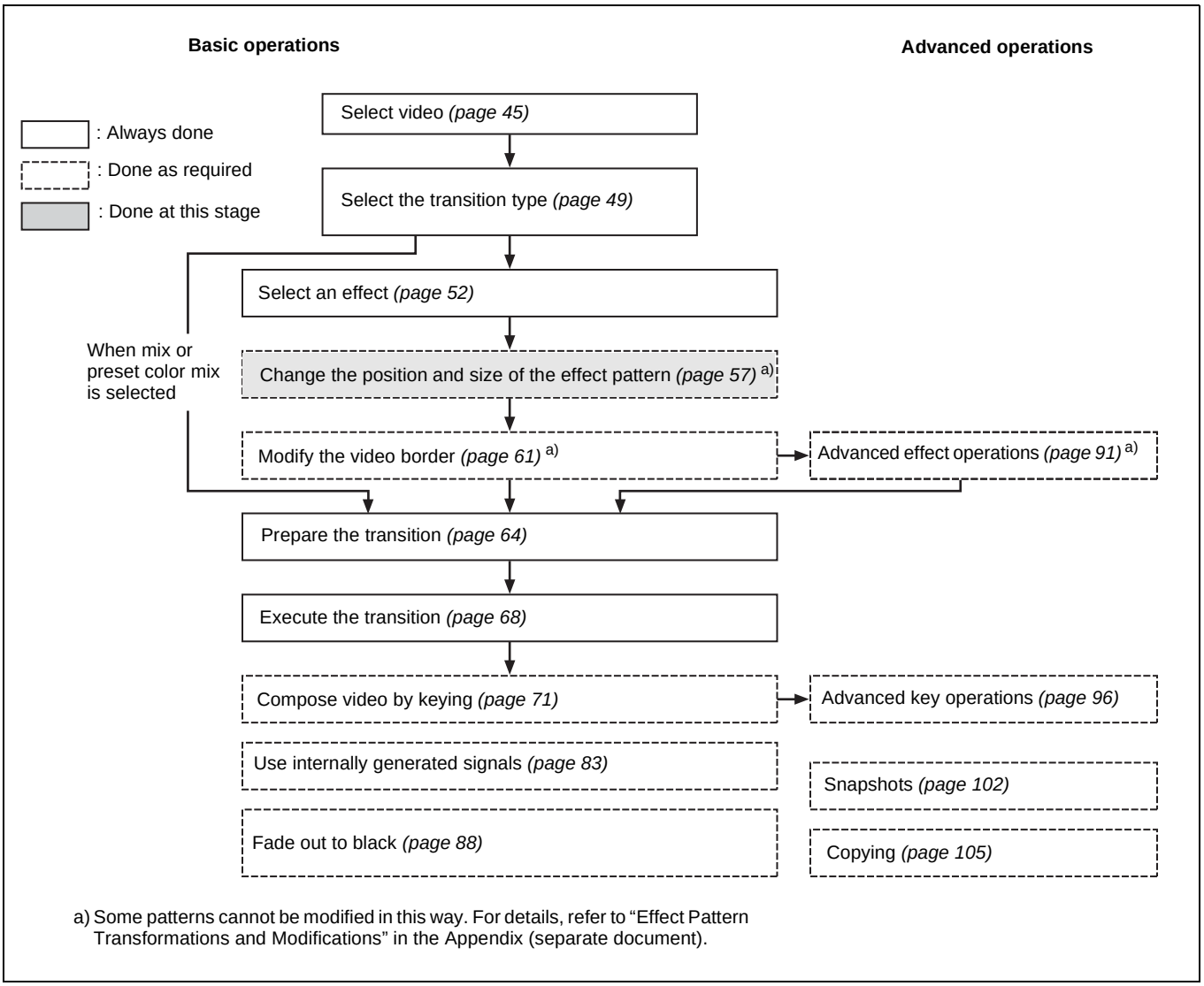
Changing the Position and Size of Effect Patterns

You can change the position of effect patterns (see following figure) and change their size.



Flow of Operations

The following figure shows a typical flow of operations when using the MFS-2000 system. For details about operations, see the pages in parentheses ( ).



a) Some patterns cannot be modified in this way. For details, refer to "Effect Pattern Transformations and Modifications" in the Appendix (separate document).

Selecting Channels

When an effect pattern numbered 2001 or higher is selected, you need to select the target channels.

To select channels with the Effect/Wipe control block

Press the [M/E 1CH] or [M/E 2CH] delegation selection button in the Effect/Wipe control block, lighting the button. You can also select both channels.

To select channels from menus

Note

Two channels cannot be selected at once from a menu.
However, when two channels are selected with the buttons in the Effect/Wipe control block, both of the buttons are lit in the menu.

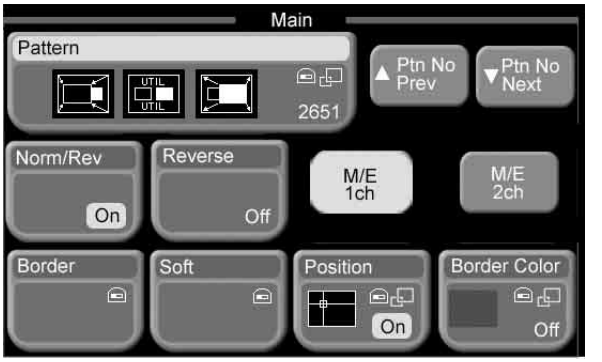
1 In the top menu, select Effect/Wipe >M/E Effect.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Main].

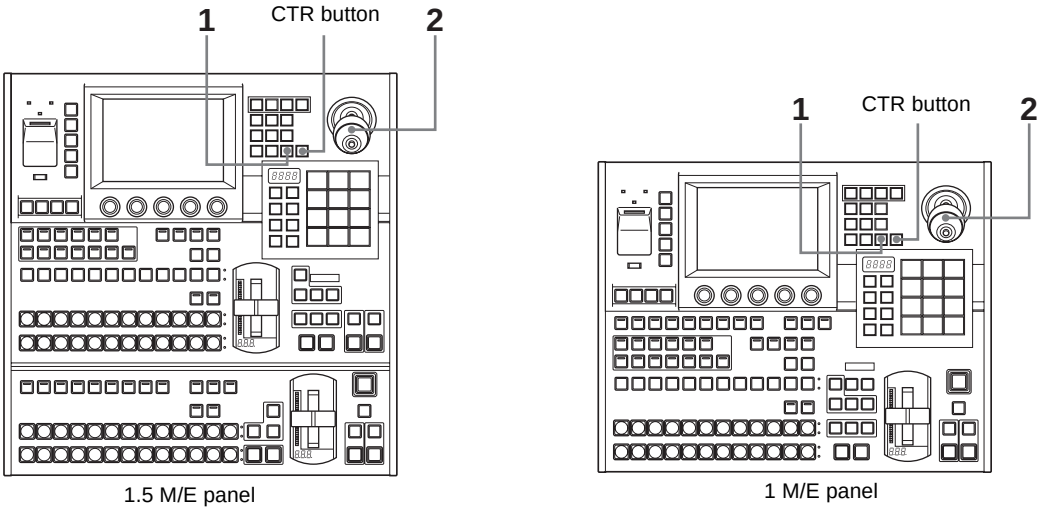
The Main menu appears.



4 Press [M/E 1ch] or [M/E 2ch] to select a channel.

If two channels are selected with the delegation selection buttons in the effect/wipe control block of the control panel, the parameter setting values for the reference channel are shown in the menu. Settings for the two channels are adjusted with relative values.

Changing Pattern Position and Size With the Joystick



1 Press the [POS] button in the Effect/Wipe control block, lighting it.

The joystick is assigned to the positioner (which changes effect pattern position and size).

2 Operate the joystick as shown below, depending on what you want to change.

Joystick direction	Description	Setting values
X (H Position)	Horizontal position	–200.00 to +200.00
Y (V Position)	Vertical position	–200.00 to +200.00
Knob (Size) [a)]	Effect pattern size	0.00 to 200.00

a) Not available for some patterns. For details, refer to “Effect Pattern Transformations and Modifications” in the Appendix (separate document).

To return the pattern to the center of the screen

Press the [CTR] button in the Effect/Wipe control block.

Changing Pattern Size and Position From Menus

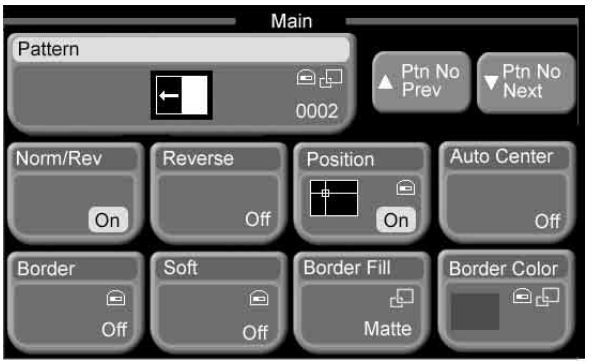
1 In the top menu, select Effect/Wipe >M/E Effect.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Main].

The Main menu appears.



4 Press [Position], turning it on.

5 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (H Position)	Horizontal position	–200.00 to +200.00 a)
2 (V Position)	Vertical position	–200.00 to +200.00 b)
3 (Size) c)	Effect pattern size	0.00 to 200.00

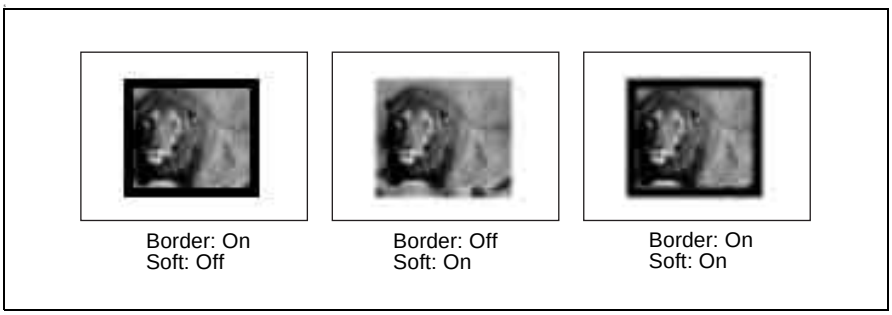
a) –100.00 moves the center of the pattern to the left edge, and +100.00 moves it to the right edge.
b) –100.00 moves the center of the pattern to the bottom edge, and +100.00 moves it to the top edge.
c) Not available for some patterns. For details, refer to "Effect Pattern Transformations and Modifications" in the Appendix (separate document).

To return the pattern to the center of the screen in a transition (effect pattern nos. 0001 to 0999 only)

In the Effect/Wipe >M/E Effect >Main menu, press [Auto Center], turning it on.

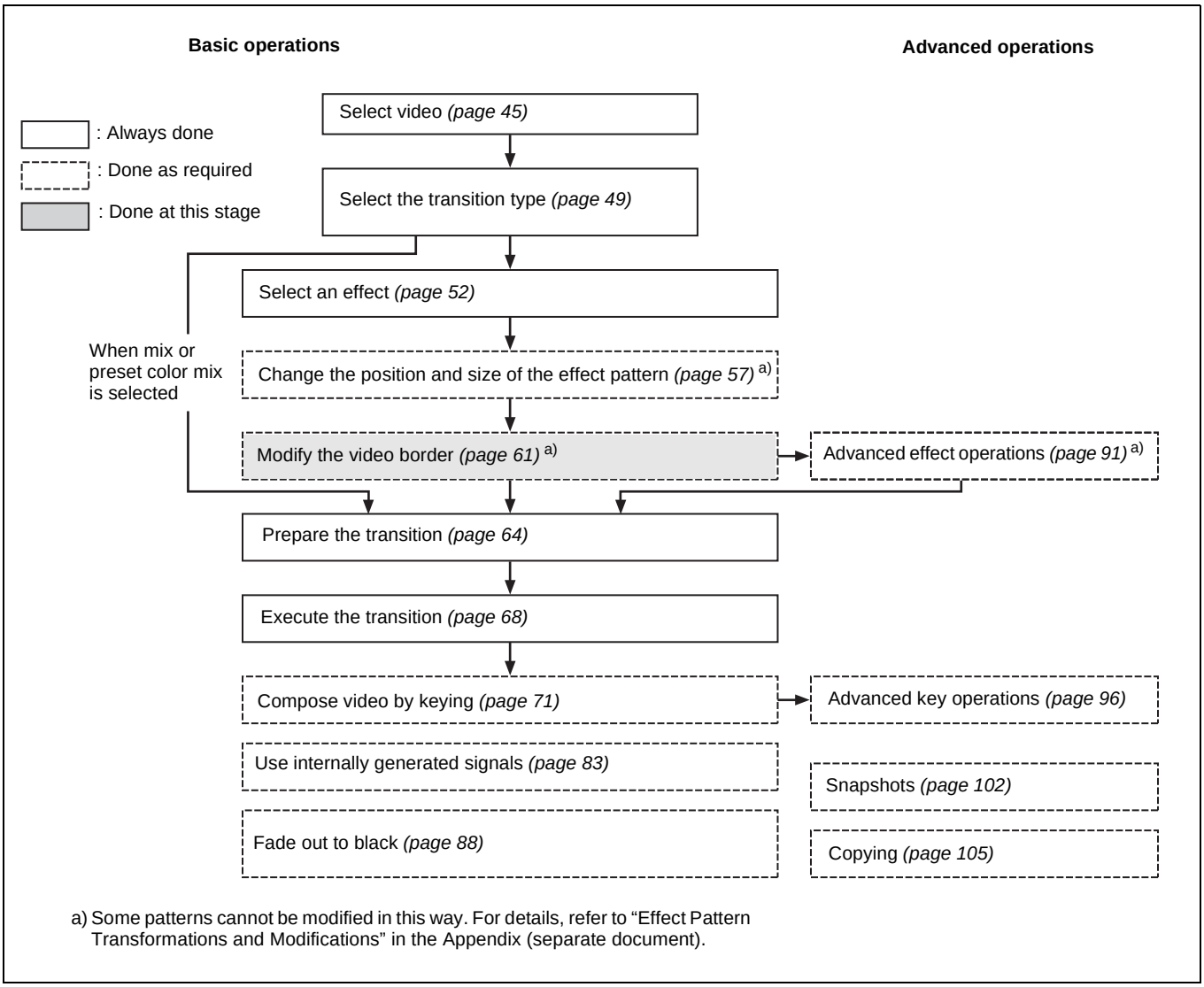
Modifying Video Borders

You can add borders to the edges of the video, and soften the borders or edges (see following figure).



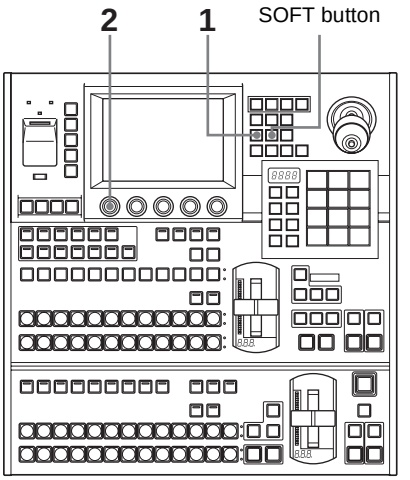
Flow of Operations

The following figure shows a typical flow of operations when using the MFS-2000 system. For details about operations, see the pages in parentheses ( ).

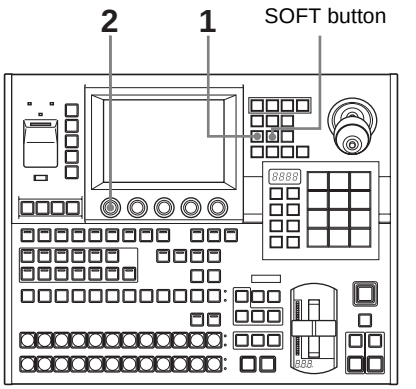


a) Some patterns cannot be modified in this way. For details, refer to “Effect Pattern Transformations and Modifications” in the Appendix (separate document).

Adding Borders to Video



1.5 M/E panel



1 M/E panel

1 Press the [BORD] button in the Effect/Wipe control block, lighting it.
Or, turn [Border] on in the Effect/Wipe >M/E Effect >Main menu *(see page 54)*.

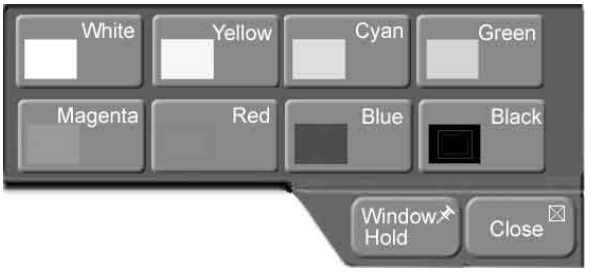
2 Set the following parameter with knob 1.

Knob	Description	Setting values
1 (Width)	Width of border	0.00 to 100.00

To set border colors

1 Press [Border Color] in the Effect/Wipe >M/E Effect >Main menu *(see page 54)*.

A popup window appears, displaying the same 8 colors as a color bar.



2 Press the button for the color that is closest to the desired color.

The popup window closes.

3 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Lum)	Luminance	0.00 to 100.00

Knob	Description	Setting values
2 (Sat)	Saturation	0.00 to 100.00
3 (Hue)	Hue	359.99 to 0.00

Softening Video Edges (Soft Edge/Soft Border)

1 Press the [SOFT] button in the Effect/Wipe control block, lighting it.

Or, turn [Soft] on in the Effect/Wipe >M/E Effect >Main menu.

2 Set the following parameters with the knobs.

No borders:

Knob	Description	Setting values
1 (Soft)	Softness of edges	0.00 to 100.00

Borders:

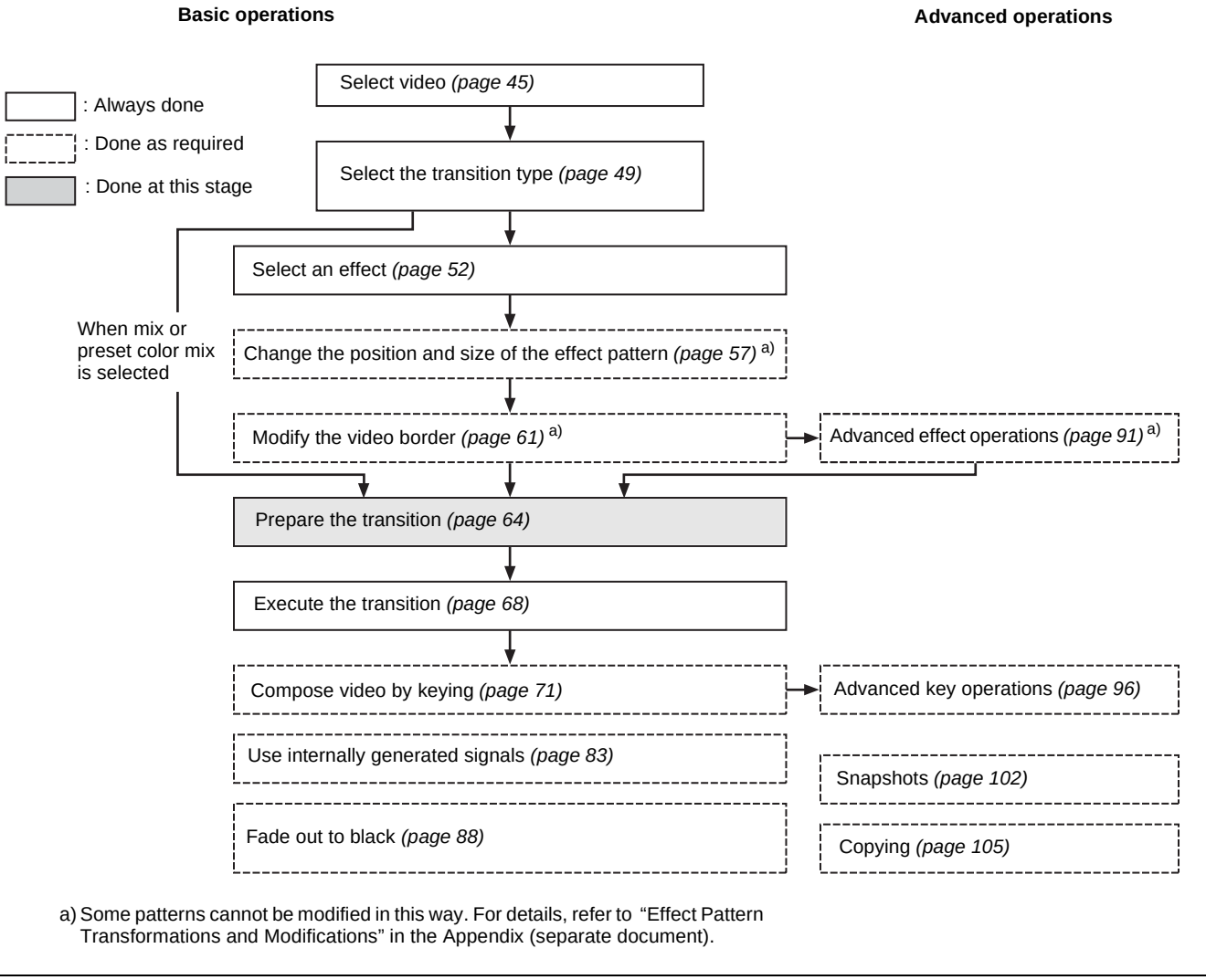
Knob	Description	Setting values
1 (Width)	Width of borders	0.00 to 100.00
2 (Inner Soft)	Softness of border inner side	0.00 to 100.00
3 (Outer Soft)	Softness of border outer side	0.00 to 100.00 a)

a) Not displayed for effect patterns nos.1001 to 2999.

Preparing Transitions

Flow of Operations

The following figure shows a typical flow of operations when using the MFS-2000 system. For details about operations, see the pages in parentheses ( ).

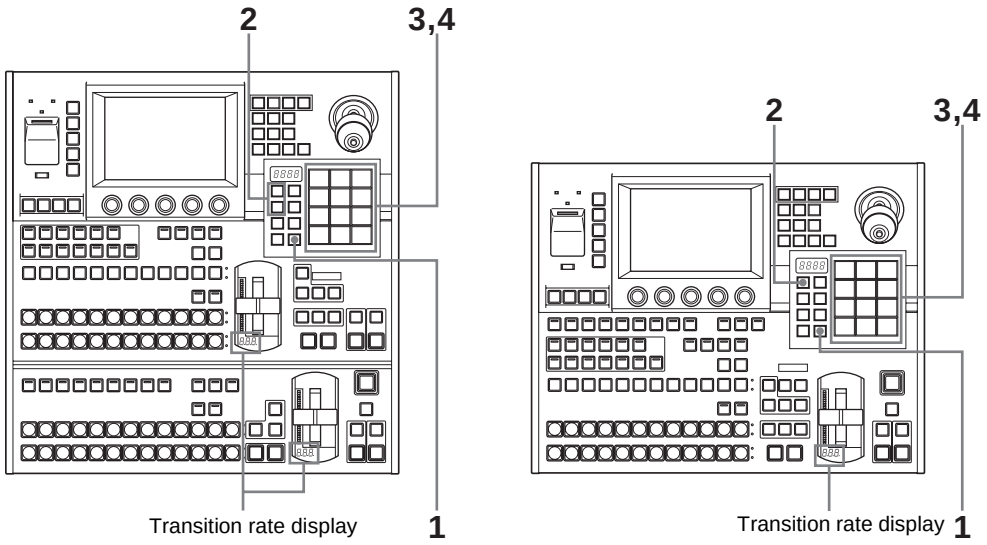


a) Some patterns cannot be modified in this way. For details, refer to "Effect Pattern Transformations and Modifications" in the Appendix (separate document).

Setting Transition Rates

For a transition which is executed automatically over a specified time, you need to set the time (transition rate).
To set transition rates, you can use either the Flexi Pad control block or menus.

To set transition rates with the Flexi Pad control block



1 In the Flexi Pad control block, press the [TRANS RATE] mode selection button, lighting it.

The Flexi Pad control block enters transition rate input mode.

2 Select the target of the setting with the delegation selection buttons.

- Press [M/E] to set for the M/E bank.
- Press [PP/ALL] to set for the PGM/PST bank (when using the 1.5M/E panel).

