FOR.A®
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY

OPERATION MANUAL

HVS-3800HS
HVS-3800S
Digital Video Switcher

HVS-16OUA
HVS-24OUA
HVS-12ROUA
Hanabi Operation Unit

3rd Edition - Rev. 7

FOR-A COMPANY LIMITED

Edition Revision History

Edit.	Rev.	Date	Description	Section
1	-	2006-12-15		
		2005-12-05	Added color correction.	
2		2006-08-24	Added HVS-24OUA description. Various additional functions and corrections.	
2	1	2006-12-22	Addition to OU SETUP-MODE (2/2) menu, USER button function and Color Mix	15-1-1 15-2 9-3
2	2	2007-05-31	-Bus selection for User pattern -Side Panel -TGA with alpha supported -Menu go back/forward function -ASPECT for Safety Area Display -Auto transition by GPI IN	4-2-1, 10-2 5-1-7 9-1-2, 13-3 15-2 15-3-3 16-1-1
3		2007-10-31	-HVS-12ROUA added -HVS-38SS/SSAM option added -AUX LINK function added	
3	1	2007-12-10	-Aspect setting in WIPE MODIFY menu -Defocus settings in DVE MODIFY menu	App. P14 App. p15
3	2	2008-01-21	-Keyer FAM/NAM transition -Applying Changes to All Keyframes (User Pattern) -Transition ON/OFF (Sequence playback) -Channel list and Status display (Color Correction) -Two modes for safety area markers	6-4-1 10-2-13 11-3-4 14-7 15-3-4
3	3	2008-10-17	-VDCP Control added. -Factual errors corrected	16-2
3	4	2008-12-26	-DVE STILL operation revised -Effect Background description added -Note on aspect ratio in SD mode added -Event recall operation revised	8-2-2 9-3 1-2, 15-3-4 12-3
3	5	2009-10-19	-"Saving Events" changed -AUX Tally and Color Logic added, GPI IN/OUT changed -User button assignments changed -720/50p supported -Other factual errors corrected	12-2 16-1 15-2-2
3	6	2010-08-06	-Stereoscopic 3D video input/output -TSL-TALLY support	5-5-5 16-1-6
3	7	2011-03-11	Stereoscopic 3D video input/output corrected	5-5-5

Precautions

Important Safety Warnings

[Power]

 Caution	Operate unit **only** on the specified supply voltage.
	Disconnect power cord by connector only. **Do not** pull on cable portion.
 Stop	**Do not** place or drop heavy or sharp-edged objects on power cord. A damaged cord can cause fire or electrical shock hazards. Regularly check power cord for excessive wear or damage to avoid possible fire / electrical hazards.

[Grounding]

 Caution	**Ensure** unit is properly grounded at all times to prevent electrical shock hazard.
 Hazard	**Do not** ground the unit to gas lines, units, or fixtures of an explosive or dangerous nature.
 Caution	**Ensure** power cord is firmly plugged into AC outlet.

[Operation]

 Hazard	**Do not** operate unit in hazardous or potentially explosive atmospheres. Doing so could result in fire, explosion, or other dangerous results.
 Hazard	**Do not** allow liquids, metal pieces, or other foreign materials to enter the unit. Doing so could result in fire, other hazards, or unit malfunction.
	If foreign material does enter the unit, turn power off and disconnect power cord **immediately.** Remove material and contact authorized service representative if damage has occurred.

[Transportation]

 Caution	**Handle** with care to avoid shocks in transit. Shocks may cause malfunction. When you need to transport the unit, use the original packing materials or alternate adequate packing.

[Circuitry Access]

	**Do not** remove covers, panels, casing, or access circuitry with power applied to the unit! Turn power off and disconnect power cord prior to removal. Internal servicing / adjustment of unit should only be performed by qualified personnel.
 Stop	**Do not** touch any parts / circuitry with a high heat factor. Capacitors can retain enough electric charge to cause mild to serious shock, even after power is disconnected. Capacitors associated with the power supply are especially hazardous. Avoid contact with any capacitors.
 Hazard	Unit **should not** be operated or stored with cover, panels, and / or casing removed. Operating unit with circuitry exposed could result in electric shock / fire hazards or unit malfunction.

[Potential Hazards]

 Caution	If abnormal smells or noises are noticed coming from the unit, turn power off immediately and disconnect power cord to avoid potentially hazardous conditions. If problems similar to above occur, contact authorized service representative **before** attempting to again operate unit.

[Rack Mount Brackets, Ground Terminal, and Rubber Feet]

 Caution	To rack mount or ground the unit, or to install rubber feet, **do not** use screws or materials other than those supplied. Otherwise, it may cause damage to the internal circuits or components of the unit. If you remove the rubber feet attached on the unit, **do not** reinsert the screws securing the rubber feet.

[Consumables]

 Caution	The consumables used in unit must be replaced periodically. For further details on which parts are consumables and when they should be replaced, refer to the specifications at the end of the Operation Manual. Since the service life of the consumables varies greatly depending on the environment in which they are used, they should be replaced at an early date. For details on replacing the consumables, contact your dealer.

Upon Receipt

Unpacking

The Hanabi series switcher, HVS-3800HS and HVS-3800S, and any of their options you may have purchased are fully inspected and adjusted prior to shipment and can be operated immediately upon completing all required connections and operational settings. Check your received items against the packing lists below.

◆ MU Box Contents

ITEM	QTY	REMARKS
HVS-3800HS/S	1	MU (Main Unit)
AC Cord	1	
Rack Mount Brackets	1 pr.	

◆ OU Box Contents

ITEM	QTY	REMARKS
HVS-16OUA HVS-24OUA HVS-12ROUA	1	OU (Operation Unit)
AC Cord	1	
Control Cable	1	PC-3164 for Display Unit connection
Memory Card	1	Compact Flash memory card 512MB
Operation Manual	1	This manual

◆ Internal Hardware Options

ITEM	QTY	REMARKS	720/50p
HVS-38HSDI / SSDI	1	Digital component 12-input expansion card	Available
HVS-38DVE2D / SDVE2D (*1)	1-2	HD/SD switchable 2D DVE card	Available
HVS-38DVE3D SDVE3D (*1)	1-2	HD/SD switchable 3D DVE card	Available
HVS-38AUMV	1	Auxiliary multi-viewer card	Unavailable (*3)
HVS-38UC	1-4	Up-converter input card	Unavailable
HVS-38DC	1	Down-converter output card	Unavailable
HVS-38SS(*2)	1	Still store card	Unavailable
HVS-38SSAM(*2)	1	Still store animation card	Unavailable
HVS-38PSM	1	Modular redundant power supply unit for MU	-
HVS-38PSO	1	Modular redundant power supply unit for HVS-16/24OUA	-
HVS-12PSO	1	Modular redundant power supply unit for HVS-12ROUA	-

(*1) Either HVS-38DVE2D or HVS-38DVE3D is installed to the MU. (Both not available.)
(*2) Either HVS-38SS or HVS-38SSAM is installed to the MU. (Both not available.)
(*3) The Multiviewer function does not support 720/50p, but the optional outputs added with this option support 720/50p.
Each optional device (except factory installed ones) provides with the specific operation or installation manuals.

◆ Software Options

ITEM	QTY	REMARKS
HVS-38CC / SCC	1	Color Corrector
HVS-38ED	1	Editor Control

◆ External Options

ITEM	QTY	REMARKS
HVS-AUX8/16/32	1-16	AUX bus control box
HVS-AUXRK/AUX8RK	1-16	AUX bus control box remote kit
HVS-TALR20/32 (*1)	1-5	Relay type tally unit
HVS-TALOC20/32 (*1)	1-5	Open collector type tally unit

(*1) Multiple tally units' configurations possible; up to 5 units max.

Check

Check to ensure no damage has occurred during shipment. If damage has occurred, or items are missing, inform your supplier immediately.

Rack Mounting

The HVS-3800HS/S can be mounted to EIA standard rack units. When rack mounting a unit, remove the rubber feet and use the accessory rack mount brackets (rack ears).

Table of Contents

1. Prior to Starting

1-1. Welcome

Congratulations! By purchasing the Hanabi HVS-3800 series switcher you have entered the world of FOR-A and its many innovative products. Thank you for your patronage and we hope you will turn to FOR-A products again and again to satisfy your video and audio needs.
FOR-A provides a wide range of products, from basic support units to complex system controllers, which have been increasingly joined by products for computer video based systems. Whatever your needs, talk to your FOR-A representative. We will do our best to be of continuing service to you.

1-2. About HVS-3800 Series Switchers

The Hanabi HVS-3800 series switcher is a 2M/E high-end digital switcher optimized for both live broadcasting and production that carries on the advanced technology and wide range of features in FOR-A Hanabi series switchers. These multi bit-rate/multi-format machines support HDTV and SDTV signals. (The HVS-3800S supports SDTV only.)
The HVS-3800HS/S provides 16 standard primary inputs, which can be expanded up to 31 inputs with addition of an option board (including three special-purpose inputs), and four standard still stores. In addition to these sources, two matt signals can also be assigned to the M/E bus.
Standard output includes one program, preview, and clean output for each M/E, 10 standards auxiliary outputs. An additional six auxiliary outputs and dedicated down-converter outputs are available as an option.
The control panel keeps the same ease of operation of the HVS-3000 series but now includes a CF card slot in the standard system for image file transfer and backup of settings.
In addition to mix and wipe transitions, 2D DVEs are available as an option, and can be upgraded to 3D DVEs. The switcher also features motion blur and logo animations using still store and mix and wipe transitions in a modified floating DVE wall.

Features

- Full option system supports up to 31 SDI video signal inputs (including three special-purpose inputs). Up to 16 video signal outputs available: PGM, PREV, CLN (one each for M/E1 and M/E2), and 16 AUX outputs (including 6 AUX options).
- 10-bit 4: 2: 2 digital component signal processing.
- Support for multi bit-rate / multi-format digital component input signals. Easy signal switchover between HD multi-format (1080/60i, 720/60p, etc.) and SD format signals by using the control panel menu settings. Supported aspect ratios are 16:9 and 4:3 in HD formats, 4:3, letter box and squeeze in SD (NTSC) format and 4:3 and squeeze in SD (PAL) format.
- 3 keyers for each M/E in the standard configuration (2 keyers with chromakey functions), and up to 6 keyers are available at the same time by using the re-entry function.
- Re-entry function enables M/E1 PGM output to be used as an M/E2 source. M/E2 enables PGM output up to a maximum of 9 layers.
- Key masks are provided in standard configuration. Edge and shadow effects and priority change are available for the keyers 1 and 2.
- HDTV tri-sync and analog black burst input signals for system synchronization and dedicated connectors with loopthrough output for each sync signal.

- MIX, FAM and NAM transitions available with 100 WIPE preset patterns in standard configuration, expandable to 120 DVE preset patterns including options.
- Versatile 4 channel (for SDTV) or 2-channel (for HDTV) DVE modify operations possible with optional DVE board.
- 6 still stores (including optional 2 stills) and 2 bus matt signal generators. Incorporates logo animation function using still store.
- 200 event internal memory for saving and reading of setting data.
- Built-in CF card slot for uploading and downloading of setting files and image sources.
- The MU/OU connection can use Arcnet for system expansion up to five units (main units and operation units together) within one network.
- Standard system includes RS-422 GPI IN and GPI/TALLY OUT ports. Up to 5 Hanabi series tally units (HVS-TALOC20/32, HVS-TALR20/32) can be used in RS-422 cascade connection. Capable of various GPI input/output controls using GPI IN and GPI/TALLY OUT ports.
- Supports redundant power supply for main unit and operation unit.
- Main unit is an EIA 4RU standard size.

1-3. About This Manual

This manual is intended to help the user easily operate the Hanabi series switchers and make full use of their functions during operations. Before configuring or operating your system, read this operation manual thoroughly to ensure you understand the product. After reading, it is important to keep this manual in a safe place and available for future reference.
The manual doesn't have an index, but at the end of this manual it offers a list of all menu items including their references, which allows you to find out the desired information quickly and effectively.

Font Conventions

The following conventions are used through out this manual:

- Boxed text (for example MATT) is used for OU buttons.
- Shaded text (such as OFF) is used for the items and values in the menus.

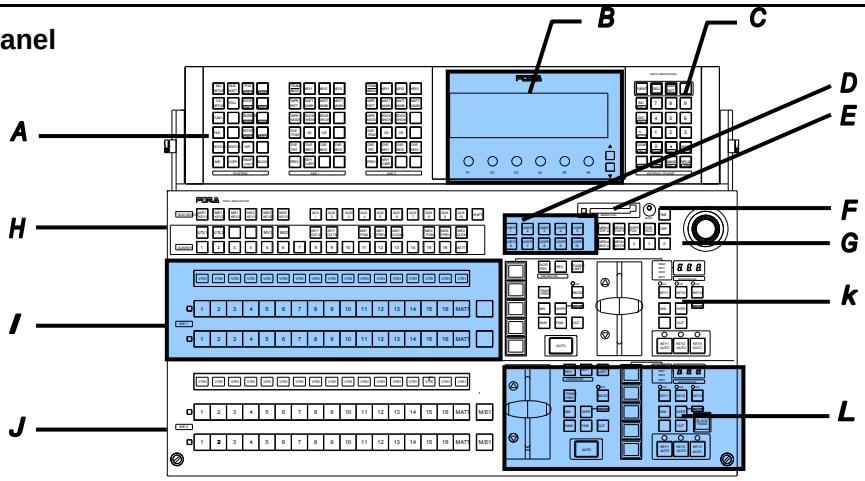
NOTE
Note that only one OU model and MU model are primarily show throughout this manual for explanation purposes. Appearance of other models will vary somewhat, but descriptions and related operational explanations will still apply.

2. Panel Description

2-1. Operation Unit

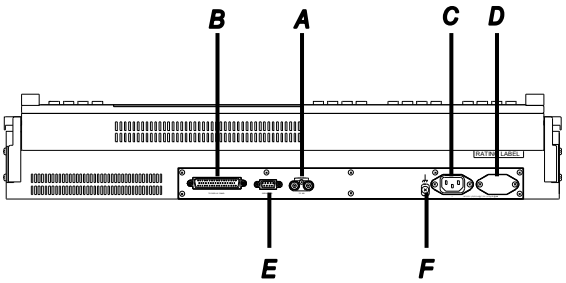
2-1-1. HVS-16/24OUA

◇ **Control Panel**



Item	Name	Description
A	Operational menu selection	Selects menu or operational parameters displayed at B.
B	Menu display / controls	Menu / parameters display and controls
C	Keypad	For number input / operational data adjust. For event, user pattern and sequence operations.
D	User buttons	For menu shortcut and function assignments.
E	CF card slot	For data upload / download (CF card).
F	Reset switch	For OU reset.
G	Joystick control section	For number input.
H	BUS SELECT and AUX/KEY output selections	For Bus selection and AUX/KEY bus signal assignments.
I	M/E1 bus section	M/E1 background source bus buttons.
J	M/E2 bus section	M/E2 background source bus buttons.
K	M/E1 transition section	For pattern selection and M/E1 transition operation.
L	M/E2 transition section	For pattern selection and M/E2 transition operation.

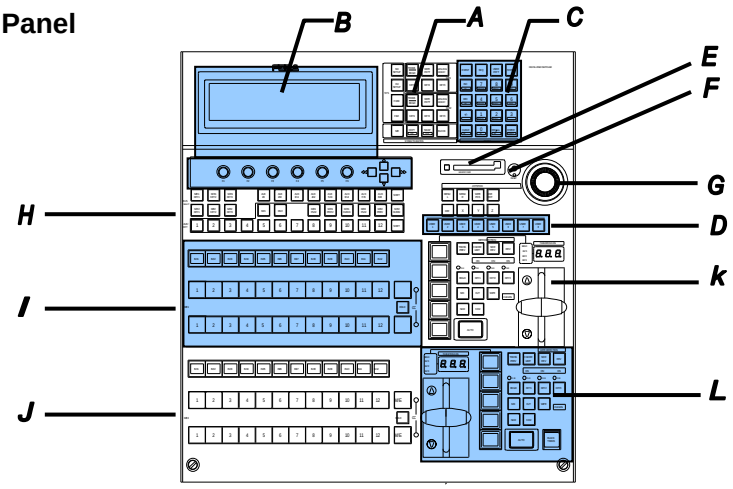
◇ **Rear Panel**



Item	Name	Description
A	TO MU	TO MU arcnet connector (with BNC and loopthrough)
B	TO DISPLAY PANEL	Display panel connector (PC-2967, 50-pin D-sub, male)
C	POWER1	AC input connection to power supply unit 1 (standard PS) (AC100V-240V 50/60Hz).
D	POWER2	AC input connection to power supply unit 2 (optional PS) (AC100V-240V 50/60Hz).
E	SERVICE I/O	Do not use.
F	Ground Terminal	Used to ground unit for electrical protection.

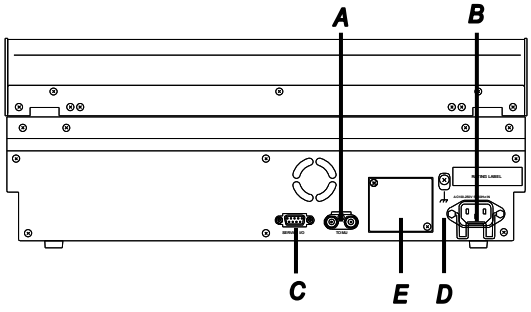
2-1-2. HVS-12ROUA

◇ **Control Panel**



Item	Name	Description
A	Operational menu selection	Selects menu or operational parameters displayed at B.
B	Menu display / controls	Menu / parameters display and controls
C	Keypad	For number input / operational data adjust. For event, user pattern and sequence operations.
D	User buttons	For menu shortcut and function assignments.
E	CF card slot	For data upload / download (CF card).
F	Reset switch	For OU reset.
G	Joystick control section	For number input.
H	BUS SELECT and AUX/KEY output selections	For Bus selection and AUX/KEY bus signal assignments.
I	M/E1 bus section	M/E1 background source bus buttons.
J	M/E2 bus section	M/E2 background source bus buttons.
K	M/E1 transition section	For pattern selection and M/E1 transition operation.
L	M/E2 transition section	For pattern selection and M/E2 transition operation.

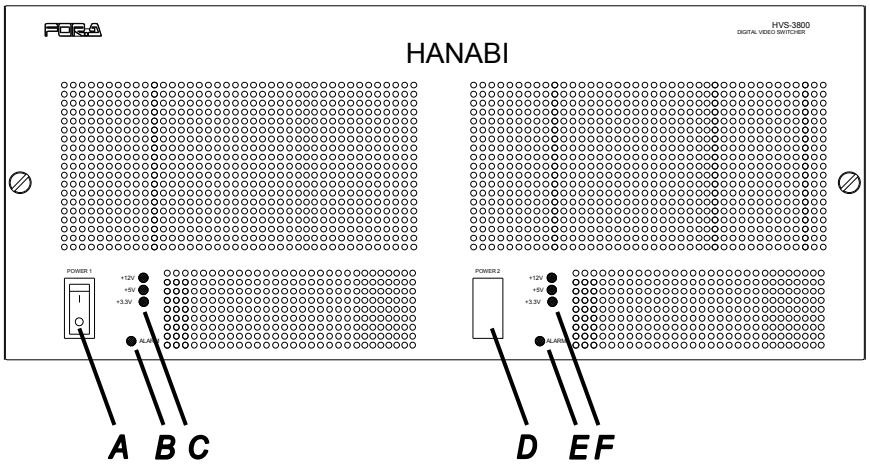
◇ **Rear Panel**



Item	Name	Description
A	TO MU	TO MU arcnet connector (with BNC and loopthrough)
B	POWER1	AC input connection to power supply unit 1 (standard PS) (AC100V-240V 50/60Hz).
C	SERVICE I/O	Do not use.
D	Ground Terminal	Used to ground unit for electrical protection.
E	POWER2	AC input connection to power supply unit 2 (optional PS) (AC100V-240V 50/60Hz).

2-2. Main Unit

2-2-1. Front Panel



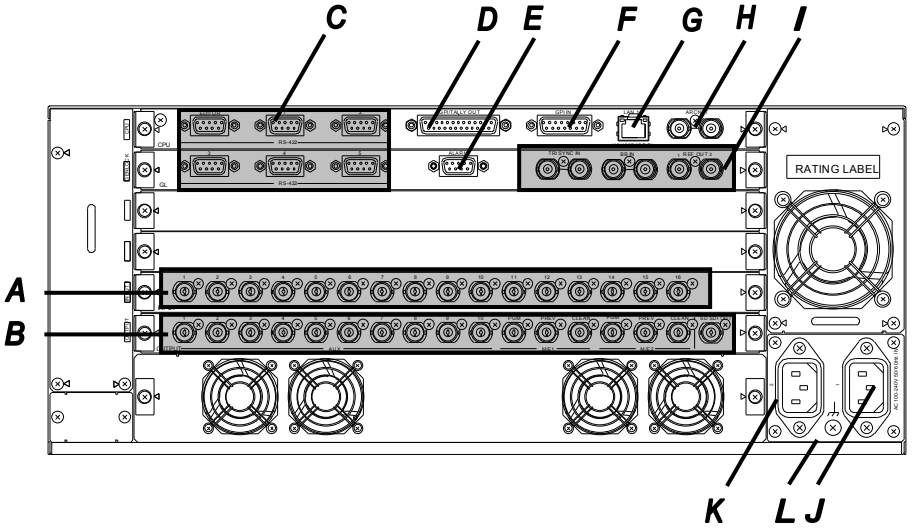
Item	Description	Function
A	POWER1	Used to switch power supply unit 1 ON / OFF.
B	ALARM	The red fan alarm indicator lights on if any fan of the MU (unit fan and fans for PS1 and PS2) fails. The indicator is not lit when the fans are operating normally.
C	DC	The green power indicator lights on if the power supply unit 1 is operating normally. The indicator is not lit if an alarm condition occurs.
D	POWER2	Used to switch power supply unit 2 ON / OFF. (Optional)
E	DC	The green power indicator lights on if the power supply unit 2 is operating normally. The indicator is not lit if an alarm condition occurs.
F	ALARM	The red fan alarm indicator lights on if any fan of the MU (unit fan and fans for PS1 and PS2) fails. The indicator is not lit when the fans are operating normally.

IMPORTANT

If alarm indication continues to appear, check out each unit status using the STATUS menu (To open the STATUS menu, press the STATUS button in the menu section.). Then power the unit off and contact your FOR-A supplier for advice.

If you have both the accessory and optional power supplies installed, you will need to turn at least one power switch ON before you can use your MU. Normally, both power switches should be set to ON at the same time if you want power backup protection should one of the power units fail during operation. Note that if both power units are set to on and one unit fails, the unit with problem will be powered off automatically.

2-2-2. Rear Panel

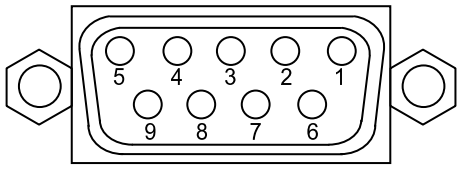


Item	Description	Function
A	1-16 17-28 (option)	For serial digital component video inputs, BNC
B	PGM1, PREV1, CLN1	For M/E1 program, preview, clean outputs, BNC
	PGM2, PREV2, CLN2	For M/E2 program, preview, clean outputs, BNC
	AUX1-10 AUX11-16 (option)	For auxiliary outputs, BNC
C	EDITOR	For Editor control connection (9-pin D-sub, female)
	RS-422 (1) - (5)	For RS-422 control connection. (9-pin D-sub, female)
D	GPI/TALLY OUT	For GPI and tally operation control output (25-pin D-sub, female)
E	ALARM	For ALARM output connection (9-pin D-sub, female)
F	GPI IN	For GPI operation control input (15-pin D-sub, female)
G	LAN (10/100BASE-T)	10BASE-T/100BASE-TX LAN interface
H	ARCNET	Via ARCNET connection control to OU or AUX bus, BNC (With loopthrough. 75Ω terminator required when not looped through.)
I	TRI SYNC IN	For genlock input (tri-level sync signal) (With loopthrough. 75 Ω terminator required when not looped through.)
	BB IN	For genlock input (black burst signal) (With loopthrough. 75 Ω terminator required when not looped through.)
	REF OUT	For genlock output (tri-level sync or black burst signal selectable) (With loopthrough. 75Ω terminator required when not looped through.)
J	AC IN1	For AC input connection for power supply unit 1
K	AC IN2	For AC input connection for power supply unit 2 (option)
L	Ground terminal	Used to ground unit for electrical protection.

* See section 3. “System Configuration” for more details about system configurations.

2-2-3. Interfaces

■ **ALARM Connector**



Pin Assignment Table (9-pin D-sub female)

Pin No.	Signal Name	Description
1	FAN ALARM OUT	Fan failure alarm. Normally open.
2	POWER ALARM OUT	Power supply failure alarm. Normally open.
3	EXT ALARM COMMON	Not used
4	EXT ALARM OUT	Not used
5	RESET IN	External reset input. Active low initiate.
6	FAN ALARM COMMON	Fan alarm common.
7	POWER ALARM COMMON	Power supply alarm common.
8	GND	Common ground
9	GND	Common ground

* Load current rating (per pin): 0.5A.

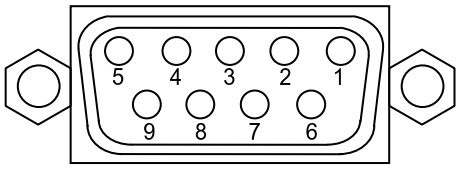
Cable Connectors
9-pin D-sub connector (male) with inch security lock screws needed for user cable fabrication.

Fan alarm
Pins 1, 6 remain OPEN during normal operation. If fan failure occurs at HVS-3800HS/S side, pins 1, 6 will short and fan alarm signal output occurs.

Power supply alarm
Pins 2, 7 remain OPEN during normal operation. If a power supply failure occurs, pins 2, 7 will short and power supply alarm signal output occurs.

External reset
External reset signal input to pin 5, shorts pin 8 to pin 9. MU reset occurs when short initiated.

■ **EDITOR Connector**



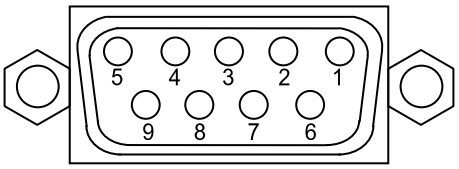
Pin Assignment Table (9-pin D-sub, female)

Pin No.	Signal Name	Description
1	FG	Frame ground
2	T-	Transmit data (-)
3	R+	Receive data (+)
4	SG	Signal ground
5	-	Not used
6	SG	Signal ground
7	T+	Transmit data (+)
8	R-	Receive data (-)
9	FG	Frame ground

Cable Connectors

9-pin D-sub connector (male) with inch security lock screws needed for user cable fabrication.