3 Enter the transition rate as a number of frames. (The setting range is 0 to 999.)

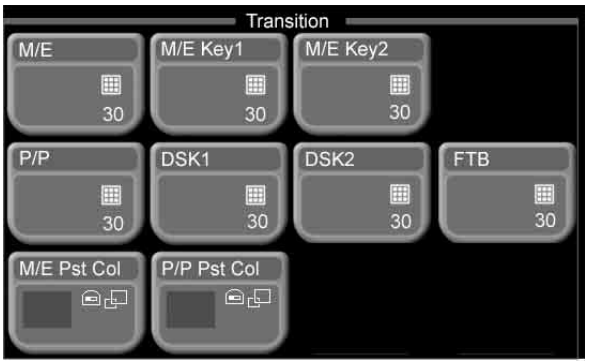
4 Press the [ENTR] button.

This confirms the input. The transition rate appears beneath the fader lever in the transition control block.

To set transition rates from menus

1 In the top menu, select Misc >Transition.
Or, double click the [TRANS RATE] button in the Flexi Pad control block.

The Transition menu appears.



2 Select the target of the setting.

• Press [M/E] to set for the M/E bank.
• Press [P/P] to set for the PGM/PST bank (when using the 1.5M/E panel).

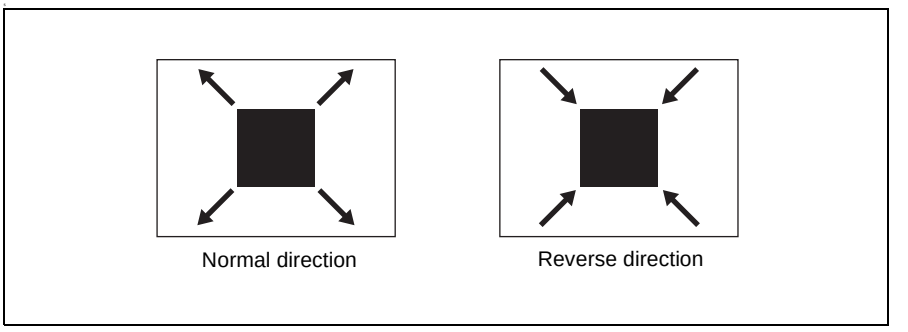
The numeric keypad window appears.

3 Enter a number of frames in the range 0 to 999 and press [Enter].

This confirms the input. The transition rate appears beneath the fader lever in the transition control block.

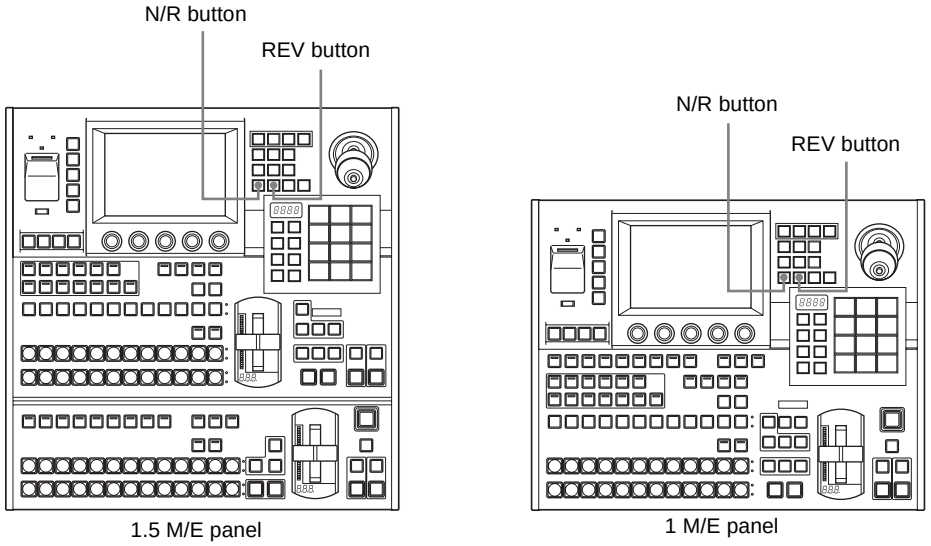
Selecting Effect Directions

You can select the direction of some effects.
The normal direction is the direction of the arrows shown in the illustrations of effect patterns in the “Effect Pattern List” in the Appendix (separate document).
The reverse direction is the opposite direction.



To select effect directions, you can use either the Effect/Wipe control block or menus.

To select effect directions with the Effect/Wipe control block



To select the normal direction: Turn both the [REV] button and [N/R] button off, so that they are not lit.
To select the reverse direction: Press the [REV] button so that it lights, and the [N/R] button so that it is not lit.
To select the normal/reverse direction: Press the [N/R] button so that it lights .

To select effect directions from menus

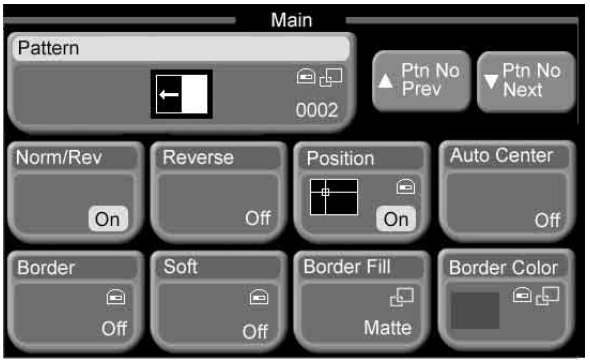
1 In the top menu, select Effect/Wipe >M/E Effect.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Main].

The Main menu appears.



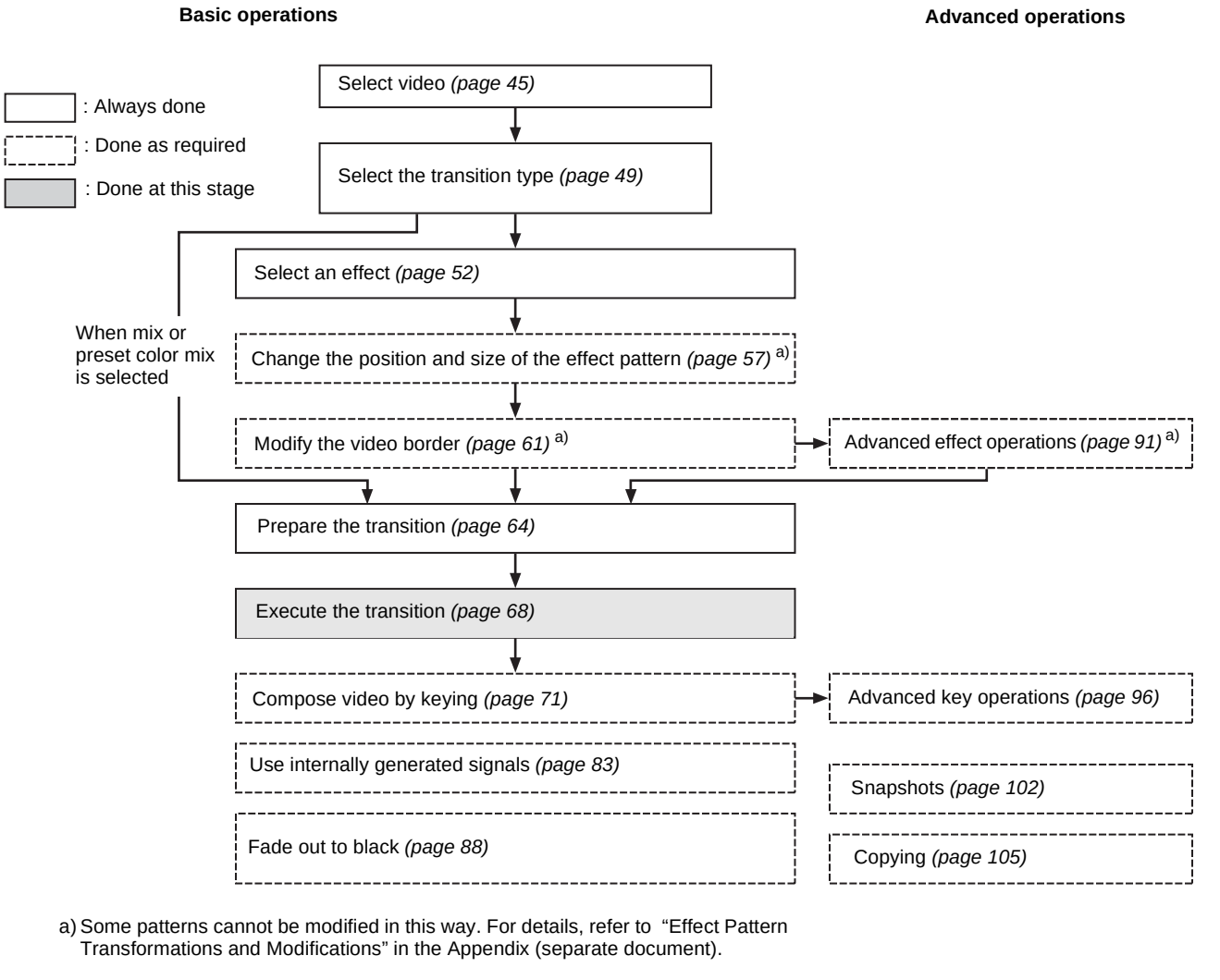
4 Select one of the following.

To select the normal direction: Turn both [Norm/Rev] and [Reverse] off.
To select the reverse direction: Turn [Reverse] on, and turn [Norm/Rev] off.
To select the normal/reverse direction: Turn [Norm/Rev] on.

Executing Transitions

Flow of Operations

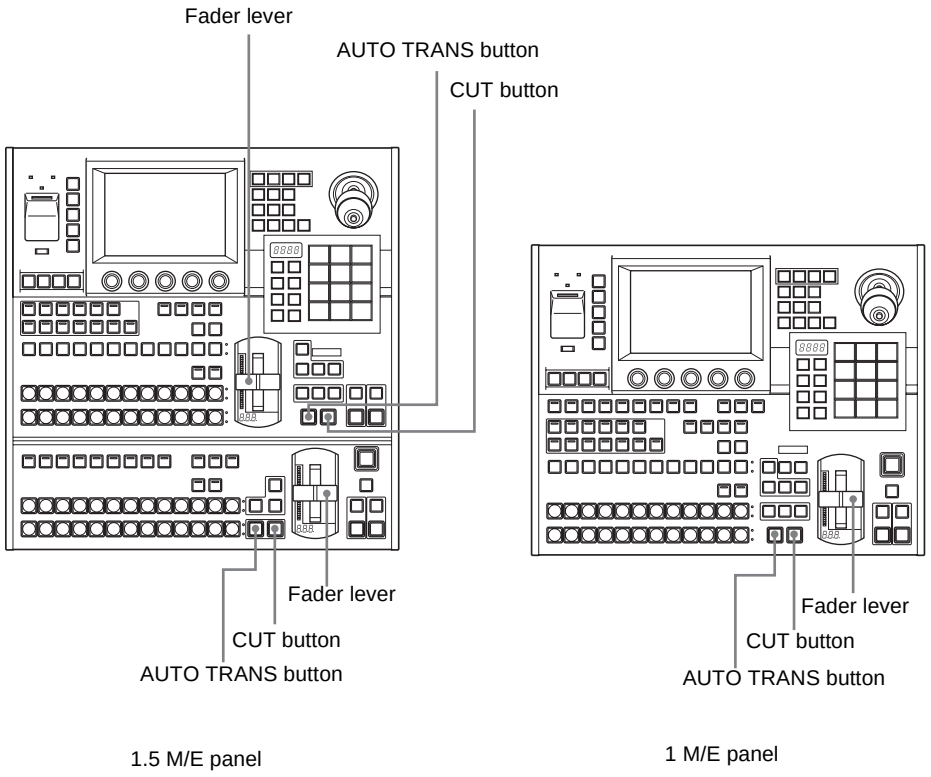
The following figure shows a typical flow of operations when using the MFS-2000 system. For details about operations, see the pages in parentheses ( ).



a) Some patterns cannot be modified in this way. For details, refer to "Effect Pattern Transformations and Modifications" in the Appendix (separate document).

Executing Transitions

Execute transition with the buttons and levers shown in the following figure.



To switch the video instantly ([CUT] button)

Press the [CUT] button in the transition execution section.
The video switches between the A bus and the B bus with each press of the button.

To execute a transition at a specified transition rate ([AUTO TRANS] button)

Press the [AUTO TRANS] button in the transition execution section.
The progress of the transition is shown by the transition indicator LEDs, which light one after the other as the transition proceeds.

To execute a transition with the fader lever

Move the transition lever from one side to the other at any speed. Once you do this, you can control the transition manually.
The transition indicator LEDs light one after the other as you move the lever to execute the transition.

About fader lever non-sync

If an auto transition finishes with the fader lever in an intermediate position, the lever position does not match the current transition position. This state is called “non-sync.”
Two of the transition indicator LEDs light to indicate a non-sync state, either at the top of the lever range, at the bottom of the range, or at both sides.

- Moving the lever toward the side where LEDs are lit does not execute a transition. However, the non-sync state is released when the lever reaches the edge of its range, enabling you to execute a transition with the next operation.
- Moving the lever toward the side where LEDs are not lit executes a transition across the remaining lever range.

An auto transition is possible even if the fader lever is in a non-sync state. When you press the [AUTO TRANS] button, the transition indicator LEDs light as always to show the progress of the transition. But when the transition finishes, two of the LEDs light to indicate the non-sync state.

Composing Video With Keys

A key is an effect in which color and shape information is used to cut out part of the background video and replace it with another color or other video. The signal determining how the background is cut out is termed the “key source,” and the signal that replaces the cut-out part is termed the “key fill.”
This system supports the following types of keys.

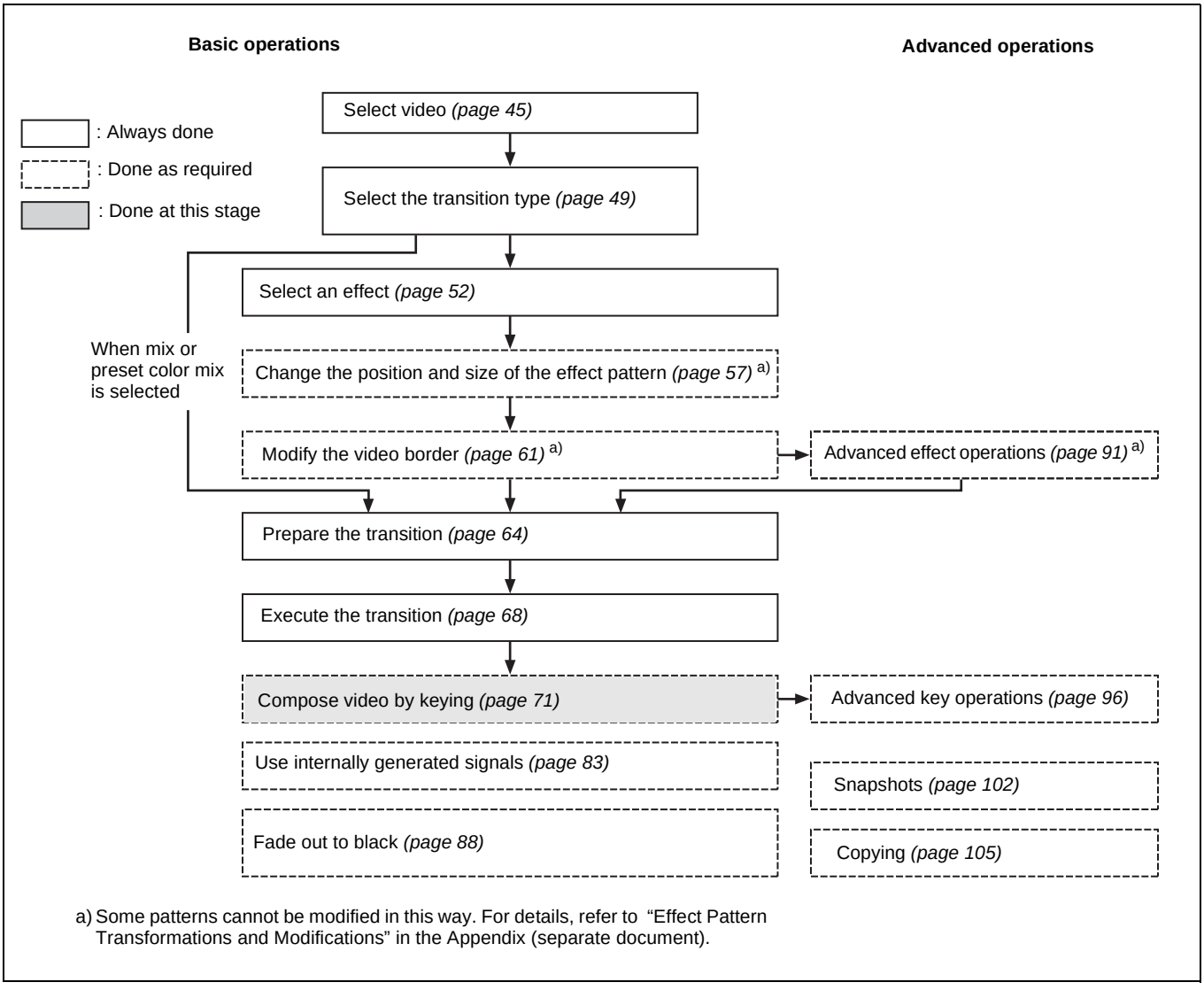
Luminance key/linear key: Used to insert titles and logos into the video. The key source often shows black and white text, which is detected by using the luminance (Y) signal.

Chroma key: Used to compose scenes with two different components, for example people and a background. A key signal based on a particular color is used to cut out the background.

Pattern key: Video is composed using various patterns. A special pattern is used as the key source.

Flow of Operations

The following figure shows a typical flow of operations when using the MFS-2000 system. For details about operations, see the pages in parentheses ( ).

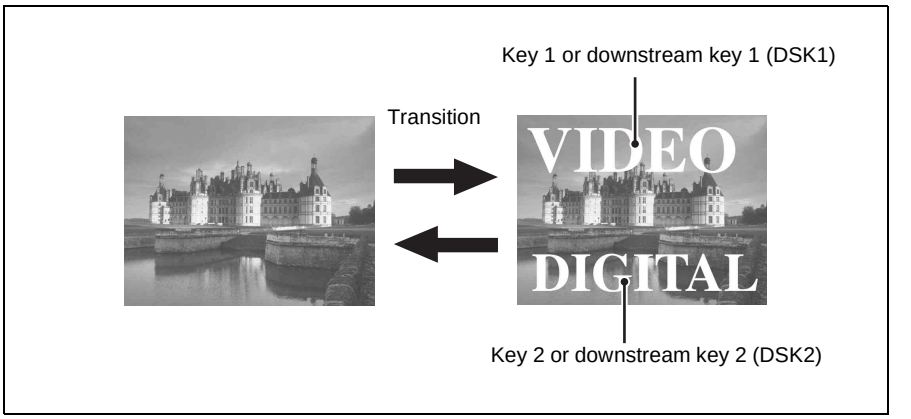


a) Some patterns cannot be modified in this way. For details, refer to “Effect Pattern Transformations and Modifications” in the Appendix (separate document).

M/E Keys and Downstream Keys

Two keys each are available on the M/E bank and the PGM/PST bank. The M/E bank keys are called key 1 and key 2, and the PGM/PST bank keys are called downstream key 1 and downstream key 2.
The downstream keys are also abbreviated as DSK1 and DSK2.

Inserting Text With a Luminance Key or Linear Key



A linear key is a type of luminance key, but with less variation in gain, allowing more precise adjustment.

The following procedure shows how to set up key 1 on the M/E bank. The same operations can be used with the other keys as well (key 2, and downstream keys 1 and 2).

To select luminance or linear key and set the key parameters

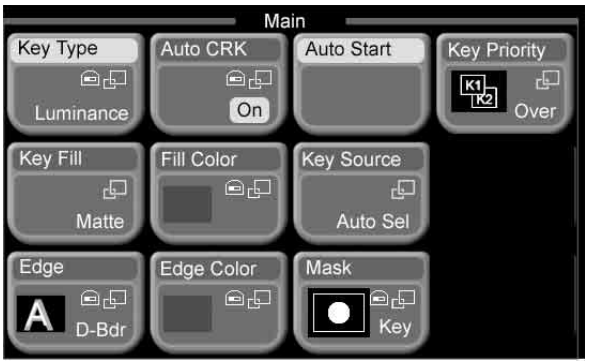
1 In the top menu, select Key >M/E Key1.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Main].

The Main menu appears.



4 Press [Key Type].

A popup window appears.

5 To select a luminance key, press [Luminance]. To select a linear key, press [Linear].

The popup window closes.

6 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Clip)	Reference level for key signal generation	+109.58 to –7.30
2 (Gain)	Gain of key	–100.00 to +100.00
3 (Density)	Density of key	0.00 to 100.00
4 (Filter)	Filter coefficient	1 to 9 a)

a) Set to 1 for through processing, with no filter applied. The filter becomes stronger as larger numbers are specified.

To select a key source

1 In the Key >M/E Key1 >Main menu *(see page 72)*, press [Key Source].

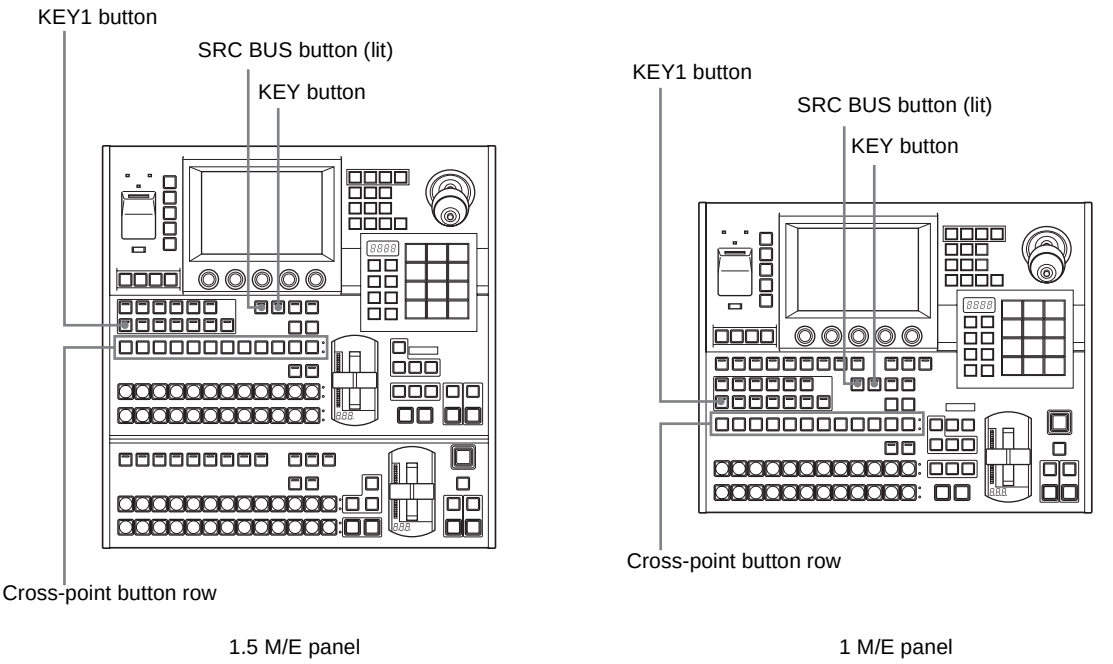
A popup window appears.

2 Press one of the following to select the signal to be used as key source.

Self: Select the same signal as key fill.
Auto Select: Automatically select the key signal assigned to a cross-point button together with the key fill bus signal as a pair. (Use the Video/Key Pair Assign menu *(see page 119)* to carry out pair assignments.)
Split: Aside from the key source signal selected automatically in Auto Select mode, another key source may be selected independently. If you select this, proceed to step **3** and select the key source.

3 If you selected “Split” in step **2**, press the [KEY1] button and the [SRC BUS] button in the AUX bus control block, lighting both buttons, and select a key source in the cross-point button row. The state of the [KEY] button determines whether the key side or the video side is selected. *(See the following figure.)*

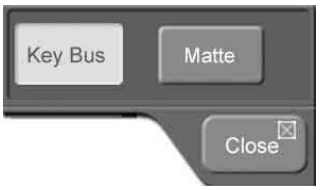
- When you light the [SRC BUS] button, the [KEY] button also lights, enabling you to select the key side signal assigned as the key source to the pair number.
- Pressing the [KEY] button to turn it off enables you to select the video side signal assigned as the key source to the pair number.



To select a key fill

1 In the Key >M/E Key1 >Main menu *(see page 72)*, press [Key Fill].

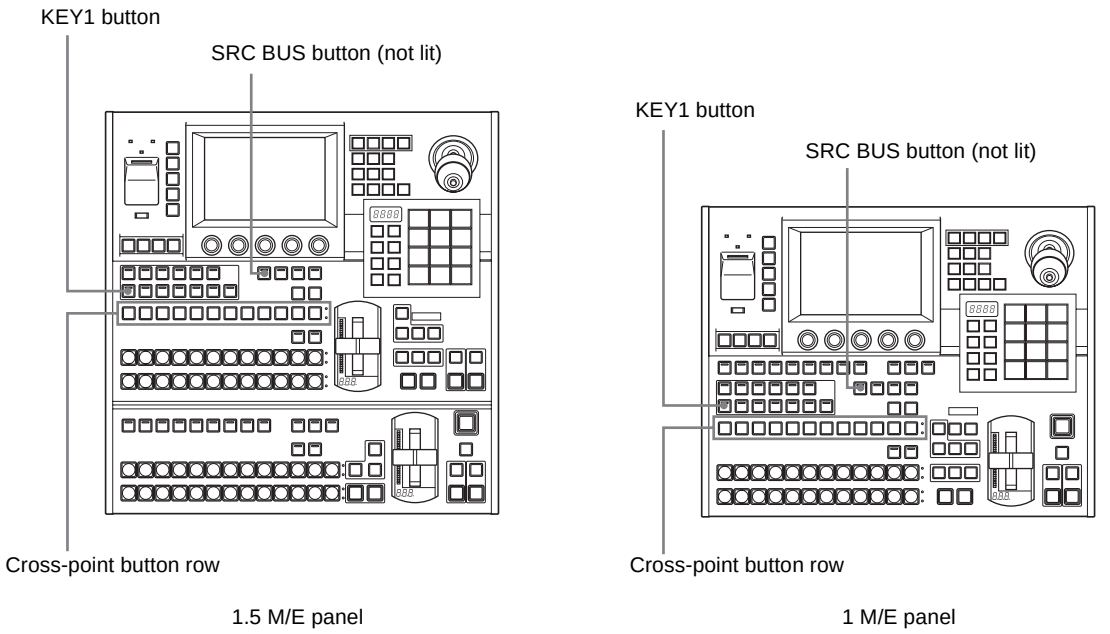
A popup window appears.



2 Press one of the following.

Key Bus: Key fill bus signal selected in the AUX bus control block.
Matte: Signal generated by internal color matte signal generator. When this is selected, you can select the matte color as explained in the next section “To adjust the key fill color.”

3 If you selected “Key Bus” in step **2**, first press the [KEY1] button in the AUX bus control block, lighting it, then press the [SRC BUS] button, extinguishing it, and finally select the key fill from the cross-point button row. *(See the following figure.)*

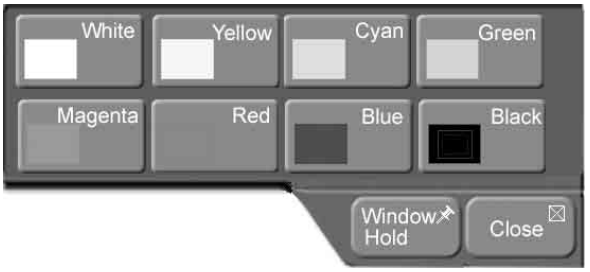


To adjust the key fill color

When you select “Matte” as the key fill, you can obtain the desired color with the following procedure.

1 In the Key >M/E Key1 >Main menu *(see page 72)*, press [Fill Color].

A popup window appears, displaying the same eight colors as a color bar.



2 Press the button for the color that is closest to the desired color.

The popup window closes.

3 Set the following parameters with the knobs.

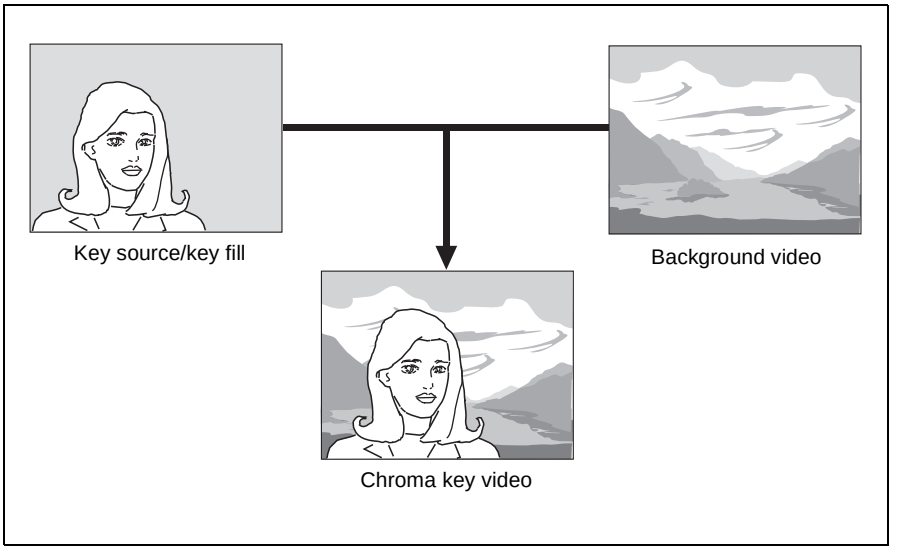
Knob	Description	Setting values
1 (Lum)	Luminance	0.00 to 100.00
2 (Sat)	Saturation	0.00 to 100.00
3 (Hue)	Hue	359.99 to 0.00

To insert and delete keys

Use transitions to insert keys into background video and to delete keys from background video.

For more information about key transitions, see “To select the next transition” (page 51), “Preparing Transitions” (page 64), and “Inserting and Deleting Keys Only” (page 81).

Composing Video With Chroma Keys



To select chroma key

The following procedure shows how to set up key 1 on the M/E bank. The same operations can be used to set up the other keys as well (key 2, and downstream keys 1 and 2).

1 In the Key >M/E Key1 >Main menu *(see page 72)*, press [Key Type].

A popup window appears *(see page 72)*.

2 Press [Chroma].

To select a chroma key source

Refer to step **1** in “To select a key source” *(page 73)* in the procedure for luminance and linear keys.

To select a chroma key fill

Referring to the procedure for luminance and linear keys in “To select a key fill” *(page 74)*, set the key fill to “Key Bus,” and select the key fill with the cross-point buttons.

To adjust auto chroma key

1 In the Key >M/E Key1 >Main menu *(see page 72)*, press [AUTO CRK], turning it on.

A square frame sample mark appears in the external monitor screen. Also, the key source is set automatically to “Self.”

2 Adjust the following parameters so that the chroma key reference color (typically blue) is seen within the sample mark.

Knob	Description	Setting values
1 (H Position)	Move the sample mark horizontally.	–100.00 to +100.00 a)
2 (V Position)	Move the sample mark vertically.	–100.00 to +100.00 a)
3 (Size)	Adjust the size of the sample mark.	1.00 to 100.00

a) The setting range varies depending on the signal format, and screen aspect and size settings.

3 Press [Auto Start].

Auto chroma key is executed on the basis of the color inside the sample mark, and chroma key video is output to the monitor screen.
[Auto CRK] is turned off automatically.

To adjust chroma key video

1 In the Main menu *(see page 72)*, press [Key Type].

2 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Clip)	Reference level for key signal generation	0.00 to 100.00
2 (Gain)	Gain of key	–100.00 to +100.00
3 (Hue)	Hue	359.99 to 0.00
4 (Density)	Density of key	0.00 to 100.00
5 (Filter)	Filter coefficient	1 to 9 a)

a) Set to 1 for through processing, with no filter applied. The filter becomes stronger as larger numbers are specified.

To make finer adjustments, see “Adjusting Chroma Keys” (page 97).

Composing Video With Pattern Keys

To select pattern key and set the key parameters

The following procedure shows how to set up key1 on the M/E bank. The same operations can be used to set up the other keys as well (key 2, and downstream keys 1 and 2).

1 In the Key >M/E Key1 >Main menu *(see page 72)*, press [Key Type].

A popup window appears *(see page 72)*.

2 Press [Pattern].

3 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Size)	Size of pattern	0.00 to 100.00
2 (Soft)	Softness of edges	0.00 to 100.00
3 (Density)	Density of key	0.00 to 100.00
4 (Pattern)	Pattern number	1 to 24 a)

a) Same as standard wipes.

About the pattern key source

In the pattern key, a wipe pattern is selected automatically as the key source. No user operation is required.

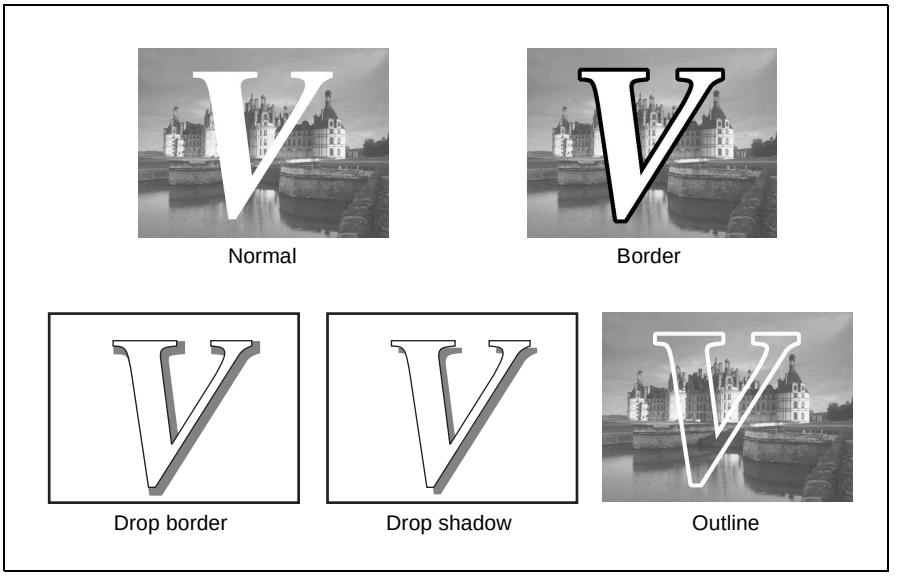
To select the key fill for a pattern key

As the key fill, “Key Bus” and “Matte” can be selected. (See “To select a key fill” *(page 74)*).

To transform the pattern used in a pattern key

See “Transforming the Pattern of a Pattern Key” (page 100).

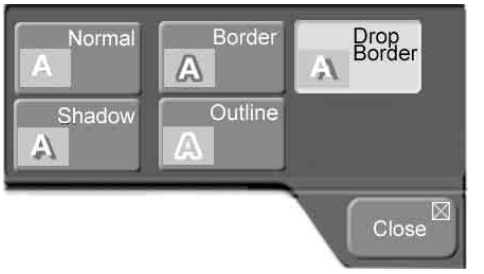
Adding Borders to Keys



The following procedure shows how to add borders to key1 on the M/E bank. The same operations can be used to add borders to the other keys as well (key 2, and downstream keys 1 and 2).

1 In the Key >M/E Key1 >Main menu *(see page 72)*, press [Edge].

A popup window appears.



2 Press one of the following.

Normal: Do not add anything to the edges.
Border: Add a border to the edges.
Drop Border: Add a drop border to the edges.
Shadow: Add a shadow to the edges.
Outline: Add an outline to the edges.

The popup window closes.

3 Set the following parameters, depending on what you selected in step **2**.

When Border or Outline was selected (with the separate edge function *(see page 97)* being off):

Knob	Description	Setting values
1 (Width)	Width	0.00 to 8.00 a) (0.00 to 100.00) b)
2 (Density)	Density	0.00 to 100.00

a) 0.00 to 4.00 in 4H mode or when fine key *(see page 96)* is on.
b) When pattern key is selected as the key type.

When Border or Outline was selected (with the separate edge function *(see page 97)* being on):

Knob	Description	Setting values
1 (Left)	Left edge position	0.00 to 8.00 a)
2 (Right)	Right edge position	0.00 to 8.00 a)
3 (Top)	Top edge position	0.00 to 8.00 a)
4 (Bottom)	Bottom edge position	0.00 to 8.00 a)
5 (Density)	Key density	0.00 to 100.00

a) 0.00 to 4.00 in 4H mode or when fine key *(see page 96)* is on.

When Drop Border or Shadow was selected:

Knob	Description	Setting values
1 (Width)	Width	0.00 to 8.00 a)
2 (Position)	Position	1 to 3 b)
3 (Density)	Density	0.00 to 100.00

a) 0.00 to 4.00 in 4H mode or when fine key *(see page 96)* is on.
b) 1 to 8 when fine key *(see page 96)* is on.

To add color to the key edges

1 In the top menu, select Key >M/E Key1 >Main, and press [Edge Color].

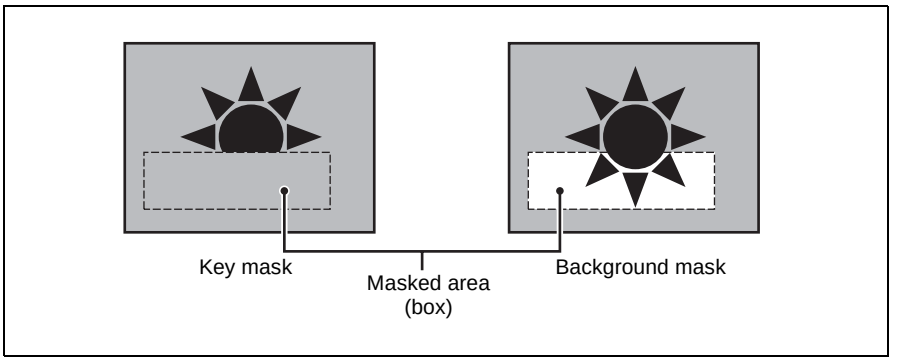
A popup window appears.

2 Press the button for the color that is closest to the desired color, and adjust the parameters with the knobs.

See "To adjust the key fill color" (page 75) for the parameters.

Masking Part of a Key

A mask is used to cover part of the video with background or a key. This allows you to correct for unwanted holes in the background or a key that is not cut out in the desired way.



1 In the Key >M/E Key1 >Main menu *(see page 72)*, press [Mask].

A popup window appears.

2 Press one of the following.

Off: Do not mask.
Key Mask: This masks out a part of the key, which will result in the background appearing.
Bkgd Mask: This masks out a part of the background, which will result in the key fill appearing.

The popup window closes.

To make detailed mask settings, see "To transform a mask pattern" (page 101).

Moving a Key Over or Under

To check whether a key is over or under

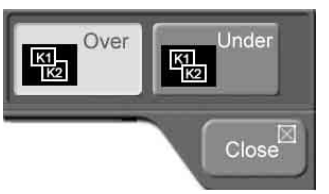
There are OVER indicators in the M/E transition control block, located over key1 and key2. The key whose OVER indicator is lit is the key on top.

To move a key over or under from menus

The following procedure shows how to move key1 on the M/E bank. The same operations can be used to move the other keys as well (key 2, and downstream keys 1 and 2).

1 In the Key >M/E Key1 >Main meu *(see page 72)*, press [Key Priority].

A popup window appears.



2 Press one of the following.

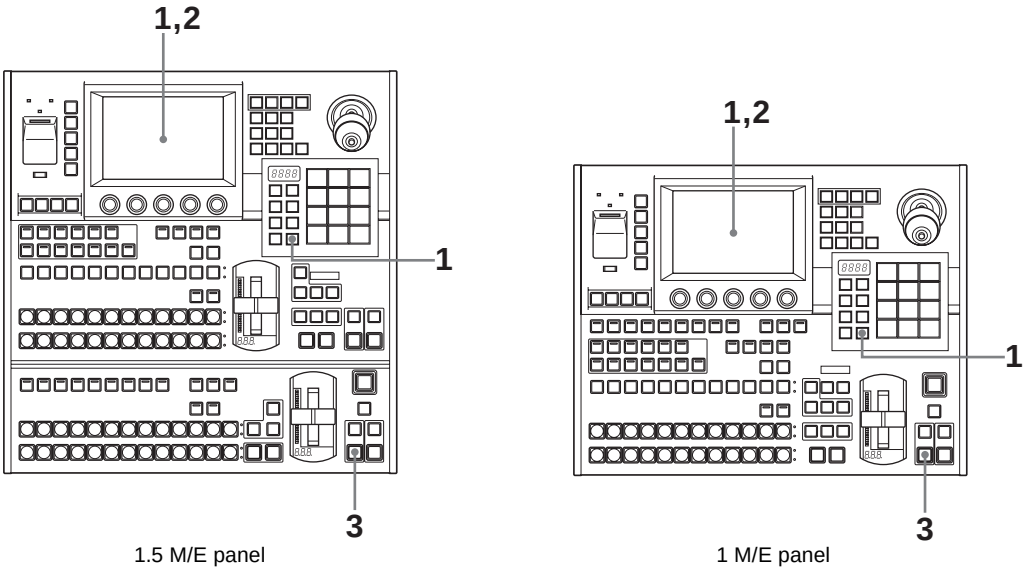
Over: The target key is moved to over.
Under: The target key is moved to under.

To move keys over and under in a transition

There is a [KEY PRIOR] button in the M/E transition control block. Execute a transition after lighting this button as the next transition *(see page 51)*. The over/under relationship of key 1 and key 2 is reversed.

Inserting and Deleting Keys Only

To insert or delete a key by mixing (independent key transition)



The following procedure shows how to set up downstream key 1. The same operations can be used to set up the other keys as well (M/E keys 1 and 2, and downstream key 2).

1 In the top menu, select Misc >Transition.
Or, double click the [TRANS RATE] button in the Flexi Pad control block.

The Transition menu appears *(see page 50)*.

2 After pressing [DSK1], enter the key's transition rate in the numeric keypad window. *(See "Setting Transition Rates" (page 64)).*

3 In the downstream key/fade to black control block, press the [AUTO TRANS] button for DSK1.

Downstream key 1 is inserted, mixing into the background. If downstream key 1 is already inserted, it is deleted.

To insert or delete keys instantly

To insert or delete downstream keys instantly

In the downstream key/fade to black control block, press the [DSK1 ON] button or the [DSK2 ON] button.

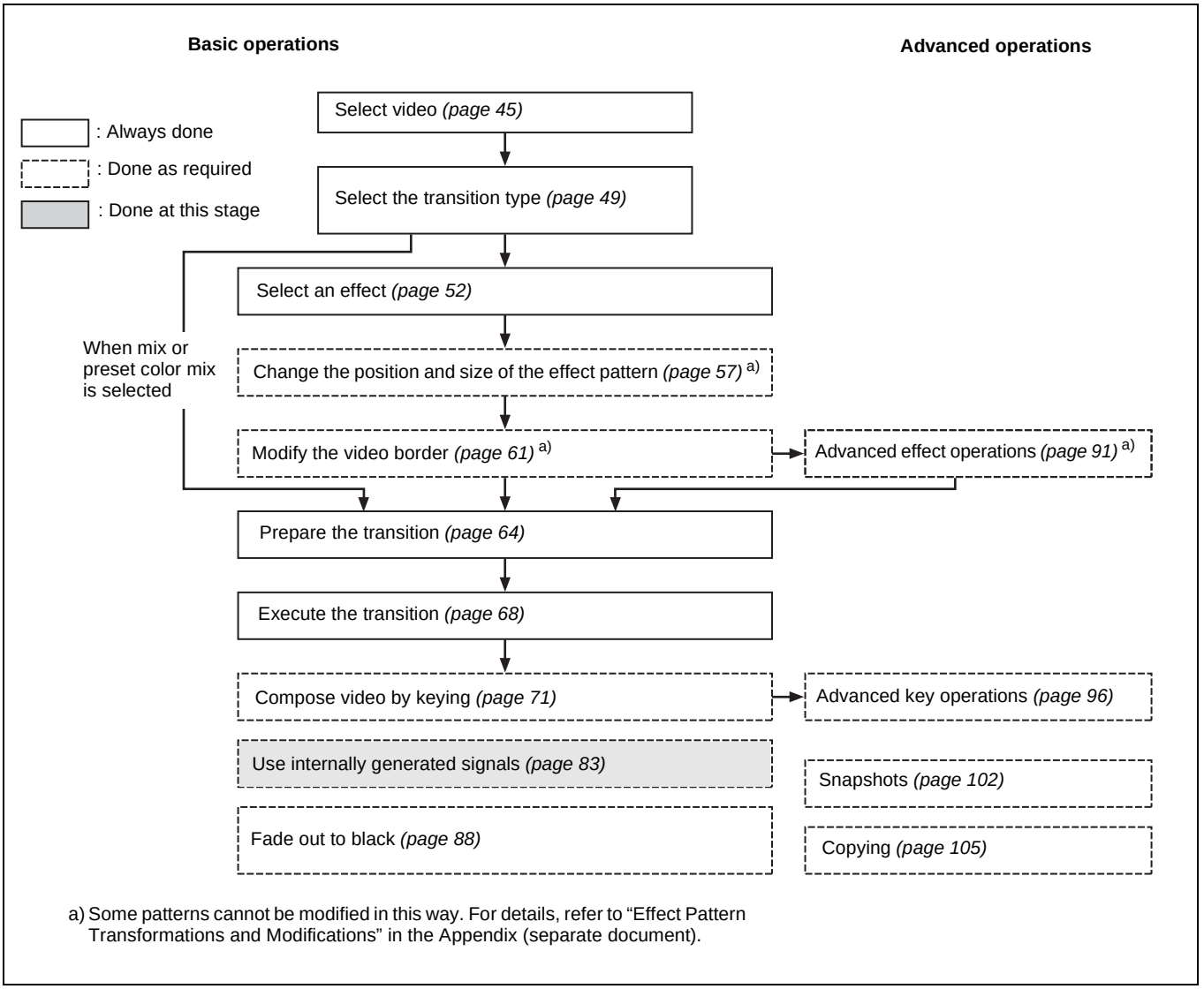
To insert or delete M/E keys instantly

If you are using the 1.5M/E panel, press the [KEY1 ON] button or the [KEY2 ON] button in the M/E key transition control block.
If you are using the 1 M/E panel, press the [KEY1 ON] button or the [KEY2 ON] button in the M/E transition control block.

Using Internally Generated Signals

Flow of Operations

The following figure shows a typical flow of operations when using the MFS-2000 system. For details about operations, see the pages in parentheses ( ).



a) Some patterns cannot be modified in this way. For details, refer to “Effect Pattern Transformations and Modifications” in the Appendix (separate document).

Using a Color Background

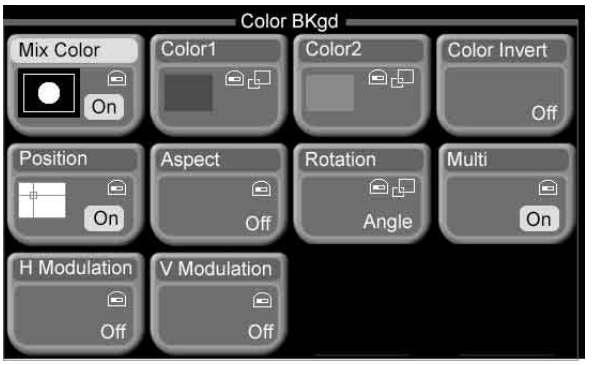
The term “color background” refers to a signal generated by the processor’s internal color generator. The color can be either monotone or composed from two colors.

Color background (monotone)

To set color 1

1 In the top menu, select Misc >Color Bkgd.
Or, double click the [COLOR BKGD] button in a cross-point button row.

The Color Bkgd menu appears.
The [Color1] button shows the current color.



2 Press [Color1].

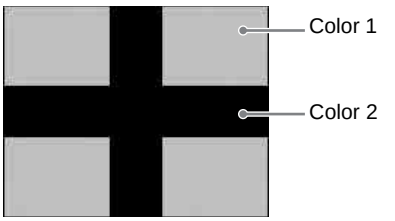
A popup window appears.