■ **RS-422 Connector**



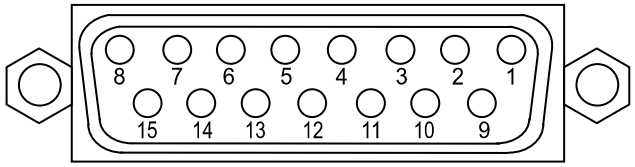
Pin Assignment Table (9-pin D-sub, female)

Pin No.	Signal Name	Description
1	FG	Frame ground
2	R-	Receive data (-)
3	T+	Transmit data (+)
4	SG	Signal ground
5	-	Not used
6	SG	Signal ground
7	R+	Receive data (+)
8	T-	Transmit data (-)
9	FG	Frame ground

Cable Connectors

9-pin D-sub connector (male) with inch security lock screws needed for user cable fabrication.

■ **GPI IN Connector**



Pin Assignment Table (15-pin D-sub, female)

Pin No.	Description
1	TRANS-TYPE M/E1-BKGD-AUTO (default setting)
2	TRANS-TYPE M/E1-KEY1-AUTO (default setting)
3	TRANS-TYPE M/E1-KEY2-AUTO (default setting)
4	TRANS-TYPE M/E1-KEY3-AUTO (default setting)
5	TRANS-TYPE M/E2-BKGD-AUTO (default setting)
6	TRANS-TYPE M/E2-KEY1-AUTO (default setting)
7	TRANS-TYPE M/E2-KEY2-AUTO (default setting)
8	TRANS-TYPE M/E2-KEY3-AUTO (default setting)
9	No assignment (default setting)
10	No assignment (default setting)
11	N/C
12	N/C
13	Signal ground
14	Signal ground
15	Signal ground

✱ Where “default” in table above denotes factory set default pin assignments.

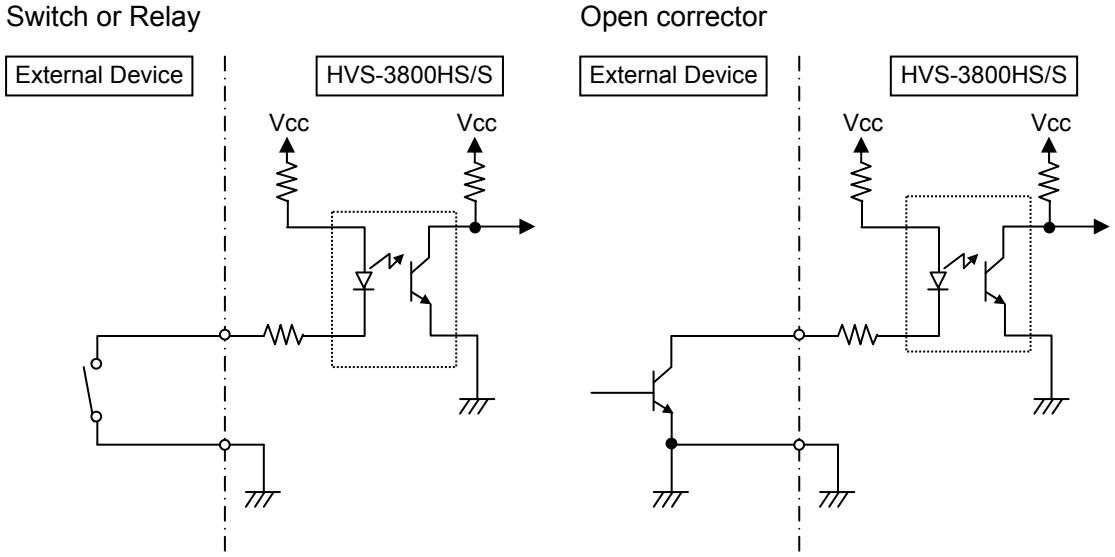
Cabling

15-pin D-sub connector (male) with inch security lock screws needed for user cable fabrication.

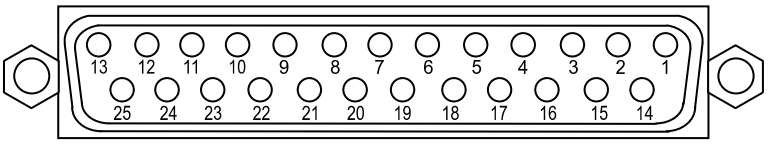
Pin Free Assign

Pin1 to 10 signal assignments shown above are factory default settings. These can be changed in operational menus. See section 16-1-1. “GPI IN Free Assignments” for more details.

Circuit



■ **GPI/TALLY OUT Connector**



Pin Assignment Table (25-pin D-sub female)

Pin No.	Description
1	M/E1-BKGD TRANSITION (default setting)
2	M/E1-KEY1 TRANSITION (default setting)
3	M/E1-KEY2 TRANSITION (default setting)
4	M/E1-KEY3 TRANSITION (default setting)
5	M/E2-BKGD TRANSITION (default setting)
6	M/E2-KEY1 TRANSITION (default setting)
7	M/E2-KEY2 TRANSITION (default setting)
8	M/E2-KEY3 TRANSITION (default setting)
9	Not assigned (default setting)
10	Not assigned (default setting)
11	Not assigned (default setting)
12	Not assigned (default setting)
13	Not assigned (default setting)
14	Not assigned (default setting)
15	Not assigned (default setting)
16	Not assigned (default setting)
17	Not assigned (default setting)
18	Not assigned (default setting)
19	Not assigned (default setting)
20	Not assigned (default setting)
21	Frame ground
22	Frame ground
23	Frame ground
24	Frame ground
25	+5V output (MAX 0.5A) (*1)

✱ Where “default” in table above denotes factory set default pin assignments.

Cabling

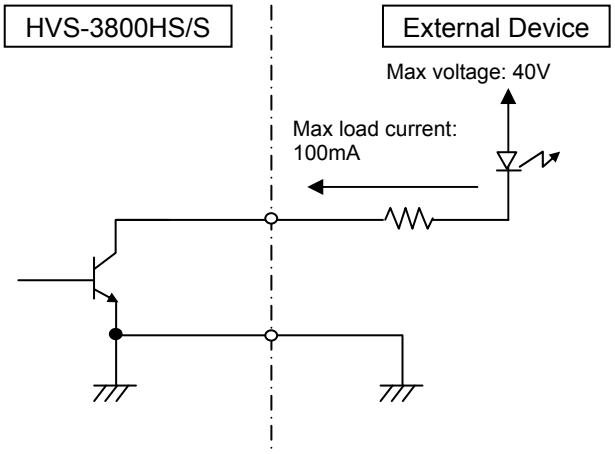
25-pin D-sub connector (male) with inch security lock screws needed for user cable fabrication.

(*1) Max. contact load of 0.5A DC.

Pin Free Assign

Pin1 to 20 signal assignments shown above are factory default settings. These can be changed in operational menus. See section 16-1-2. “GPI OUT Free Assignments” for more details.

Circuit

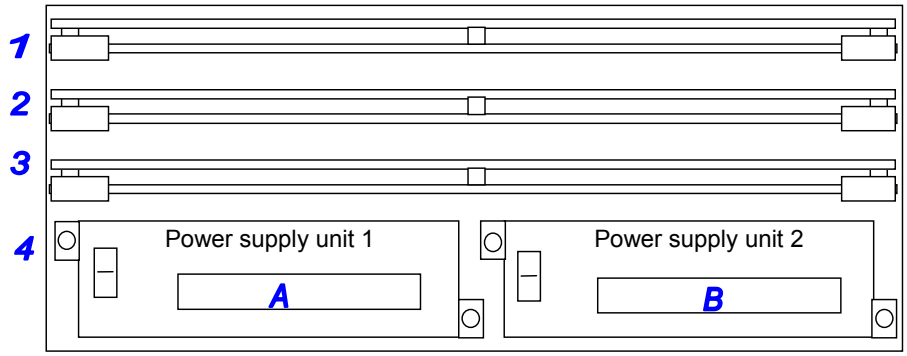

HVS-3800HS/S
External Device
Max voltage: 40V
Max load current:
100mA

2-2-4. MU Rear Panel Cards

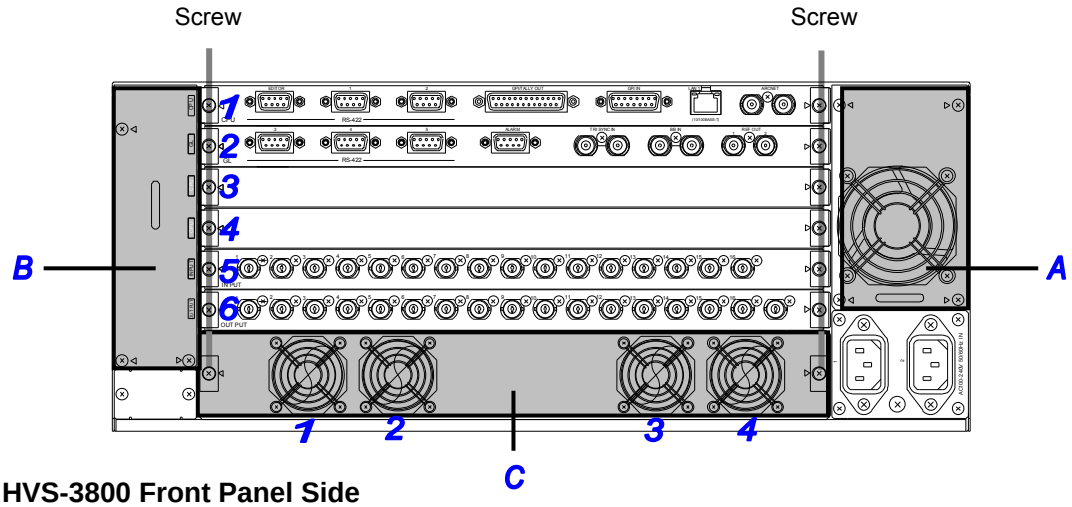
This section shows examples of HVS-3800HS/S internal configurations and basic connections.

IMPORTANT
Before touching the cards and other components inside the HVS-3800HS/S, be sure to turn off the Power switch of the MU and disconnect the front panel and rear unit to prevent electric shock. If the MU case needs to be opened to make settings or adjustments, be sure that the work is performed by an experienced technician, or contact your FOR-A supplier.

■ **HVS-3800HS/S Front Panel Side**



■ **HVS-3800HS/S Rear Panel Side**



■ **HVS-3800 Front Panel Side**

No.	Slot	Standard module	Optional module
1	1	-	HVS-38UC, HVS-38DC
2	2	-	HVS-38AUMV, HVS-38SS, HVS-38SSAM
3	3	M/E CARD, DVE CARD, SDI CARD	
A	4	MU PS1 (Power supply unit 1)	
B			MU PS2 (Power supply unit 2)

■ **HVS-3800 Rear Panel Side**

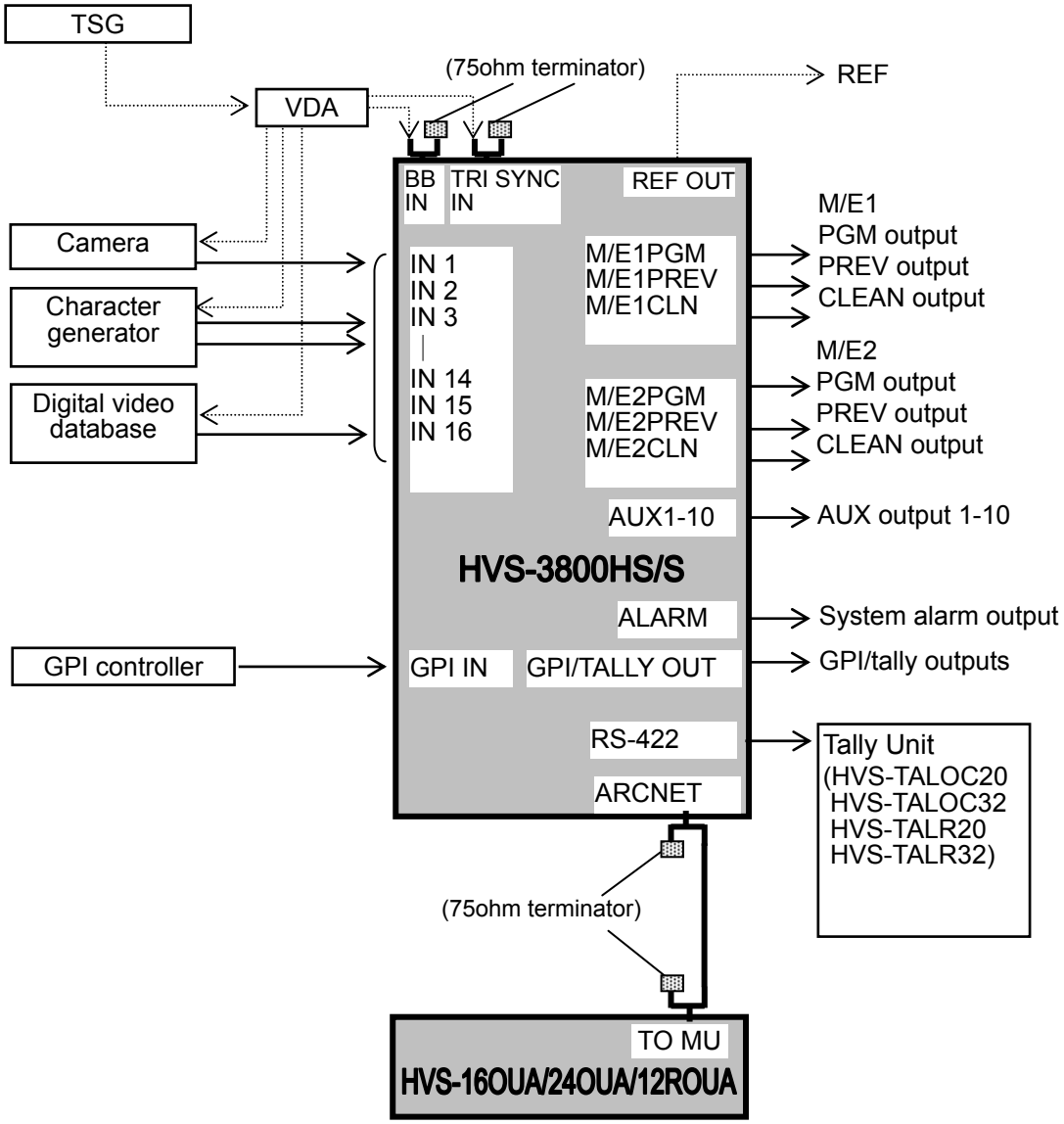
The card slots are secured by the right and left set screws. To access the inside of the HVS-3800, remove the slot screws, and pull out the card.

No.	Slot	Standard module	Optional module
1	1	CPU CARD	
2	2	GL (GENLOCK) CARD	
3	3	-	HVS-38AUMV, HVS-38UC, HVS-38DC, HVS-38SS, HVS-38SSAM
4	4	-	HVS-38HSDI, HVS-38SSDI
5	5	INPUT CARD	
6	6	OUTPUT CARD	
A	Side	MU REAR UPPER (Rear top fan)	
B	Side	MU SIDE UPPER, MU SIDE BOTTOM (Side fan)	
C	Bottom	MU REAR 1-4 (Rear bottom fans 1-4)	

IMPORTANT
HVS-38UC/DC/AUMV/SS/SSAM requires card expansion for both the front panel and rear panel sides. For details about expansion with optional cards and optional power supply units or fan replacement, please contact your FOR-A supplier.

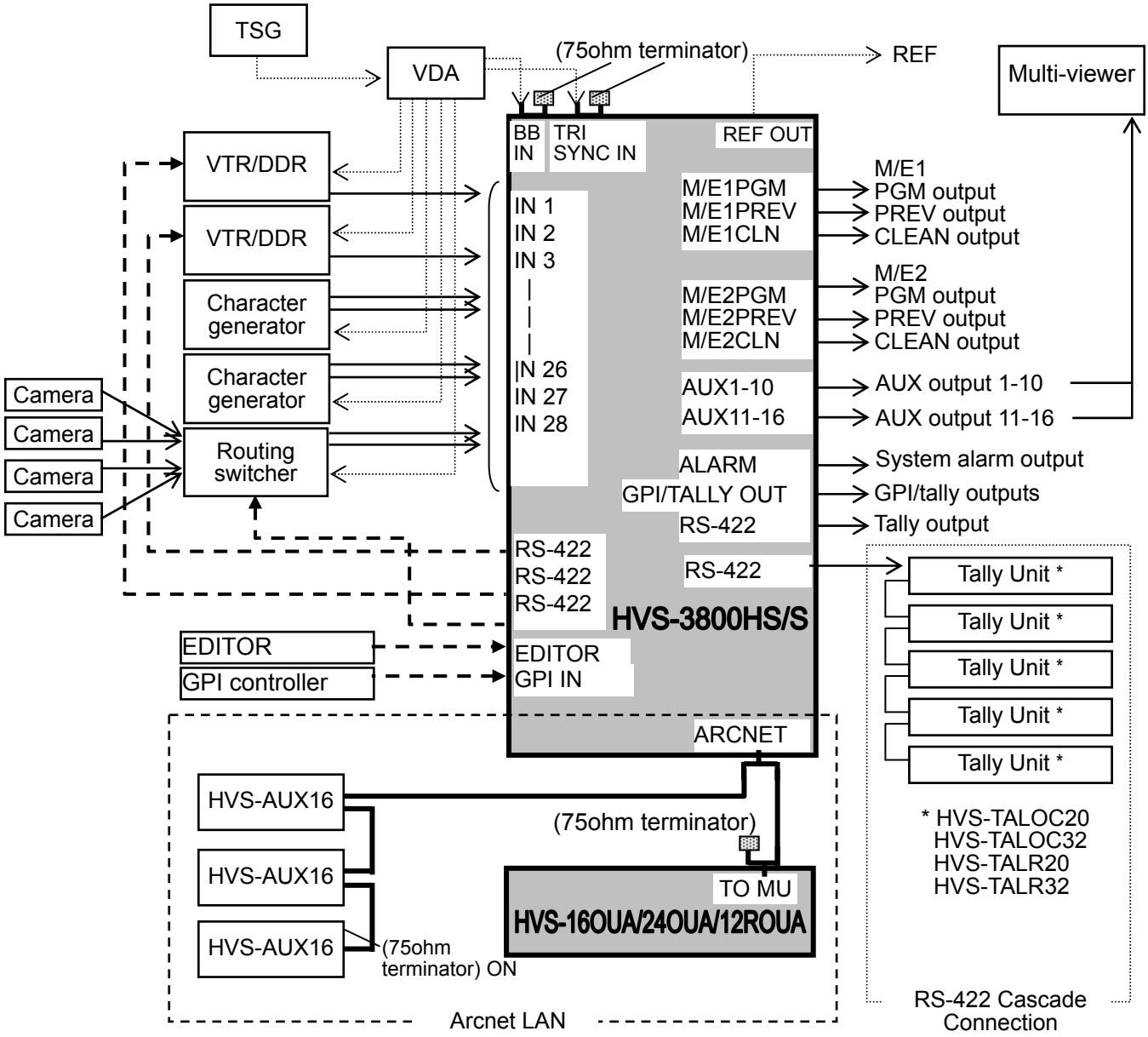
3. System Configuration

3-1. Basic Configuration



IMPORTANT
To connect only a main unit and an operation unit over an arcnet connection, connect a 75Ω terminator to the loopthrough terminal. Also, connect 75Ω terminators when loopthrough is not be used for the synchronous signal input and output terminals. When loopthrough is used, connect a 75Ω terminator to the loopthrough terminal of the final unit.

3-2. Optional Configuration



IMPORTANT
To connect only a main unit and an operation unit over an Arcnet connection, connect a 75Ω terminator to the loopthrough terminal. Also, connect 75Ω terminators when loopthrough is not be used for the synchronous signal input and output terminals. When loopthrough is used, connect a 75Ω terminator to the loopthrough terminal of the final unit.

3-3. Power Related Information

Before powering ON your Hanabi series switcher, verify all cabling connections are secure and power connections are in place.

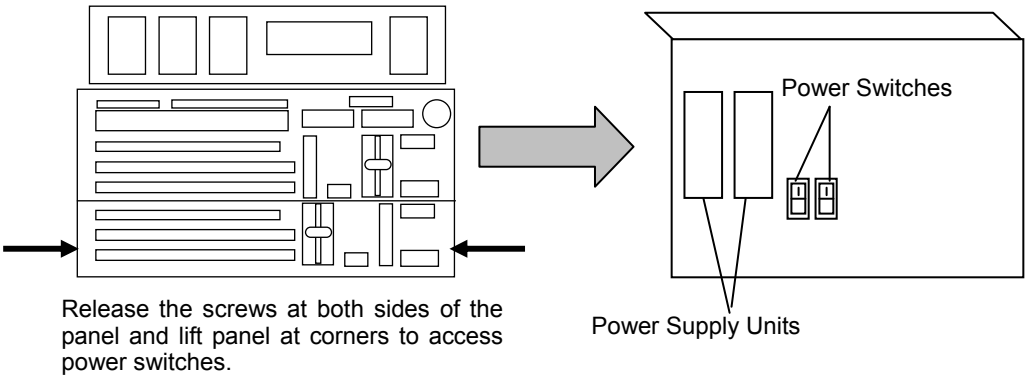
3-3-1. Starting OU (Operation Unit)

① Use the supplied AC cord to connect the OU to AC power supply.

② Release the screws at both sides of the panel and lift panel at corners to access power switches. (Power switches are located inside the OU case.)

③ When you open the OU there will be two power switches visible that are located by the OU power supplies as indicated in the figure below. Turn at least one power switch (POWER1) ON to use your OU. Normally, both power switches should be set to ON at the same time if you have a redundant power supply (optional).

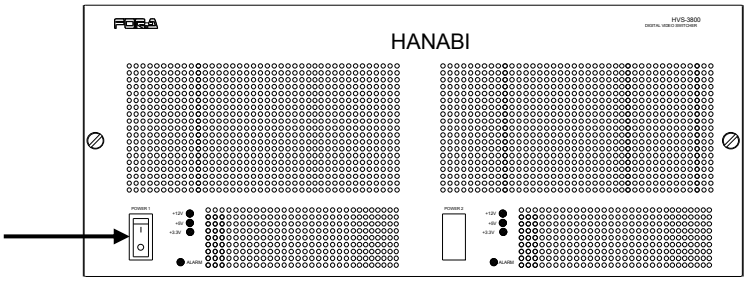
④ Shutdown the panel. “HANABI” will appear on the menu display when the power is properly supplied to the unit.



3-3-2. Starting MU (Main Unit)

① Use the supplied AC cord to connect the OU to AC power supply.

② Turn power switch (POWER1) ON at the MU front panel.

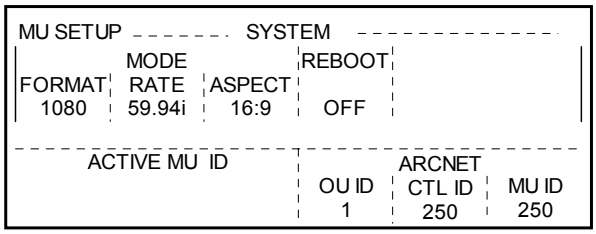


The Hanabi series MU, comes with one standard power supply（POWER1）and a second power supply as an option. If you did not order the optional power supply, only the left side power switch indicated by the arrow below will be operational. If you have both the accessory and optional power supplies installed, both power switches should be set to ON at the same time for power protection

3-4. Selecting Aspect and Format

Before using your Hanabi switcher, you will have to select the aspect ratio and signal format needed based on your operational system.

① MU SETUP button on the control panel should be flashing red at power ON. Press MU SETUP button while it's flashing red to access MU SETUP-SYSTEM menu shown below.



② Turn F1, F2 or F3 control to select the aspect/format suitable for your system at the MODE –FORMAT, RATE and ASPECT blocks. Then press F1, F2 or F3 control to confirm the setting.

③ After MODE setting is made, turn F4 control to select ON under REBOOT, then press F4 to reboot your system and apply the MODE setting to operations. Press F4 until a "beep" sound is heard.

IMPORTANT

Note that the setup menu above appears only when you first power ON your Hanabi system for the first time. Settings must be made here and system rebooted before any switcher operations can be performed. After rebooting system, the MU must be reinitialized (ALL INIT). Then reboot the system again. Refer to section 15-6 "Reboot and Initialization" for more information about the system reboot.

You can also change your system signal format in the MU SETUP-SYSTEM menu. A system reboot is also required to confirm the setting.

NOTE

If you want to change your system signal format again right after changing the format and rebooting the system, be sure to wait one or two minutes before the change.

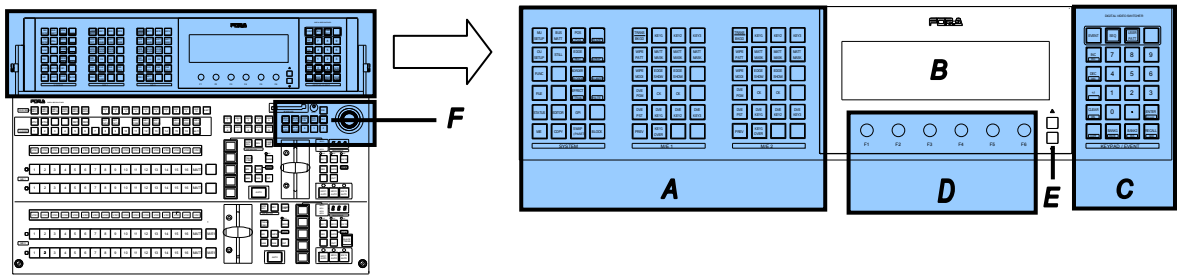
4. Menu Operations

Menus shown in the display are used to make settings that effect how your HVS-3800 series MU responds and performs during operations. The following sections tell you how to access and change operational parameters in the menu displays

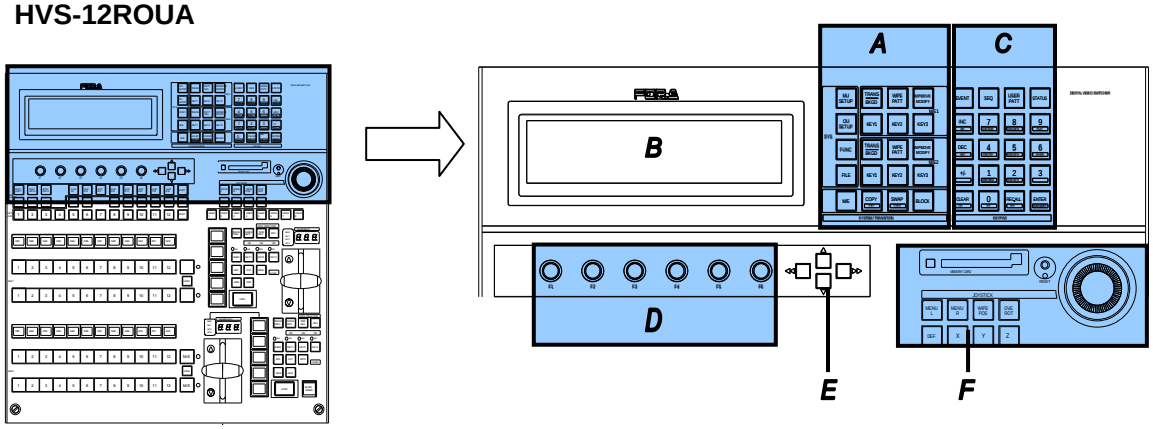
4-1. Menu Control Sections

The main areas of the control panel used to access and change operational menus are as indicated in the figures and table shown below in this section.

◇ **HVS-16/24OUA**



◇ **HVS-12ROUA**



Item	Name		Description	
A	Menu Selection section		Selects which menu is accessed and appears in the display.	
B	Menu screen		Used to display the menu settings.	
C	Keypad		Used to change or adjust menu settings by keypad input.	
D	Function Controls		Controls F1 to F6. Used to change operational settings in selected parameter lines.	
E	Menu navigation buttons	HVS-16/24OUA	Used to change menu pages.	
		HVS-12ROUA	Single Arrow buttons	Used to change menu pages.
			Double Arrow buttons	Used to go back/go forward pages in navigation history.
F	Joystick section		Used to change or adjust menu settings by using joystick.	

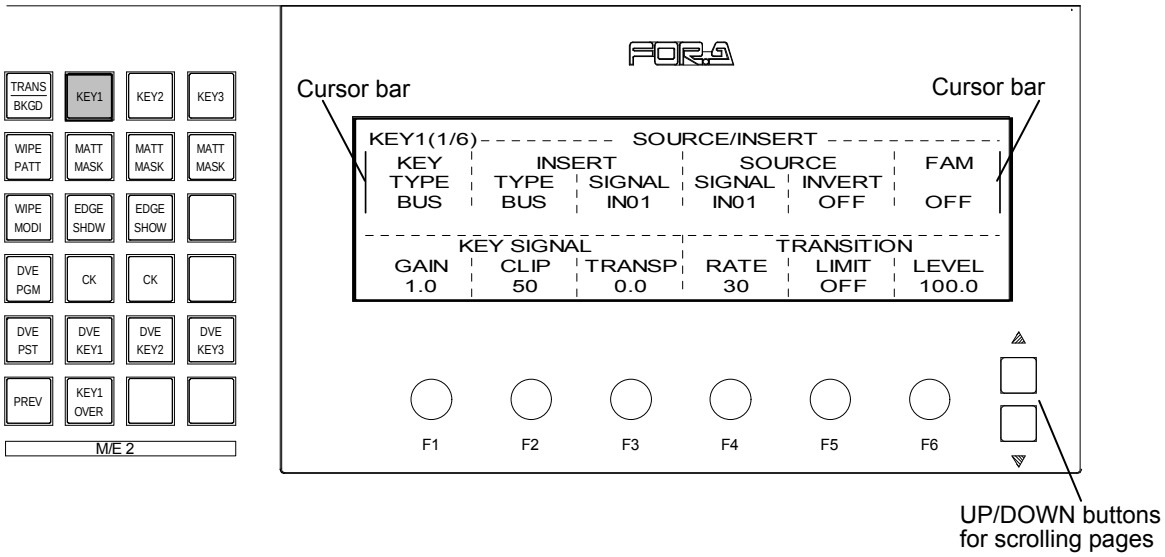
4-2. Making Settings (HVS-16/24OUA)

4-2-1. Selecting Needed Menu

To display a menu, press the button for the desired menu in the menu section (A on the section 4-1) besides the display. To move between menu pages, use the UP and DOWN buttons at the right of the controls. The UP and DOWN buttons light on to indicate that there is another menu page to be moved.
If the menu is spread over multiple screens, the top menu is displayed first. You can move to other menu pages from the top menu. Turn the F1 control to select a page, and then press F1 or press the DOWN button to move to the page. For details about the menu contents, see section 4-4. Displaying Menus"" and Appendix 1. "Menu List."

■ **Menu display example (for M/E2-KEY1 menu)**

① Pressing the KEY1 button in the M/E2 area of the menu section displays the KEY1 menu. The KEY1(1/6) menu is displayed in the menu screen.



② The menu screen can display a top and bottom row. A vertical cursor bar displayed in the selected row. Use the UP and DOWN buttons to move to another page above or below.

NOTE
The menu navigation function similar to web browsers, " Go Back" and " Go Forward", can be assigned to the user buttons. Once these functions are assigned to the user buttons, each time you click on the "Go Back" button, you will easily go back to the previous menu you have displayed and you will return to the current menu by pressing the "Go Forward" button.

4-2-2. Changing Parameter Values

The menu page is divided into two rows above and below and six horizontal blocks. Up to six parameters can be displayed in one row. To change a parameter, turn the control F1 to F6 that is directly below the block. Parameters can be changed for the row that is selected (cursor bar is displayed).

Function control operations (F1 to F6)	Description
Turn clockwise	Increases value.
Turn counter-clockwise	Decreases value.
Press	Switches to keypad input.
	Confirms the input value.
Press and hold down at least 1 sec.	Reset the parameter to default value.
Turn while pressing	Moves to next/previous page in the pop up menu or quickly increases/decreases value.

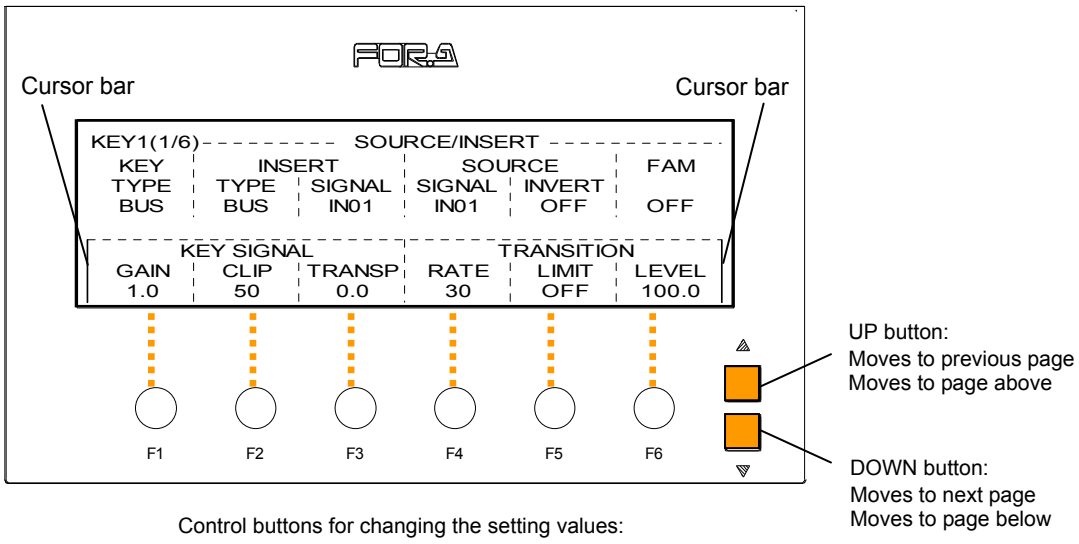
IMPORTANT

In the system setup parameters in the MU SETUP and OU SETUP menus, after the parameter value is changed, it needs to be confirmed by pressing ENTER on the keypad or pressing the control under the parameter. In this case, after the settings are changed, the setting value is highlighted, and ENTER and CLEAR in the keypad light up. Pressing ENTER or the control confirms the value. Pressing CLEAR cancels the value.

■ Example of changing parameter (for M/E2-KEY1 menu)

In this example, we will change the transition rate in the KEY1(1/6) menu. If the cursor bar is in the top row, press the DOWN button to move it to the row below.
Turning the F4 control button changes the value of RATE (Transition Rate) for KEY1. Turning control buttons F1 and F2 enables adjustment of the KEY1 clip and gain.

To make the MASK and other settings, press the DOWN button to move to the next menu when up or down movement is possible, the UP or DOWN button is lit.



Control buttons for changing the setting values:
Used for changing parameter shown above button

4-2-3. Confirmation Needed Parameters

In the parameters below, the value must be confirmed by pressing a function control below each parameter.

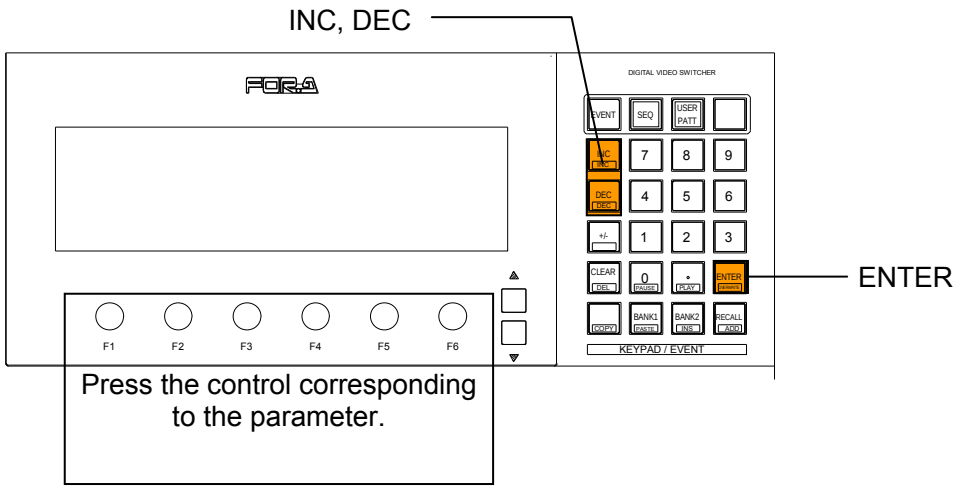
Parameter	Menu	Parameter	Menu
REBOOT	MU SETUP top	STILL1-6	STILL
INIT	MU SETUP-SYSTEM	DVE STILL	STILL
OU INIT	OU SETUP- MODE		

4-2-4. Keypad Input

You can also use the keypad to input number settings to a menu. The general procedure for making and changing operational menu settings by keypad is as follows. Keypad numbers can only be used to input operational parameter settings that are numerical in nature. (For example; 100, 0, etc.)

1) Press a control below each parameter (F1 - F6) to select parameter block to be changed.
2) The button lamps on the keypad will turn on green.
3) Next, input setting at keypad.
4) Then press ENTER to confirm the setting.

IMPORTANT
When pressing a control, press it down lightly and release it within 1 sec. Note that if you press and hold a control for more than 1 sec., related setting will be returned to the default setting and a beep will be heard when this happens.



- Pressing the INC and DEC buttons enables the values to be changed in single increments.
- Pressing the CLEAR button enables the input value to be cancelled.
- To enter a negative value, first enter the value, press the +/- button, check that " - " is displayed, and then press ENTER.

IMPORTANT
The keypad can be used in USER PATTERN mode, SEQUENCE mode and EVENT mode. For details about each mode, see sections 10. "User Patterns", 11 "Sequence Operation" and 12 "Event Memory."

4-2-5. Joystick Input

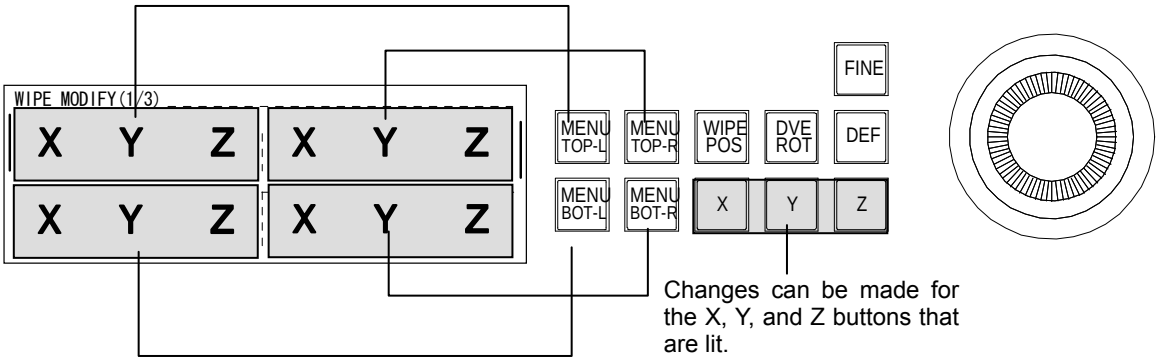
You can also use the joystick for making settings in menus. The general procedures for making and changing operational menu settings using a joystick are as follows.

- The X, Y, and Z axes of the joystick are used to change three parameters at once.

X-axis	Move the joystick to the right or left.
Y-axis	Move the joystick up or down.
Z-axis	Turn the joystick clockwise or counterclockwise.

- When the buttons next to the joystick are pressed to turn them on, the three parameters can be adjusted at the same time.

MENU TOP-L button	Three blocks on the top left side of the menu screen (in the order of X, Y, and Z from the left)
MENU TOP-R button	Three blocks on the top right side of the menu screen (in the order of X, Y, and Z from the left)
MENU BOT-L button	Three blocks on the bottom left side of the menu screen (in the order of X, Y, and Z from the left)
MENU BOT-R button	Three blocks on the bottom right side of the menu screen (in the order of X, Y, and Z from the left)



■ WIPE POS and DVE ROT buttons

The WIPE POS and DVE ROT buttons are shortcuts to the respective menu. Clicking the button lights it up and enables you to change the setting without opening the menu. Double-clicking the button takes you directly to the parameter of the selected pattern.

WIPE POS button	When WIPE is selected, this moves to POSITION (X, Y) in the WIPE MODIFY(1/3) menu. When DVE is selected, this moves to POSITION (X, Y, Z) in the DVE MODIFY(1/8) menu.
DVE ROT button	When DVE is selected, this moves to the LOCAL ROTATION (X, Y, Z) in the DVE MODIFY(2/8) menu. In the case of the DVE ROT button, the bus where this modify is applied is selected by the DVE PGM, DVE PST, DVE KEY1, DVE KEY2, or DVE KEY3 button in the menu section.

IMPORTANT
Note that you cannot use the joystick to input settings to the MU SETUP and OU SETUP menus.

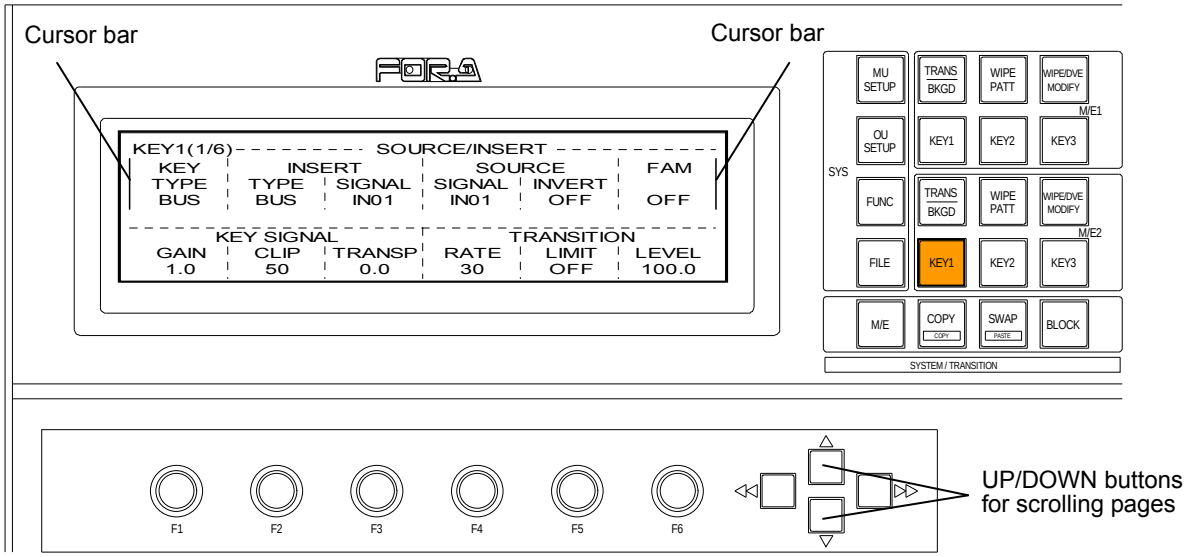
4-3. Making Settings (HVS-12ROUA)

4-3-1. Selecting Needed Menu

To display a menu, press the button for the desired menu in the menu section (A on the section 4-1) besides the display. To move between menu pages, use the UP and DOWN buttons at the right of the controls. The UP and DOWN buttons light on to indicate that there is another menu page to be moved.
If the menu is spread over multiple screens, the top menu is displayed first. You can move to other menu pages from the top menu. Turn the F1 control to select a page, and then press F1 or press the DOWN button to move to the page. For details about the menu contents, see section 4-4. "Displaying Menus" and Appendix 1. "Menu List."

■ **Menu display example (for M/E2-KEY1 menu)**

① Pressing the KEY1 button in the M/E2 area of the menu section displays the KEY1 menu. The KEY1(1/6) menu is displayed in the menu screen.



② The menu screen can display a top and bottom row. A vertical cursor bar displayed in the selected row. Use the UP and DOWN (single arrow) buttons to move to another page above or below.

NOTE
The double arrow buttons are used to go back and go forward pages in the menu navigation history. They allow the user to easily navigate to the previously displayed menus.

4-3-2. Changing Parameter Values

The menu page is divided into two rows above and below and six horizontal blocks. Up to six parameters can be displayed in one row. To change a parameter, turn the control F1 to F6 that is directly below the block. Parameters can be changed for the row that is selected (cursor bar is displayed).

Function control operations (F1 to F6)	Description
Turn clockwise	Increases value.
Turn counter-clockwise	Decreases value.
Press	Switches to keypad input.
	Confirms the input value.
Press and hold down at least 1 sec.	Reset the parameter to default value.
Turn while pressing	Moves to next/previous page in the pop up menu or quickly increases/decreases value.

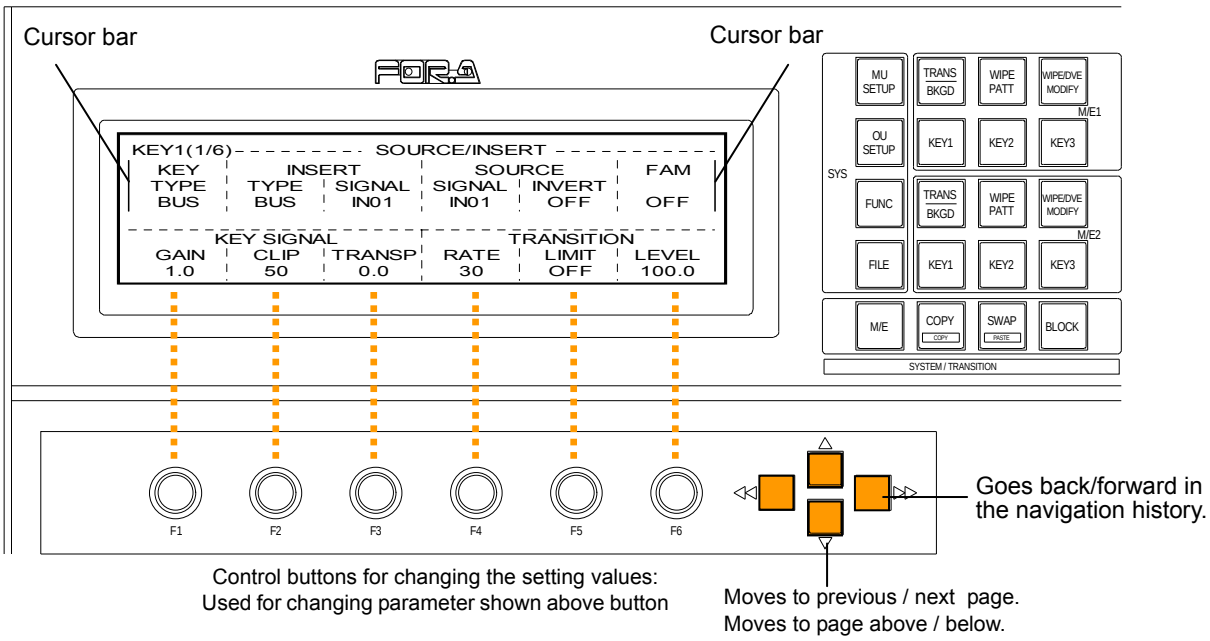
IMPORTANT

In the system setup parameters in the MU SETUP and OU SETUP menus, after the parameter value is changed, it needs to be confirmed by pressing ENTER on the keypad or pressing the control under the parameter. In this case, after the settings are changed, the setting value is highlighted, and ENTER and CLEAR in the keypad light up. Pressing ENTER or the control confirms the value. Pressing CLEAR cancels the value.

■ **Example of changing parameter (for M/E2-KEY1 menu)**

In this example, we will change the transition rate in the KEY1(1/6) menu. If the cursor bar is in the top row, press the DOWN button to move it to the row below.
Turning the F4 control button changes the value of RATE (Transition Rate) for KEY1. Turning control buttons F1 and F2 enables adjustment of the KEY1 clip and gain.

To make the MASK and other settings, press the DOWN button to move to the next menu when up or down movement is possible, the UP or DOWN button is lit.



4-3-3. Confirmation Needed Parameters

In the parameters below, the value must be confirmed by pressing a function control below each parameter.

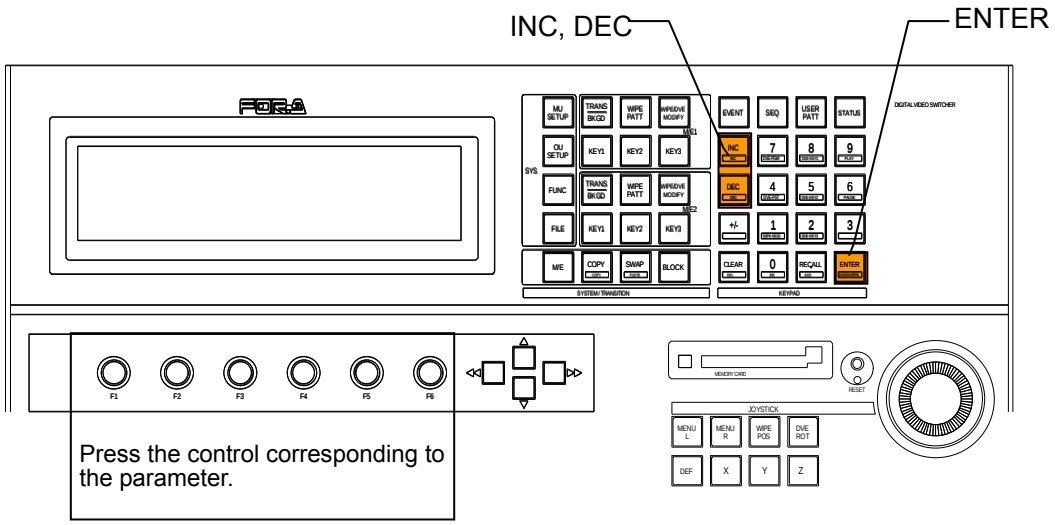
Parameter	Menu	Parameter	Menu
REBOOT	MU SETUP top	STILL1-6	STILL
INIT	MU SETUP-SYSTEM	DVE STILL	STILL
OU INIT	OU SETUP- MODE		

4-3-4. Keypad Input

You can also use the keypad to input number settings to a menu. The general procedure for making and changing operational menu settings by keypad is as follows. Keypad numbers can only be used to input operational parameter settings that are numerical in nature. (For example; 100, 0, etc.)

1) Press a control below each parameter (F1 - F6) to select parameter block to be changed.
2) Lights on the keypad turn on green.
3) Next, input setting at keypad.
4) Then press ENTER to confirm the setting.

IMPORTANT
When pressing a control, press it down lightly and release it within 1 sec. Note that if you press and hold a control for more than 1 sec., related setting will be returned to the default setting and a beep will be heard when this happens.



- Pressing the INC and DEC buttons enables the values to be changed in single increments.
- Pressing the CLEAR button enables the input value to be cancelled.
- To enter a negative value, first enter the value, press the +/- button, check that " - " is displayed, and then press ENTER.

IMPORTANT
The keypad can be used in EVENT mode, USER PATTERN mode, and SEQUENCE mode. For details about each mode, see sections 10. "User Patterns", 11 "Sequence Operation" and 12 "Event Memory."

4-3-5. Joystick Input

You can also use the joystick for making settings in menus. The general procedures for making and changing operational menu settings using a joystick are as follows.

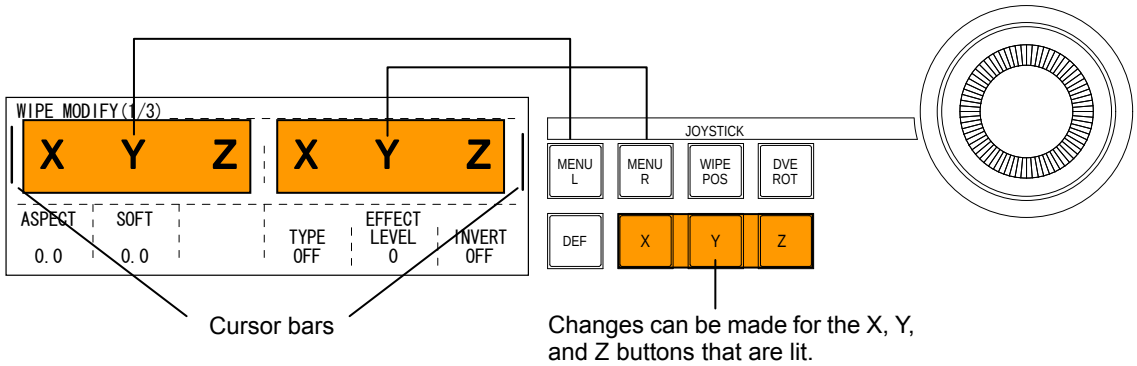
- The X, Y, and Z axes of the joystick are used to change three parameters at once.

X-axis	Move the joystick to the right or left.
Y-axis	Move the joystick up or down.
Z-axis	Turn the joystick clockwise or counterclockwise.