3 Press the button for the color that is closest to the desired color.

4 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Lum)	Luminance	0.00 to 100.00
2 (Sat)	Saturation	0.00 to 100.00
3 (Hue)	Hue	359.99 to 0.00

To compose a pattern of two colors (color mix)



1 In the top menu, select Misc >Color Bkgd and press [Mix Color], turning it on.

2 Compose the pattern by using the knobs to set the following parameters.

Knob	Description	Setting values
1 (Size)	Size of pattern	0.00 to 100.00
2 (Soft)	Softness of edges	0.00 to 100.00
3 (Pattern)	Pattern number	1 to 24 a)

a) Same as patterns in the standard group.

3 Press [Color1]. In the popup window which appears, press the button for the color that is closest to the desired color. Then set the parameters with the knobs. *(See steps **3** and **4** of "To set color 1" (page 84)*).

4 Press [Color2] and repeat the procedure.

To transform color mix patterns

To set the pattern position

1 In the top menu, select Misc >Color Bkgd, and press [Position], turning it on.

2 Adjust the following parameters with the knobs.

Knob	Description	Setting values
1 (H Position)	Move the pattern horizontally	–200.00 to +200.00 a)
2 (V Position)	Move the pattern vertically	–200.00 to +200.00 a)

a) Minus values move the pattern to the left, and plus values move it to the right. At –100.00 the horizontal center is at the left edge of the screen. At +100.00, it is at the right edge.
b) Minus values move the pattern down, and plus values move it up. At –100.00 the vertical center is at the bottom edge of the screen. At +100.00, it is at the top edge.

To arrange multiple examples of the same pattern

1 In the top menu, select Misc >Color Bkgd and press [Multi], turning it on.

2 Adjust the following parameters with the knobs.

Knob	Description	Setting values
1 (H Multi)	Number of patterns arranged horizontally	1 to 63
2 (V Multi)	Number of patterns arranged vertically	1 to 63
3 (Invert Type)	How patterns are arranged	1 to 4 (see figure below)

To change the aspect ratio of a pattern

1 In the top menu, select Misc >Color Bkgd and press [Aspect], turning it on.

2 Set the following parameter with knob 1.

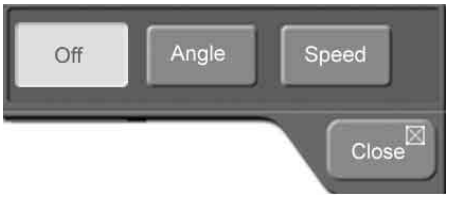
Knob	Description	Setting values
1 (Aspect)	Aspect ratio of pattern	–100.00 to +100.00 a)

a) Minus values make the pattern taller, and plus values make the pattern longer.

To rotate an effect pattern

1 In the top menu, select Misc >Color Bkgd and press [Rotation].

A popup window appears.



2 Press [Angle].

3 Set the following parameter with knob 1.

Knob	Description	Setting values
1 (Angle)	Angle of pattern slant	–100.00 to +100.00 a)

a) –100.00 is one rotation in the counterclockwise direction, and +100.00 is one rotation in the clockwise direction.

To rotate an effect pattern at a specified speed

1 In the top menu, select Misc >Color Bkgd and press [Rotation].

A popup window appears.

2 Press [Speed].

3 Set the following parameter with knob 1.

Knob	Description	Setting values
1 (Speed)	Speed of pattern rotation	–100.00 to +100.00 a)

a) –100.00 is one rotation per second in the counterclockwise direction, and +100.00 is one rotation per second in the clockwise direction.

To modulate an effect pattern

Note

The shape of the modulation wave is fixed as a sin wave.

1 In the top menu, select Misc >Color Bkgd, and press [H Modulation] or [V Modulation], turning it on.

H Modulation gives horizontal modulation, and V Modulation gives vertical modulation.

2 Adjust the following parameters with the knobs.

Knob	Description	Setting values
1 (Amplitude)	Amplitude of modulation wave	0.00 to 100.00
2 (Frequency)	Frequency of modulation wave	0.00 to 100.00
3 (Speed)	Speed of modulation	–100.00 to +100.00 a)

a) In H Modulation, maximum speed is at –100.00 in the left direction and +100.00 in the right direction.
In V Modulation, maximum speed is at –100.00 in the downward direction and +100.00 in the upward direction.

To exchange color 1 and color 2

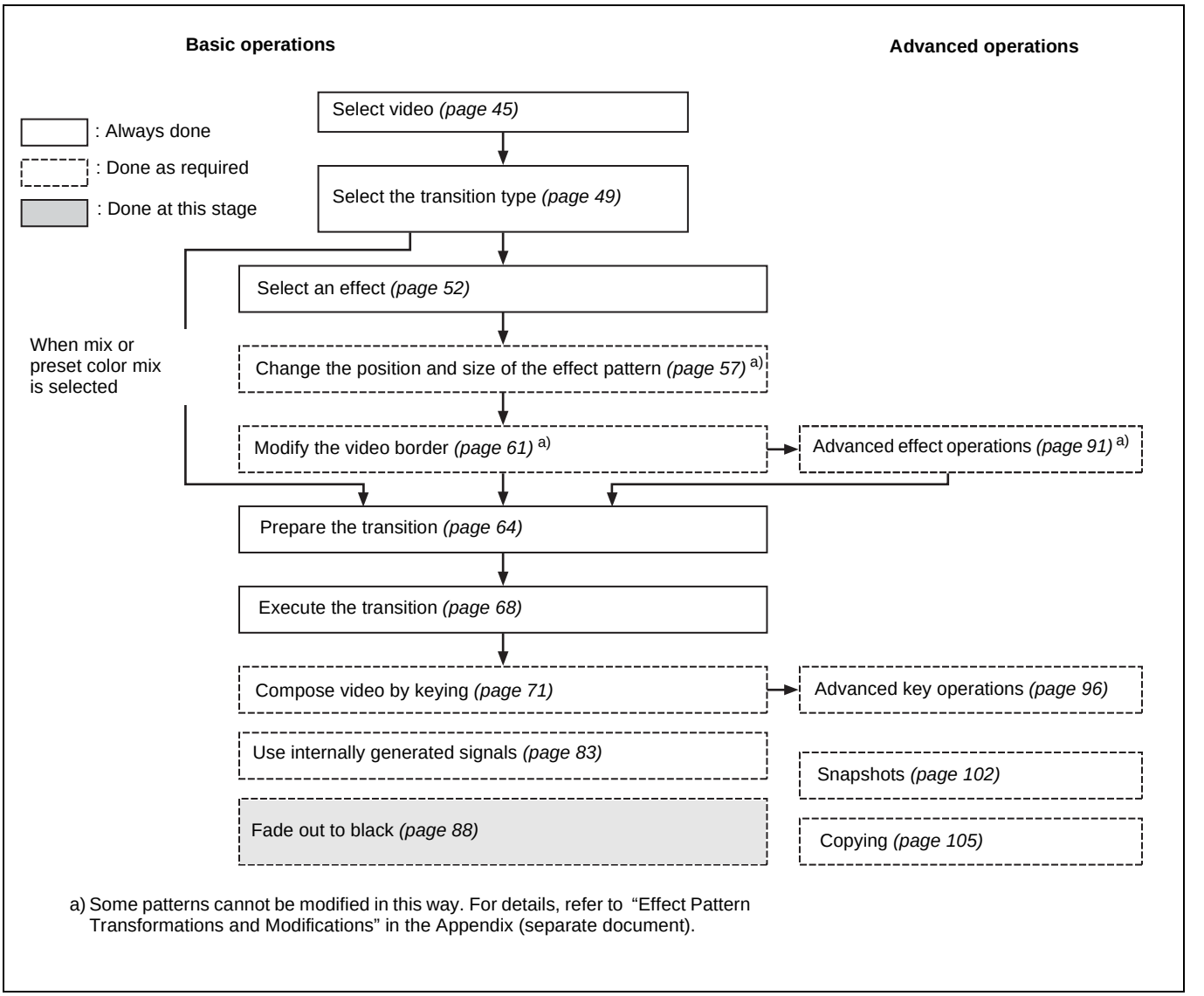
In the top menu, select Misc >Color Bkgd and press [Color Invert], turning it on. The data for color 1 and color 2 are exchanged.

Fading the Video to Black

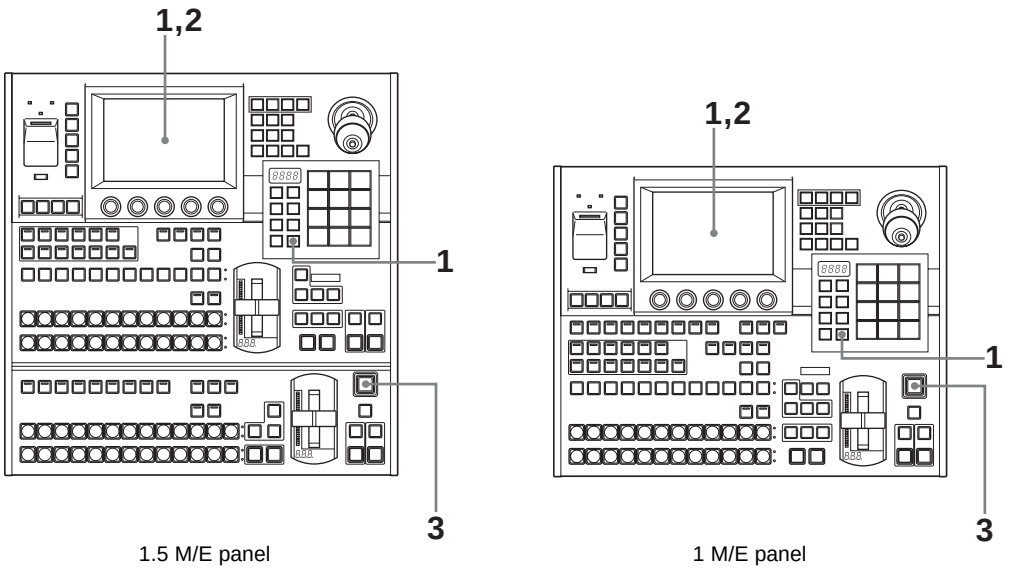
Fade to black gradually darkens the overall video image, until it is completely black.

Flow of Operations

The following figure shows a typical flow of operations when using the MFS-2000 system. For details about operations, see the pages in parentheses ( ).



a) Some patterns cannot be modified in this way. For details, refer to "Effect Pattern Transformations and Modifications" in the Appendix (separate document).



1.5 M/E panel

1 M/E panel

To fade out the video with fade to black

1 In the top menu, select Misc >Transition.
Or, double click the [TRANS RATE] button in the Flexi Pad control block.

The Transition menu appears.

2 After pressing [FTB], enter a transition rate in the numeric keypad window. *(See "Setting Transition Rates" (page 64)).*

3 In the downstream key/fade to black control block, press the [FTB] button.

The [FTB] button lights, and the fade to black begins. When it finishes, the picture is completely black.
To stop the fade to black and return to the state before it started, press the button again.

To return to the original video from a black screen

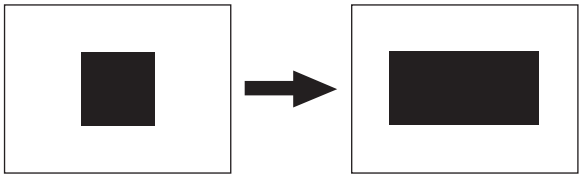
Press the [FTB] button again.

Advanced Effect Operations

The procedures in this section mainly show how to operate with M/E effects (effects used on the M/E bank). The same procedures can also be used with PGM/PST wipes (wipes used on the PGM/PST bank).

Transforming Effect Patterns

To change the aspect ratio of an effect pattern (Aspect)



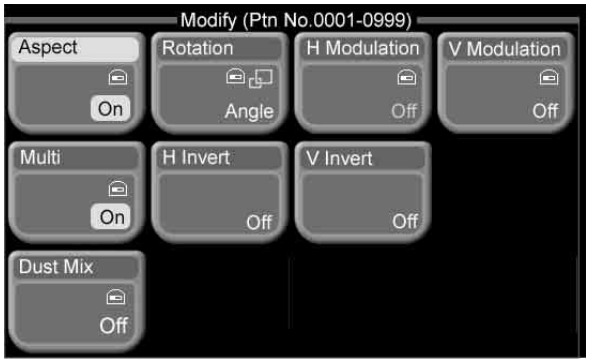
1 In the top menu, select Effect/Wipe >M/E Effect.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Modify (Ptn 1-9999)].

The Modify (Ptn No.0001-0999) menu appears.



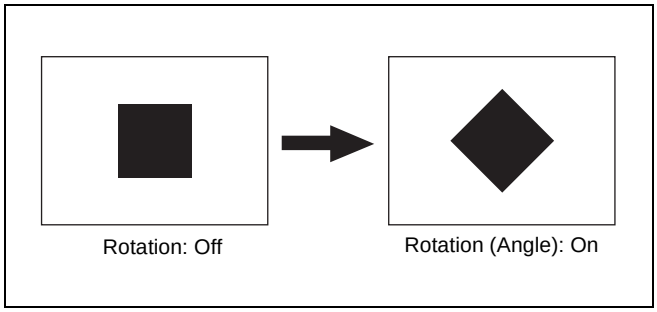
4 Press [Aspect], turning it on.

5 Set the aspect ratio parameter with knob 1.

Knob	Description	Setting values
1 (Aspect)	Aspect ratio of pattern	–100.00 to +100.00 a)

a) Minus values make the pattern taller, and plus values make the pattern longer.

To rotate an effect pattern (Rotation)



1 In the Effect/Wipe >M/E Effect >Modify (Ptn No. 0001-0999) menu *(see previous section)*, press [Rotation].

A popup window appears.

2 Set the following as required.

Angle: Slant the pattern at a specified angle.
Speed: Rotate the pattern at a specified speed.
Magnitude: Rotate the pattern to a specified angle during the transition.

3 Set the following parameters according to the selection in step **2**.

When Angle was selected:

Knob	Description	Setting values
1 (Angle)	Angle of pattern slant	–100.00 to +100.00 a)

a) –100.00 is one rotation in the counterclockwise direction, and +100.00 is one rotation in the clockwise direction. 0.00 is no rotation.

When Speed was selected:

Knob	Description	Setting values
1 (Speed)	Speed of pattern rotation	–100.00 to +100.00 a)

a) –100.00 is one rotation per second in the counterclockwise direction, and +100.00 is one rotation per second in the clockwise direction.

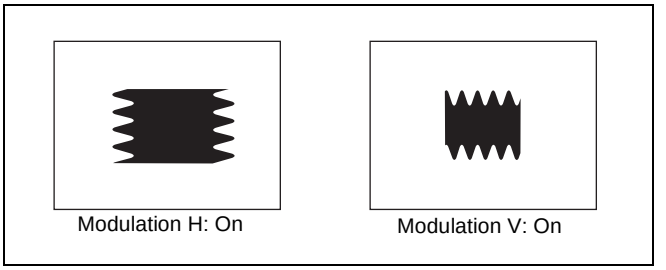
When Magnitude was selected:

Knob	Description	Setting values
1 (Angle)	Angle of pattern slant	–100.00 to +100.00 a)
2 (Magnitude)	Magnitude of rotation during transition	–200.00 to +200.00 b)

a) –100.00 is one rotation in the counterclockwise direction, and +100.00 is one rotation in the clockwise direction. 0.00 is no rotation.
b) –200.00 is two rotations in the counterclockwise direction, and +200.00 is two rotations in the clockwise direction. 0.00 is no rotation.

To modulate effect patterns (H/V Modulation)

This procedure is supported only for M/E effects.



1 In the Effect/Wipe >M/E Effect >Modify (Ptn No. 0001-0999) menu *(see page 91)*, turn one or both of the following on.

H Modulation: Modulate horizontally.
V Modulation: Modulate vertically.

2 Set the parameters with the knobs.

Knob	Description	Setting values
1 (Amplitude)	Amplitude of modulation wave	0.00 to 100.00
2 (Frequency)	Frequency of modulation wave	0.00 to 100.00
3 (Speed)	Speed of modulation	–100.00 to +100.00 a)
4 (Shape)	Shape of modulation wave	1 to 3 b)

a) In H Modulation, maximum speed is at –100.00 in the left direction and +100.00 in the right direction.
In V Modulation, maximum speed is at –100.00 in the downward direction and +100.00 in the upward direction.
b) 1: Sine wave, 2: Triangular wave, 3: Rectangular wave

To arrange several examples of the same effect pattern (Multi)

1 In the Effect/Wipe >M/E Effect >Modify (Ptn No. 0001-0999) menu *(see page 91)*, press [Multi], turning it on.

2 Set the following parameters with the knobs.

For an M/E effect:

Knob	Description	Setting values
1 (H Multi)	Number of patterns arranged horizontally	1 to 63
2 (V Multi)	Number of patterns arranged vertically	1 to 63
3 (Shift)	Amount of horizontal shift of patterns in even numbered rows	–100.00 to +100.00 a)

a) Minus values shift to the left, and plus values shift to the right.

For a PGM/PST wipe:

Knob	Description	Setting values
1 (H Multi)	Number of patterns arranged horizontally	1 to 63
2 (V Multi)	Number of patterns arranged vertically	1 to 63

Knob	Description	Setting values
3 (Invert Type)	Replication layout	1 to 4 (see the following figure)

1: All patterns point in same direction
2: Even numbered rows move in horizontal direction
3: Even numbered columns and rows are inverted
4: Even numbered columns and rows are inverted, and even numbered rows move in horizontal direction

3 For an M/E effect, do the following to invert the direction of every other pattern.

- To invert every other pattern in the horizontal direction, press [H Invert].
- To invert every other pattern in the vertical direction, press [V Invert].

To mix in a diamond dust effect (Dust Mix)

This procedure is supported only for M/E effects.

1 In the Effect/Wipe >M/E Effect >Modify (Ptn No. 0001-0999) menu *(see page 91)*, press [Dust Mix], turning it on.

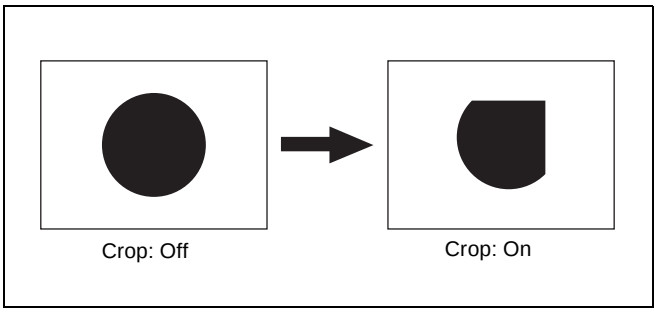
2 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Mix Ratio)	Ratio of diamond dust mixed in	0.00 to 100.00
2 (H Size)	Horizontal size of particles	0.00 to 100.00
3 (V Size)	Vertical size of particles	0.00 to 100.00
3 (Flash Rate)	Flash rate of particles	0.00 to 100.00

Cropping Effects

To turn the crop function on

This operation can only be carried out on M/E effects.



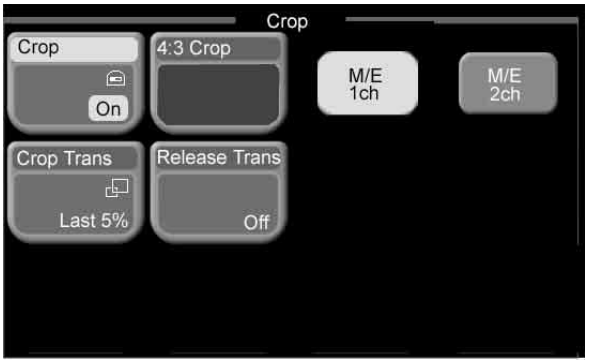
1 In the top menu, select Effect/Wipe >M/E Effect.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Crop].

The Crop menu appears.



4 Press [Crop], turning it on.

5 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Left)	Crop left side of image.	–100.00 to +100.00
2 (Right)	Crop right side of image.	–100.00 to +100.00
3 (Top)	Crop top side of image.	–100.00 to +100.00
4 (Bottom)	Crop bottom side of image.	–100.00 to +100.00
5 (All)	Crop all sides of image.	Left value shown

To crop to 4:3 in 16:9 mode

In HD format 16:9 mode, you can crop the video to 4:3.

1 Carry out steps **1** to **4** in the previous section " To turn the Crop function on."

2 In the Crop menu, press [4:3 Crop].

To set a relationship between transition progress and cropping

1 Carry out the procedure in the previous section "To turn the Crop function on" *(see page 93)*.

2 In the Crop menu, press [Crop Trans].

A popup window appears.

3 Select one of the following, as required.

Cut: Cut mode. The crop is unchanged during the transition, and is released when the transition completes.
Last 5%: The crop is unchanged until the transition is 95% complete, and is released during the remaining 5%.
Linear: The cropping is removed linearly through the whole course of the transition.

4 If you selected "Last 5%" in step **3**, specify the dead zone of the transition by setting "Release Trans" to on or off.

Off: The transition completes when 95% of the transition execution time has elapsed. The crop is released at the same time.
On: The last 30% of the transition execution time is made a transition dead zone. The crop is released when 95% of the time has elapsed.

Composing a Video border Color From Two Colors

You can compose the color of video borders from any two colors.
This operation can only be carried out on M/E effects.

About the basic border settings, see "Adding Borders to Video" (page 62).

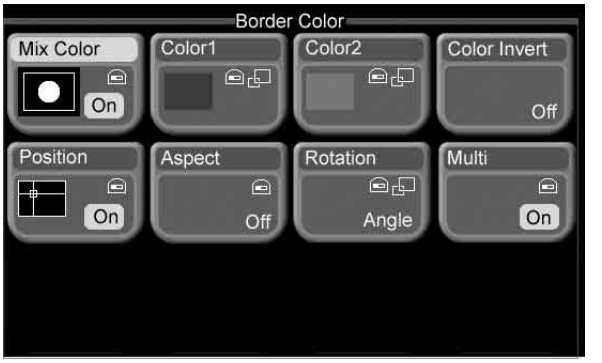
1 In the top menu, select Effect/Wipe >M/E Effect.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Border Color].

The Border Color menu appears.



4 Set the pattern used to mix the 2 colors, and specify color 1 and color 2.

See "To compose a pattern of two colors (color mix)" (page 84) and "To transform color mix patterns" (page 85) for information on how to set the parameters.

Note that "Mix Color" is effective only when both of the following conditions are met.
- In the Effect/Wipe >M/E Effect >Main menu, "Edge Fill" is set to "Matte."
- One of the effect pattern numbers 0001 to 0999 is selected.

Using Pattern Specific Transformations

In addition to the transformation described in "Transforming Effect Patterns" *(see page 91)*, there are also specific transformations which are permitted by some effect patterns.
An example of one such transformation is provided below. For more information, refer to "Effect Pattern Transition Parameter List" in the Appendix (separate document).

Example of a pattern specific transformation (Mosaic)

1 Select one of the effect pattern numbers listed below.

0200 to 0203, 0206 to 0213, 0224 to 0247, 0250 to 0257, 0260 to 0269.

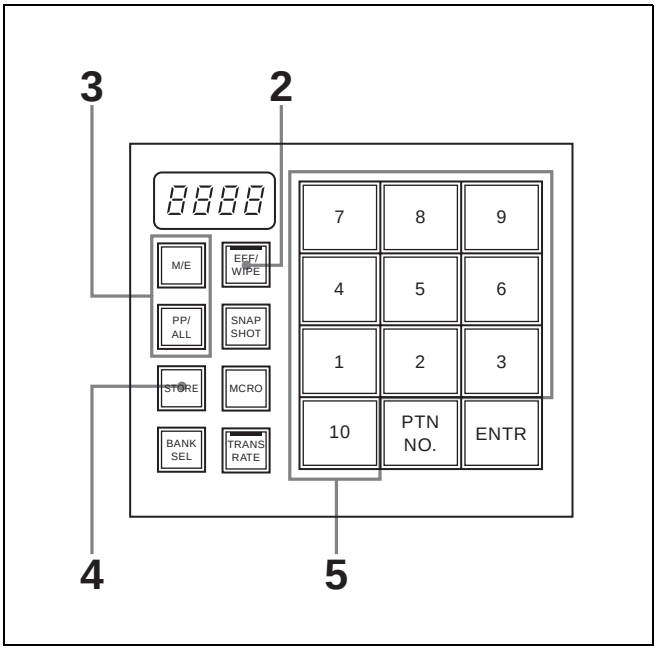
2 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (H Tile No.)	Number of tiles in horizontal direction	2 to 36
2 (V Tile No.)	Number of tiles in vertical direction	2 to 18

Saving, Recalling, and Deleting Effect Snapshots

You can save snapshots of the current effect pattern numbers, transformation parameters, and so on, and recall them for later use. These snapshots are called “effect snapshots.”
There are ten effect snapshot registers (1 to 10) on each of the M/E and P/P regions. (A region means a functional unit block of the system.)