- When the buttons next to the joystick are pressed to turn them on, the three parameters can be adjusted at the same time.

MENU TOP-L button	Three blocks on the left side of the menu screen (in the order of X, Y, and Z from the left)
MENU TOP-R button	Three blocks on the right side of the menu screen (in the order of X, Y, and Z from the left)

(The cursor bar indicates which part of the menu (upper or bottom) is being controlled.)



■ WIPE POS and DVE ROT buttons

The WIPE POS and DVE ROT buttons are shortcuts to the respective menu. Clicking the button lights it up and enables you to change the setting without opening the menu. Double-clicking the button takes you directly to the parameter of the selected pattern.

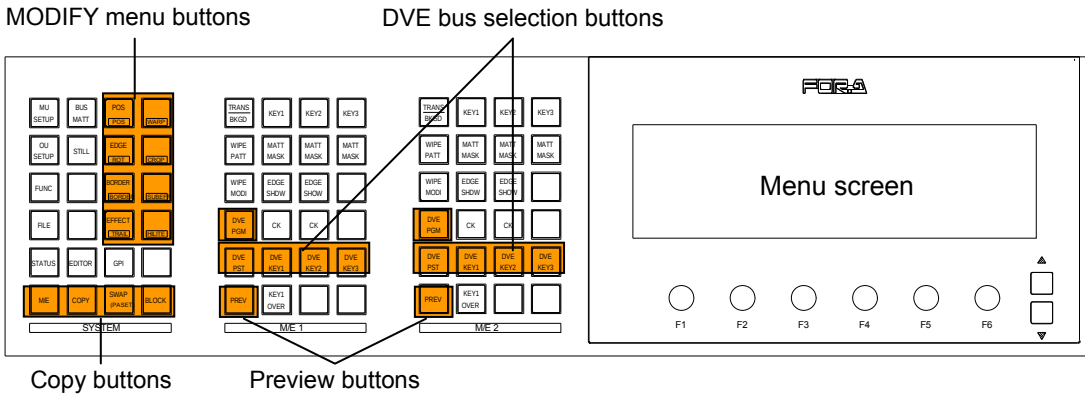
WIPE POS button	When WIPE is selected, this moves to POSITION (X, Y) in the WIPE MODIFY(1/3) menu. When DVE is selected, this moves to POSITION (X, Y, Z) in the DVE MODIFY(1/8) menu.
DVE ROT button	When DVE is selected, this moves to the LOCAL ROTATION (X, Y, Z) in the DVE MODIFY(2/8) menu. In the case of the DVE ROT button, the bus where this modify is applied is selected by the DVE PGM, DVE PST, DVE KEY1, DVE KEY2, or DVE KEY3 button in the menu section.

IMPORTANT
Note that you cannot use the joystick to input settings to the MU SETUP and OU SETUP menus.

4-4. Displaying Menus

4-4-1. Menu Buttons (HVS-16/24OUA)

To display a menu, press the button for the desired menu in the menu section (SYSTEM, M/E1, M/E2).



■ **SYSTEM group**

Button	Menu	Description
MU SETUP	MU SETUP	System and MU settings
OU SETUP	OU SETUP	System and OU settings
FUNC	FUNCTION SETUP	GPI, DVE, EDITOR, and other settings
FILE	FILE	Saving and loading from the CF card to files
STATUS		System status information display
BUS MATT	MATT	MATT settings
STILL	STILL STORE	Still store operations
* EDITOR	EDITOR	Editor settings (Menu displayed when double-clicked)
* GPI	GPI	GPI IN, GPI OUT, and tally settings (Menu displayed when double-clicked)

* The EDITOR button turns on the EDITOR function, and the GPI button turns on the GPI IN function. Double-clicking displays the menu setting.

The M/E, BLOCK, COPY, and SWAP(PASTE) buttons are used to copy setting values. (Refer to section 4-6. "Parameter Copy" and section 4-7. "Copy and Swap".)

<MODIFY menu buttons>

When the WIPE MODIFY menu is displayed, press the WIPE MODI button in the M/E1(M/E2) section to light it, and then press one of the buttons below to display the menu. In the transition section, these menus are displayed only when the WIPE button is lit and a WIPE pattern is selected.

Button	Menu
POS / POS	WIPE MODIFY(1/3)- POSITION
EDGE / ROT	WIPE MODIFY(2/3) - EDGE
BORDER / BORDER	WIPE MODIFY(3/3) - BORDER

When the DVE MODIFY menu is displayed, first press the DVE bus selection button (DVE PGM, DVE PST, DVE KEY1, DVE KEY2, or DVE KEY3 button) in the M/E1(M/E2) section so that it lights orange, and then select the applicable bus. Next, press one of the buttons below to display the menu. In the transition section, these menus are displayed only when the WIPE button is lit and a DVE pattern is selected.

Button	Menu
POS / POS	DVE MODIFY(1/8) - POSITION
EDGE / ROT	DVE MODIFY(2/8) - ROTATION
CROP	DVE MODIFY(3/8) - DVE CROP
WARP	DVE MODIFY(4/8) - WARP
BORDER / BORDER	DVE MODIFY(5/8) - BORDER
EFFECT / TRAIL	DVE MODIFY(6/8) - TRAIL / MONO COLOR
SUB EFF	DVE MODIFY(7/8) - SUB EFFECT
HILITE	DVE MODIFY(8/8) - HILITE / SHADOW

■ **M/E1, M/E2 group**

Button	Menu	Description
TRANS/BKGD	TRANS (1/2 to 2/2) DVE BKGD	Transition rate, Fader limit, Background and Color Mix settings
WIPE PATT	WIPE PATTERN	Pattern register, select
WIPE MODI	WIPE MODIFY (1/3 to 3/3)	WIPE pattern modify settings After the button is lit, select the MODIFY submenu button in the SYSTEM group
PREV	PREVIEW	Preview screen display settings

<DVE bus selection button>

DVE PGM	DVE MODIFY (1/8 to 8/8)	After the button is lit, select the MODIFY submenu button in the SYSTEM group. (For details, refer to 7-1-2. "Opening the DVE MODIFY menu" and 7-2-2. "Opening the DVE MODIFY Menu".)
DVE PST		
DVE KEY1		
DVE KEY2		
DVE KEY3		

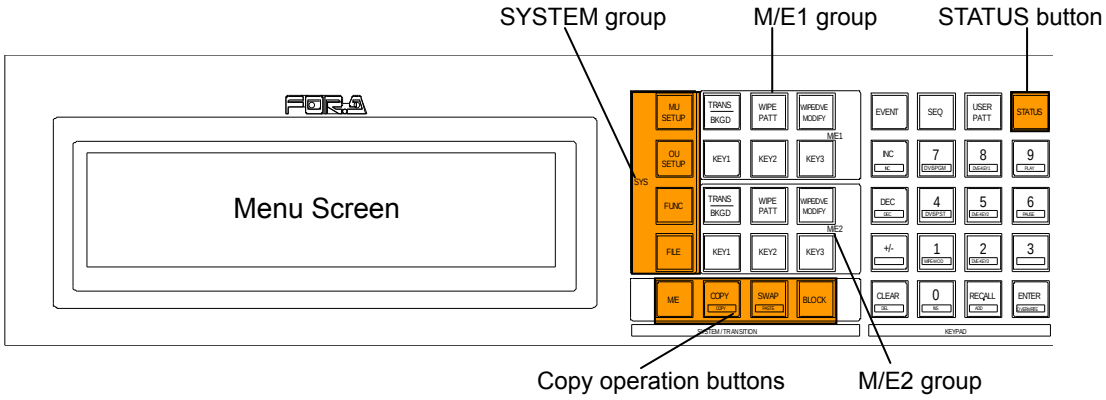
<KEYER menu buttons>

The KEYER menu consists of multiple menus, and four vertical buttons (two for KEY3) constitute one set and serve as menu shortcut buttons.

KEY1 MATT MASK EDGE SHADOW CK	KEY1 (1/6 to 6/6)	KEYER1 setting
KEY2 MATT MASK EDGE SHADOW CK	KEY2 (1/6 to 6/6)	KEYER2 setting
KEY3 MATT MASK	KEY3 (1/2to 2/2)	KEYER3 setting
KEY1OVER		This is used to change the KEY1 and KEY2 priority.

4-4-2. Menu Buttons (HVS-12ROUA)

To display a menu, press the button for the desired menu in the menu section



■ **SYSTEM group**

Button	Menu	Description
MU SETUP	MU SETUP	System and MU settings
OU SETUP	OU SETUP	System and OU settings
FUNC	FUNCTION SETUP	GPI, DVE, EDITOR, and other settings
FILE	FILE	Saving and loading from the CF card to files

The M/E, BLOCK, COPY, and SWAP(PASTE) buttons are used to copy setting values. (Refer to section 4-6. "Parameter Copy" and section 4-7. "Copy and Swap".)

■ **M/E1 and M/E2 groups**

Button	Menu	Main function
TRANS/BKGD	TRANS (1/2 to 2/2) DVE BKGD	Transition rate, Fader limit, Background and Color Mix settings
WIPE PATT	WIPE PATTERN	Pattern register, select
WIPE/DVE MODIFY	WIPE MODIFY (1/3 to 3/3)	WIPE pattern modify settings (See items with * in the table below.)
	DVE MODIFY (1/8 to 8/8)	DVE pattern modify settings (See items with ** in the table below.)
KEY1	KEY1 (1/6 to 6/6)	KEYER1 setting
KEY2	KEY2 (1/6 to 6/6)	KEYER2 setting
KEY3	KEY3 (1/2～2/2)	KEYER3 setting

■ **KEYPAD section**

Button	Menu	Description
STATUS	STATUS	System status information display
** DVE PGM	DVE MODIFY (1/8 to 8/8)	After pressing the WIPE/DVE MODIFY button (lit), select a modify submenu button in the SYSTEM group. (See section 7-1-2. "Opening the DVE MODIFY menu," or section 7-2-2. "Opening the DVE MODIFY menu".)
** DVE PST		
** DVE KEY1		
** DVE KEY2		
** DVE KEY3		
* WIPE-MOD	WIPE MODIFY (1/3 to 3/3)	After pressing the WIPE/DVE MODIFY button (lit), press the WIPE-MOD button.

4-4-3. Menu Access Shortcuts

Double-clicking the following buttons in the bus section and transition section displays the respective menu.

Button	Section containing button	Opened menu
* MATT1, MATT2	M/E1, M/E2, AUX/KEY bus sections	MATT
* STILL1 to STILL4 STILL5 to STILL6(option)	M/E1, M/E2, AUX/KEY bus sections	STILL
MIX, WIPE, FAM, NAM, CUT	Transition section	TRANS (1/2)
KEY1, KEY2, KEY3	Transition section	KEY(1/2) or KEY(1/6)
Five pattern buttons	Transition section pattern buttons	WIPE PATTERN
FADER LIMIT	Transition section	TRANS (1/2)
KEY OUT A, ME1CLN KEY OUT B, ME2CLN	AUX/KEY bus section	MU SETUP-OUTPUT(2/2)
AUX1-16	BUS SELECT section	OU SETUP-BUS CONTROL
M/E1KEY1, M/E1KEY2, M/E1KEY3 M/E2KEY1, M/E2KEY2, M/E2KEY3	AUX/KEY bus section	KEY1(1/6) KEY2(1/6) KEY3(1/2)
WIPE POS	Joystick section	WIPE MODIFY(1/3) DVE MODIFY(1/8)
DVE ROT	Joystick section	DVE MODIFY(2/8)

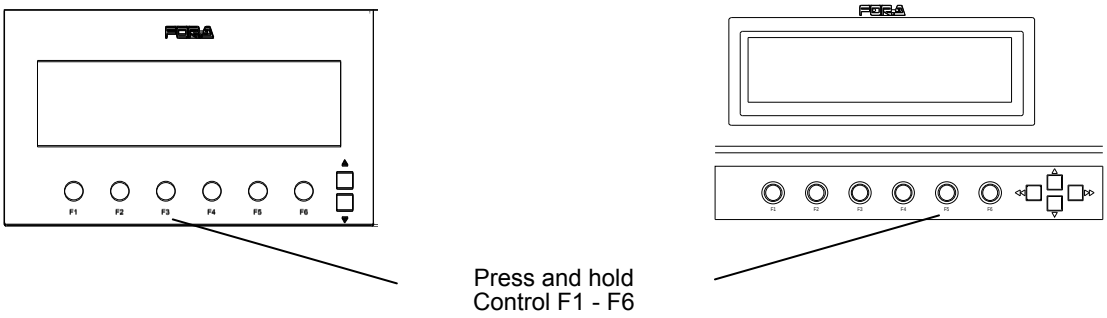
* The MATT1/MATT2 button and STLL1 to STLL6 buttons are each assigned to matt and still at the M/E bus mapping. (Refer to 5-1-6 "Bus Signal Assignment and Inhibit Settings".)

4-4-4. User Buttons

The user buttons located to the left of the joystick section are function expansion buttons used for assignment of a wide range of functions. They can also be assigned to a selected menu page for usage as menu shortcut buttons. For details about user buttons, refer to 15-2 "User Buttons".

4-5. Returning to Default

Press and hold the related F1 to F6 control to return to factory default settings.

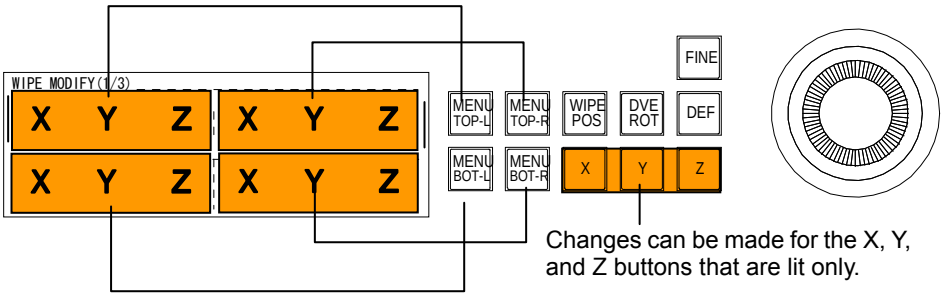


Using the joystick to return to the factory default settings

■ **HVS-16/24OUA**

① Display the menu settings that will be returned to their defaults.

② Press the MENU TOP-L, MENU TOP-R, MENU BOT-R, or MENU BOT-R button to select the area of the three-block section.



③ Select the parameter that will be returned to the defaults. To return all three parameters to their factory defaults, press all of the X, Y, and Z buttons to light them, or simply press the required button to light it.

④ Pressing the DEF button changes the X, Y, and Z buttons that are lit to their defaults, and then the buttons change to orange.

IMPORTANT
Holding down the DEF button when the WIPE POS or DVE ROT button is lit returns all of the WIPE MODIFY data or DVE MODIFY data to their factory default settings.

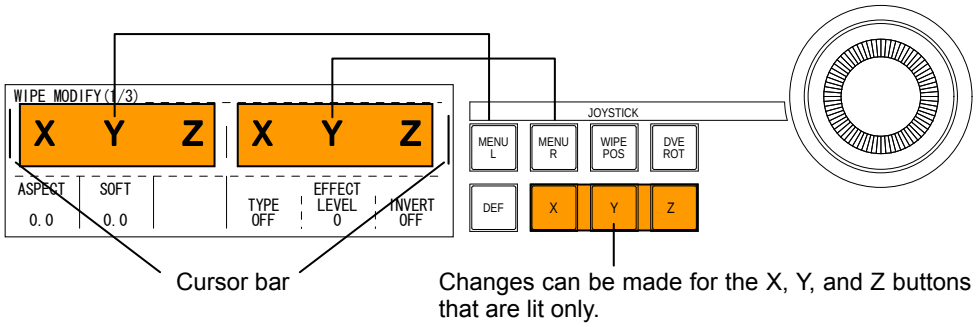
■ **HVS-12ROUA**

① Display the menu settings that will be returned to their defaults.

② Press the MENU L or MENU R button to select the area of the three-block section.

③ Select the parameter that will be returned to the defaults. To return all three parameters to their factory defaults, press all of the X, Y, and Z buttons to light them, or simply press the required button to light it.

④ Pressing the DEF button changes the X, Y, and Z buttons that are lit to their defaults, and then the buttons change to orange.



IMPORTANT
Holding down the DEF button when the WIPE POS or DVE ROT button is lit returns all of the WIPE MODIFY data or DVE MODIFY data to their factory default settings.

4-5-1. Returning Menus to Default

■ **INIT parameter**

All the settings in the menus below can be returned to their default values with one operation.

Menu returned to default	INIT item selection
* MU SETUP (MU SETUP – SYSTEM menu)	CUR, SYS, ALL
* OU SETUP (OU SETUP – MODE menu)	OFF, ON

* For details about MU SETUP and OU SETUP menu initialization, refer to 15-6. "Reboot and Initialization"

■ **Returning KEY menus to default**

The KEY menus can be returned to the default settings by holding down the menu button of the appropriate key in the M/E1 or M/E2 group in the menu section. When the button is held down, a long beep is made, and then the selected parameters are returned to the defaults. However, the crosspoint selection for the bus is not returned to the default setting. In HVS-12ROUA, each keyer top menu has an INIT item that can return the keyer menu to the default settings.

Section	Menu button	Parameters returned to default
M/E1, M/E2	KEY1	All KEY1 parameters
	* MATT MASK (KEY1)	KEY1 MATT and MASK-related parameters
	* EDGE SHADOW (KEY1)	KEY1 EDGE and SHADOW-related parameters
	* CK (KEY1)	KEY1 CHROMAKEY-related parameters
	KEY2	All KEY2 parameters
	* MATT MASK (KEY2)	KEY2 MATT and MASK-related parameters
	* EDGE SHADOW (KEY2)	KEY2 EDGE and SHADOW-related parameters
	* CK (KEY2)	KEY2 CHROMAKEY -related parameters
	KEY3	All KEY3 parameters
	* MATT MASK (KEY3)	KEY3 MATT and MASK-related parameters

* Buttons on HVS-16/24OUA units are available.

4-5-2. Returning to User Default

You can also use parameters preset by the user as the default settings. The user defaults are then used as the initial values of the normal parameters. Once the user default values are set, the user defaults can be enabled with the normal operation for returning to the parameter initial values. See section 15-4. "User Default" for details about making the user default settings.

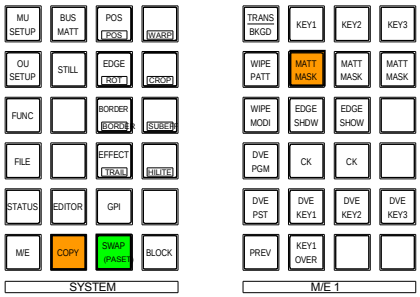
4-6. Parameter Copy

Values set for items in menus can be easily copied. Up to six settings can be stored in the copy buffer.

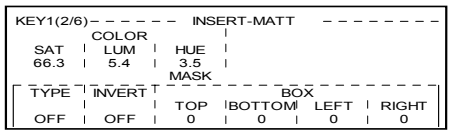
■ **Parameter copy operation (Copying the MASK parameter value in the M/E1-KEY1 menu to M/E2-KEY1)**

① Open the menu (M/E1 - KEY1 - MATT MASK menu) from which an item is to be copied.

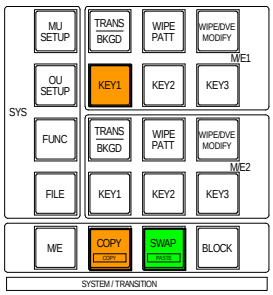
② While holding down the COPY button in the SYSTEM group, press any one of controls (F1 to F6) for the related item to be copied, next press another control to be copied and so on until the needed values are stored in the copy buffer sequentially. Once the values are stored in the copy buffer, the beep will be heard once; if an item that cannot be stored was selected, the beep will be heard twice.



HVS-16/24OUA



Press the control buttons in the copy order.



HVS-12ROUA

③ When the data is stored in the copy buffer, the SWAP(PASTE) button becomes to lit green.

④ Open the menu (M/E2 - KEY1 - MATT MASK menu) where you want to paste the copied data and use the UP/ DOWN buttons to move.

⑤ While holding down the SWAP(PASTE) button, press the control (F1 to F6) in the order to which you want to paste.

IMPORTANT

- The data in the parameter copy buffer is retained until either data is saved again in the copy buffer or the COPY button is held down. Even if the COPY button is pressed during menu copy, the data in the parameter copy buffer is not erased. (The data is lost when the OU power is turned off.)
- Only numeric values can be stored to the copy buffer.
- If an item value has a decimal fraction and it is copied to the one which has no decimal fraction, it will be copied wrongly.
- The parameters are pasted in the order they were copied. Also, the paste operation can be done continually at locations where pasted was already performed, and so an empty paste operation is possible.

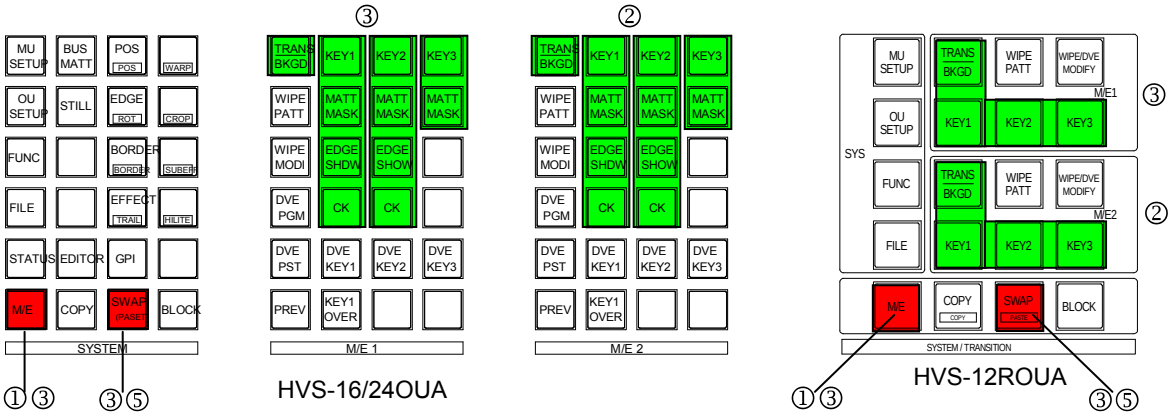
4-7. Copy and Swap

The M/E2 settings can be easily copied (COPY) or swapped (SWAP) to M/E1, or all the values in the KEY menu can easily be copied or swapped to another key menu.

TIPS
If the settings are mistakenly changed by a copying or swapping operation, use the data recovery function to return to the previous settings. See section 15-5. "Data Recovery" for more details.

4-7-1. Copying/Swapping Data between M/Es

The procedure example given following will either copy or swap the M/E2 settings to M/E1.



① First press the M/E button in the SYSTEM group to light red. COPY SWAP(1/1) menu is automatically displayed.

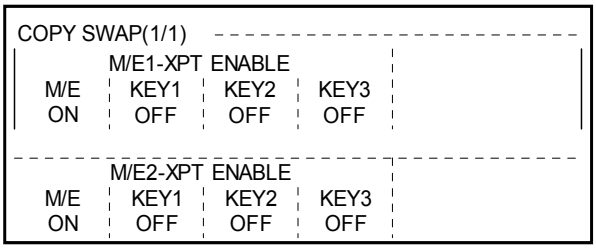
② Press one button in the setting group you want to copy or swap to lit in the relevant M/E group. For example, if copying or swapping the M/E2 signal settings, press the KEY1, KEY2, KEY3 and/or TRANS·BKGD buttons in the M/E2 group. The pressed button lights up green.

<HVS-16/24OUA>

As for keyers press any one of the buttons corresponding to a block (vertical). All related For example, pressing the EDGE/SHDW button in KEY1 makes all of the KEY1, MATT/MASK, EDGE/SHDW, and CK buttons light up.

③ The COPY and SWAP(PASTE) buttons flash red.

④ The setting can be made for copying or swapping the crosspoint information for the menu button that is lit. Set to OFF if no copying or swapping will be performed.



⑤ With the panel in this condition, press COPY button to copy the currently made M/E2 signal settings to M/E1. (Settings in M/E1 and M/E 2 menus should be the same after copy operation is complete.)
If you press the SWAP(PASTE) button, M/E2 settings become M/E1 settings and M/E1 settings become M/E2 settings.

NOTE

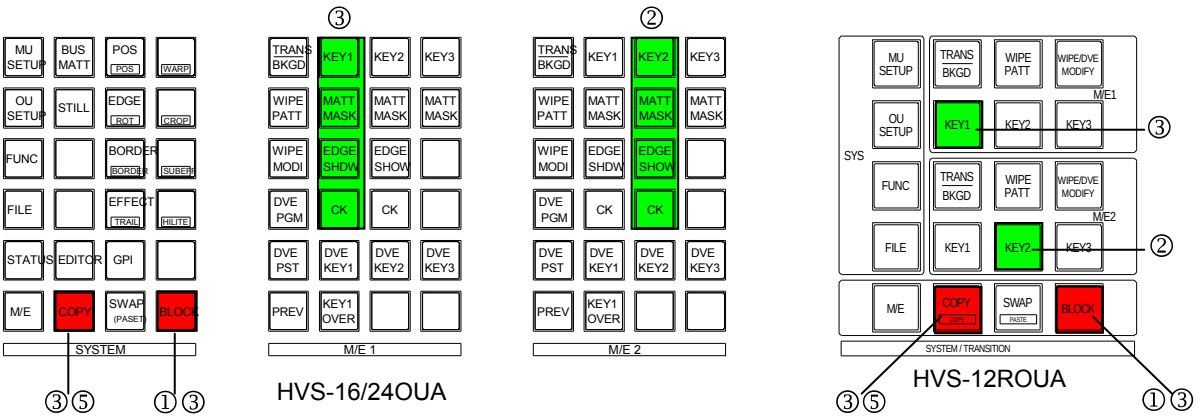
The previous procedure can copy multiple groups of menu settings at a time. At KEY1, KEY2 and KEY3 columns if you press any one of buttons at a column, all buttons at the column should go to lit green indication.

If copy or swap operation fails due to error, a buzzer tone will be emitted to alert the operator that copy or swap of the required operational settings was not completed.

Pressing a panel button that is not in the menu selection groups will cancel copy, swap operation and button indications will return to those displayed during normal operation.

4-7-2. Copying/Swapping Data between Blocks

The procedure for copying or swapping between blocks (menu settings groups) simply requires use of the BLOCK button during the copy, swap operation. The procedure example given following will block copy the M/E2-KEY2 menu settings to the M/E1-KEY1 menus, or swap M/E2-KEY2 settings to M/E1-KEY1 and vice versa.



① First press the BLOCK button in the SYSTEM group to light red. COPY SWAP menu is automatically displayed.

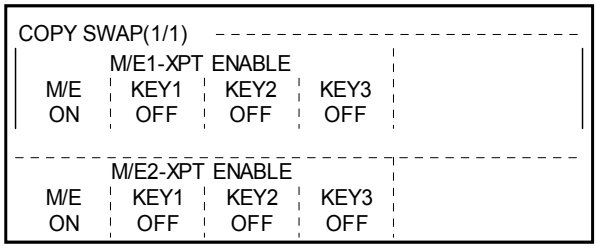
② Press the KEY2 button in the M/E2 group serving as the copy source. The button(s) lights green. (In HVS-16/24OUA, it is the same when the MATT MASK, EDGE SHDW, or CK button is pressed.)

③ To set KEY1 as the copy or swap target, press the KEY1 button in the M/E1 group to lit. The COPY, SWAP(PASTE) buttons should go to flashing red. (In HVS-16/24OUA, it is the same when the MATT MASK, EDGE SHDW, or CK button is pressed.)

NOTE

In HVS-16/24OUA pressing any one of the buttons in the KEY1, KEY2, or KEY3 block lights all of the buttons in that block. Only the settings where the copy source and copy target overlap are copied or swapped. If improper selections are made, and the setting values cannot be copied or swapped, the error buzzer sounds. To cancel the operation, press a menu button not used in the copy/swap operation.

④ The setting can be made for copying or swapping the crosspoint information for the menu button that is lit. Set to OFF if no copying will be performed.
(If one of the settings is set to OFF, the crosspoint information will not be copied or swapped.)



⑤ To copy the setting value, press the COPY button. To swap the setting value, press the SWAP(PASTE) button. A beep sound is made, and then the setting value is copied (or swapped).

Data that is not copied or swapped
For the TRANS/BKGD button, AUTO TRANS RATE and FADER LIMIT of KEY1-KEY3 (since the data is saved in the respective KEY menu)

Key CLIP, GAIN, and FAM ON/OFF settings (when the MU SETUP – MODE menu, KEYER MODE – SET option is set to INPUT (default setting). In this case, the setting value cannot be copied or swapped since it is saved as MU SETUP data.)

5. Bus Operation

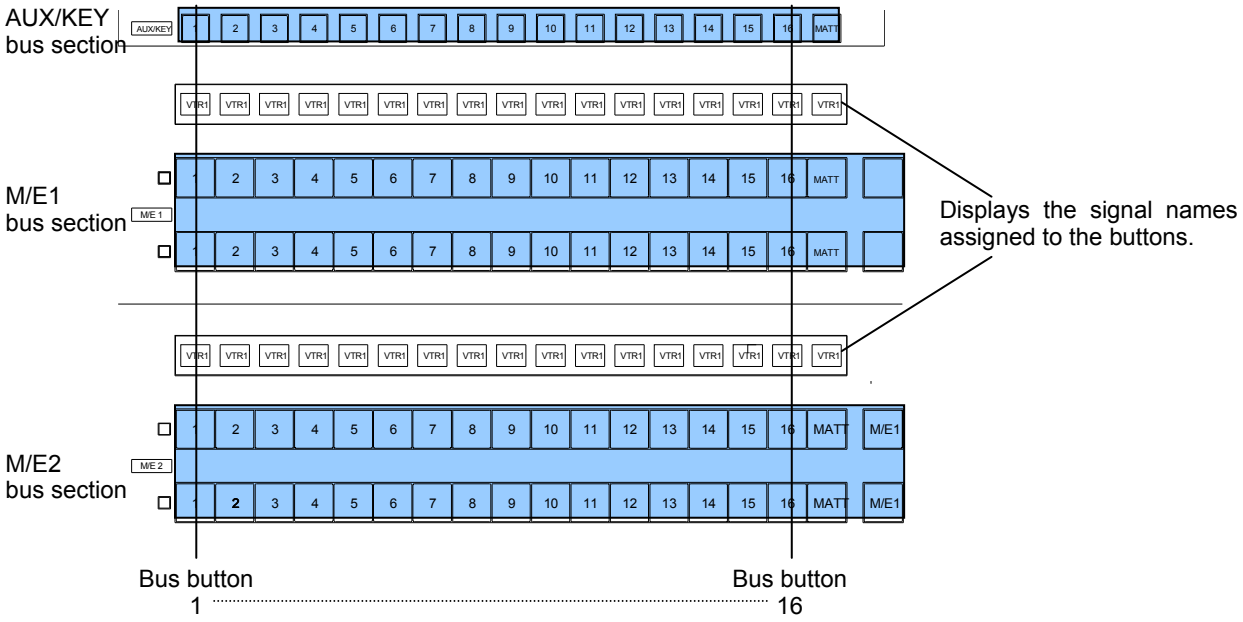
5-1. Selecting the Video Source

5-1-1. Bus Button Sections

The video signals input to the switcher are assigned to the bus buttons on the control panel for usage. The assigned signals are shared by the M/E1 bus section, M/E2 bus section, and AUX/KEY bus section. In other words, selecting bus button 1 enables selection of the same signal from any bus section. The names of the assigned signals are displayed over the M/E1 bus and M/E2 bus.

After the bus button is pressed to light it, a signal can be selected. The bus button indicates the status by its lighting color. When it is lit red, the signal assigned to the bus is on-air. When it is lit orange, it is set for the next output. For the M/E bus, the top is the PGM bus, and the bottom is the PST bus.
The KEY bus is shared by KEY output and AUX output, and so when using as a KEY bus (when it is lit after pressing the KEY1, KEY2, or KEY3 output select button), the insert (fill) signal bus button assigned to that key is lit and displays the status.

■ **BUS SECTION (HVS-16OUA)**



- The user can freely change the signal assignments to the bus buttons. (Refer to section 5-1-6. “Bus Signal Assignment and Inhibit Settings”.)
- The user can freely change the signal name. (Refer to section 5-1-5. “Changing the Signal Name”.)
- The signal assigned to the bus can be prohibited. (Refer to section 5-1-6. “Bus Signal Assignment and Inhibit Settings”.)
- The M/E bus PGM/PST display can be changed to A/B display. (Refer to section 5-1-3. “Flip-Flop”.)
- The SHIFT button can be used to enable assignment of two signals to a single bus button. Refer to section 5-1-2. “SHIFT Button”.)

5-1-2. SHIFT Button

■ **SHIFT + button**

When the SHIFT button is used, two signals can be assigned to a single bus button. The SHIFT button is not provided in the factory default settings. To use the SHIFT button, use the bus button assignment procedure to assign a SHIFT function to a bus button. For the bus button assignment procedure, refer to 5-1-6. “Bus Signal Assignment and Inhibit Settings”.

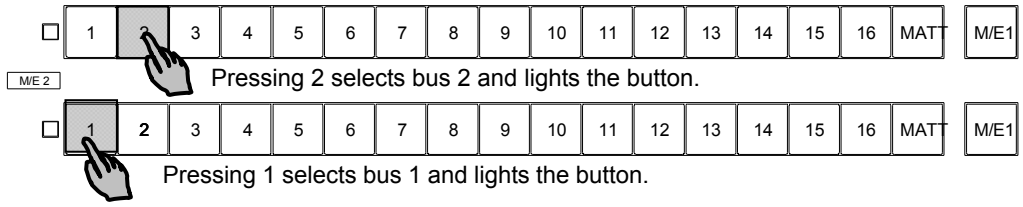
■ **SHIFT + button operation**

Three types of SHIFT modes are available (OFF, NORMAL, TOGGLE). Selection of the SHIFT mode is made using the SHIFT SELECT option in OU SETUP – MODE menu.

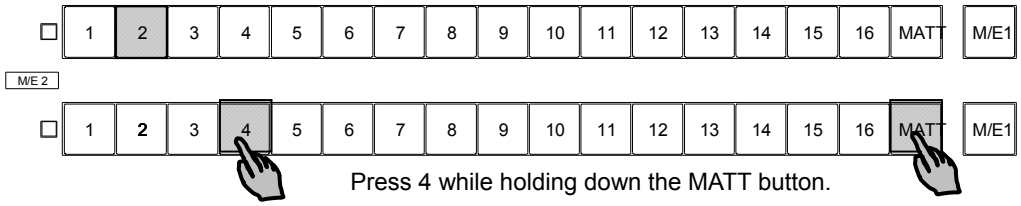
SHIFT SELECT setting	SHIFT+ button (Bus 17-32, MATT2) selection
OFF	SHIFT+ button operation is not available. For key operation only, the KEY menu or KEYLINK can be used to make a selection.
NORMAL (Default setting)	This enables selection by pressing the bus button while holding down the SHIFT button.
TOGGLE	After the SHIFT button is pressed to light it up, the bus button is pressed to make the selection.

■ **When Set to NORMAL (default):**

If the SHIFT button is not pressed, the buttons correspond to 1-16 and MATT.



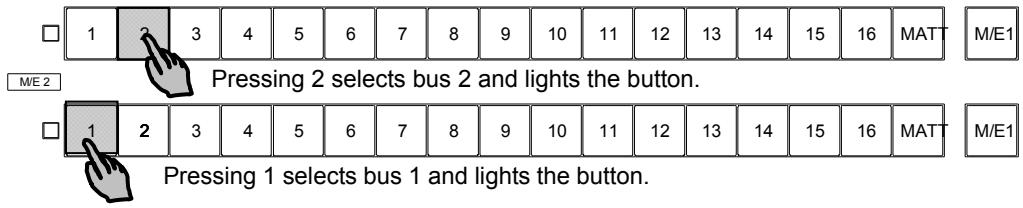
To select using the SHIFT+ button operation, press the bus button while holding down the SHIFT button. For example, if the SHIFT function has been assigned to the MATT button, to select bus 20, press 4 while holding down the MATT button.



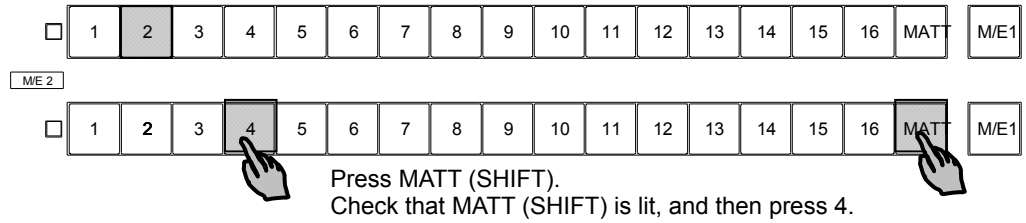
In the top example, the MATT (SHIFT) button is off, and buses 1-16 can be selected.
In the bottom example, the MATT (SHIFT) button is lit, and buses 17-32 can be selected.

■ **When Set to Toggle:**

When the SHIFT button is off, buses 1-16 can be selected.



To select using the SHIFT+ button operation, press the bus button while holding down the SHIFT button. For example, if the SHIFT function has been assigned to the MATT button, to select bus 20, press 4 while holding down the MATT button.



NOTE
Pressing the SHIFT button when the SHIFT button is lit turns it off.

5-1-3. Flip-Flop

HVS-3800 series OUs are provided with two M/Es, and each of which has a PGM (current out) and a PST (next out) background signal selection bus rows. The factory default setting for M/E switchover response is a flip-flop type. If you need a non flip-flop type bus response, you can change the M/E signal button response so that it cues the operator when the A/B bus switchover occurs.

■ PGM/PST Type

When the PST next signal finishes moving to the output line after a background transition, the signal indications at the M/E will flip-flop. The previous PST side selected signal now becomes the PGM side selected signal and the previous PGM side selected signal now becomes the PST side signal. The bottom bus series is always the PST bus.

■ A/B Type

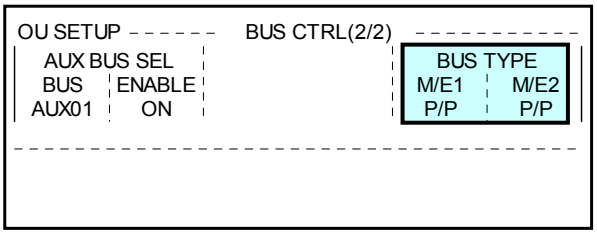
Even after a transition, the indications do not flip-flop, and there is no switchover of the bus buttons from top to bottom.
The button light indications in M/E may be switched between the upper row and lower low in some cases. See section 12-3. "Recalling from Event Memory" for the details.

■ Setting procedure

The procedure for setting M/E signal button response type is made in BUS TYPE parameter in the OU SETUP - BUS CONTROL menu.

① Press the OU SETUP button to display the OU SETUP menu. Turn control F1 to select 1 BUS CONTROL in the SELECT item. Either press the control F1 or press the DOWN button to display the OU SETUP – BUS CONTROL menu.

② Press the DOWN button again to display the OU SETUP – BUS CONTROL(2/2) menu.



③ In the BUS TYPE item, select P/P(PGM/PST) or A/B. The setting can be made for both M/E1 and M/E2. Turn control F5 or F6, and then press ENTER on the keypad to confirm the selection.

5-1-4. Color Indication

The bus buttons light up as shown below to indicate the signal status.

Bus button	Description
Red	Indicates on air.
Orange	Indicates next output.
Green	Button that is output to M/E1PGM (It lights red during re-entry to M/E2)

* The AUX/KEY bus section is shared by the KEY and AUX outputs. When the KEY1, KEY2, or KEY3 output selection button is pressed and turns on, the bus button of the insert signal assigned to that key lights up.

5-1-5. Changing the Signal Name

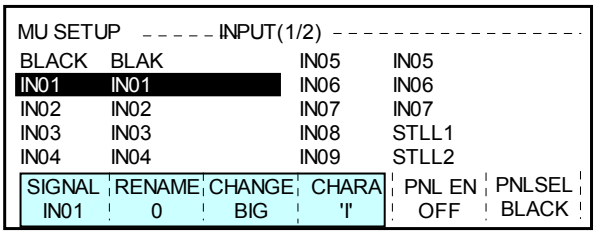
Video signals that can be assigned to the M/E bus are video signals input from the MU rear panel, STILL1 to 6, MATT1, MATT2, BLACK, WHITE, and color bar internal signals. Any names can be assigned to these signals. In the default settings, for instance, video input 1 from the rear panel is set as IN01. Follow the procedure below to change the signal names.

① Press the MU SETUP button to display the MU SETUP top menu.

② Turn F1 to select 2 (INPUT). Press F1 or DOWN button to display the MU SETUP-INPUT menu.

③ Turn F1 to select the signal whose name will be changed under the SIGNAL item in the MU SETUP – INPUT menu. In the default setting, the names under the SIGNAL item and SIGNAL NAME are virtually identical (see the table below).

SIGNAL	Description
BLACK	Black signal
IN01 to IN28	MU rear panel inputs 1 to 16 (17 to 28 added when input option installed)
STILL1 to STILL6	Still pictures 1 to 4 (5 and 6 are added when HVS-38SS option installed.)
MATT1, MATT2	BUS MATT Color signal
WHITE	White signal
CB	Color bar signal
M/E1	Re-entry signal



④ Press F2 to enter the rename mode. The signal name can contain 4 characters x 2 lines. The name is set by entering a character at a time. Select the position using the RENAME item (F2), and then use the CHARA item (F4) to select the characters. Alphanumeric characters and symbols can be used (ASCII code). To change the character type, use the CHANGE item (F3).

To change another signal name, repeat steps ③ and ④.

⑤ Press F2 to enable the renamed signal name.

5-1-6. Bus Signal Assignment and Inhibit Settings

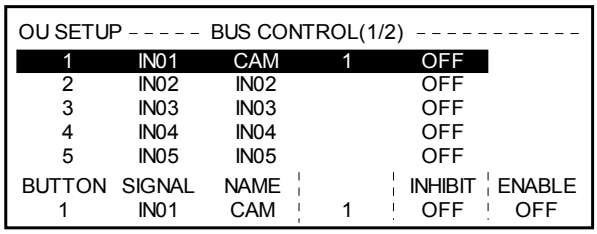
Video signals that can be assigned to the M/E bus are video signals input from the MU rear panel, STILL1 to 6, MATT1, MATT2, BLACK, WHITE, and color bar internal signals. Follow the procedure below to assign video signals to the bus.

① Press the OU SETUP button to display the OU SETUP top menu.

② Turn F1 to select 1 BUS CONTROL. Press F1 or DOWN button to display the OU SETUP-BUS CONTROL menu.

③ Select the bus section button under the BUTTON option in the OU SETUP - BUS CONTROL menu.

④ Turn F2 to select the signal that you want to assign to the bus button that you selected under the SIGNAL item. Or, turn F3 to select the signal that you want to assign to the bus button from the names assigned under the NAME item. Press the ENTER key in the keypad to confirm. The settings for SIGNAL and NAME are linked.



Select from the settings below.

BUTTON	SIGNAL	Signal
01-16 MATT	NONE	Unable to select signal
	BLACK	Internal black signal
	IN01 to IN28	MU rear panel inputs 1 to 28 (17 to 28 added when input option installed.)
	STILL1 to STILL6	Still pictures 1 to 6 (5 and 6 added when HVS-38SS option installed.)
	MATT1 to MATT2	Internal color bus matt signals
	WHITE	Internal white signal
	CB	Color bar signal
	* M/E1 (M/E2 only)	M/E1 PGM output (re-entry)
	L_DVE	Line DVE
	SHIFT	Shift button

* M/E1 is a re-entry signal that can use the M/E1 program output directly in M/E2.

⑤ If you turn F5 to set the INHIBIT to M/E1, M/E2, or M/E1,2, the bus buttons in the selected M/E cannot be selected. This setting is enabled only when the BUS INHIBIT setting is set to ON (default setting).

NOTE
In the BUS INHIBIT setting, a specific signal can be selected only in the AUX/KEY bus section. It is useful when assigning signal used with keys.

5-1-7. Adding Side Panel Images

Side panel images can be added to the background video only when the primary inputs (IN01 to IN28) or the stills (STILL1 to STILL6) are assigned to the background.
Note that the side panel feature does not support all available signal standards. See the table below.

Side panel **supported**:	1080/59.94i, 1080/60i, 720/59.94p, 720/60p
Side panel **not** supported:	1080/23.98p, 1080/24p, 1080/50i 1080/23.98PsF, 1080/24PsF 720/50p NTSC, PAL

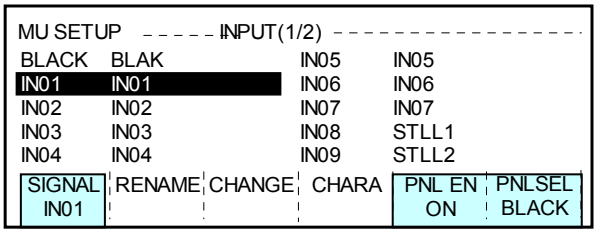
① Open the MU SETUP - INPUT menu.

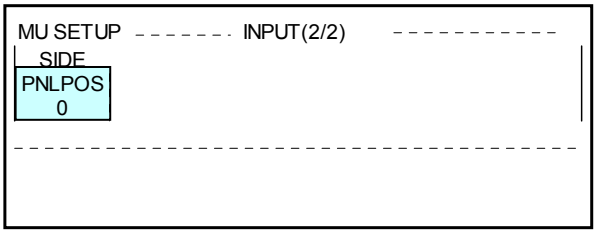
② Select a background signal to which the side panel image is added at the SIGNAL item.

③ Change the SIDE PNL EN item to ON.

④ Select a source signal used for the side panel image at the PNLSEL item.

⑤ Adjust side panel width at the SIDE PNLPOS item, if necessary.





Item	Description	Default	Setting Range
SIGNAL	Selects signal to which side panel image is added.	-	IN01 to IN28, STILL1 to STILL6
PNL EN	Enables/Disables side panel.	OFF	OFF, ON
PNLSEL	Selects source signal used for side panel image.	BLACK	BLACK, AUX7 to 10, MATT1, MATT2
SIDE PNLPOS	Adjusts side panel width.	0	Setting range varies by operational signal format.

IMPORTANT

Side panel images can be applied to the background bus (M/E bus), but not to keyer buses or auxiliary buses.

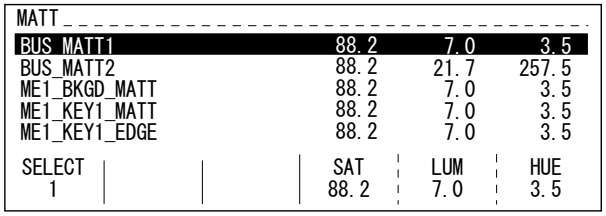
5-2. BUS MATT

Matt signals can be used in a variety of ways in the HVS-3800 series. Two different matt signals can be assigned to the M/E bus. Also, matt signals are used for the insert signal, edge, and shadow of the keyer. The color of these matt signals can also be set in the respective KEY menu, but they can also be set together in the BUS MATT menu.

IMPORTANT
Two matt signals can be used in the M/E bus. The PGM/PST bus and AUX/KEY bus share signals. The MATT signals can be assigned to any bus button. For the assignment procedure, see section 5-1-6 “Bus Signal Assignment and Inhibit Settings”.

■ **MATT menu**

① Display the MATT menu
HVS-16/24OUA: Press the BUS MATT button in the SYSTEM group.
HVS-12ROUA: Press the FUNC button, and then select 1.MATT (2.MATT).



② In the BUS MATT menu, the following parameters can be set for both M/E1 and M/E2.

Parameter line		Description	Same parameter in another menu
* BUS MATT1		M/E bus assignment	None
* BUS MATT2		M/E bus assignment	None
M/E1 M/E2	BKGD_MATT	Used as background when using a DVE with 2 or more channels	TRANS (2/2) BKGD-MATT
	KEY1_MATT	Key 1 insert (fill)	KEY1 (2/6) MATT COLOR
	KEY1_EDGE	Key 1 edge	KEY1 (3/6) EDGE COLOR
	KEY1_SHDW	Key 1 shadow	KEY1 (4/6) SHADOW COLOR
	KEY2_MATT	Key 2 insert (fill)	KEY2 (2/6) MATT COLOR
	KEY2_EDGE	Key 2 edge	KEY2 (3/6) EDGE COLOR
	KEY2_SHDW	Key 2 shadow	KEY2 (4/6) SHADOW COLOR
	KEY3_MATT	Key 3 insert (fill)	KEY3 (2/2) MATT COLOR

* BUS MATT1 and 2 are shared for M/E1 and M/E2.

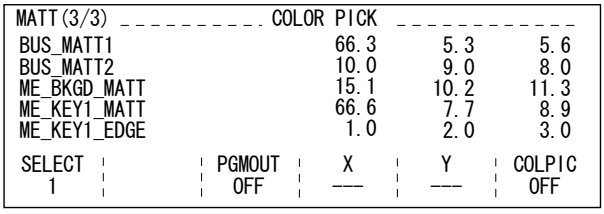
③ Turn the F4, F5, and F6 controls to adjust the SAT, LUM, and HUE parameters and set the color to be used. You can also use the color picker to select colors. (See the next page.)

NOTE
The amplitude range of the chroma/luminance for the matt signals can be adjusted. For details, see section 15-3-5. "MATT CLIP.”

■ Color Picker

The color picker allows you to pick any color on the screen to be used for matt colors. To use the color picker, proceed as follows.

① Press the DOWN button in the MATT menu to display the MATT-COLOR PICK menu.



② Turn F1 to select a MATT to be set.

③ Turn F6 to set the COLPIC item to ON. A crosshair cursor will be displayed on the M/E1 preview image.

④ Use the joystick X-Y axes to move the cursor to the color you wish to sample.

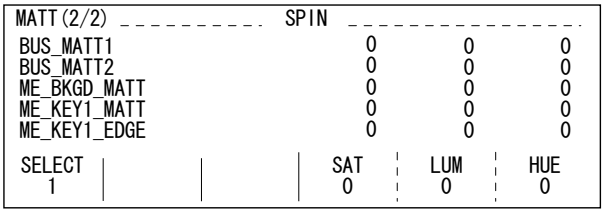
⑤ Set the COLPIC item to OFF. The selected color is applied to the MATT.

NOTE
If the PGMOUT item is set to ON, the cross hair cursor is displayed on the M/E1PGM image where the color picking is enabled. The re-entry signal (M/E1PGM) will be automatically selected on the M/E2PST bus. Note that the color picker cannot always reproduce colors accurately. If in this case, adjust the selected color in the MATT(1/3) menu.

■ MATT SPIN Function

The MATT SPIN function can change matt color parameters automatically. In this mode each color parameter is successively changed within the range set in the MATT SPIN menu.

① Press the DOWN button in the MATT menu to display the MATT-SPIN menu.



② Turn F1 to select a matt color to set. Turn F4, F5, or F6 to set a range value for SAT, LUM or HUE respectively. The matt color will change automatically.

Item	Default	Setting Range
SAT, LUM, HUE	0	-127 to 127

NOTE
The range values set in the menu are relative and differ from the actual color values.

5-3. Gradation Matt

The gradation matts can be used for the border colors or key insert (key fill), and they can be adjusted in the GRADATION MATT submenu of the FUNCTION menu.

■ Assignable buses

The gradation matts can be assigned to the following buses:

WIPE BORDER
KEY INSERT
AUX7 - 10
EFFECT BKGD

NOTE
Note that the gradation matts cannot be assigned to the M/E bus.

■ Making the gradation matts

Press the FUNC button in the SYSTEM group of the menu section to display the FUNCTION menu. In the FUNCTION menu, turn F1 to select GMATT. Press F1 or the DOWN Button to display the GRADATION MATT submenu.

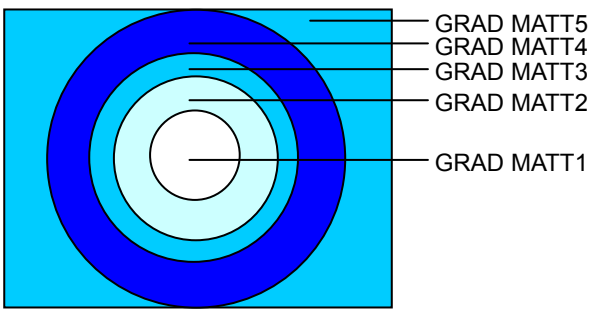
To setup gradation matts, use a WIPE pattern to specify a shape, and determine the number of colors and degree of softness. Adjust the colors while viewing on a monitor. If necessary, modify the WIPE pattern using ASPECT, POSITION, ANGLE, and/or MULTI items.
The following options can be set in the GRADATION MATT menu.