Saving effect snapshots



1 Make the effect settings that you want to save.

2 In the Flexi Pad control block, press the [EFF/WIPE] button, lighting it.

The Flexi Pad control block enters effect snapshot mode, and the memory recall buttons take on the configuration shown above.

3 Press and light the region selection button for the region that you want to save.

- To save M/E effect settings, press the [M/E] button.
- To save PGM/PST effect settings, press the [PP/ALL] button (1.5M/E panel only).

4 Press the [STORE] button, lighting it.

The system is now ready to save an effect snapshot.

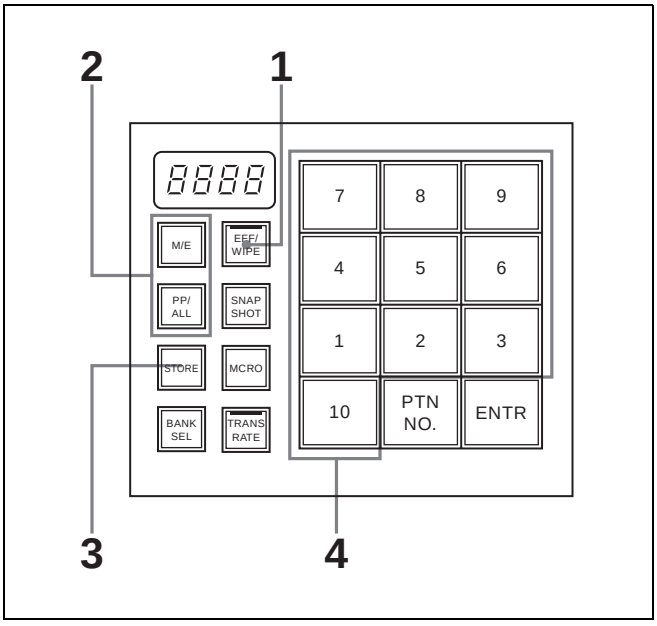
5 Press the memory recall button for the register in which you want to save the snapshot.

Note

Pressing a button which is lit in orange or yellow will overwrite the current contents of the register.

When the save is complete, the button that you pressed lights in yellow and the number on the button changes from a register number to an effect pattern figure. (If there is no figure, the effect pattern number is shown.) The pattern number appears in the numeric display.

Recalling effect snapshots



1 In the Flexi Pad control block, press the [EFF/WIPE] button, lighting it.

2 If the [STORE] button is lit, press it to turn it off.

3 Press to light the region selection button (M/E or PP/ALL) for the region of the snapshot that you want to recall.

The memory recall buttons show figures of the saved effect patterns. Buttons where snapshots are already saved are lit in orange.

4 Press the memory recall button for the effect snapshot that you want.

When the recall finishes, the pressed button lights in yellow and the numeric display shows the pattern number of the corresponding pattern.

Deleting effect snapshots

With the [STORE] button lit, hold the [EFF/WIPE] button down and press the memory recall button for the effect snapshot that you want to delete. The button you pressed is turned off, and the effect snapshot is deleted.

Advanced Key Operations

This section explains procedures for setting M/E key 1. The same procedures can be used for the other keys as well (M/E key 2, and downstream keys 1 and 2).

Processing Key Signals

To turn key clean mode on

Clean mode

In a luminance key or linear key, you can enable the clean mode. When the clean mode is on, the key source does not affect the key fill, which is added unchanged to the background. This improves the keyed image quality, but means that the part of the key fill signal which is not to be inserted must be completely black, or it will color the background.

This mode is effective when using character generators, which generate paired key source and key fill signals. Note that in the following situations, the clean mode goes off, and cannot be turned on.

- When the key type is a pattern key or chroma key
- When key inversion (Key Invert) is on
- When the Key Position function is on
- When fine key is on
- When the key fill is a matte
- When the key edge is anything other than normal
- When the key edge is normal, and soft edges are on

To turn clean mode on

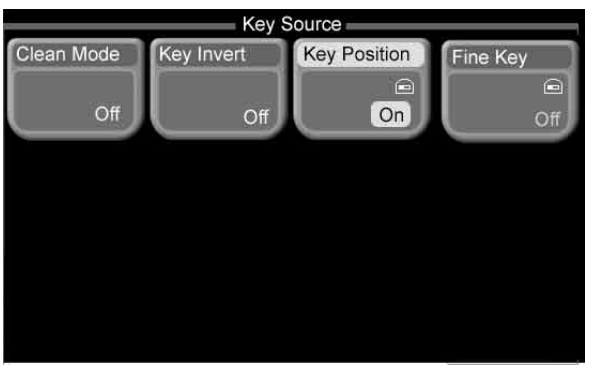
1 In the top menu, select Key >M/E Key1.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Key Source].

The Key Source menu appears.



4 Press [Clean Mode], turning it on.

To invert key signals

You can invert the black/white of key signals. This allows you to use a key source as black characters against a white background and white characters against a black background.

To turn the key inversion function on, in the Key >M/E Key1 >Key Source menu, press [Key Invert], turning it on.

To adjust the key position

For luminance keys, linear keys, and chroma keys, you can move the edges of the key signal horizontally.

1 In the Key >M/E Key1 >Key Source menu, press [Key Position], turning it on.

2 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Left Pos)	Left edge position	–4.00 to +4.00
2 (Right Pos)	Right edge position	–4.00 to +4.00
3 (H Phase)	Horizontal direction position	Left Pos value shown

To turn the fine key function on

When the fine key function is on, you can make fine adjustments to the left, right, top, and bottom edge positions of the key signal.

Note

When fine key is on, the width of borders, drop borders, drop shadows, and outlines is limited to a maximum to 4.

1 1In the Key >M/E Key1 >Key Source menu, press [Fine Key], turning it on.

2 Make fine adjustments to key edge positions by setting the following parameters with the knobs.

Parameter group [1/2]

Knob	Description	Setting values
1 (Left Pos)	Left edge position	–2.00 to +2.00
2 (Right Pos)	Right edge position	–2.00 to +2.00
3 (Top Pos)	Top edge position	–2.00 to +2.00
4 (Bottom Pos)	Bottom edge position	–2.00 to +2.00

Parameter group [2/2]

Knob	Description	Setting values
1 (H Phase)	Horizontal position	Left Pos value shown
2 (V Phase)	Vertical position	Top Pos value shown

Adjusting Key Borders

See "Adding Borders to Keys" (page 78) for more information about how to make basic key border settings.

Applying 2–color borders

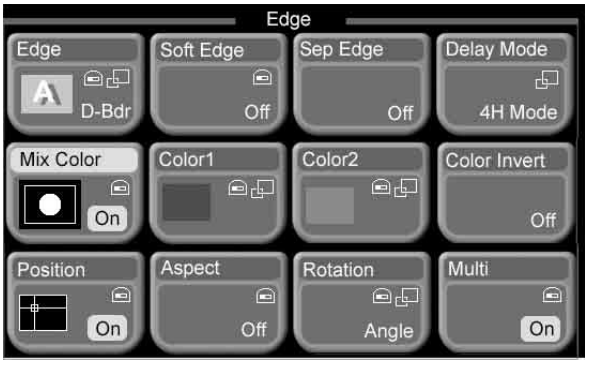
1 In the top menu, select Key >M/E Key1.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Edge].

The Edge menu appears.



4 Press [Mix Color], turning it on.

5 Set the pattern used to mix the 2 colors, and specify color 1 and color 2.

See "To compose a pattern of two colors (color mix)" (page 84) and "To transform color mix patterns" (page 85) for information on how to set the parameters.

To set separate border widths (Separate Edge function)

When you add borders or outlines to luminance keys, linear keys, or chroma keys, you can set the widths of the four borders separately.
In the Key >M/E Key1 >Edge menu, press [Sep Edge], turning it on.
The width of the four borders are now separately adjustable.

Setting maximum border widths

When you add borders, drop borders, drop shadows, or outlines to key edges, proceed as follows to set the maximum width.

1 In the Key >M/E Key1 >Edge menu, press [Delay Mode], turning it on.

A popup window appears.

2 Press one of the following.

4H Mode: Set the maximum width to 4.00 (4 lines). Key fill and key source drop down by 4 lines.
8H Mode: Set the maximum width to 8.00 (8 lines). Key fill and key source drop down by 8 lines.

Adjusting Chroma Keys

Proceed as follows to make fine adjustments to the chroma key image obtained with auto chroma key *(see page 76)*.

To select the chroma key composition method

1 In the top menu, select Key >M/E Key1.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Chroma Key].

The Chroma Key menu appears.

4 Press [Mix Mode].

A popup window appears.

5 Select one of the following.

Normal Mix: The background is cut out with the key signal, and then combined with the foreground, which has also been cut out with the key signal.

Additive Mix: The background, which has been cut out with the key signal, is combined with the unshaped foreground. This is effective for a natural looking composite when the scene includes glass or other translucent objects.

To turn the plane function on

In an additive mix, the foreground is not shaped by the key signal, and variations in the (blue) background appear in the composite image. To prevent this, it is possible to set a particular luminance level for the background, and forcibly cut any parts below this level. This is called the plane function.
The plane function is enabled when additive mix is selected.

1 In the Key >M/E Key1 >Chroma Key menu, press [Plane], turning it on.

2 Set the following parameter with knob 1.

Knob	Description	Setting values
1 (Lum)	Luminance level	0.00 to 100.00

To adjust chroma keys manually

Methods of adjusting the composite obtained from chroma keying include automatic adjustment with the auto chroma key function, and manual adjustment carrying out the necessary processing separately. The optimum results will be obtained by first carrying out adjustments with the auto chroma key function, then making fine adjustments as required.
The following manual adjustments are possible.
- Key active
- Color cancel
- Window
- Y balance
- Chroma key shadow
- Video signal adjustment

To make adjustments with key active

When the key active function is on, the composite video is output and you can adjust the composition method manually while viewing the monitor.
When the key active function is off, only the foreground is output. You should turn key active off when making manual adjustments with color cancel *(see the next section)*.

1 In the Key >M/E Key1 >Chroma Key menu, turn [Key Active] on.

2 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Clip)	Chroma key reference level	00.00 to 100.00
2 (Gain)	Key gain	–100.00 to +100.00
3 (Hue)	Hue	359.99 to 0.00
4 (Density)	Key density	0.00 to 100.00
5 (Filter)	Filter coefficient	1 to 9

To make adjustments with color cancel

If the foreground image includes shades of the background color, turn this function on to remove the color from the foreground image.

1 In the Key >M/E Key1 >Chroma Key menu, turn [Key Active] off, and turn [Color Cancel] on.

2 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Lum)	Luminance	0.00 to 100.00
2 (Sat)	Saturation	0.00 to 100.00
3 (Hue)	Hue	359.99 to 0.00
5 (Filter)	Filter coefficient	1 to 9

3 Turn [Key Active] on.

The video composed with chroma key reappears on the monitor.

Adjusting the key signal for color cancel

When color cancel is on, you can adjust the key signal for color cancel.

1 In the Key >M/E Key1 >Chroma Key menu, press [Cancel Key], turning it on.

The color cancel function is turned on.

2 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Clip)	Reference level of color cancel key	0.00 to 100.00
2 (Gain)	Key gain	–100.00 to +100.00

3 Make the following settings as required.

Adjusting the color cancel key window (range of matching colors)

1 In the Key >M/E Key1 >Chroma Key menu, press [CC Window], turning it on.

2 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Crop)	Crop value a)	100.00 to 0.00
2 (Angle)	Angle value a)	180.00 to 0.00

a) See the figure in “To adjust the window.”

Setting the color cancel key edge positions

1 In the Key >M/E Key1 >Chroma Key menu, press [CC Key Pos], turning it on.

2 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Left Pos)	Move the left edge of the color cancel key.	–3.00 to +3.00
2 (Right Pos)	Move the right edge of the color cancel key.	–3.00 to +3.00
3 (H Phase)	Horizontal position of the color cancel key.	Left Pos value shown

Adjusting the ratio of Y balance added to a color cancel key

For the Y balance function, see “To adjust the Y balance” (page 99).

By using the Y balance function on a color cancel key, colors of the same hue as the background (typically blue) can be output in the foreground without being cancelled.

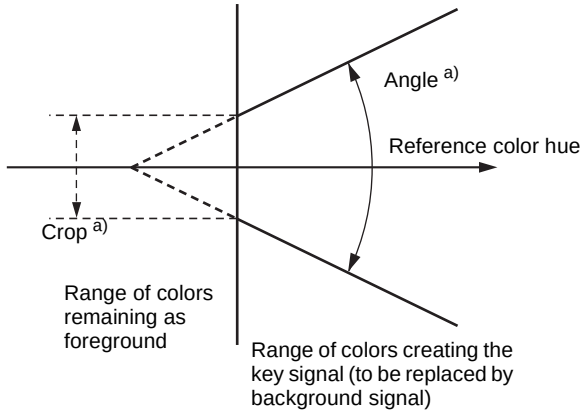
1 In the Key >M/E Key1 >Chroma Key menu, press [CC Y Balance], turning it on.

2 Set the following parameter with the knob.

Knob	Description	Setting values
1 (Mixture)	Y balance key ratio	0.00 to 100.00

To adjust the window

Chroma keying generates a key signal based on a particular color (reference color) in the foreground (typically a plain blue background). The “window” refers to the range of colors which are regarded as matching this specified reference color to create the key signal.
As seen on a vectorscope, the range for this matching corresponds to a truncated sector (see the following figure). This range is specified by two parameters: the “Angle” parameter, which determines the range of the hue parameter, and the “Crop” parameter, which determines the degree of truncation.



a) The Crop and Angle values do not change even if you use the auto chroma key function.

To adjust the window, the Clip, Gain, Hue must be adjusted to appropriate values. Set these to appropriate values first, and then proceed as follows.

1 In the Key >M/E Key1 >Chroma Key menu, press [Window], turning it on.

2 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Crop)	Crop value a)	100.00 to 0.00
2 (Angle)	Angle value a)	180.00 to 0.00

a) See above figure.

To adjust the Y balance

In normal chroma keying, the key signal is based on the chrominance component only, and all elements of the foreground with the same hue are replaced by the background. Using the Y balance function, you can specify a luminance level range within which the key is active, and replace the specified part by the background.
You can use the Y balance function independently on the key signal for the composition and the key signal for the color cancel function. When applied to the key signal for the composition, this produces the foreground with the color cancel effect applied. This can therefore be used to provide an impression of smoke, for example.

1 In the Key >M/E Key1 >Chroma Key menu, press [Y Balance], turning it on.

2 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Clip)	Reference level of color cancel key	0.00 to 100.00

Knob	Description	Setting values
2 (Gain)	Key gain	–100.00 to +100.00
3 (Lum)	Luminance	0.00 to 100.00

To adjust chroma key shadows

This function provides a more realistic treatment when the shadow of an object in the field of view falls on the blue background. Since parts of the blue background darker than a specified intensity are treated as shadows, there is no effect on cutting out of the foreground.

1 In the Key >M/E Key1 >Chroma Key menu, press [Shadow], turning it on.

2 Set the following parameters with the knobs.

Knob	Description	Setting values
1 (Lum)	Reference luminance of shadow	0.00 to 100.00
2 (Gain)	Gain of shadow key	–100.00 to +100.00
3 (Density)	Density of shadow	0.00 to 100.00
4 (Soft)	Softness of shadow	0.00 to 100.00

Note

When chroma key shadowing is on, key edges are normal with soft edges off.

To adjust video signals

You can vary the gain and hue of chroma key foreground video. Gain can be adjusted for the overall video signal, or individually for Y and C.

1 In the Key >M/E Key1 >Chroma Key menu, press [Frgd V Proc], turning it on.

2 Adjust the following parameters with the knobs.

Knob	Description	Setting values
1 (Video Gain)	Overall gain of video signal	–100.00 to +100.00
2 (Y Gain)	Gain of Y signal	–100.00 to +100.00
3 (C Gain)	Gain of C signal	–100.00 to +100.00
4 (Hue Offset)	Amount of hue offset	–180.00 to +180.00

Transforming the Pattern of a Pattern Key

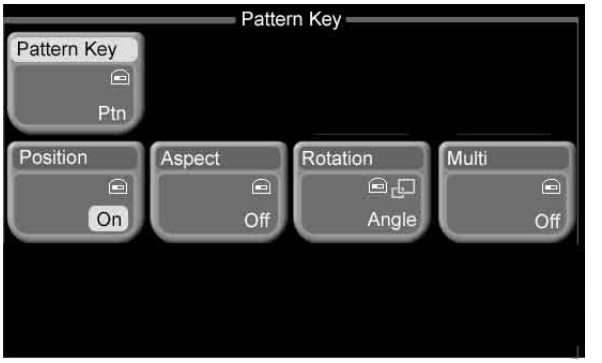
1 In the top menu, select Key >M/E Key1.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Pattern Key].

The Pattern Key menu appears.



4 Press one of the following buttons, depending on what you want to adjust.

For details about operation, see the sections on effect transformations (on the pages indicated in parentheses).

Position: Change the key pattern position *(page 57)*.
Aspect: Change the key pattern aspect ratio *(page 91)*.
Rotation: Rotate the key pattern to a specified angle *(page 91)*.
Multi: Arrange several examples of the same key pattern *(page 92)*.

Setting Key Mask Shapes and Positions

See "Masking Part of a Key" (page 79) for more information about how to make basic key mask settings.

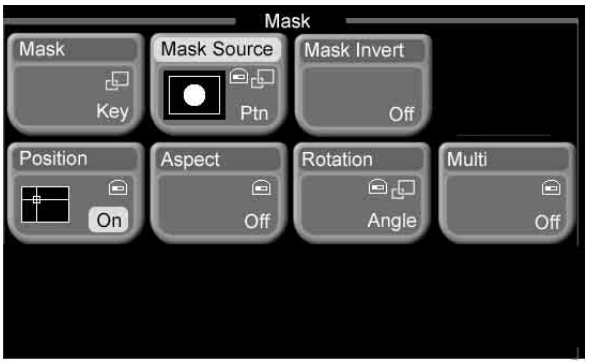
1 In the top menu, select Key >M/E Key1.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Mask].

The Mask menu appears.



4 Press [Mask Source].

A popup window appears.

5 Select either of the following.

Box: Box-shaped mask signal
Pattern: Mask signal with the same pattern as a standard group effect pattern.

6 Set the following parameters, depending on the mask type selected in step **5**.

When Box was selected:

Knob	Description	Setting values
1 (Left)	Position of left edge	–100.00 to +100.00
2 (Right)	Position of right edge	–100.00 to +100.00
3 (Top)	Position of top edge	–100.00 to +100.00
4 (Bottom)	Position of bottom edge	–100.00 to +100.00
5 (Soft)	Softness of edges	0.00 to 100.00

When Pattern was selected:

Knob	Description	Setting values
1 (H Position)	Move pattern horizontally	–200.00 to +200.00
2 (V Position)	Move pattern vertically	–200.00 to +200.00
3 (Size)	Size of pattern	0.00 to 100.00
4 (Soft)	Softness of edges	0.00 to 100.00
5 (Pattern)	Pattern number	1 to 24 a)

a) Same as patterns in the standard group.

To invert a mask signal

In the Key >M/E Key1 >Mask menu, press [Mask Invert], turning it on.

To transform a mask pattern

In the Key >M/E Key1 >Mask menu, press one of the following buttons, depending on how you want to transform the pattern.

For details about operation, see the sections on effect transformations (on the pages indicated in parentheses).

Position: Change the mask pattern position *(page 57).*
Aspect: Change the mask pattern aspect ratio *(page 91).*
Rotation: Rotate the mask pattern to a specified angle *(page 91).* Note that the parameter Magnitude is not available for masks.
Multi: Arrange several examples of the same mask pattern *(page 92).* When using a mask, operate in the same way as “For a PGM/PST wipe.”

Using Key Memory

The key memory function allows the keyer settings on each cross-point button to be automatically stored, so that the next time the same cross-point button is selected these settings are recalled automatically.

Parameters stored in key memory

- Key type
- Key inversion (Key Invert)
- Adjustment settings for the particular key type
- Luminance key and linear key: Clip, Gain, Density, and Filter settings, clean mode on and off.
- Chroma key: Settings excluding color cancel, Y balance, foreground video process, window, and shadow.
- Pattern key: Size, Soft, Density

To recall settings stored in key memory

When the key memory function on, stored settings are recalled automatically at the same time that key signals are selected.

Snapshots

What are Snapshots?

The term “snapshot” refers to a function whereby the various settings required to apply a particular effect to an image are saved in memory as a set of data, for recall as required, to recover the original state.
Snapshot operations use the Flexi Pad control block.

Snapshot types

There are two types of snapshot: those called simply “snapshot,” and effect snapshots. They differ in the types of data saved and the save destination registers (memory locations for saving data).

Snapshots

These are sets of data saved for each region (functional unit block) to enable recall of video states.

Snapshot target data and number of registers

Target data	Number of registers (register numbers)
M/E region data	99 (1 to 99)
PGM/PST region data	99 (1 to 99)
Following data included in MISC regions • Color backgrounds • AUX 1 to 4	99 (1 to 99)

Note

In Version 1.00, PGM/PST and MISC data cannot be saved and recalled individually.

Effect snapshots

These are sets of data saved to enable recall of M/E effect settings and PGM/PST wipe settings.

Effect snapshot target data and number of registers

Target data	Number of registers (register numbers)
Effect pattern numbers and modifiers set on M/E bank	10 (1 to 10)
Effect (wipe) pattern numbers and modifiers set on PGM/PST bank	10 (1 to 10)

Snapshot attributes

Temporary attributes

When a snapshot is recalled, independently of the attributes held in the register, you can specify up to four additional attributes called “temporary attributes.” They are as follows.

Cross-point hold: When the snapshot is recalled, the cross-point button selection remains unchanged. On the key buses, this works as the key disable function. The same setting is used for both A and B buses. Also, the same setting is used for both PGM and PST buses.

Key disable: When the snapshot is recalled, the key settings remain unchanged. This can be set independently for each keyer.

Effect dissolve: The transition from the state before the snapshot recall to the snapshot settings is carried out smoothly, by a dissolve.

Auto transition: An auto transition starts the instant the snapshot is recalled. The auto transition setting is valid for M/E and PGM/PST.

Usable temporary attributes

The following table shows the temporary attributes which can be used in each region.

Yes: Usable No: Not usable

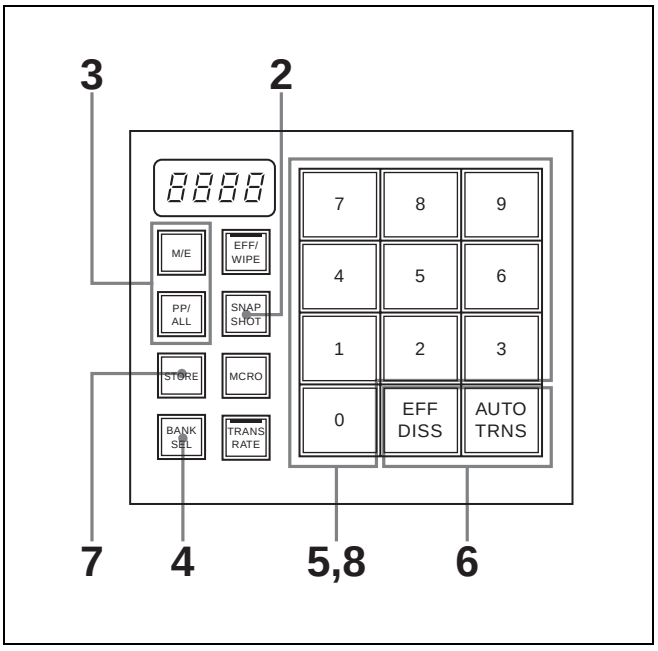
Attribute	Region		
	M/E	PGM/PST	MISC
Cross-point hold	Yes	Yes	Yes
Key disable	Yes	Yes	No
Effect dissolve	Yes	Yes	Yes
Auto transition	Yes	Yes	No

Bus override

Even when the setting of the temporary attribute “cross-point hold” is off, you can recall a snapshot while maintaining the current cross-point selection. This function is called “bus override.”

On how to use the bus override function, see page 104.

Saving Snapshots



1 Set up the state that you want to save as a snapshot.

2 Press the [SNAPSHOT] button, button, turning it on.

The Flexi Pad control block enters snapshot operation mode.

3 Press and light the region selection button for the region which you want to save.

[M/E] button: Selects the M/E region.
[PP/ALL] button: Selects all regions.

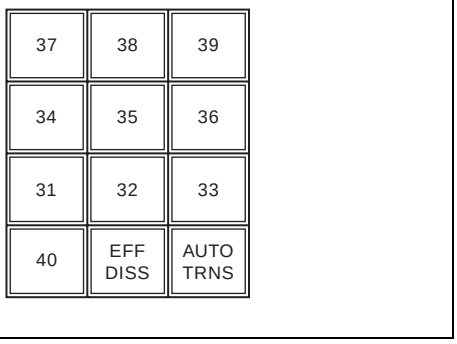
4 Press the [BANK SEL] button, turning it on.

The display on the memory recall buttons changes to the state shown in the above figure. You can now select the save destination bank.
Banks are the 99 registers divided into 10 groups. The following table shows the correspondences bank numbers and register numbers.

Bank number	Register number
Bank 0	1 to 10
Bank 1	11 to 20
Bank 2	21 to 30
Bank 3	31 to 40
Bank 4	41 to 50
Bank 5	51 to 60
Bank 6	61 to 70
Bank 7	71 to 80
Bank 8	81 to 90
Bank 9	91 to 99

5 Press a memory recall button to select a bank.

The most significant digit in the numeric display shows the number of the selected bank.
This is also indicated by the display on the memory recall buttons. For example, the display is as shown below when bank 3 is selected.



6 Press the [STORE] button, turning it on.

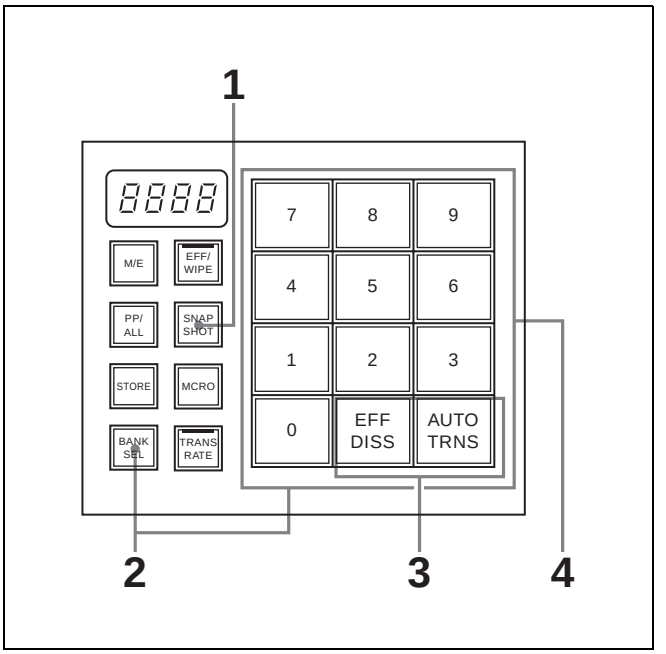
The snapshot can now be saved.

7 Press the memory recall button corresponding to register in which you want to save the snapshot.

Note
The contents of the corresponding register are overwritten if you press a button which is lit in orange or yellow.

The pressed button lights in yellow when the saving of the snapshot is finished.
The numeric display shows the selected bank number, followed by the register number.
For example, if you selected register 37, the display shows “3-37.”

Recalling Snapshots



1 Press the [SNAPSHOT] button, turning it on.

The button lights in amber, and the Flexi Pad control block enter snapshot operation mode.
Also, the numeric display shows the number of the bank selected last time, and the number of the register most recently recalled for the region.

2 If the [STORE] button is lit, press the button, turning it off.

3 Select the bank to recall.

*See steps **4** and **5** of "Saving Snapshots" (page 103).*

4 If you want to use a temporary attribute *(see page 102)*, press one of the following buttons, selecting and lighting it.

M/E and PGM/PST cross-point control blocks, AUX bus control block

Temporary attribute	Button pressed
Cross-point hold	[XPT HOLD] button in M/E and PGM/PST cross-point control blocks
Key disable for key bus	[XP/KY HOLD] button in AUX bus control block
Cross-point hold for Aux bus	

Flexi Pad control block

Temporary attribute	Button pressed
Effect dissolve	[EFF DISS] button

Flexi Pad control block

Temporary attribute	Button pressed
Auto transition	[AUTO TRNS] button

Lit in green: Selected
Lit in orange: Not selected

See page 102 for the attributes which may be used .

Note
The Cross-point hold and Key disable states last until the [XPT HOLD] or [XP/KY HOLD] button is pressed again.

5 Press the memory recall button for the register where the snapshot that you want is saved (the button is lit in orange).

When the recall is complete, the pressed button lights in yellow.
The numeric display shows the bank number followed by the selected register number.

To maintain cross-point states temporarily with the bus override function

Recall the snapshot while holding down a cross-point button in the A or B row on the M/E bank or a cross-point button in the PGM or PST row on the PGM/PST bank. The snapshot is recalled without changing the selection of the signal on the bus. This operation is not necessary when cross-point hold is on.

Deleting Snapshots

1 In the Flexi Pad control block, press the [STORE] button, turning it on.

2 While holding down the [SNAPSHOT] button, press the memory recall button for the snapshot that you want to delete.

The button goes out after the snapshot is deleted.

Copying

Copy Operation Targets

You can copy setting states between the following four keyers.
Setup data and key memory data is not copied.

- M/E key 1
- M/E key 2
- Downstream key 1 (DSK1)
- Downstream key 2 (DSK2)

Using Buttons to Copy Key Settings

You can easily copy keyer settings by using the AUX delegation buttons ([KEY1], [KEY2], [DSK1], and [DSK2]) in the AUX bus control block to specify the copy source and copy destination.

Example: Copying M/E key 1 to M/E key 2

In the AUX bus control block *(see page 12)*, hold down the [KEY 1] delegation button and press the [KEY 2] button. A beep sounds and the copy is executed.

Chapter 7 Saving and Loading Data (File Operations)

Overview

You can save register data, including setup data and snapshot data, and load the saved data whenever it is needed. Data can be saved to either the built-in hard disk or a “Memory Stick” *(see page 21)*.
The system distinguishes between several different kinds of data.

- Setup data (including data on the states of system devices after system power on and key memory setting data)
- Snapshot setting data
- Effect snapshot setting data

You can save, load, delete data in all of the above categories in a single operation, and also save, load, and delete data in selected categories.

Notes

- Data saved to hard disk may become unavailable if trouble occurs on the hard disk. It is recommended that important data be backed up to “Memory Sticks.”
- Before saving data to a “Memory Stick” or loading or deleting data from a “Memory Stick,” insert the “Memory Stick” into the system's “Memory Stick” slot.

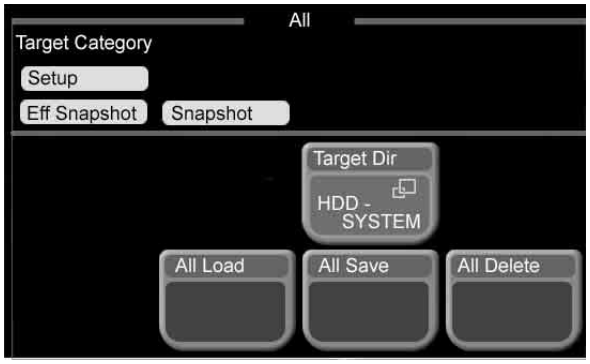
Saving, Loading, and Deleting Data at Once

Use the All menu or All (Selected) menu to carry out these operations.

Saving All Data at Once

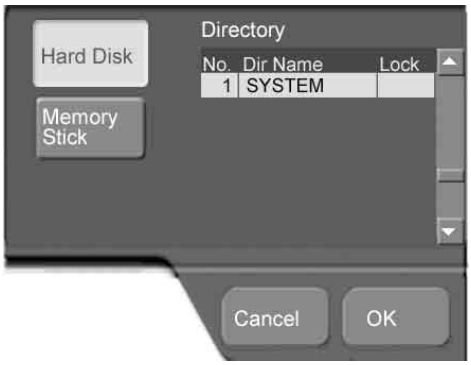
1 In the top menu, select File >All.

The All menu appears.



2 Press [Target Dir].

A popup window appears.



"1 SYSTEM" is specified as the target directory. (No other directory can be selected.)

3 Press the button for the desired media type (Hard Disk, or Memory Stick).

The color of the pressed button is inverted.

4 Press [OK].

The popup window closes.

5 In the File >All menu, press [All Save].

A confirmation window appears asking if you want to execute the save.

6 Press [Yes] in the confirmation window to execute the save, or [No] to cancel it.

If you pressed [Yes], the save begins and a window opens to show its progress.
Note that all existing files in the save destination are deleted before the save starts.

To cancel a save after it has started
Press [Cancel] in the progress window, and press [OK] in the message box which appears to inform you that the save has been cancelled.

Loading All Data at Once

You can load the data of all categories saved in files to registers in a single operation.

Note
Data cannot be loaded from files created or saved on systems other than the MFS-2000.

1 Carry out steps **1** to **4** in "Saving All Data at Once" *(see page 107)*, to select the type of media storing the data you want to load.

2 In the File >All menu, press [All Load].

A confirmation window appears asking if you want to execute the load.

3 Press [Yes] in the confirmation window to execute the load, or [No] to cancel it.

If you pressed [Yes], the load begins and a window opens to show its progress.
Note that all existing data in the load destination registers are deleted before the load starts.

To cancel a load after it has started
Press [Cancel] in the progress window, and press [OK] in the message box which appears to inform you that the save has been cancelled.

Deleting All Data at Once

You can delete the data of all categories saved in files in a single operation.

1 Carry out steps **1** to **4** of "Saving All Data at Once" *(see page 107)*, to select the type of media storing the data you want to delete.

2 In the File >All menu, press [All Delete].

A confirmation window appears asking if you want to execute the deletion.

3 Press [Yes] in the confirmation window to execute the deletion, or [No] to cancel it.

If you pressed [Yes], the deletion begins and a window opens to show its progress.

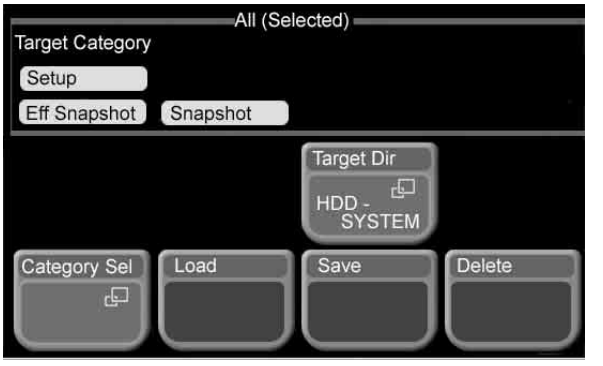
To cancel the data deletion after it has started
Press [Cancel] in the progress window, and press [OK] in the message box which appears to inform you that the deletion has been cancelled.

Saving the Data of Selected Categories

You can save the data for one or more categories in a single operation.

1 In the top menu, select File >All (Selected).

The All (Selected) menu appears.



In the Target Category area, the names of the currently selected categories are displayed in reverse video.

2 To change the category selection, press [Category Sel].

A popup window appears.

The buttons for the currently selected categories are on (their color is inverted).

3 Press the button for the category that you want to select (multiple selections possible). To deselect a category, press the corresponding (on) button, turning it off.

4 When you are finished selecting categories, press [OK].

The popup window closes.

5 In the File >All (Selected) menu, press [Target Dir].

A popup window opens, in the same way as in step **2** of "Saving All Data at Once" *(see page 107)*.
"1 SYSTEM" is specified as the target directory. (No other directory can be selected.)

6 Press the button for the desired media type (Hard Disk, or Memory Stick).

The color of the pressed button is inverted.

7 Press [OK].

The popup window closes.

8 In the File >All (Selected) menu, press [Save].

A confirmation window appears asking if you want to execute the save.

9 Press [Yes] in the confirmation window to execute the save, or [No] to cancel it.

If you pressed [Yes], the save begins and a window opens to show its progress.
Note that all existing files in the save destination are deleted before the save starts.

To cancel a save after it has started
Press [Cancel] in the progress window, and press [OK] in the message box which appears to inform you that the save has been cancelled.

Loading the Data of Selected Categories

You can load the data for one or more categories to registers in a single operation.

1 Carry out steps **1** to **7** of "Saving the Data of Selected Categories" *(see page 108)*, to select the target categories and the type of media storing the data you want to load.

2 In the File >All (Selected) menu, press [Load].

A confirmation window appears asking if you want to execute the load.

3 Press [Yes] in the confirmation window to execute the load, or [No] to cancel it.

If you pressed [Yes], the load begins and a window opens to show its progress.
Note that all existing data in the load destination registers are deleted before the load starts.

To cancel a load after it has started
Press [Cancel] in the progress window, and press [OK] in the message box which appears to inform you that the save has been cancelled.

Deleting the Data of Selected Categories

You can delete the data for one or more categories saved in files in a single operation.

1 Carry out steps **1** to **7** of "Saving the Data of Selected Categories" *(see page 108)*, to select the target categories and the type of media storing the data you want to delete.

2 In the File >All (Selected) menu, press [Delete].

A confirmation window appears asking if you want to execute the deletion.

3 Press [Yes] in the confirmation window to execute the deletion, or [No] to cancel it.

If you pressed [Yes], the deletion begins and a window opens to show its progress.

To cancel the data deletion after it has started
Press [Cancel] in the progress window, and press [OK] in the message box which appears to inform you that the deletion has been cancelled.

External Device Operations

Chapter 8

Control From Editing Systems

You can control the MFS-2000 system from an external editing system by using 9-pin serial control signals and GPI signals.

Refer to the documentation of your editing system for more information about operations on the editing system.

Controllable Functions

When using 9-pin serial control signals

Following is a list of the functions which can be controlled via the EDITOR connector on the rear panel of the processor.

- Signal selection
- Specification of effect pattern numbers
- Specification of transition directions (normal or reverse)
- Specification of transition rates
- Execution of auto transitions
- Registration of snapshots (learn) and recall of snapshots

When using GPI signals

Following is a list of the main functions which can be controlled via the GPI connector on the rear panel of the processor.

- Auto transitions
- Cuts
- Key mix transition
- Key on and off

Preparations

The following preparations must be made to control the MFS-2000 system from an external editing system.

Preparations on the MFS-2000 side

Do the following.

When using 9-pin serial control signals: Press the [EDIT] button in the ENABLE/UTILTY control block of the control panel, turning it on.

When using GPI signals:

- Press the [GPI] button in the ENABLE/UTILTY control block of the control panel, turning it on.
- In the Setup/Diag >GPI >SWR GPI menu, set the functions to be executed by GPI input signals. *(See "GPI Input/Output Setup (GPI Menu)" (page 129)*.

Note

If you need to change the assignment of signals to cross-point buttons, do as follows.

- In the Xpt Assign menu *(see page 118)*, make assignments so that button numbers and pair numbers are all the same.
- In the Video/Key Pair Assign menu *(see page 119)*, change the signals assigned to pair numbers.

Preparation on the editing system side

Set the GPI signal pulse width to 1 field (frame) or more depending on the video format.

System Settings | Chapter 9

Basic Settings

Format Settings (Format Menu)

Use the Format menu to set the signal format used in the switcher system, the input reference signal (HD system only), and the screen aspect ratio.

Note
Using an HD system requires the optional BZS-2000M.

Signal format

The signal format is indicated by a combination of the number of valid scan lines and the field frequency. The signal formats with which the switcher system can be used are as follows.

System	Valid scan lines	Field frequency
HD system	720p	59.94
	1080i	50
		59.94
	1080PsF	23.976
		24
		25
		29.97
SD system	480i	59.94
	576i	50

Input reference signal

When using an HD system, you can select the input reference signal from the following types.
Black Burst: SD system black burst
Tri Sync: HD system tri-level sync

Screen aspect ratio

You can set the screen aspect ratio to 4:3 or 16:9.

Note
After changing the signal format, input reference signal, or screen aspect ratio settings, be sure to save the new settings.

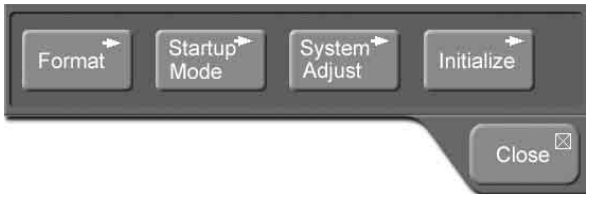
For details of saving settings, see "Saving Setup (Startup Mode Menu)" (page 120).

Setting the signal format

1 In the top menu, select Setup/Diag >System.

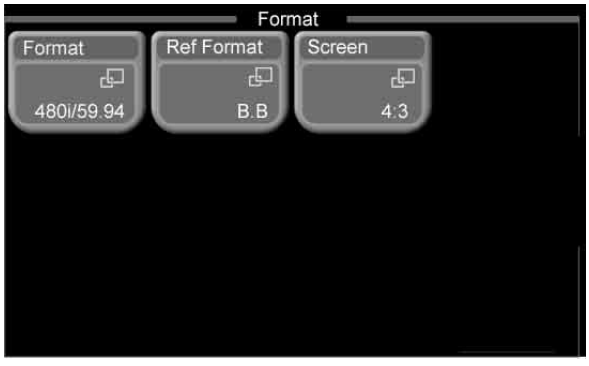
2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.



3 In the System menu popup window, press [Format].

The Format menu appears. The status area shows the current settings (switcher settings) of the signal format, reference video signal, and screen aspect ratio.



4 Press [Format].

A popup window appears, showing the signal formats that can be used in the system.
• 720P/59.94
• 1080i/50
• 1080i/59.94
• 1080PsF/23.976
• 1080PsF/24
• 1080PsF/25
• 1080PsF/29.97
• 480i/59.94
• 576i/50

5 Press directly on the indication for the signal format you want to set.

The popup window closes, and a confirmation message appears, prompting whether or not to change the signal format.

6 Press [Yes] in the dialog box.

This changes the signal format setting, and resets the system.

To cancel changing the signal format
Press [No] in the dialog box.

Setting the input reference signal

1 Carry out steps **1** to **3** in the previous item, "Setting the signal format."

2 Press [Ref Format].

A popup window appears, showing the input reference signals that can be used in the system.
• Black Burst
• Tri Sync

3 Press directly on the indication for input reference signal you want to use.

The popup window closes, and a confirmation message appears, prompting whether or not to change the input reference signal.

4 Press [Yes] in the dialog box.

This changes the input reference signal.

To cancel changing the input reference signal format
Press [No] in the dialog box.

Setting the screen aspect ratio

1 Carry out steps **1** to **3** in the procedure "Setting the signal format" *(see page 113)*.

2 Press [Screen].

A popup window appears, showing the screen aspect ratios that can be used in the system.
• 4:3
• 16:9

3 Press directly on the indication for the screen aspect ratio you want to use.

The popup window closes, and a confirmation message appears, prompting whether or not to change the screen aspect ratio.

4 Press [Yes] in the dialog box.

This changes the screen aspect ratio.

To cancel changing the screen aspect ratio
Press [No] in the dialog box.

Setting the Startup Mode (Startup Mode Menu)

Use the Startup Mode menu to set the mode for when the devices in the switcher system are powered on.
You can select resume mode or custom mode.

Resume mode
This restores the system state at the time it was last powered off. You can only set this for the switcher processor and control panel.

Custom mode
At power on, each device is initialized to settings stored in its own nonvolatile memory (user settings) or ROM (factory default settings). You can make separate settings for setup and initial status.

Setup: You can set the setup state used after powering on to User (user settings) or Factory (factory default settings).

Initial status: You can set the initial state (other than setup) of each device used after powering on to User (user settings) or Factory (factory default settings).

Selecting resume mode for starting up after powering on

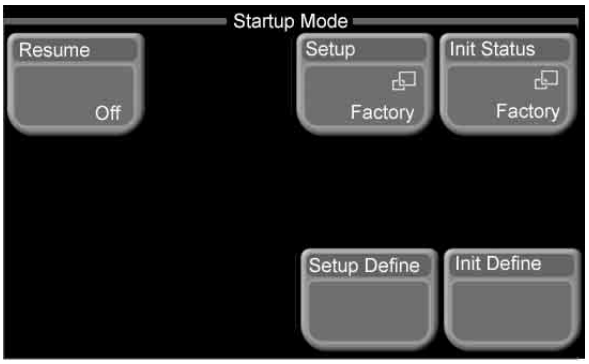
1 In the top menu, select Setup/Diag >System.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Startup Mode].

The Startup Mode menu appears. The status area shows the current settings.



4 Press [Resume].

The popup window in the Startup Mode menu closes, and a confirmation message appears, prompting whether or not to change the mode.

5 Press [Yes] in the dialog box.

This changes the mode.

To cancel changing the mode
Press [No] in the dialog box.

Selecting custom mode mode for starting up after powering on

To set setup to custom mode

1 Carry out steps **1** to **3** in the previous item, "Selecting resume mode for starting up after powering on."

2 If [Resume] is On, set it to Off.

3 Press [Setup].

A popup window appears.

4 Press [User] or [Factory].

The popup window closes, and a confirmation message appears, prompting whether or not to change the mode.

5 Press [Yes] in the dialog box.

This changes the mode.

To cancel changing the mode
Press [No] in the dialog box.

To set initial status to custom mode

In step **3** of the above procedure, "To set setup to custom mode," in place of [Setup], press [Init Status].
The remainder of the operation is the same.

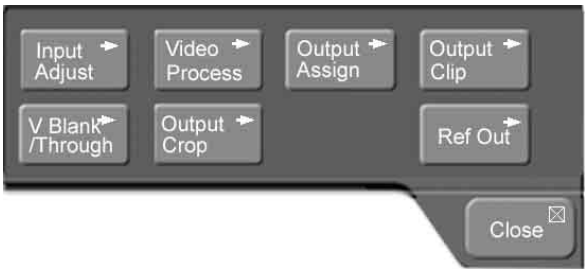
Output Signal Assignment (Output Assign Menu)

Assign output signals to each output port of the processor.

1 In the top menu, select Setup/Diag >Input/Output.

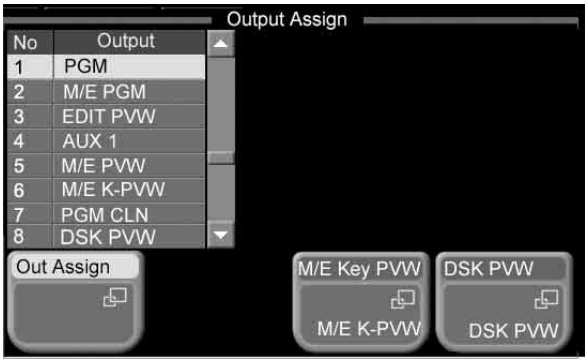
2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.



3 Press [Output Assign].

The Output Assign menu appears. The status area shows output port numbers and the output signals assigned to each port.



4 Select the output port number for which you want to make the setting.

- Directly press on the list in the status area.
- Use the arrow buttons to scroll the reverse video cursor.
- Turn the knobs to make the setting.

Knob	Description	Setting values
1 (No.)	Output port number selection	1 to 8 a)

a) Values 5 to 8 are only valid when the MKS-2110M (option) is installed.

The selected output port number appears in reverse video.

5 Press [Out Assign].

A popup window appears. The assignable output signals are shown.

Assignable output signals

- M/E PGM (M/E program signal)
- M/E PVW (M/E preview signal)
- M/E Key PVW (M/E key preview signal), M/E Key Out (M/E key output signal), or M/E PGM Clean (M/E program clean signal): selected signal appears in the popup window that appears when you press [M/E Key PVW] in the Output Assign menu.
- PGM (program signal): final output signal including the downstream key
- PGM Clean (program clean signal): final output signal excluding the downstream key
- DSK PVW (downstream key preview signal) or DSK Key Out (downstream key output signal): selected signal appears in the popup window that appears when you press [DSK PVW] in the Output Assign menu.
- AUX1 (auxiliary 1 signal) to AUX4: output signals on AUX1 to AUX4 buses
- EDIT PVW (edit preview signal)
- No Assign: no signal assigned.