Menu items	Setting range	Description
MON OUT	AUX7 - 10	Selects where the gradation matt is displayed for monitoring.
*GMATT COLOR	2 - 5	Designates the number of colors used in the gradations.
SOFT LEVEL	0 - 150.0	Adjusts the degree of color softness.
GRAD PATTERN	0 - 99	Selects the WIPE pattern number used in the gradation.
ASPECT	Refer to the WIPE MODIFY(1/3) menu (section 6-7-2. "WIPE MODIFY Menu")	
POSITION(X,Y)		
ANGLE		
MULT(X, Y)		

* The number of colors is designated by GMATT COLOR, and the colors are adjusted using the WIDTH, SATURATION, LUMINANCE, and HUE options in the GRADATION MATT(2/2) menu. The colors used in the gradation matts are indicated by GRAD MATT1 to 5 as shown below.

Example of gradation matt

WIPE PATTERN: 51
GMATT COLOR: 5
SOFT LEVEL: 0



5-4. Stills

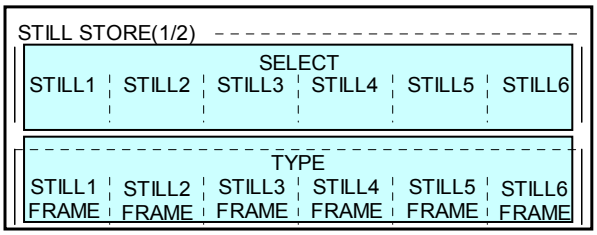
Up to 4 stills (STILL1 to 4) can be stored to the still memory at the standard configuration. Two more stills (STILL5 to 6) can be used when the HVS-38SS option is installed to the switcher. Stills can be assigned to the background bus and auxiliary bus. They are stored in the following way.

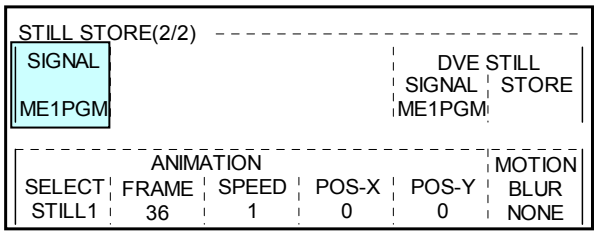
① Create an image to be saved to a still image in PREV or PGM output.

② Display the STILL menu.
HVS-16/24OUA: Press the STILL button in the SYSTEM group.
HVS-12ROUA: Press the FUNC button and then select 1.STILL.

③ Turn F1 under SIGNAL in the STILL menu, and then select the image output to be saved from the following options.

ME1PGM, ME1CLN, ME1PRV
ME2PGM, ME2CLN, ME2PRV
MATT1, MATT2
AUX1-AUX10, AUX11-16 (option),
XAUX1-XAUX10





④ If XAUX1-XAUX10 was selected, the STILL1-STILL4 item in SELECT can be used to select the video inputs that you want to import. The following signals can be selected.

Parameter	Available range
STILL1, STILL2, STILL3, STILL4	BLAK, IN01 to IN28 (IN17-IN28 are options), STL1 to STL6 (5-6 are options), MAT1, MAT2, ME1PGM, ME1PRV, ME1CLN ME2PGM, ME2PRV, ME2CLN

IN17-IN28 and STILL5 and STILL6 are option.

⑤ Press the DOWN button to move down, and then select the storage type from FRAME, ODD, and EVEN under the TYPE item.

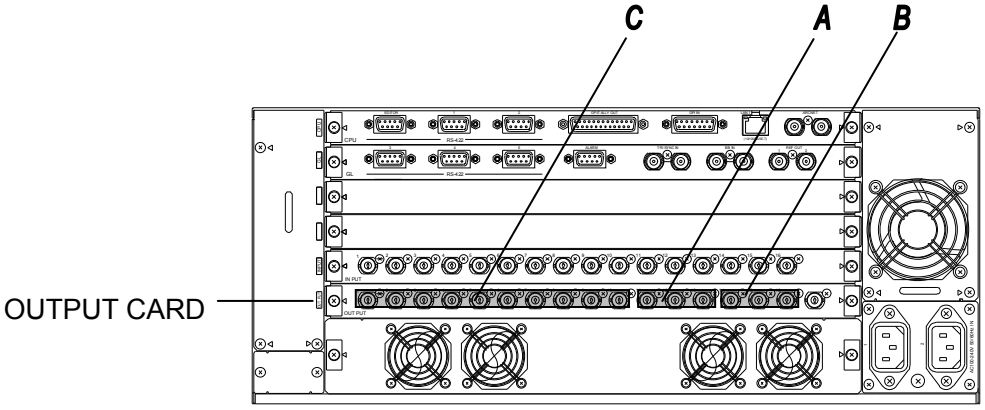
⑥ Press the UP button to move up, and then save to one of STILL1 to STILL6. Press the corresponding control. A beeping sound is heard, and the still image is saved.

IMPORTANT
When pressing a control button, hold it down for less than one second.

5-5. Selecting Where Outputs Appear

5-5-1. Output Connector

The output connectors for the video signals of the main unit rear panel have the configuration shown below.



Item	Connector	Description	Refer to
A	M/E1PGM	M/E1 program output	
	M/E1 PREV	M/E1 preview output (Next output with KEY) To select the signal that is output from the PREVIEW: 1) Press the PREV button in the M/E1 group (HVS-16/24OUA). Press the USER button where the PREVIEW function is assigned. (HVS-12ROUA) 2) Select the signals in the PREVIEW menu.	5-5-2 6-3-3
	M/E1CLN	M/E1 clean output (Program output with or without KEY)	5-5-3
B	M/E2PGM	M/E2 program output	
	M/E2 PREV	M/E2 preview output (Next output with KEY) To select the signal that is output from the PREVIEW: 1) Press the PREV button in the M/E2 group (HVS-16/24OUA). Press the USER button where the PREVIEW function is assigned. (HVS-12ROUA) 2) Select the signals in the PREVIEW menu.	5-5-2 6-3-3
	M/E2CLN	M/E2 clean output (Program output with or without KEY)	5-5-3
C	1-10	Auxiliary output signals can be assigned as shown below. 1) Select AUX output in the BUS SELECT section. 2) Select the signal from the AUX/KEY bus button and M/E1PGM, M/E1PREV, M/E1CLEAN, M/E2PGM, M/E2PREV, M/E2CLEAN, KEY OUT A, and KEY OUT B.	5-5-3

5-5-2. Selecting Preview Output

The outputs from M/E1PREV and M/E2PREV connectors are the previews for M/E1 and M/E2 and their signals can be selected in the menu respectively. Select the output signals of the preview as shown in the procedure below.

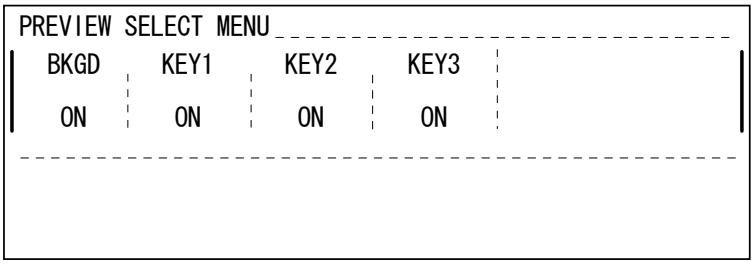
① Display the PREVIEW menu

<HVS-16/24OUA>

Press the PREV button in the M/E1 or M/E2 group of the menu section.

<HVS-12ROUA>

Press the USER button where the PREVIEW function is assigned. (See section 15-2. USER Buttons.)



② To monitor all these signals, turn the controls F1 to F4 to set BKGD, KEY1, KEY2, and KEY3 all to ON as shown in the figure above. To check the output of KEY3, set KEY3 to ON and all others to OFF.

NOTE

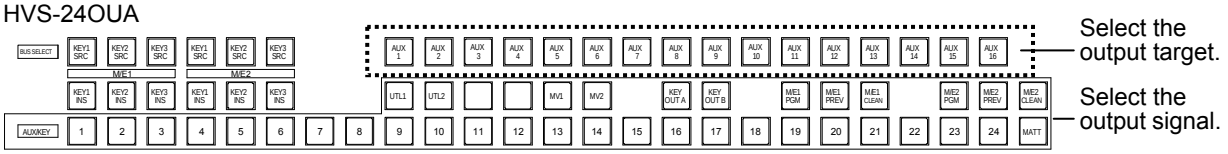
Press the PREV button to turn it on and display the menu. The menu button(s) of the bus where PREVIEW is set to ON (TRANS/BKGD, KEY1, KEY2, KEY3) lights up. The display of a signal can also be turned on and off by pressing the menu button while holding down the PREV button. This PREV setting is applied to the PREV and AUX outputs on the MU rear panel, where "preview" is selected for output signal.

5-5-3. Selecting AUX / CLEAN Output

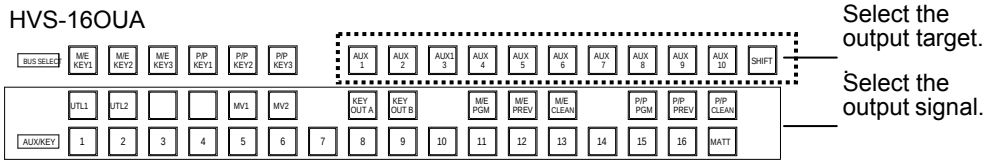
Available output signals for AUX1 to AUX10 (AUX11-16 added if the option installed) are PGM, PREV, CLN, DVE KEY and all signals assignable to M/E bus.

① Press a button in the BUS SELECT section to select an output target.

HVS-24OUA

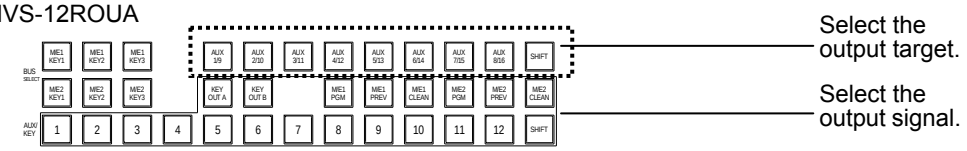


HVS-16OUA



* To select AUX11 to 16, press AUX1 to AUX6 with SHIFT pressed.

HVS-12ROUA



* To select AUX9 to AUX16, press AUX1 to AUX8 with SHIFT pressed.

② Press a button to select the signal for the output target.
The signals assigned to the bus buttons at the factory shipment are shown below.

■ **HVS-16/24OUA**

Selected buttons	Signal
1-16 (HVS-16OUA), 1-24 (HVS-24OUA), MATT1	Signals assigned in the bus assignments (Same as M/E bus) MATT2 and 17-32(HVS-16OUA) or 25-48(HVS-24OUA) can be selected with SHIFT. See 5-1-2. "SHIFT Button."
M/E1PGM	M/E1 Program output
M/E1PREV	M/E1 Preview output (Next output with KEY)
M/E1CLEAN	M/E1 Clean output appears at connector (with or without keys).
M/E2PGM	M/E2 Program output
M/E2PREV	M/E2 Preview output (Next output with KEY)
M/E2CLEAN	M/E2 Clean output appears at connector (with or without keys).
KEY OUT A	Signal assigned to KEY OUT A button. See next page.
KEY OUT B	Signal assigned to KEY OUT B button. See next page.
MV1	Multi Viewer output 1 (if HVS-38AUMV option installed.)
MV2	Multi Viewer output 2 (HVS-38AUMV option installed.)
UTL1	Input video signals (asynchronous acceptable) that can be assigned to AUX11-16 (HVS-38AUMV required)
UTL2	

■ **HVS-12ROUA**

Selected buttons	Signal
1-12	Signals assigned in the bus assignments (Same as M/E bus)) 13-24 can be selected with SHIFT. See 5-1-2. "SHIFT Button."
M/E1PGM	M/E1 Program output
M/E1PREV	M/E1 Preview output (Next output with KEY)
M/E1CLEAN	M/E1 Clean output appears at connector (with or without keys).
M/E2PGM	M/E2 Program output
M/E2PREV	M/E2 Preview output (Next output with KEY)
M/E2CLEAN	M/E2 Clean output appears at connector (with or without keys).
KEY OUTA	Signal assigned to KEY OUT A button. See next page.
KEY OUTB	Signal assigned to KEY OUT B button. See next page.

NOTE
When the optional HVS-AUX16/32 is used, the AUX outputs can be controlled remotely.

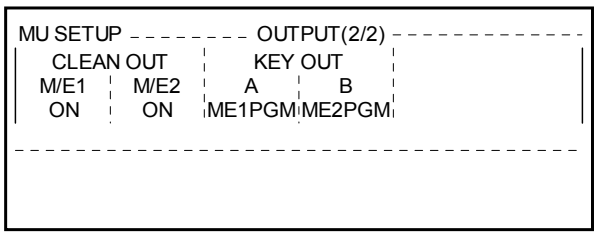
■ **KEY OUT A, KEY OUT B**

The following signals can be assigned to the KEY OUT A and KEY OUT B buttons, which can be selected for AUX output. This can be set in the MU SETUP - OUTPUT menu.

① Press the MU SETUP button in the menu section and display the top of the MU SETUP menu.

② Turn the F1 control to select 3 OUTPUT in the SELECT section. Either press the F1 control, or press the DOWN button to display the MU SETUP – OUTPUT menu.

③ Press the DOWN button again to move to the bottom page, and then select the key output signal in the KEY OUT A and KEY OUT B items. Press the ENTER button in the keypad to confirm the selection.



Selectable Signals for KEY OUT A/B

Setting		Signal
ME1 or ME2	PGM	PGM bus DVE KEY
	PST	PST bus DVE KEY
	_A	A bus DVE KEY output
	_B	B bus DVE KEY output
	KEY1	KEY1 bus DVE KEY
	KEY2	KEY2 bus DVE KEY
	KEY3	KEY3 bus DVE KEY
	D KEY1	DVE channel 1 KEY output
	D KEY2	DVE channel 2 KEY output
	D KEY3 (SD mode only)	DVE channel 3 KEY output
	D KEY4 (SD mode only)	DVE channel 4 KEY output
	KEY	KEY composite output for three keyers

■ **CLEAN**

CLEAN can be routed to any AUX output. The signals for CLEAN outputs can be selected at the MU SETUP – OUTPUT menu as in the procedure below.

① Press the MU SETUP button in the menu section and display the top of the MU SETUP menu.

② Turn the F1 control to select 3 OUTPUT in the SELECT section. Either press the F1 control, or press the DOWN button to display the MU SETUP – OUTPUT menu

③ Press the DOWN button again to move to the bottom page, and then select ON or OFF in the CLEAN OUT menu. Press the ENTER button in the keypad to confirm the selection.

Setting	Signal
ON (default setting)	Clean output + KEY1 + KEY2
OFF	Clean output only

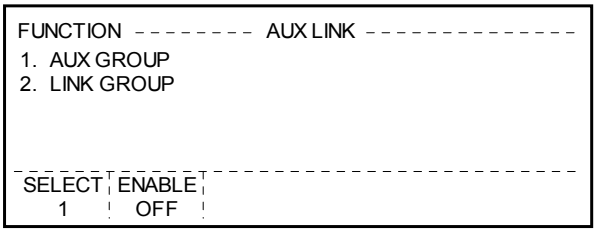
5-5-4. AUX LINK

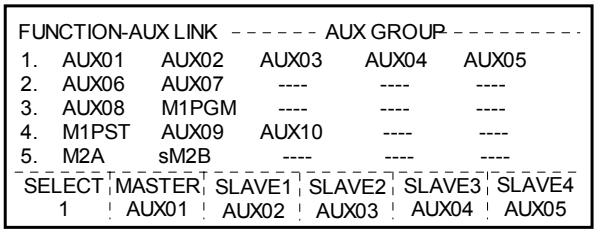
In the AUX-LINK function, the auxiliary outputs are grouped, and the master and slave outputs are set so all slave output signals can be switched simultaneously by simply selecting the master output signal. A group consists of one master output and up to four slave outputs. Five auxiliary output groups can be set. Examples of AUX LINK settings and operation are shown below.

■ **Creating AUX Output Link Groups**

① Press the FUNC button in the menu section to display the FUNCTION menu. Turn F1 to select AUX LINK. Press F1 or the DOWN button to display the AUX LINK sub menu.

② Turn F1 to select AUX GROUP under SELECT. Press F1 or the DOWN button to display the AUX LINK - AUX GROUP submenu.





③ In the AUX GROUP submenu, turn F1 to select a group to be set from 1-5.

④ Turn F2 to set the auxiliary output serving as the MASTER. Available outputs are shown below.

Master Output	AUX01-10, AUX11-16 (option) M1PGM, M1PST, M2PGM, M2PST M1A, M1B, M2A, M2B

⑤ Select the auxiliary outputs (up to four) serving as the SLAVE linking to the MASTER output. Available outputs are shown below.

Slave Output (Normal link)	AUX01-10, AUX11-16 (option) M1PGM, M1PST, M2PGM, M2PST M1A, M1B, M2A, M2B

The M/E bus outputs can be also linked fully to the MASTER (Full link). In this case, SLAVE buses always output the same signal as the MASTER and the small letter "s" is placed in front of the SLAVE names.

Slave Output (Full link)	sM1PGM, sM1PST, sM2PGM, sM2PST sM1A, sM1B, sM2A, sM2B

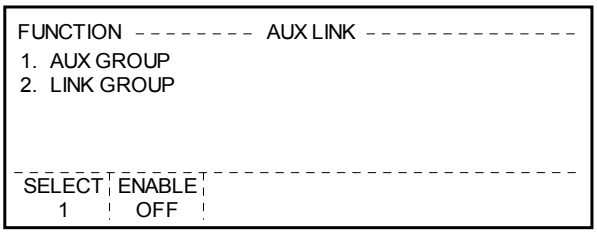
NOTE

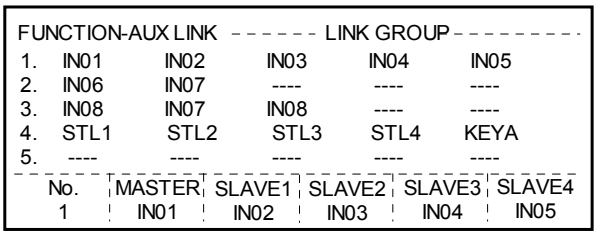
The A or B bus cannot be set for AUX LINK output when the PGM or PST bus in the same M/E is selected. In the same way, the PGM or PST bus cannot be set for AUX LINK output when the A or B bus in the same M/E is selected.

Both link type slaves, normal link slaves and full link slaves, cannot be selected in the same M/E.

■ **Creating Signal Link Groups**

① Press the UP button to go back to the AUX LINK menu. In the AUX LINK menu turn F1 to select LINK GROUP under SELECT. Press F1 or the DOWN button to display the AUX LINK - LINK GROUP submenu.





Available Signals	BLAK, IN01 to IN28, STL1 to STL4, STL5～STL6 (option) CB, WHIT, MAT1, MAT2, KEYA, KEYB

② In the AUX GROUP submenu, turn F1 to select a group to be set.

③ Turn F2 to select a signal to be set for MASTER.

④ Set the SLAVE output signals (up to four) that link to the MASTER output signal.

NOTE
The same MASTER output signal cannot be selected twice. SLAVE output signals can be selected multiple times.

■ **Enabling AUX LINK**

① Press the UP button to go back to the AUX LINK menu. Turn F2 to set ENABLE to ON. This activates all AUX LINK groups.

Operation examples:

These examples assume that the five AUX output link groups and four signal link groups were set as shown above.

Press AUX1 in the BUS SELECT- AUX section and select IN01 in the AUX/KEY bus:

-> IN02 is assigned to AUX2, IN03 to AUX3, IN04 to AUX4 and IN05 to AUX5.

Press AUX1 in the BUS SELECT- AUX section and select IN06 in the AUX/KEY bus:

-> IN07 is assigned to AUX2.

Press AUX8 in the BUS SELECT- AUX section and select STL1 in the AUX/KEY bus:

-> STILL2 is assigned to M/E1-PGM.

Select IN08 in the M/E1-PST bus:

-> IN07 is assigned to AUX9 and IN08 to AUX10.

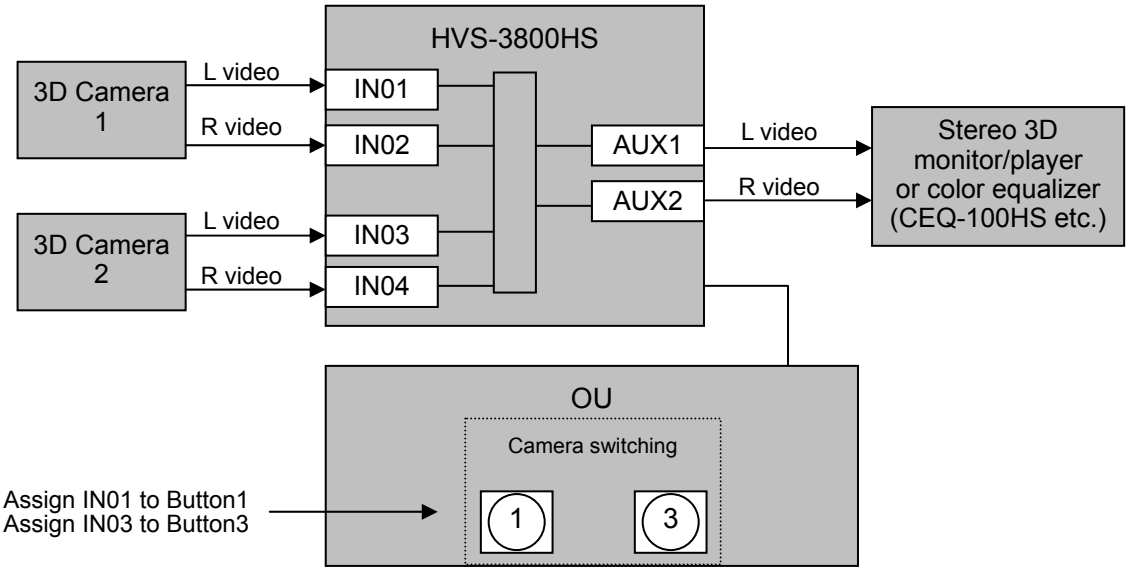
Select a signal in the M/E2-A bus:

-> The same signal as M/E2-A bus selection signal is assigned to M/E2-B bus.

5-5-5. Setting Up Stereoscopic 3D Input/Output

The switcher can accept two sets of stereoscopic video and output one set that can be switched between two using transition effects. Adjusting the display parallax in real-time allows you to make for a better viewing. The procedure below shows how to set up and operate a system described below as an example.

A system with Two Stereo 3D Cameras
It sets up a bus link using AUX LINK.
It outputs an L/R pair of Stereoscopic 3D from AUX1 (M/E2 PGM) and AUX2 (M/E1 PGM).
IN01 is assigned to Bus Button 1 and IN03 to Bus Button 3.
It switches the output video between 2 pairs by pressing a bus button on the M/E2.



AUX GROUP Setting
This AUX GROUP setting allows you to output an L/R video pair. Pressing a button on the M/E2 (L video) automatically changes the button selection on the M/E1 (R video). Set the AUX GROUP menu as shown below. (See section 5-5-4 for details about AUX LINK.)

① Set M2PGM to AUX GROUP1 Master and M1PGM to Slave.

② Set M2PST to AUX GROUP2 Master and M1PST to Slave.

FUNCTION-AUX LINK			AUX GROUP		
1.	M2PGM	M1PGM	----	----	----
2.	M2PST	M1PST	----	----	----
3.	----	----	----	----	----
4.	----	----	----	----	----
5.	----	----	----	----	----

SELECT	MASTER	SLAVE1	SLAVE2	SLAVE3	SLAVE4
1	M2PGM	M1PGM			

LINK GROUP Setting
This LINK GROUP setting allows you to link L/R video pairs. The L and R paired videos are simultaneously switched. Set the LINK GROUP menu as shown below. (See section 5-5-4 for details about LINK GROUP.)

① Set IN01 to LINK GROUP1 Master and IN02 to Slave.

② Set IN03 to LINK GROUP2 Master and IN04 to Slave.

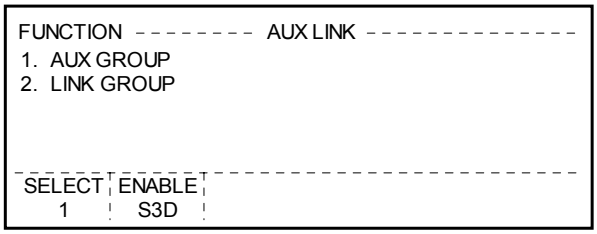
FUNCTION-AUX LINK			LINK GROUP		
1.	IN01	IN02	----	----	----
2.	IN03	IN04	----	----	----
3.	----	----	----	----	----
4.	----	----	----	----	----
5.	----	----	----	----	----

SELECT	MASTER	SLAVE1	SLAVE2	SLAVE3	SLAVE4
1	IN01	IN02			

Enabling Stereo 3D mode

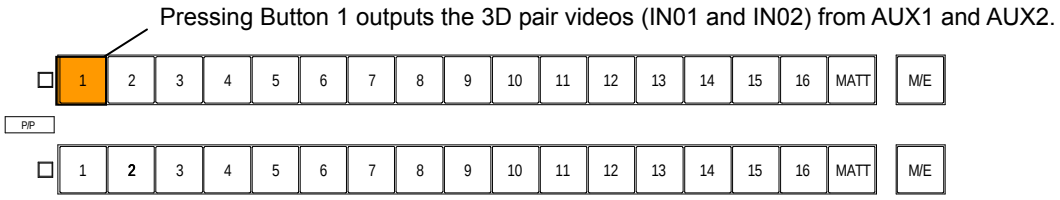
① Turn F2 in the [AUX LINK] menu to select S3D.

② Once the Stereo 3D mode is enabled, the FUNCTION button blinks red.

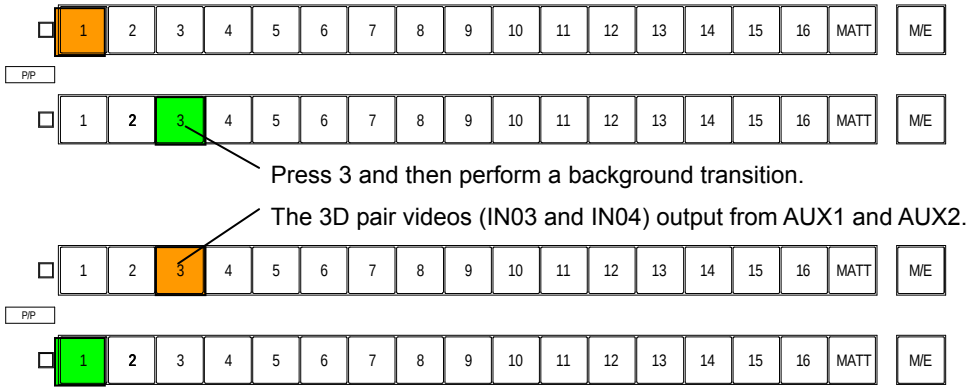


Enabling Stereo 3D mode

After having done the above settings, pressing Button 1 on the M/E2 PGM row outputs the L/R video, IN01 and IN02 (IN03 and IN04), respectively from AUX1 and AUX2.



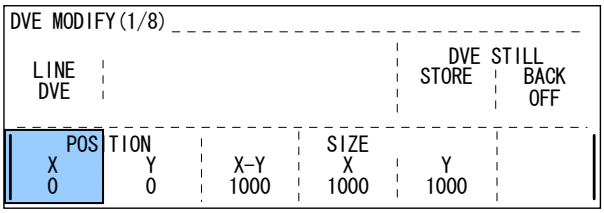
Two sets of stereoscopic video can be switched each other using transition effects such as MIX. Keyer can be also added to these videos. In these cases, the M/E1 bus is automatically changed according to the M/E2 bus.



Adjusting the Parallax Display

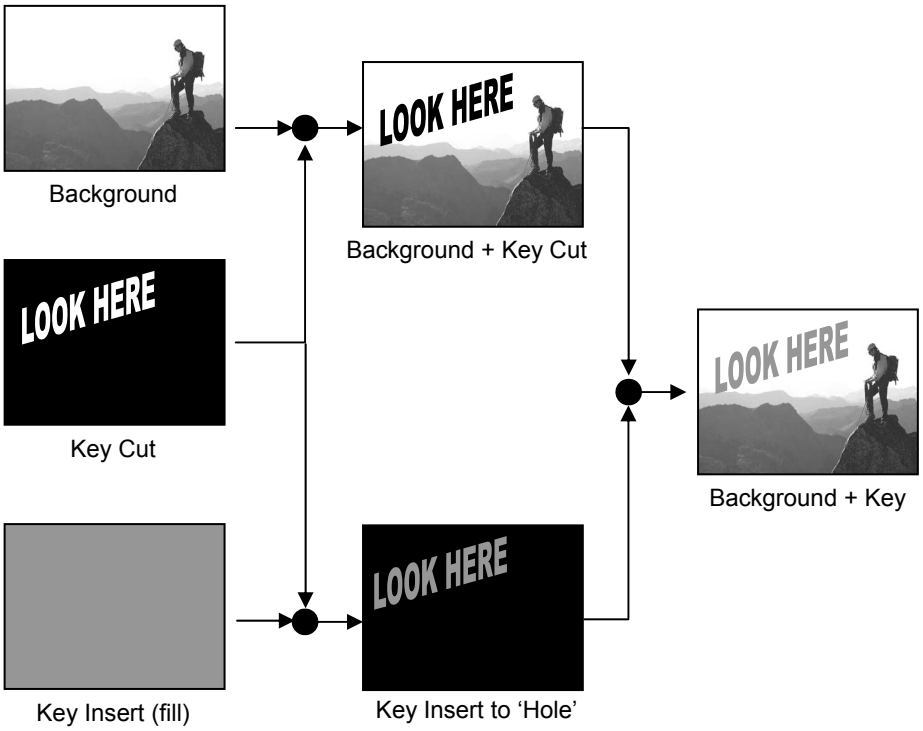
To adjust the efficacy of the parallax display for L/R pair video, use the LINE DVE function as shown below. (See section 7-1 for details about the LINE DVE.)

① To adjust the parallax of L/R pair video, change the X_POS parameter in the DVE MODIFY menu for the M/E2 (using LINE DVE), while monitoring the 3D image. Increasing the value makes objects closer to you. When you change the X_POS value for M/E2 video, the X_POS value for M/E1 video is automatically changed accordingly.



5-6. Key Setup

Keys are additional signal layers you can composite over the M/E background signal. Standard keys are basically created by inserting part of one picture into another to create a composite signal result as the figure below.



Three keyers are provided in the standard configuration.

KEY		KEY1	KEY2	KEY3
Type	Luminance key (Self key)	○	○	○
	Bus key	○	○	○
	Chroma key (*1)	○	○	Not Available
Effect	Invert	○	○	○
	BOX mask	○	○	○
	KEY mask	○	○	Not Available
	Edge	○	○	Not Available
	Shadow	○	○	Not Available
Priority Change		○	○	Not Available
Transition	CUT	○	○	○
	MIX	○	○	○
	FAM and NAM (*2)	○	○	○
	WIPE (*2)	○	○	○
Line DVE		○	○	○

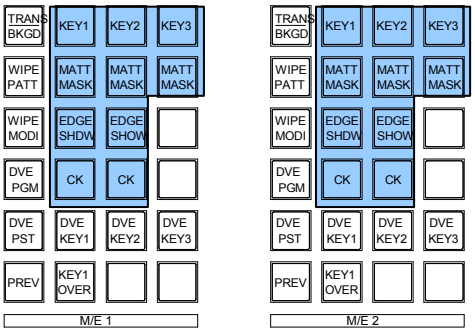
(*1) Refer to section 5-10. “Chromakeys” for more details.
(*2) FAM and NAM transitions are available with the menu setting (See section. 6-4-1. "FAM and NAM Transitions for Keyers.")
(*2) WIPE transitions can be used simultaneously with background and KEY, but the same pattern applied to both. In DVE patterns, simultaneous BKGD and KEY transitions are possible, and different patterns can be used. However, there are limitations on the number of DVE channels that can be used. For details about transitions, refer to section 6-4. "Key Transitions”, and for details about limitations on DVE channels, refer to section 6-9-8. “DVE patterns and number of channels”.

5-6-1. Key Menu

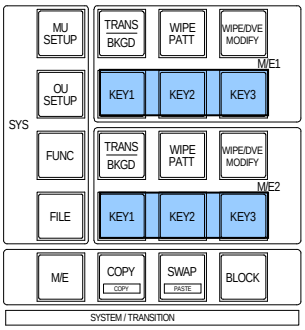
■ Displaying Keyer Menu

The key menus are displayed using the buttons shown in the figures below in the M/E1 group and M/E2 group (HVS-16/24OUA)or opening keyer submenus from each keyer top menu (HVS-12ROUA).

HVS-16/24OUA



HVS-12ROUA



M/E1 KEY1 MENU
1. SRC/INS
2. MATT/MASK
3. EDGE
4. SHADOW
5. AUTO CK
6. MANUALCK

SELECT 1 | INIT OFF

KEY

KEY1(1/6) SOURCE/INSERT

KEY TYPE	INSERT TYPE	INSERT SIGNAL	SOURCE SIGNAL	SOURCE INVERT	FAM
BUS	BUS	IN01	IN01	OFF	OFF

KEY SIGNAL GAIN	KEY SIGNAL CLIP	KEY SIGNAL TRANSP	TRANSITION RATE	TRANSITION LIMIT	TRANSITION LEVEL
1.0	50	0.0	30	OFF	100.0

KEY(1/6) menu
Key Setup (5-6. “Key Setup”)
Key Adjustment (5-7 . “Key Adjustments”)
Transition Setting (6-4.Key Transitions

MATT MASK

KEY1(2/6) INSERT-MATT

COLOR SAT	COLOR LUM	COLOR HUE
66.3	5.4	3.5

MASK TYPE	MASK INVERT	BOX TOP	BOX BOTTOM	BOX LEFT	BOX RIGHT
OFF	OFF	0	0	0	0

KEY(2/6) Menu
KEY MATT Color Setting (5-6-6 “KEY MATT”)
Mask Setup (5-8. “Key Mask and Invert”)

EDGE SHDW

KEY1(3/6) EDGE

TYPE	WIDTH	SOFT LEVEL	TRANSP LEVEL
OFF	1	0	0.0

EDGE-COLOR

COLOR SAT	COLOR LUM	COLOR HUE
66.3	5.4	3.5

KEY(3/6) Menu
Edge Setup (Section 5-9-1. “Edge”)

KEY1(4/6) SHADOW

TYPE	SOFT	TRANSP LEVEL	POSITION X	POSITION Y
OFF	0	0.0	10	10

SHADOW-COLOR

COLOR SAT	COLOR LUM	COLOR HUE
66.3	5.4	3.5

KEY(4/6) Menu
Shadow Setup (Section 5-9-2 “Shadow”)

CK

KEY1(5/6) AUTO CHROMA KEY

POSITION X	POSITION Y	SELECT	PGMOUT	CURSOR	SIZE
0	0	ON	OFF		8*8

CHROMA KEY

EDGE POS	EDGE LEFT	EDGE RIGHT
0	0	0

KEY(5/6) Menu
Auto Chromakey (5-10-2. “Auto Chromakey Setup”)
Chromakey Edge Setting (5-10-3. “Chromakey Adjustment”)

KEY1(6/6) MANUAL CHROMA KEY

MANUAL ADJUST CLIP	MANUAL ADJUST GAIN	MANUAL ADJUST HUE	MANUAL SUPPRESSION Y	MANUAL SUPPRESSION C1	MANUAL SUPPRESSION C2
0	1.00	0.0	1.00	1.00	0

CHROMA KEY

COLOR CANCEL	ANGLE	ANGLE OFFSET Y	ANGLE OFFSET C	ANGLE OFFSET K
ON	45.00	0.00	0.00	0.00

KEY(6/6) Menu
Chromakey Adjustment (5-10-3. “Chromakey Adjustment”)

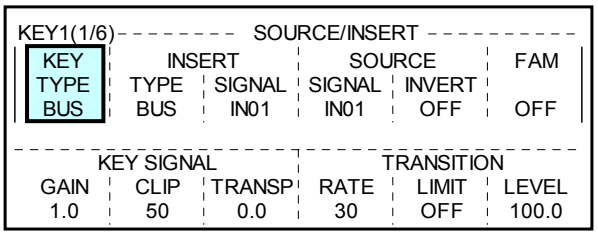
5-6-2. Returning Key Menus to Default Settings

The key menus can be returned to their default settings by holding down the menu button for the respective key. When the button is held down, a long beeping sound is made, and the selected menu parameters are returned to their defaults. Holding down the KEY1, KEY2, or KEY3 buttons returns all key menus to their default settings.

NOTE
In HVS-12ROUA, each keyer top menu has an INIT item that can return the keyer menu to the default settings. Turn F6 to select an item to be set to default and then press and hold down F6 for a while to return the menu to default.

5-6-3. Key Types

Three types of keyers are available: luminance, bus, and chroma keys.



■ Luminance keys

Luminance keys are also called a self key, and it uses the same video for the key source and key insert. This is selected in KEY INSERT. The key insert/source signals can be selected from the buttons in the AUX/KEY bus section. It can also be selected from the menu screen. KEY1, KEY2, and KEY3 can all be created in the same way.

■ Bus keys

Bus keys use separate signals for the key insert and key source. To create a bus key, select the KEY INSERT/KEY SOURCE signals in KEY-SOURCE/INSERT menu. Since the operation for selecting the signal from the menu takes some time, the settings are first made at the menu, and then the key link function is set to ON so that keys can be created by selecting only key fill (insert) signals. Refer to section 5-6-5 and 5-6-6 for more details.

■ Chroma keys

Chroma keys use the difference in hue from the chroma component to create a key signal and compose a separate video using the key. It is primarily used when composing images with a person or other subject that is moving. For details about chromakeys, refer to section 5-10. “Chromakeys”.

5-6-4. Selecting the Key Source / Insert (HVS-16OUA)

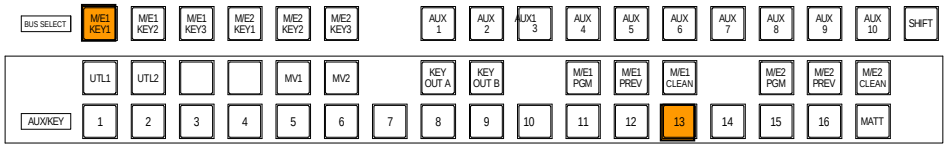
The key signal is selected using the key bus select button and AUX/KEY button. It can also be selected from the KEY-SOURCE / INSERT menu.

This example describes when the bus button 1 (IN01 signal) is selected for KEY SOURCE (key signal) and bus button 13 (STILL1 signal) is selected for KEY INSERT (fill signal) in KEY1 of M/E1. When selecting from the menu, the signal name of the source is used to make the selection.

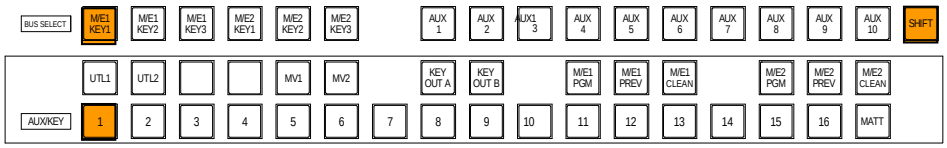
■ **Selection by AUX/KEY bus**

① Press the M/E1-KEY1 button in the key bus select section to light it.

② Press 13 in the AUX/KEY bus section. The button 13 lights up (KEY INSERT selected).



③ Next, press SHIFT to turn it on, and then press 1 in the AUX/KEY bus section. The button 1 lights up (KEY SOURCE selected).

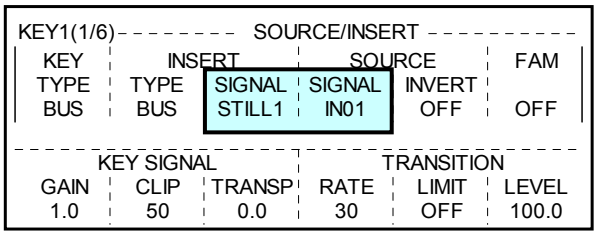


■ **Selection by key menu**

① Press the KEY1 button in the M/E1 group to display the KEY1(1/6) menu. If the cursor is in the bottom row, use the UP/DOWN button to move it.

② Set KEY-TYPE to BUS.

③ Select STILL1 under the INSERT-SIGNAL option. Select IN01 under the SOURCE-SIGNAL option.



NOTE
The KEY MATT signal cannot be selected from the AUX/KEY bus. For details about signals that can be selected by the key, refer to section 5-6-8. “Available Signals”.

5-6-5. Selecting the Key Source / Insert (HVS-24OUA)

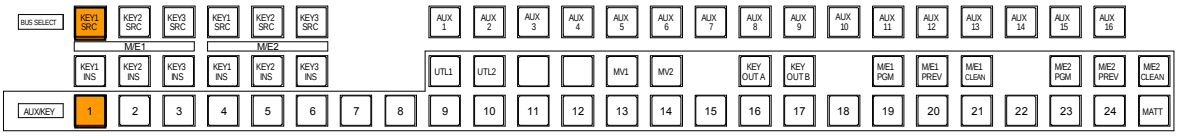
The key signal is selected using the key bus select button and AUX/KEY button. It can also be selected from the KEY-SOURCE / INSERT menu.

This example describes when the bus button 1 (IN01 signal) is selected for KEY SOURCE (key signal) and bus button 13 (STILL1 signal) is selected for KEY INSERT (fill signal) in KEY1 of M/E1. When selecting from the menu, the signal name of the source is used to make the selection.

■ Selection by AUX/KEY bus

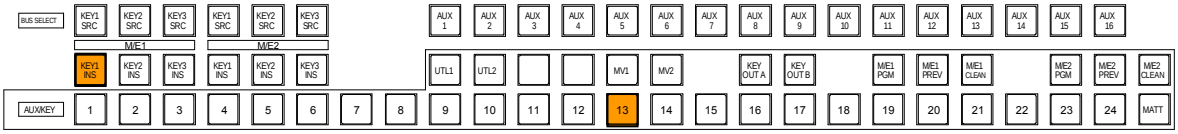
① Press the KEY1-SRC button in the key bus M/E1 select section to light it.

② Press 1 in the AUX/KEY bus section. The button 1 lights up (KEY SOURCE selected).



③ Next, press the KEY1-INS button in the key bus M/E1 select section to light it.

④ Press 13 in the AUX/KEY bus section. The button 13 lights up (KEY INSERT selected).

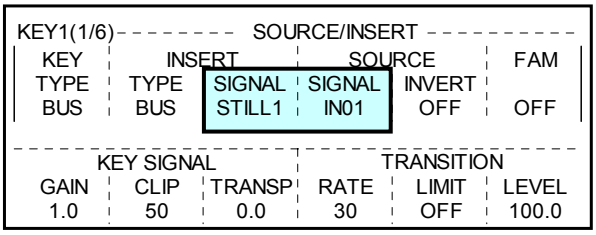


■ Selection by key menu

① Press the KEY1 button in the M/E1 group to display the KEY1(1/6) menu. If the cursor is in the bottom row, use the UP/DOWN button to move it.

② Set KEY-TYPE to BUS.

③ Select STILL1 under the INSERT-SIGNAL option. Select IN01 under the SOURCE-SIGNAL option.



NOTE
The KEY MATT signal cannot be selected from the AUX/KEY bus. For details about signals that can be selected by the key, refer to section 5-6-8. “Available Signals”.

5-6-6. Selecting the Key Source / Insert (HVS-12ROUA)

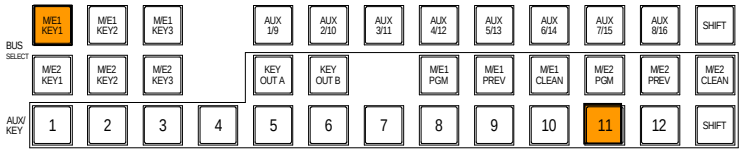
The key signal is selected using the key bus select button and AUX/KEY button. It can also be selected from the KEY-SOURCE / INSERT menu.

This example describes when the bus button 1 (IN01 signal) is selected for KEY SOURCE (key signal) and bus button 11 (STILL1 signal) is selected for KEY INSERT (fill signal) in KEY1 of M/E1. When selecting from the menu, the signal name of the source is used to make the selection.

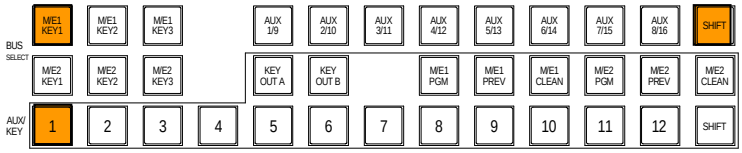
■ **Selection by AUX/KEY bus**

① Press the M/E1-KEY1 button in the key bus select section to light it.

② Press 11 in the AUX/KEY bus section. The bus signal 11 will be selected for KEY INSERT.



③ Next, press the SHIFT button in the BUS SELECT section to turn it on. Press 1 in the AUX/KEY bus section. The button 1 lights up (KEY SOURCE selected).

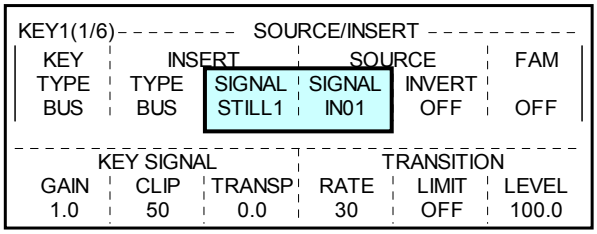


■ **Selection by key menu**

① Press the KEY1 button in the M/E1 group to display the KEY1(1/6) menu. If the cursor is in the bottom row, use the UP/DOWN button to move it.

② Set KEY-TYPE to BUS.

③ Select STILL1 under the INSERT-SIGNAL option. Select IN01 under the SOURCE-SIGNAL option.



NOTE
The KEY MATT signal cannot be selected from the AUX/KEY bus. For details about signals that can be selected by the key, refer to section 5-6-8. “Available Signals”.

5-6-7. Key Link

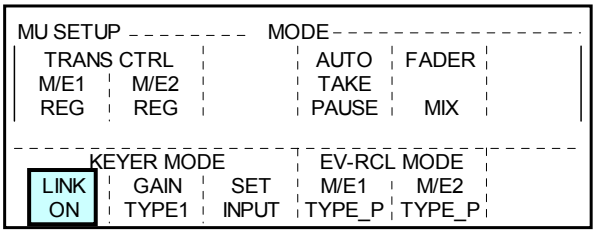
When the key link function is set to ON, the key source signal and key insert signal are linked to form a pair. When the key source signal and key insert signal are selected, they are automatically registered as a pair. Also, if a key insert signal only is selected, then a key source signal is automatically selected to pair with it. To change the pair, use the key menu or AUX/KEY bus to reselect the key source signal. The key link ON/OFF settings are made in the MU SETUP – MODE menu.

NOTE
If a key link is set in one of the key menus of KEY1, KEY2, or KEY3, the same key pair can also be used by other keys. The key pair setting can be used regardless of whether the key link function is set to ON or OFF.

■ **Setting key link function to ON**

① Press the MU SETUP button in the SYSTEM group to display the MU SETUP top menu.

② Turn F1 to select 4 MODE. Either press F1 or press the DOWN button to display the MU SETUP – MODE menu. Change the KEYER MODE – LINK option to ON. Press ENTER in the keypad to confirm.



5-6-8. Available Signals

The key signals are not limited only to those assigned to the bus buttons. All of the signals below can be used by selecting them from the menu.

IMPORTANT
If using the key link function to select a signal in the AUX/KEY bus section, please note that the selection cannot be made unless the key insert signal is assigned to a bus button.

KEY		Signal	Description
M/E1 M/E2	KEY1 KEY2 KEY3	BLAK	Internally generated Black signal
		IN01-IN28	Primary input 01 to 28
		STL1-STL6	Still 1 to Still 6
		MATT1-MATT2	Color matt 1 and 2
		KEY MATT	Key matt (Refer to 5-6-9. "KEY MATT".)
		GMATT	Gradation matt (Refer to section 5-3. "Gradation Matt".)
		WHITE	Internally generated White signal
		CB	Internally generated color bar signal
M/E2	KEY1 KEY2 KEY3	M/E1PGM	M/E1 PGM Signal

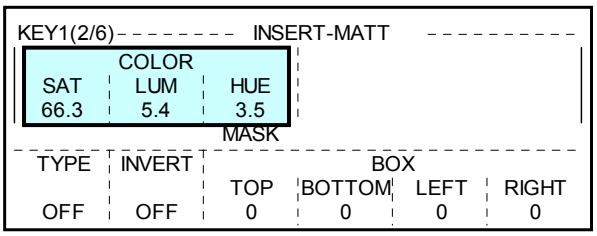
5-6-9. KEY MATT

In addition to the MATT1 and MATT2 bus matt signals, a matte signal dedicated to keys (KEY MATT) can also be used. The color for the KEY MATT signal can be setup in each keyer menu using the procedure below.

① Select MATT in the INSERT-TYPE item of the KEY-INSERT/SOURCE menu.

② Press the DOWN button to display the KEY(2/6) menu page.

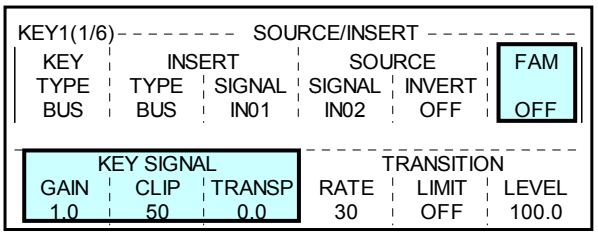
③ Set LUM, SAT, and HUE in the COLOR items to determine the MATT color.



IMPORTANT
Note that KEY MATT cannot be assigned to a bus button.

5-7. Key Adjustments

How the key and background video are mixed together is adjusted using the parameters below.



■ FAM (KEY-SOURCE/INSERT menu)

When this is set to ON, the keys are combined using an additive mix. When signals with the same shape are being used for key source and key insert, setting the FAM parameter to ON enables reduction of the darkness on the key edge. Follow the procedure below to set the FAM to ON.

■ TRANSPARENCY (KEY-SOURCE/INSERT menu)

Key transparency can be set. Increasing the value makes the background appear more transparent.

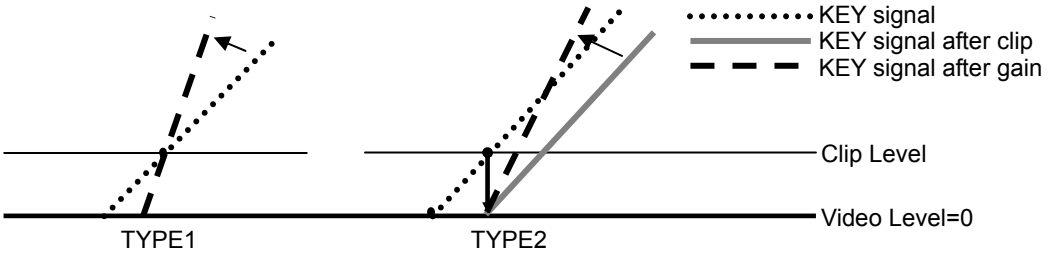
■ GAIN and CLIP (KEY-SOURCE/INSERT menu)

CLIP and GAIN are used to adjust how the key cut in the background is made and how the foreground (key insert) and background signals are combined together. This is done by setting the GAIN and CLIP parameters in each keyer menu.
First, adjust the clip to determine a rough key level where the background will be cut. Next, adjust the gain to adjust the degree of blurriness of the key edge section. Then, repeat the process of determining the clip again and adjusting the gain, and then determine the degree of key and background combination by viewing the screen.

■ KEYER MODE-GAIN (MU SETUP-MODE menu)

Processing type of the keyer gain clip can be set. Select the GAIN type at KEYER MODE - GAIN section in MU SETUP-MODE menu. Then press ENTER in the keypad to confirm the setting.

Parameter		Setting	Description
KEYER MODE	GAIN	TYPE1	This applies gain based on the clip value (default setting)
		TYPE2	This cuts the KEY signal up to the clip value, and then applies the gain



NOTE

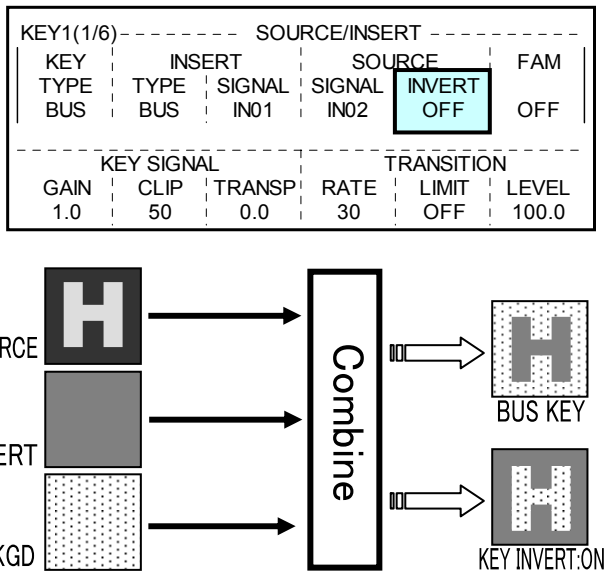
Note that CLIP, GAIN and FAM key settings will not be saved to Event Memory data, if INPUT (default setting) is set for KEYER MODE-SET of the MU SETUP - MODE menu. These setting data will be included with the system data. If you want to save the data to the Event Memory as a keyer data, change the setting to KEYER from INPUT.