6 Select the output signal to be assigned to the output port selected in step **3**.

This makes the signal assignment.
To the right of the output port number selected in the status area of the Output Assign menu is shown the name of the assigned output signal.

Note

Depending on the signal, the name shown in the popup window and the name shown in the status area of the Output Assign menu may be different.

Signal name shown in the popup window	Signal name shown in the status area of the Output Assign menu
M/E Key PVW	M/E K-PVW
M/E Key Out	M/E Key
M/E PGM Clean	M/E PGM CLN
PGM Clean	PGM CLN
DSK Key Out	DSK Key

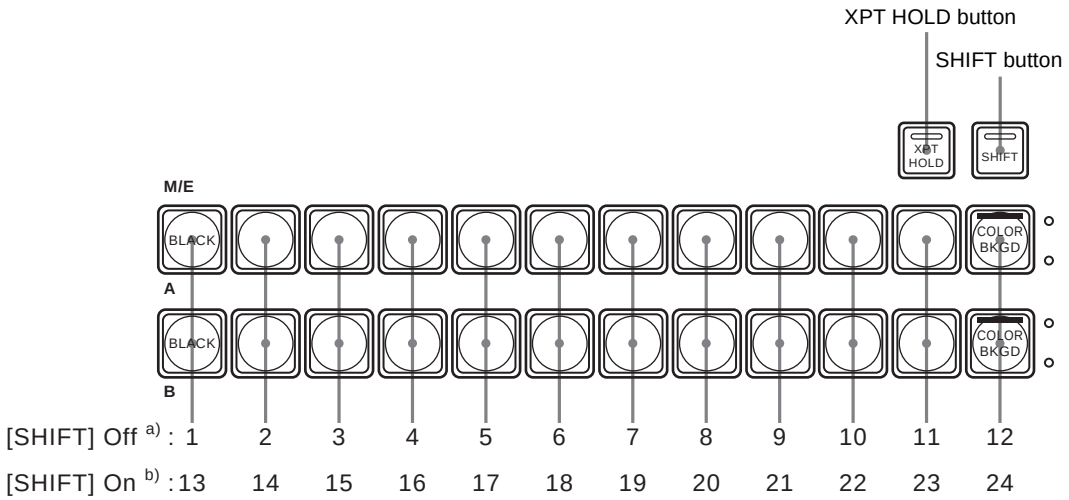
Assigning Signals to Cross-Point Buttons (Operation Menu)

Each cross-point button in the M/E cross-point control block, PGM/PSTcross-point control block (using a 1.5 M/E panel or 1.5 M/E wide panel), and AUX bus control block has two numbers. Select which of these numbers is valid by toggling the [SHIFT] button on or off.

Button numbers of cross-point buttons

In the M/E cross-point control block, PGM/PSTcross-point control block (using a 1.5 M/E panel or 1.5 M/E wide panel), and AUX bus control block, the button numbers of the cross-point buttons are as shown in the following figure.
For the cross-point buttons in all control blocks, the same signal is assigned to the same button number. The button numbers for each button are different when the [SHIFT] button is on or off.

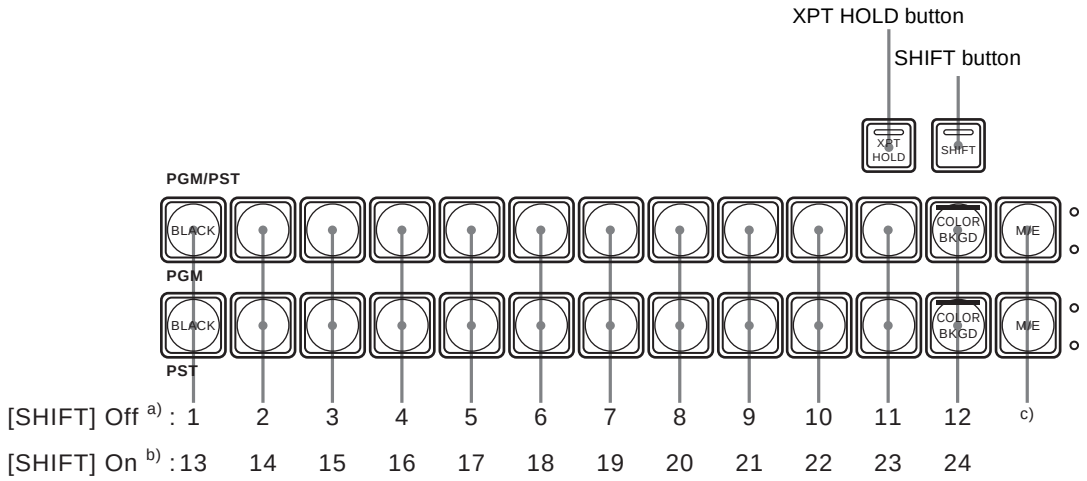
Cross-point button numbers in the M/E cross-point control block



a) For a 1.5 M/E wide panel: 1 to 20

b) For a 1.5 M/E wide panel: 21 to 40

Cross-point button numbers in the PGM/PST cross-point control block
(For a 1.5 M/E panel or 1.5 M/E wide panel. See figure below for 1.5 M/E panel.)

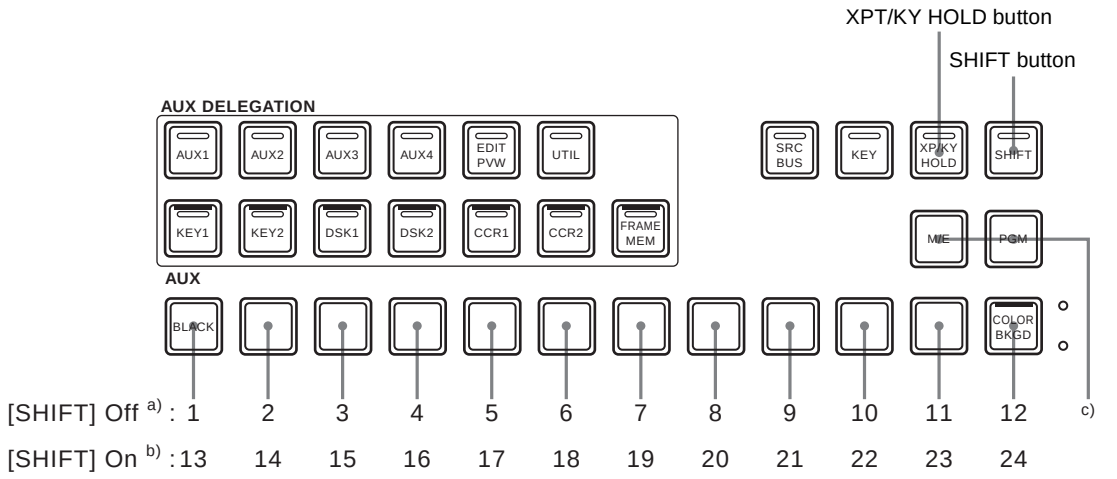


a) For a 1.5 M/E wide panel, button numbers: 1 to 20

b) For a 1.5 M/E wide panel, button numbers: 21 to 40

c) The signal assignment to these buttons cannot be changed.

Cross-point button numbers in the AUX bus control block



a) For a 1.5 M/E wide panel, button numbers: 1 to 20
b) For a 1.5 M/E wide panel, button numbers: 21 to 40
c) The signal assignment to these buttons cannot be changed.

Signals assigned to cross-point buttons

You can assign two signals, the video signal and key signal, as a pair to each cross-point button number. With this unit you can register a maximum of 40 pairs of video and key signals. For each pair the assigned number is referred to as a pair number. The signal assignment to cross-point buttons is done by assigning pair numbers to cross-point button numbers.

For the operation of combining a video signal and key signal, see "Creating a pair from a video signal and key signal" (page 119).

Assigning signals to cross-point buttons

To carry out the assignment of a video signal and key signal pair to a cross-point button, use the Xpt Assign menu.

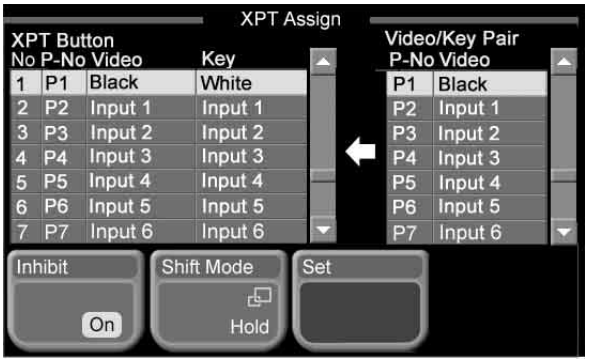
1 In the top menu, select Setup/Diag >Operation.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Xpt Assign].

The Xpt Assign menu appears.



The "XPT Button" (cross-point button) list appears at the left of the status area. This list includes the following items.
No: cross-point button number
P-No: video signal and key signal pair number
Video: video signal name (source name)
Key: key signal name (source name)

The "Video/Key Pair" list appears at the right of the status area. This list includes the following items.
P-No: video signal and key signal pair number
Video: video signal name (source name) being one of the pair

4 Using any of the following methods, select the cross-point button number to which you want to assign the signal.

• Press a cross-point button in the AUX bus control block.

• Directly press in the “XPT Button” list in the status area.
• Use the arrow buttons to scroll the reverse video cursor.
• Turn the knobs to make the setting.

Knob	Description	Setting values
1 (Button No.)	Cross-point button number selection	1 to 24 a) 1 to 40 b)

a) For 1 M/E panel and 1.5M/E panel
b) For 1.5 M/E wide panel

The selected number appears in reverse video.

5 Using any of the following methods, select the pair number for the video signal and key signal you want to assign to the selected cross-point button number.

• Directly press in the “Video/Key Pair” list in the status area.
• Use the arrow buttons to scroll the reverse video cursor.
• Turn the knobs to make the setting.

Knob	Description	Setting values
4 (Pair No.)	Pair number selection	P1 to P40

6 Press [Set] in the button area.

To disable any cross-point button

You can disable a cross-point button to which a signal is assigned so that pressing it does not select the signal.
In step **4**, select the desired button number, and press [Inhibit], turning it on.

Creating a pair from a video signal and key signal

To create a pair from a video signal and key signal to be assigned to a cross-point button, use the Video/Key Pair Assign menu.

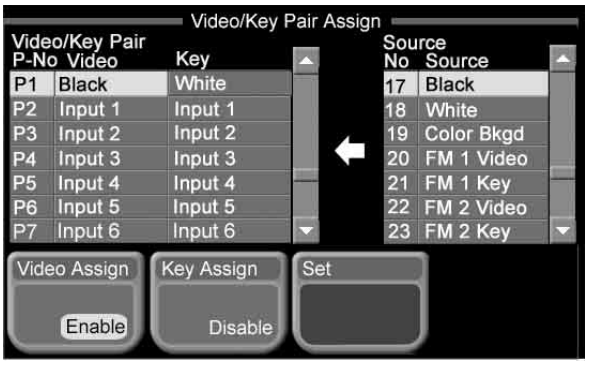
1 In the top menu, select Setup/Diag >Operation.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [V/K Pair Assign].

The Video/Key Pair Assign menu appears.



The “Video/Key Pair” list appears at the left of the status area. This list includes the following items.
P-No: video signal and key signal pair number
Video: video signal name (source name)
Key: key signal name (source name)

The “Source” list appears at the right of the status area. This list includes the following items.
No: source signal number
Source: source signal name

4 Using any of the following methods, select the pair number you want to create (or combination you want to change).

• Directly press in the “Video/Key Pair” list in the status area.
• Use the arrow buttons to scroll the reverse video cursor.
• Turn the knobs to make the setting.

Knob	Description	Setting values
1 (Pair No.)	Pair number selection	P1 to P40

The selected pair number appears in reverse video.

5 To set the video signal for the selected pair, press [Video Assign] in the button area, setting it to “Enable.”

6 Using any of the following methods, select the source number to be assigned as the video signal.

• Directly press in the “Source” list in the status area.
• Use the arrow buttons to scroll the reverse video cursor.
• Turn the knobs to make the setting.

Knob	Description	Setting values
4 (Source No.)	Source number selection	1 to 33

The selected source number appears in reverse video.

7 Press [Set] in the button area.

In the “Video” column of the “Video/Key Pair” list, the selected source name changes to the source name selected in step **6**.

8 To set the key signal for the selected pair, press [Key Assign] in the button area, setting it to “Enable.”

9 With the same operation as in step **6**, select the source number to be assigned as the key signal.

10 Press [Set] in the button area.

In the “Key” column of the “Video/Key Pair” list, the selected source name changes to the source name selected in step **7**.

Saving Setup (Startup Mode Menu)

Using the Startup Mode menu, you save the setup state of the devices constituting the switcher system and the initial status after powering on in the nonvolatile memory of each device.

Saving the setup state

1 Carry out steps **1** to **3** in the procedure “Selecting resume mode for starting up after powering on” *(page 115)*.

2 Press [Setup Define].

A confirmation message appears, prompting whether or not to save the current setup state.

3 Press [Yes] in the dialog box.

This saves the state.

To cancel saving
Press [No] in the dialog box.

Saving the initial status

1 Carry out steps **1** to **3** in the procedure “Selecting resume mode for starting up after powering on” *(page 115)*.

2 Press [Init Define].

A confirmation message appears, prompting whether or not to save the current state of the devices as the initial status.

3 Press [Yes] in the dialog box.

This saves the state.

To cancel saving
Press [No] in the dialog box.

Installing Software

This section describes how to install the software constituting the MFS-2000 system.
To install software, use the Info/Install menu. In the Info/Install menu, you can check the software version, or enter an installation key for each device.

To display the Info/Install menu

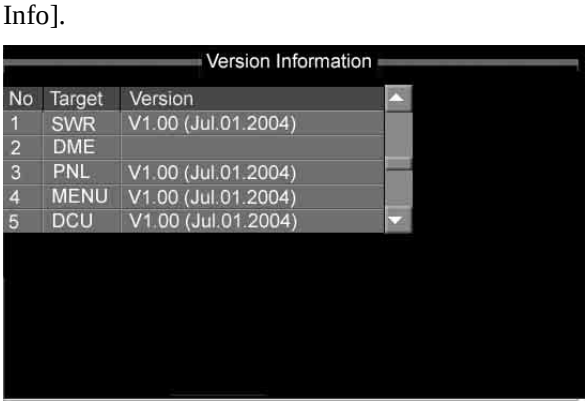
1 In the top menu, select Setup/Diag >Info/Install.

2 Press the 3rd menu title button from the top *(see page 26)*.

The following popup window appears.

Displaying Version Information (Version Information Menu)

To check the version of the application software (referred to as “applications”) currently installed in the devices constituting the MFS-2000 system, use the Version Information menu.
To display the Version Information menu, in the Setup/Diag >Info/Install menu popup window, press [Version Info].



The status area shows abbreviations for the applications and the version numbers.
If there are no communications with an application in the menu, the application box is grayed out. If the version information is not available, the [Version] box is left blank.

Abbreviations for applications

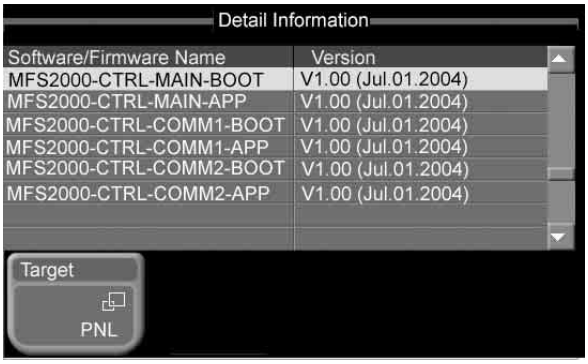
Abbreviation	Name
SWR	Switcher
DME	DME
PNL	Control panel
MENU	Menu
DCU	DCU

Version information display

The version information is shown as follows.
V + version number + (Date)
E.g. V1.00 (Jul.01.2004)
Version number: V1.00
Last updated: July 1, 2004

Displaying Detail Information (Detail Information Menu)

To check the detail information for an application shown in the Version Information menu, use the Detail Information menu.
To display the Detail Information menu, in the Setup/Diag >Info/Install menu popup window, press [Detail Info].



The abbreviation for the currently selected application appears on the [Target] button. The status area shows the name and version of the software/firmware constituting the currently selected application.

Note

No detail information is shown for applications not communicating with the menu application and applications for which version information was not available.

To change the application for which detail information is displayed

Press the [Target] button.
When the popup window appears, press the button for the application for which you want to view the detail information.

The button names are the same as the application abbreviations *(see "Abbreviations for applications").*

Manually Installing Software (Manual Install Menu)

To install only the required software/firmware manually, use the Manual Install menu. Insert a "Memory Stick" on which the software has already been written.

For details of software installation, refer to "Installing Software" in the Appendix (separate document).

1 In the Setup/Diag >Info/Install menu popup window, press [Manual Install].

The Manual Install menu appears.

2 Press [Refresh].

This loads the data from the "Memory Stick," and the status area shows the abbreviation for each application, and the version, name, and install settings ([On]/[Off]) for the software/firmware constituting the application. If there are no communications with an application in the menu, the application box is grayed out.

If there is no data for an application to be installed in the "Memory Stick"
A dialog box appears.
Press [OK] to close the dialog box.

3 Select the software/firmware.

- Directly press the list in the status area.
- Use the arrow buttons to scroll the reverse video cursor.
- Turn the knobs to make the setting.

Knob	Setting	Values
1 (No.)	Software/firmware selection	1 upwards (maximum value depends on application)

4 Press [Install], turning it on, to install the software/firmware selected in step **3**, or turnint it off, not to install.

5 Repeat steps **3** and **4.**

6 Press [Execute].

A confirmation message appears, prompting whether or not to carry out the installation.

7 Press [Yes] in the dialog box.

This installs the software/firmware for which [On] is set.

Note
Never power off during the installation. If you power off during the installation, the particular device may not be able to be restarted.

To cancel the installation
Press [No] in the dialog box.
If you have pressed [Yes] to begin the installation, press [Cancel] in the progress bar.

If an error occurs
A message appears, indicating what the error is. Check the message, and press [OK] to close the message dialog box.

When the installation finishes, the indication in the [Install] column changes as follows.
If the installation completes normally: [OK] appears.
If an error occurred: [Error] appears.

Entering an Installation Key (License Menu)

To use software options (referred to as "options"), installation keys are required. An installation key is a password (16 alphanumeric characters) issued for each option of each application. In the MFS-2000 system, installation keys are issued for the following options.

Application	Model number	Product name
SWR (switcher)	BZS-2000M	Switcher Upgrade Software (Multi)
DME	BZS-2470M	DME Upgrade Software
PNL (control panel)	Currently not supported.	

To activate an option you want to use, you need to enter the installation key in the License menu.

To purchase an installation key requires the device ID (string of up to 17 alphanumeric characters). You can check the device ID in the License menu.

For details of purchasing an installation key, contact your Sony sales representative.

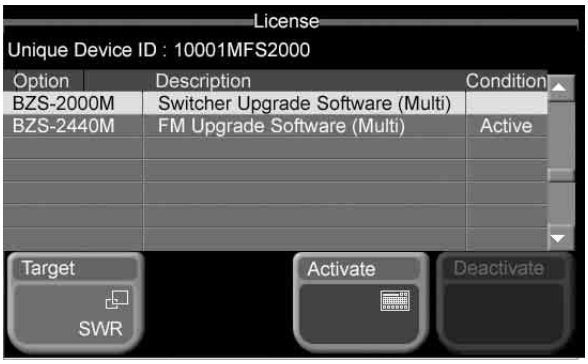
Checking the unique device ID

1 In the Setup/Diag >Info/Install menu, press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

2 Press [License].

The License menu appears.



The abbreviation for the currently selected application appears on the [Target] button. The status area shows the device ID (Unique Device ID) for the currently selected application, and the model number, product name, and current state ([Active] or blank) of each of the options available. Unsupported option columns are grayed out.

To change the application for which device ID and option information is displayed

Press [Target].
When the popup window appears, press the button for the application for which you want to view the information. The button names are the same as the application abbreviations *(see "Abbreviations for applications" (page 121))*.

Entering an installation key to activate an option

1 Referring to the previous item "Checking the device ID," display the License menu for the application for which you want to activate an option.

2 Select the option you want to use.

- Directly press the list in the status area.
- Use the arrow buttons to scroll the reverse video cursor.
- Turn the knobs to make the setting.

Knob	Description	Setting values
1 (No.)	Selection of option you want to use	1 upwards (maximum value depends on application)

3 Press [Activate].

A keyboard window appears.

4 Enter the installation key.

If the installation key is correct: a message appears, indicating that the option will be activated by carrying out a restart. Press [OK] in the dialog box, and proceed to step **5**.
If the installation key is incorrect: a message appears, indicating that the installation key is incorrect. Press [OK] in the dialog box, go back to step **3**, and re-enter the installation key.

5 Using either of the following methods, restart the system.

- In the Setup/Diag >System >Initialize menu, press [Reset].
- Exit the menu system, power the control panel off and then power it on again.

Note
Be sure to exit the menu system before powering the control panel off. *(On how to exit the menu system, see "Exiting the Menu System" (page 37).)*

After the restart, when you display the License menu, for the activated option, the [Condition] column shows [Active].

To deactivate an option

1 Referring to steps **1** and **2** of "Entering an installation key to activate an option," select the option you want to deactivate.

2 Press [Deactivate].

A confirmation message appears, prompting whether to deactivate the option.

3 Press [Yes] in the dialog box.

A message appears, indicating that after a restart the option will be deactivated.

To cancel deactivating the option
Press [No] in the dialog box.

4 Press [OK] in the dialog box, restart the system.

After the restart, when you display the License menu, for the deactivated option, the [Condition] column is blank.

Other Settings

System Adjustments (System Adjust Menu)

Use the System Adjust menu to carry out system phase adjustments, operation switching timing settings, and illegal color adjustments.

Adjusting the system phase

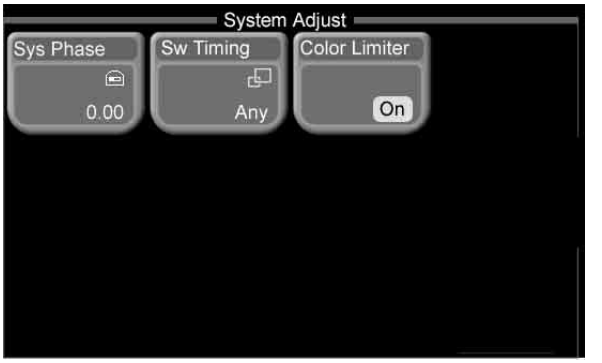
1 In the top menu, select Setup/Diag >System.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [System Adjust].

The System Adjust menu appears. The status area shows the current settings.



4 Press [Sys Phase].

5 Turn the knobs to adjust the phase.

Knob	Description	Setting values
1 (System Phase)	System phase setting	–32.00 to +96.00

Setting the operation switching timing

1 Carry out steps **1** to **3** in the previous item, “Adjusting the system phase.”

2 Press [Sw Timing].

A popup window appears.

3 Select one of the following.

Any: Switch on the earliest field that can be processed.

Field 1: Switch on field 1.
Field 2: Switch on field 2.

Setting the illegal color limiter

1 Carry out steps **1** to **3** in the procedure “Adjusting the system phase” *(page 124)*.

2 Press [Color Limiter], to switch the illegal color limiter on or off.

System Reset and Memory Initialization (Initialize Menu)

Use the Initialize menu to carry out a system reset or memory initialization.
When you carry out a system reset, the system is restarted in the state set for power on *(see page 114)*. Carrying out a memory initialization returns to the factory default settings.

Resetting the whole system

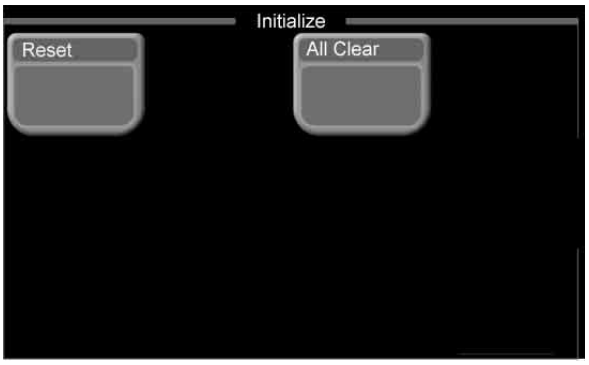
1 In the top menu, select Setup/Diag >System.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Initialize].

The Initialize menu appears.



4 Press [Reset].

The popup window closes, and a confirmation message appears, prompting whether or not to reset.

5 Press [Yes] in the dialog box.

This resets the system.

To cancel the reset
Press [No] in the dialog box.

Initializing memory

1 Carry out steps **1** to **3** in the previous item, “Resetting the whole system.”

2 Press [All Clear].

The popup window closes, and a confirmation message appears, prompting whether or not to carry out the memory initialization.

3 Press [Yes] in the dialog box.

This initializes memory, and resets the system.

To cancel memory initialization
Press [No] in the dialog box.

Input Signal Setup (Input/Output Menu)

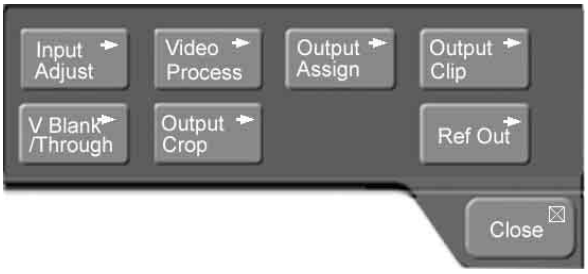
Use the Input/Output menu to carry out setup relating to processor primary input signals.
You can make the following settings.
Phase: Adjust the phase of the primary input signals.
Through mode: For each primary input, select whether the through mode is on or off. The through mode is a mode in which the sync signal included in an output signal is not replaced by an internally generated sync signal, but is left unchanged.
Video process: Adjusts the input signal brightness and hue.

Carrying out phase adjustments and through mode setting

1 In the top menu, select Setup/Diag >Input/Output.

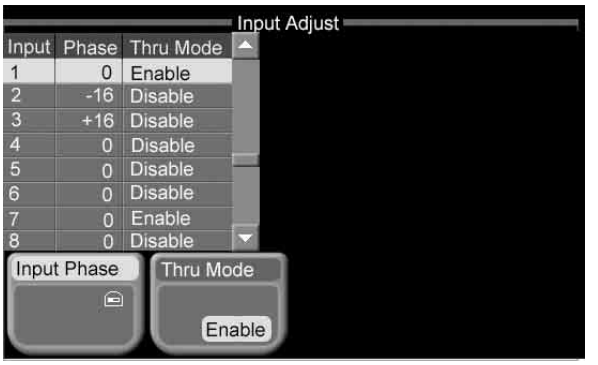
2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.



3 Press [Input Adjust].

The Input Adjust menu appears. The status area shows the input number, signal phase, and through mode setting.



4 Select the input number for which you want to make the setting.

- Directly press the list in the status area.
- Use the arrow buttons to scroll the reverse video cursor.
- Turn the knobs to make the setting.

Knob	Description	Setting values
1 (Input)	Input number selection	1 to 16 a)

a) Values 9 to 16 are only valid when the MKS-2110M (option) is installed.

The selected input number appears in reverse video.

5 To adjust the phase, press [Input Phase], and turn the knobs to adjust the parameters.

Knob	Description	Setting values
2 (Input Phase)	Phase	–16 to +16

6 To carry out the through mode setting, press [Thru Mode], toggling it between Enable and Disable.

Enable: Enable the through mode.
Disable: Disable the through mode.

Note
To make through mode effective, it is also necessary to set output side through mode to "Enable" *(see page 127)*.

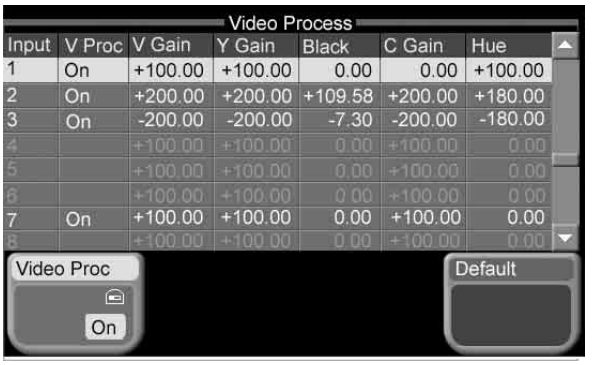
Making the video process setting

1 In the top menu, select Setup/Diag >Input/Output.

The Input/Output menu popup window appears.

2 Press [Video Process].

The Video Process menu appears. The status area shows the input numbers, and video processing adjustment values.



3 Select the input number for which you want to make the setting.

- Directly press the list in the status area.
- Use the arrow buttons to scroll the reverse video cursor.
- Turn the knobs to make the setting.
  The parameter assignment to knob 1 is the same in parameter groups 1/2 and 2/2.

Knob	Description	Setting values
1 (Input)	Input number selection	1 to 16 a)

a) Values 9 to 16 are only valid when the MKS-2110M (option) is installed.

The selected input number appears in reverse video.

4 Press [Video Proc], turning it on.

5 Turn the knobs to adjust the parameters.

Parameter group 1/2

Knob	Description	Setting values
2 (Video Gain)	Overall gain of the video signal	–200.00 to +200.00
3 (Y Gain)	Y signal gain	–200.00 to +200.00
4 (Black Level)	Black level	–7.00 to +109.58

Parameter group 2/2

Knob	Description	Setting values
2 (Video Gain)	Overall gain of the video signal	–200.00 to +200.00
3 (C Gain)	Chrominance signal gain	–200.00 to +200.00
4 (Hue Delay)	Hue delay	–180.00 to +180.00

Output Signal Setup (Input/Output Menu)

Use the Input/Output menu to carry out setup relating to output signals.

You can make the following settings.

Output signal assignment: Assign an output signal to each output port. *(See "Output Signal Assignment (Output Assign Menu)" (page 115).)*

Video clip: For each output port, adjust the output signal clip levels (White Clip, Dark Clip, Chroma Clip).

Vertical blanking width: For each output port, adjust the vertical blanking width of the output signal. The adjustment value indicates the position of the line up to which masking takes place, relative to the blanking width of field 1 of the video format.

Through mode: For each output port, set whether the through mode is on or off. The through mode is a mode in which the sync signal included in an output signal is not replaced by an internally generated sync signal, but is left unchanged.

Crop: When the screen aspect ratio in an HD system is 4:3, set how the output image is reduced to 4:3.

Reference output: Adjust the reference output phase with respect to the reference input phase, as a number of lines and a time.

Video clip adjustment

1 In the top menu, select Setup/Diag >Input/Output.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Output Clip].

The Output Clip menu appears. The status area shows the output port numbers, and the output signal assigned to each port, and the white clip, dark clip, and chrominance clip values.

4 Select the output port number for which you want to make the setting.

- Directly press the list in the status area.
- Use the arrow buttons to scroll the reverse video cursor.
- Turn the knobs to make the setting.

Knob	Description	Setting values
1 (No.)	Output port number selection	1 to 8 a)

a) Values 5 to 8 are only valid when the MKS-2110M (option) is installed.

The selected output port number appears in reverse video.

5 Press [Output Clip].

6 Turn the knobs to adjust the parameters.

Knob	Description	Setting values
2 (White)	Luminance signal white clip value	90.00 to 109.02
3 (Dark)	Luminance signal dark clip value	–6.85 to +10.00
4 (Chroma)	Chrominance signal clip value	90.00 to 113.17

To reset the settings to the default values

Press [Default]. All parameters, White, Dark, and Chroma for the output signal currently being set are returned to their default values.

Making vertical blanking width and through mode settings

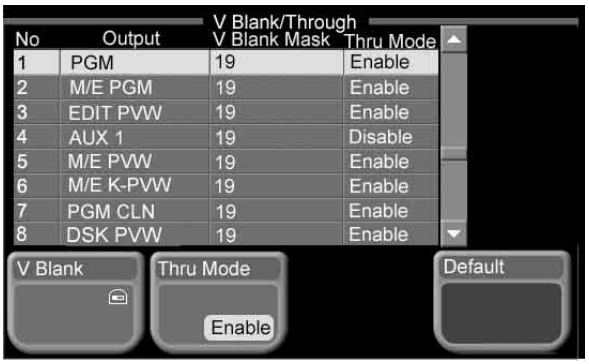
1 In the top menu, select Setup/Diag >Input/Output.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [V Blank/Through].

The V Blank/Through menu appears. The status area shows the output port numbers, and for each port the assigned output signal, vertical blanking width, and through mode setting.



4 Select the output port number for which you want to make the setting.

- Directly press the list in the status area.
- Use the arrow buttons to scroll the reverse video cursor.
- Turn the knobs to make the setting.

Knob	Description	Setting values
1 (No.)	Output port number selection	1 to 8 a)

a) Values 5 to 8 are only valid when the MKS-2110M (option) is installed.

The selected output port number appears in reverse video.

5 Press [V Blank].

6 Turn the knobs to adjust the parameters.

Knob	Description	Setting values
2 (Mask End)	Last line of vertical blanking interval	10 to 19 a) 6 to 22 b) 7 to 20 c) 7 to 25 d)

a) When signal format is 480i/59.94
b) When signal format is 576i/50
c) For any signal format with valid scan lines of 1080i or 1080PsF
d) When signal format is 720p/59.94

To reset the settings to the default values
Press [Default].

7 To carry out the through mode setting, press [Thru Mode], toggling it between Enable and Disable.

Enable: Enable the through mode.
Disable: Disable the through mode.

Notes

- The through mode setting can only be made for the following output signals.
  M/E PGM, PGM, PGM Clean, AUX1 to AUX4, and Edit PVW
- To make through mode effective, it is also necessary to set input side through mode to "Enable" *(see page 125)*.

In an HD system, to crop the image in 4:3 mode

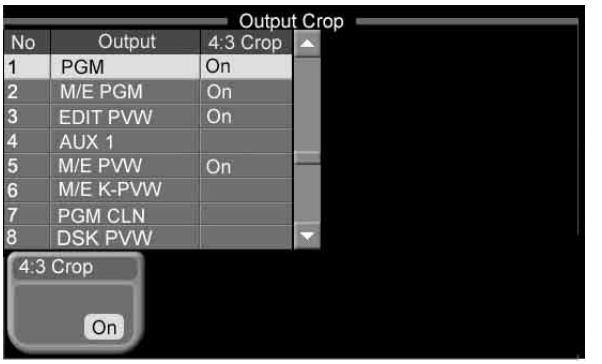
1 In the top menu, select Setup/Diag >Input/Output.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Output Crop].

The Output Crop menu appears. The status area shows the output port numbers, and for each port the assigned output signal, and 4:3 crop mode setting.



4 Select the output port number for which you want to make the setting.

- Directly press the list in the status area.
- Use the arrow buttons to scroll the reverse video cursor.
- Turn the knobs to make the setting.

Knob	Description	Setting values
1 (No.)	Output port number selection	1 to 8 a)

a) Values 5 to 8 are only valid when the MKS-2110M (option) is installed.

The selected output port number appears in reverse video.

5 Press [4:3 Crop].

This toggles the 4:3 crop mode on and off, and the [4:3 Crop] column in the status area shows the setting as follows.
Indication when enabled: On
Indication when disabled: blank

Note

When the HD system screen aspect ratio is set to 16:9 *(see page 114)* in the Setup/Diag >Format menu or when your system is set to an SD format *(see page 113)*, it is not possible to enable the 4:3 crop mode.

Setting the reference output

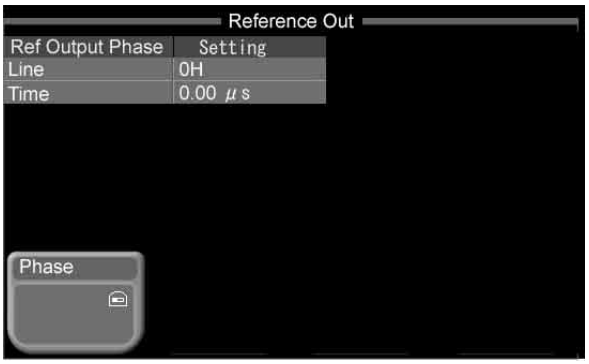
1 In the top menu, select Setup/Diag >Input/Output.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [Ref Out].

The Reference Out menu appears. The status area shows the reference output phase parameters (Line, Time).



4 Press [Phase].

5 Turn the knobs to adjust the parameters.

Knob	Description	Setting values
1 (Line)	Number of lines	–90 to +90
2 (Time)	Time	–32.00 to +96.00

GPI Input/Output Setup (GPI Menu)

Use the GPI menu to set up GPI signal inputs and outputs between the switcher or control panel and external devices.

Setting switcher GPI inputs

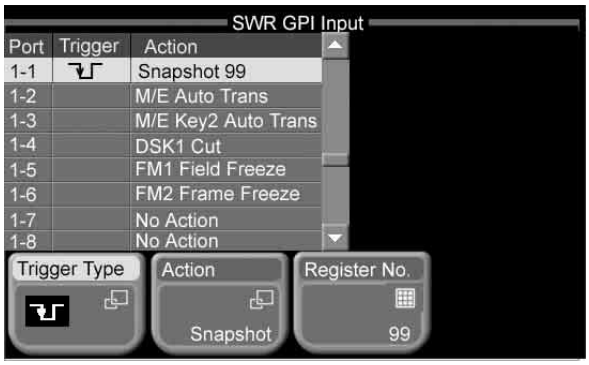
1 In the top menu, select Setup/Diag >GPI.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [SWR GPI In].

The SWR GPI Input menu appears. The status area shows the GPI input ports, and the trigger type and action set for the signal to be input to each port.



4 Select the port for which you want to make the setting.

- Directly press the list in the status area.
- Use the arrow buttons to scroll the reverse video cursor.
- Turn the knobs to make the setting. (E.g.: if the setting by knob 1 is value 5 and the setting by knob 2 is value 1, this is shown as 5-1.)

Knob	Description	Setting values
1 (Port)	GPI input port number selection	1 to 8
2 (No.)	Number selection to which action is to be assigned	1 to 8

To change the trigger type setting

Press [Trigger Type], to display a popup window, and select the trigger type.

(falling edge): Trigger is applied on the falling edge of an input pulse.

(rising edge): Trigger is applied on the rising edge of an input pulse.

(both edges): Trigger is applied on both falling and rising edges of an input pulse.

Disable (disabled): Input pulses are ignored.

To change the action setting

Press [Action], to display a popup window, and select the action.

Action button	Status area display
M/E Auto Trans	M/E AT
M/E Cut	M/E Cut
P/P Auto Trans [a)]	P/P AT
P/P Cut [a)]	P/P Cut
M/E Key1 Auto Trans	M/E K1 AT
M/E Key1 Cut	M/E K1 Cut
M/E Key2 Auto Trans	M/E K2 AT
M/E Key2 Cut	M/E K2 Cut
DSK1 Auto Trans	DSK1 AT
DSK1 Cut	DSK1 Cut
DSK2 Auto Trans	DSK2 AT

Action button	Status area display
DSK2 Cut	DSK2 Cut
FTB Auto Trans	FTB AT
FTB Cut	FTB Cut
Snapshot Recall ? b)	Snapshot
No Action	No Action
FM1 Field Freeze c)	FM1 Field
FM1 Frame Freeze c)	FM1 Frame
FM1 Freeze Off c)	FM1 Off
FM2 Field Freeze c)	FM2 Field
FM2 Frame Freeze c)	FM2 Frame
FM2 Freeze Off c)	FM2 Off

a) 1.5 M/E panel only
b) When [Snapshot Recall ?] is selected, press [Register No.] to set a register number (1 to 99).
c) Selecting this action has currently no effect.

Setting switcher GPI outputs

1 In the top menu, select Setup/Diag >GPI.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 Press [SWR GPI Out].

The SWR GPI Output menu appears. The status area shows the GPI output ports, and the trigger type, output timing, pulse width, and action set for the signal to be output from each port.

4 Select the port for which you want to make the setting.

- Directly press the list in the status area.
- Use the arrow buttons to scroll the reverse video cursor.
- Turn the knobs to make the setting. Select 1 to 8 for GPI ports (G-1 to G-8), and 9 to 16 for tally ports (T1 to T8).

Knob	Description	Setting values
1 (Port)	GPI output port number selection	1 to 16

To change the trigger type setting

Press [Trigger Type], to display a popup window, and select the trigger type.

(falling edge): The trigger closes the relay contacts or causes a low output level, and this state is maintained for the specified pulse width.

(rising edge): The trigger opens the relay contacts or causes a high output level, and this state is maintained for the specified pulse width.

(both edges): Each time the trigger is activated, the relay switches between open/closed or the output level switches between high/low.

Status: Depending on the state, the relay is switched open/closed or the output level is switched high/low.

Disable (disabled): No output.

To change the timing setting

When the trigger type is other than [Status] or [Disable], press [Timing] to display a popup window, and select the timing.

Any: Output on the earliest field that can be processed.
Field 1: Output on field 1.
Field 2: Output on field 2.

Note

When the following signal formats are selected, it is not possible to set the timing.

- 1080PsF/23.976
- 1080PsF/24
- 1080PsF/25
- 1080PsF/29.97
- 720p/59.94

To change the pulse width setting

When the trigger type is (falling edge) or (rising edge), turn the knobs to set the pulse width.

Knob	Description	Setting values
2 (Pulse Width)	Pulse width	1 to 60 (fields)

To change the action setting

Press [Action] to display a popup window, and select the action.

Action button	Status area display
M/E Auto Trans	M/E AT
M/E Cut	M/E Cut
P/P Auto Trans a)	P/P AT
P/P Cut a)	P/P Cut
M/E Key1 Auto Trans	M/E K1 AT

Action button	Status area display
M/E Key1 Cut	M/E K1 Cut
M/E Key2 Auto Trans	M/E K2 AT
M/E Key2 Cut	M/E K2 Cut
DSK1 Auto Trans	DSK1 AT
DSK1 Cut	DSK1 Cut
DSK2 Auto Trans	DSK2 AT
DSK2 Cut	DSK2 Cut
FTB Auto Trans	FTB AT
FTB Cut	FTB Cut
M/E Key1 On	M/E K1 On
M/E Key2 On	M/E K2 On
DSK1 On	DSK1 On
DSK2 On	DSK2 On
Error	Error
Tally Input1	Tally 1
Tally Input2	Tally 2
Tally Input3	Tally 3
Tally Input4	Tally 4
Tally Input5	Tally 5
Tally Input6	Tally 6
Tally Input7	Tally 7
Tally Input8	Tally 8
Tally Input9	Tally 9
Tally Input10	Tally 10
Tally Input11	Tally 11
Tally Input12	Tally 12
Tally Input13	Tally 13
Tally Input14	Tally 14
Tally Input15	Tally 15
Tally Input16	Tally 16
Tally M/E	Tally M/E
No Action	No Action

a) 1.5 M/E panel only

To test fire the trigger output

Select the output port, and press [Test Fire].

Note

When the selected output port trigger type is [Status], no trigger is output.

Setting control panel GPI inputs

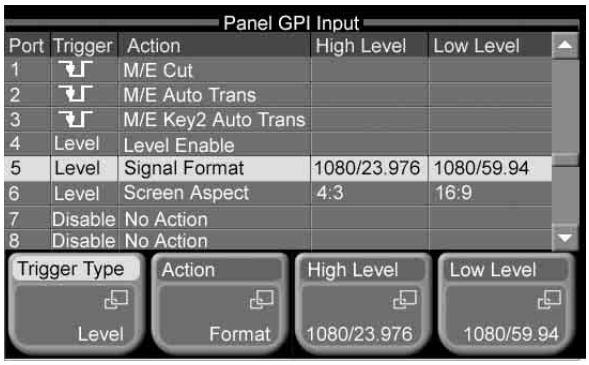
1 In the top menu, select Setup/Diag >GPI.

2 Press the 3rd menu title button from the top *(see page 26)*.

A popup window appears.

3 In the GPI menu popup window, press [Panel GPI In].

The Panel GPI Input menu appears. The status area shows the GPI input ports, and the trigger type and action set for the signal to be input to each port.



4 Select the port for which you want to make the setting.

- Directly press the list in the status area.
- Use the arrow buttons to scroll the reverse video cursor.
- Turn the knobs to make the setting.

Knob	Description	Setting values
1 (Port)	GPI input port number selection	1 to 8

To change the trigger type setting

Press [Trigger Type], to display a popup window, and select the trigger type.

(falling edge): Trigger is applied on the falling edge of an input pulse.

(rising edge): Trigger is applied on the rising edge of an input pulse.

(both edges): Trigger is applied on both falling and rising edges of an input pulse.

Level: Trigger is applied when input is low level or high level.

Disable (disabled): Input pulses are ignored.

To change the action setting

When the trigger type is other than [Level], press [Action] to display a popup window, then you can select the following actions.

Note

If you change the trigger type setting from any of falling edge, rising edge, and both edges to [Level], or vice versa, the action is automatically changed to [No Action].

For details of the action when the trigger type is set to [Level], see the next item, "Setting the action when the trigger type is [Level]."

Action button	Status area display
M/E Auto Trans	M/E AT
M/E Cut	M/E Cut
P/P Auto Trans a)	P/P AT
P/P Cut a)	P/P Cut
M/E Key1 Auto Trans	M/E K1 AT
M/E Key1 Cut	M/E K1 Cut
M/E Key2 Auto Trans	M/E K2 AT
M/E Key2 Cut	M/E K2 Cut
DSK1 Auto Trans	DSK1 AT
DSK1 Cut	DSK1 Cut
DSK2 Auto Trans	DSK2 AT
DSK2 Cut	DSK2 Cut
FTB Auto Trans	FTB AT
FTB Cut	FTB Cut
Snapshot Recall ? b)	SnapShot
No Action	No Action
FM1 Field Freeze c)	FM1 Field
FM1 Frame Freeze c)	FM1 Frame
FM1 Freeze Off c)	FM1 Off
FM2 Field Freeze c)	FM2 Field
FM2 Frame Freeze c)	FM2 Frame
FM2 Freeze Off c)	FM2 Off
Macro Take c)	Macro

a) 1.5 M/E panel only
b) When [Snapshot Recall ?] is selected, press [Register No.] to set a register number (1 to 99).
c) Selecting this action has currently no effect.

Setting the action when the trigger type is [Level]

When the trigger type is [Level], press [Action] to display a popup window, then you can select the following four actions.

Action button	Status area display
No Action	No Action
Signal Format	Format
Screen Aspect	Aspect
Level Enable	Enable

When other than [No Action] is selected, you can set the action separately for when the input is high level and when the input is low level. To set the action when the input is high level, press [High Level], and to set the action when the input is low level, press [Low Level], to display a popup window.

When [Signal Format] is selected: In the popup window, press any of the following action buttons, to select the action when the input goes to the high level/low level.
- 576i/50
- 480i/59.94
- 720P/59.94
- 1080i/50
- 1080i/59.94
- 1080PsF/23.976
- 1080PsF/24
- 1080PsF/25
- 1080PsF/29.97
- No Action

When [Screen Aspect] is selected: In the popup window, press the following action buttons, to select the action when the input goes to the high level/low level.
- 4:3
- 16:9
- No Action

When [Level Enable] is selected: In the popup window, press the following buttons, to select the action when the input goes to the high level/low level.
- Enable
- Disable
- No Action

Note

When using [Signal Format] and [Screen Aspect], set the [Level Enable] GPI input to [Enable]. If this is not set to [Enable], the GPI inputs are not valid.

GPI outputs of the control panel

The GPI outputs of the control panel are fixed as follows, so you need not make settings for them.

Port number	Action
GPI-1	Error Status
GPI-2	No Action
GPI-3	No Action
GPI-4	No Action
GPI-5	M/E Key1 On Status
GPI-6	M/E Key2 On Status
GPI-7	DSK1 On Status
GPI-8	DSK2 On Status

Tally Setup (GPI Menu)

For details of the setup for tally signals to be output from the switcher to external devices, see “Setting switcher GPI outputs” in the section “GPI Input/Output Setup (GPI Menu)” *(page 129)*.

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