5-8. Key Mask and Invert

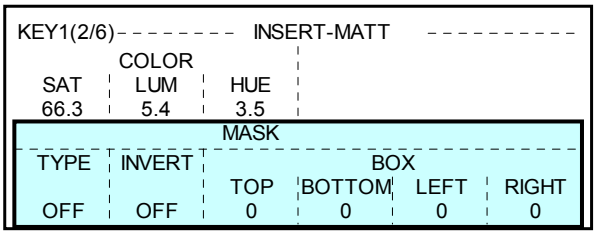
The HVS-3800HS/S has mask and invert functions that let you alter key appearance by only having part of the key appear or by reversing the polarity of the key signal, respectively.

5-8-1. Key Invert

When the SOURCE-INVERT option is set to ON, the key image and background image can be inverted.



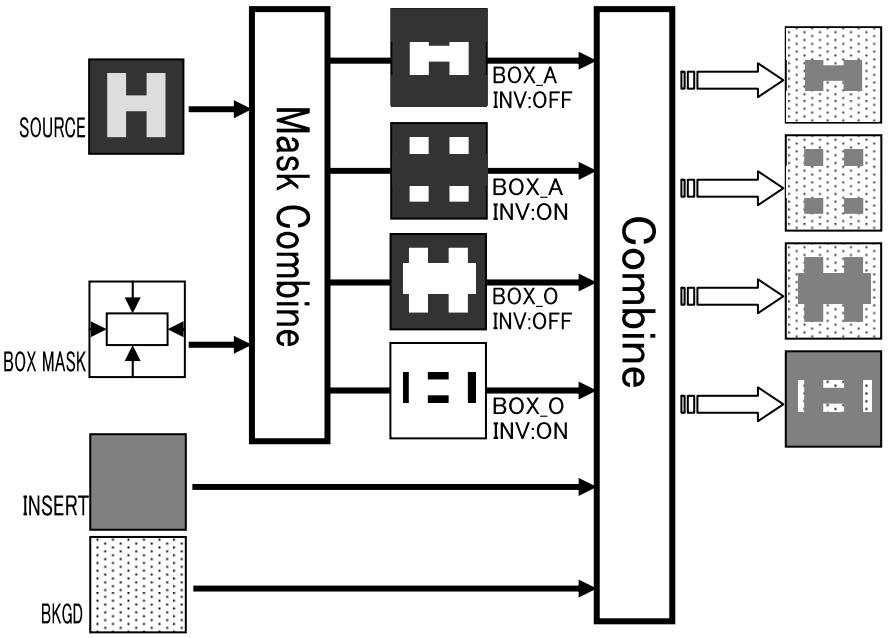
5-8-2. Box Mask



■ **BOX Mask**

The HVS-3800HS/S has a box mask function that can be used to hide parts of the key that fall outside the mask area. There is also an invert function that will cause parts of the key inside the mask area to be hidden if that is what you need.

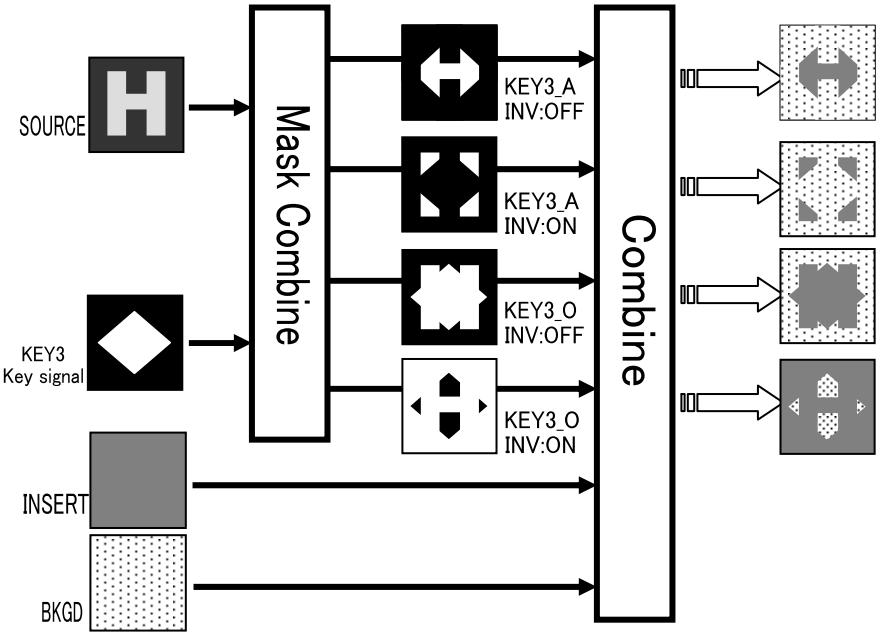
Parameter	Description
TYPE	BOX_A: The area where the key source and box mask overlap is used. (AND composite)
	BOX_O: Both areas of the key source and box are used. (OR composite)
INVERT	ON will hide areas covered by the mask.
TOP	This sets the top edge of the box mask.
BOTTOM	This sets the bottom edge of the box mask.
LEFT	This sets the left edge of the box mask.
RIGHT	This sets the right edge of the box mask.



◆ KEY3 Mask

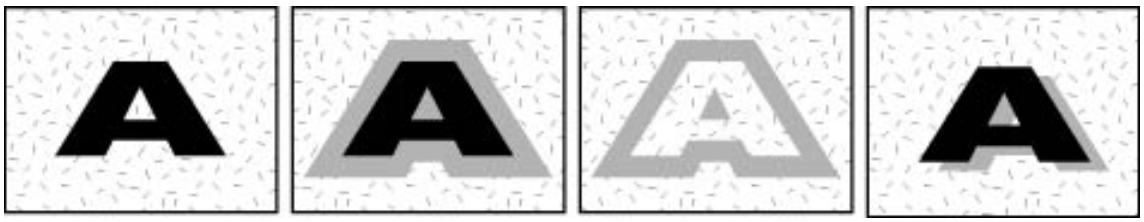
The procedure for using KEY3 as a mask is almost the same as when setting up a regular key box mask. Also, the KEY3 mask can be inverted to hide the inside of the KEY3 image.

Parameter	Setting	Description
TYPE	KEY3_A	The entire KEY3 mask area is set to background image. (AND composite)
	KEY3_O	The entire KEY3 mask area is set to key insert video. (OR composite)
INVERT	ON/OFF	Setting to ON inverts the KEY3 mask.



5-9. Edge and Shadow

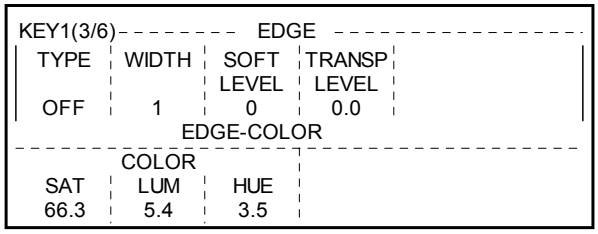
A colored edge and / or shadow can be added to KEY1 and KEY2.



Key w/o edge or shadow | Normal edge | Outline edge | Shadow

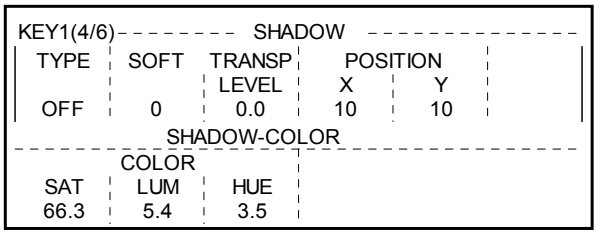
5-9-1. Edge

The edge application lets you adjust edge width, softness level, transparency and color. Outline is also possible in the edge settings.



Parameter	Description
TYPE	NOR: This adds a normal edge.
	O_LINE: This adds an outline edge.
WIDTH	This sets the edge width.
SOFT LEVEL	This sets the degree of key and edge softness.
TRANSP	This sets the edge transparency. Increasing the value makes the background appear more transparent.
COLOR (SAT, LUM, HUE)	This sets the edge color.

5-9-2. Shadow



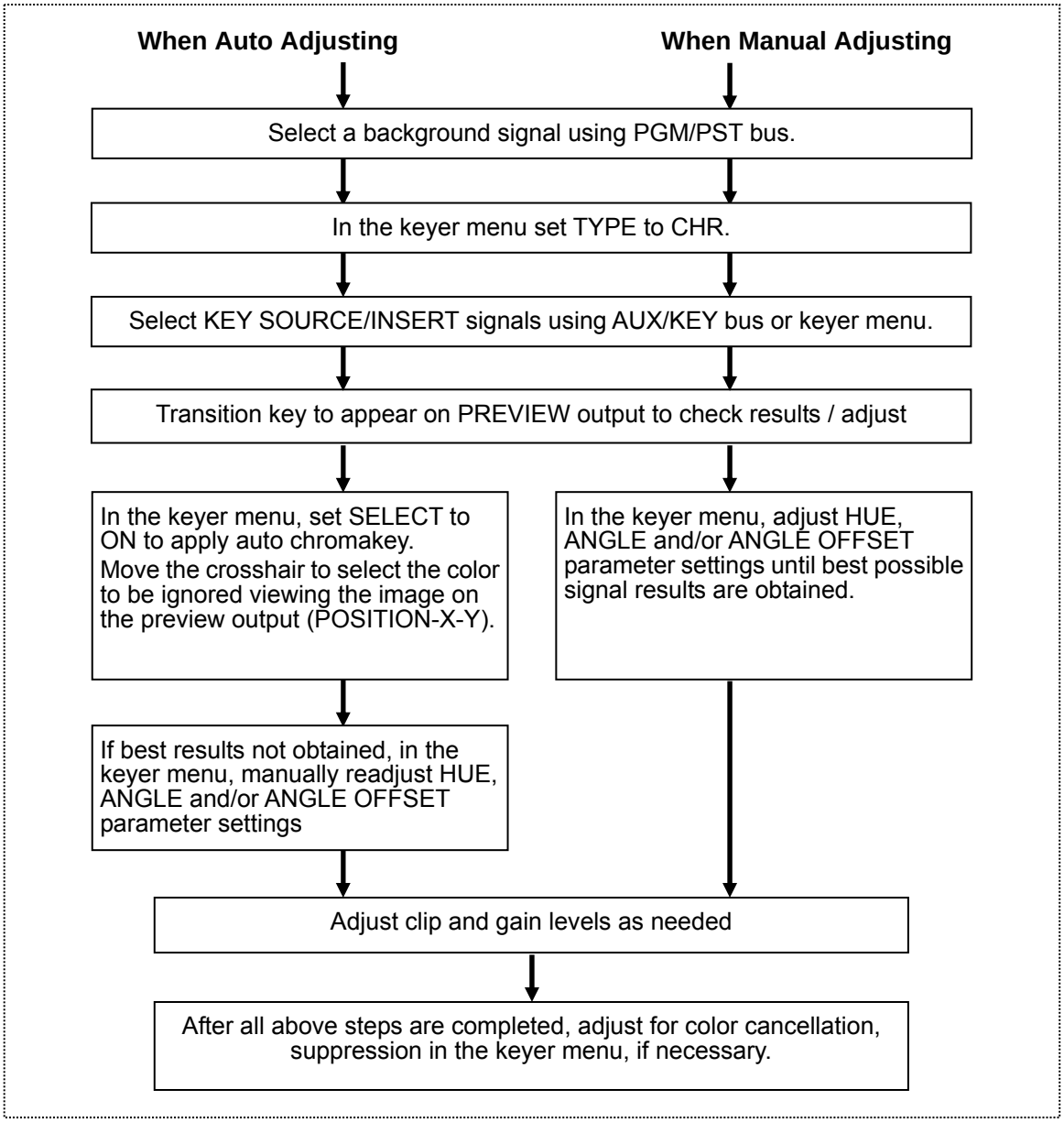
Parameter	Description
TYPE	Setting to ON adds a shadow.
SOFT	This sets the degree of softness of the shadow edge.
TRANSP LEVEL	This sets the shadow transparency. Increasing the value makes the background appear more transparent.
POSITION (X, Y)	This sets the shadow position and width.
COLOR (SAT, LUM, HUE)	This sets the shadow color.

5-10. Chromakeys

5-10-1. Chromakey Setup Flow

Chromakeys differ from regular keys in that the key is cut based on ignoring a certain color rather than signal levels. For example, if blue (the normally used back drop color in chromakey studios) is used, all blue areas in the source video are removed and video (CG or other picture) can be inserted to the areas where the blue previously appeared. In the HVS-3800 series switchers KEY1 and KEY2 support chromakey operations.
The following flow charts give general operational flow procedures when making and adjusting chromakey.

Chromakey Flow Example



The following section shows an example of creating a chromakey with the KEY1 AUTO CHROMAKEY menu and then using the MANUAL CHROMAKEY menu to make adjustments.

5-10-2. Auto Chromakey Setup

① Press a desired bus button in the PGM/PST bus section to select a background image.

② Press KEY1 button in the BUS SELECT section. Then press a bus button in the AUX/KEY bus section to select the Key Insert/Source pair signals for KEY1 using the Key Link function. You can also select the Key Insert/Source signals using the KEY1 menu. (Refer to section 5-6-4 or 5-6-4 for selecting key signals.)

③ Press the KEY1 button in the menu section to open the KEY1 menu. Set SOURCE-TYPE to CHR.

KEY1(1/6) — SOURCE/INSERT

KEY TYPE	INSERT TYPE	INSERT SIGNAL	SOURCE SIGNAL	SOURCE INVERT	FAM
CHR	BUS	IN01	IN01	OFF	OFF

KEY SIGNAL GAIN	KEY SIGNAL CLIP	KEY SIGNAL TRANSP	TRANSITION RATE	TRANSITION LIMIT	TRANSITION LEVEL
1.0	50	0.0	30	OFF	100.0

IMPORTANT

Once the CHR is selected, the INVERT, GAIN and CLIP parameters cannot be available.

④ Press the KEY1 button in the transition section to output KEY1 to the preview screen. If KEY1 is not output, press the PREV button in the menu to display the PREVIEW SELECT menu and set KEY1 to ON.

<HVS-16/24OUA>

Press the PREV button in the menu section.

<HVS-12ROUA>

Press the user button where the preview function is assigned. (See section 15-2. User Buttons.")

⑤ Either press the CK button or press the DOWN button repeatedly to display the AUTO CHROMAKEY menu as shown below.

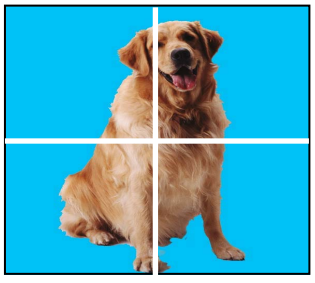
⑥ Set SELECT to ON to enable the auto chromakey. The X/Y crosshair lines should be visible on the PREVIEW output where the key is displayed. If you want the crosshair lines to also appear on the PROGRAM line output monitor, set the PGMOUT parameter to ON

KEY1(5/6) — AUTO CHROMA KEY

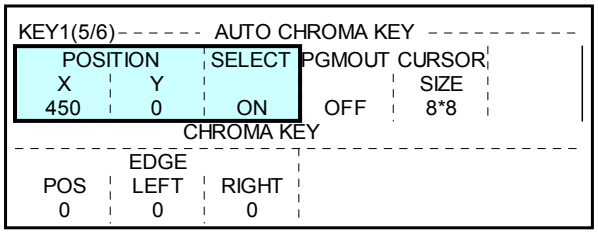
POSITION X	POSITION Y	SELECT	PGMOUT	CURSOR SIZE
0	0	ON	OFF	8*8

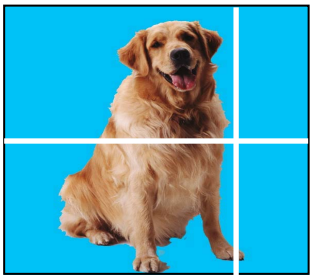
CHROMA KEY

EDGE POS	EDGE LEFT	EDGE RIGHT
0	0	0



⑦ The current crosshair position on the preview screen can be checked at the POSITION-(X,Y) parameters. Move the joystick upward/downward or clockwise/counter-clockwise to position crosspoint on color to be ignored. You can also set or finely adjust the crosshair position at POSITION-(X,Y) parameters





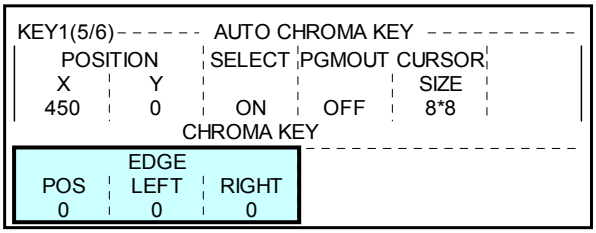
⑧ Move the joystick counter-clockwise with the Z button in the joystick lit to make a chromakey. Once the joystick is moved counter-clockwise, cursor selected color should be ignored and a chromakey should be automatically composited with background on the preview line output. Even if SELECT in the menu is set to OFF, the designated color is removed, and the chromakey can be created.

5-10-3. Chromakey Adjustment

If the results of your chromakey are still not the best possible, you may need to additionally adjust clip and gain levels to adjust the key cut parameters. You may also need to apply color suppression to get the optimum possible chromakey results. Color suppression settings let you adjust how color is cancelled and ignored when your chromakey is made.

■ Edge adjustment

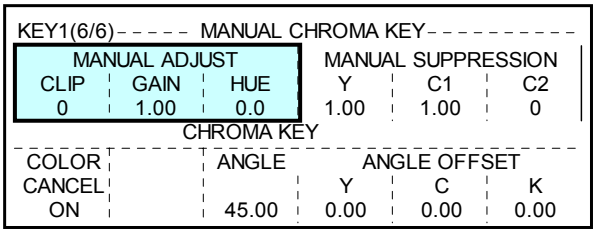
Fine adjustment can be performed for the key edges when they do not appear smooth. The EDGE item of the AUTO CHROMAKEY menu can be used to make settings. The settings can be made using POS or LEFT/RIGHT.



Parameter	Description	Setting range
POS	This moves the key process position to the right or left.	-3 to 3
LEFT	This widens or narrows the right-side key process position.	0 to 3
RIGHT	This widens or narrows the left-side key process position.	0 to 3

■ Clip and Gain

The CLIP and GAIN parameters at the MANUAL CHROMAKEY menu can be used to adjust how the key cut in the background is made and how the foreground (key insert) and background signals are combined together. Fine adjustment of the color can also be made in HUE. For details, refer to section 5-7. "Key Adjustments".



■ Chroma Angle

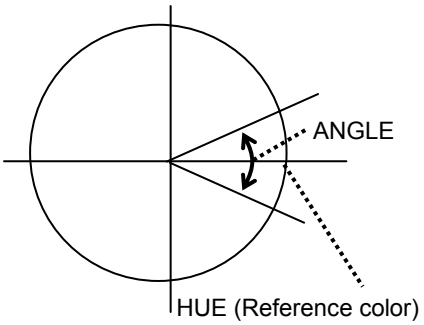
This determines the width of the color hue ignored by the ANGLE option. If the ignored color is not uniform, this angle should be adjusted to a wide setting. The ignored color is fine adjusted using the Y, C, and K options in ANGLE OFFSET.

KEY1(6/6) – – – – – MANUAL CHROMA KEY – – – – – – – – – –

MANUAL ADJUST			MANUAL SUPPRESSION		
CLIP	GAIN	HUE	Y	C1	C2
0	1.00	0.0	1.00	1.00	0

CHROMA KEY

COLOR CANCEL	ANGLE	ANGLE OFFSET		
		Y	C	K
ON	45.00	0.00	0.00	0.00



■ Color Cancel and Suppression

If there is a discoloration on the foreground subject caused by the spill light from the background color (normally blue), a blue fringe or tint may appear on the foreground subject. In this case, use the color cancellation to remove the spilled color as below. In this case, COLOR CANCEL is set to ON (default setting). Setting to ON turns the background color black and limits the spilling of background color into the foreground.

KEY1(6/6) – – – – – MANUAL CHROMA KEY – – – – – – – – – –

MANUAL ADJUST			MANUAL SUPPRESSION		
CLIP	GAIN	HUE	Y	C1	C2
0	1.00	0.0	1.00	1.00	0

CHROMA KEY

COLOR CANCEL	ANGLE	ANGLE OFFSET		
		Y	C	K
ON	45.00	0.00	0.00	0.00

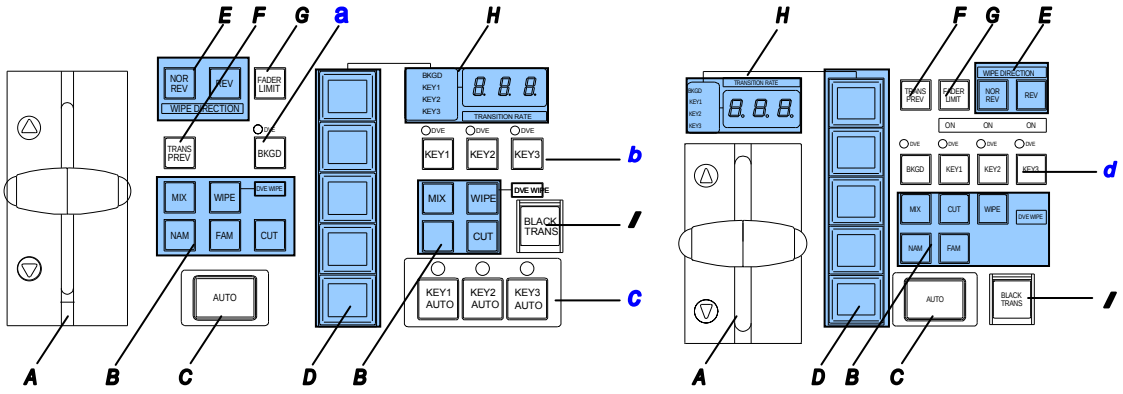
With the COLOR CANCEL to ON, use Y, C1, and C2 parameters respectively in SUPPRESSION to help eliminate and correct any color spill that may occur.

6. Transition Operations

The following transition features are available in this switcher:

- Black transitions (only M/E2)
- Background CUT, MIX, NAM, FAM, WIPE (DVE) transitions
- KEY1, KEY2 and KEY3 CUT, MIX (Normal, FAM and NAM) and WIPE (DVE) transitions
- Background transitions using the AUTO button or the fader lever
- Key transitions using the KEY AUTO button (HVS-16/24OUA only)
- 100 WIPE preset patterns and 120 DVE preset patterns available
- WIPE transitions can be used simultaneously with background and keyers either among KEY1, KEY2 and KEY3. (the same pattern applied)
- DVE transitions can be used simultaneously (different patterns available) in background, KEY1, KEY2 and KEY3. (depends on the number of DVE channels)
- Simultaneous transitions with the background and key using the TIE function

6-1. Transition Operation Section



Item	HVS-16/24OUA	HVS-12ROUA
A	Fader lever (KEY: TIE transition only.)	Fader lever
B	Transition type button	Transition type button
C	BKGD AUTO transition button	BKGD AUTO transition button
D	Selection of DVE and WIPE	Selection of DVE and WIPE patterns
E	WIPE/DVE direction control buttons	WIPE/DVE direction control buttons
F	Transition preview button	Transition preview button
G	Fader limit control button	Fader limit control button
H	Transition rate display for BKGD, KEY1-3	Transition rate display for BKGD, KEY1-3
I	Black transition button	Black transition button
a	Next transition selection button (TIE transition). They are used to designate the bus in pattern selection	-
b	Next transition selection button (TIE transition). They are used to designate the bus in pattern selection	-
c	KEY AUTO transition button	-
d	-	Next transition selection button. They are used to designate the bus in pattern selection.

IMPORTANT
The transitions are always performed simultaneously (TIE transitions) when selecting the background and keyer(s) at the same time for transition in HVS-12ROUA. In HVS-16/24OUA, Simultaneous (TIE) transitions can be performed only when the TIE transition setup is made. This section presents examples of transition operation using M/E2. Operation with M/E1 is almost identical.

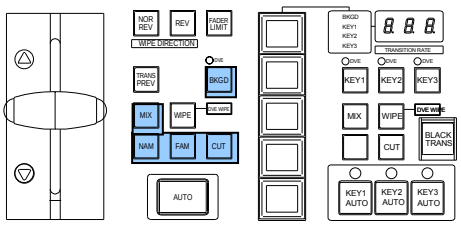
6-2. BLACK Transitions

Black transitions can be used in the M/E2 transition section. Pressing BLACK TRANS button in the Transition Control section will initiate a fade to (or fade from) black of whatever layers are currently on the program line (background and keys). How the transition is performed when pressing the button again after the transition is determined by the AUTO button operational setting in the MU SETUP menu. (See section 6-9-5. "AUTO Button Operational Setting.")
The transition time can be set under the AUTO TRANSITION RATE – BLACK item in the TRANSITION/BKGD menu.

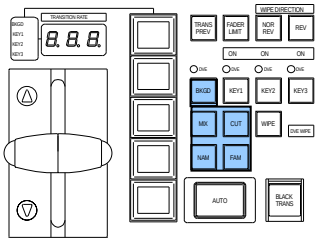
6-3. Background Transitions

In background transitions, three types of mix transitions can be used. In mix transitions, the images are overlapped and switched while the image before the transition gradually becomes lighter and the image after the transition becomes darker. In FAM transitions, two images are overlapped and switched with both at the 100% level. In NAM transitions, priority is given to output of the image with the higher luminance, and so it is effective for composing a screen with a black background. In pattern transitions, preset WIPE patterns and DVE patterns can be used. Preset patterns can also be modified.

6-3-1. CUT, MIX, FAM, and NAM Transitions



HVS-16/24OUA



HVS-12ROUA

① Select the transition type. Press one of the CUT, MIX, FAM, and NAM buttons to light it.

② Select the NEXT output video signal in the PST bus. In the M/E bus, the on-air (PGM) output bus button lights red, and the NEXT output bus button lights orange.

③ Use the fader lever or background transition AUTO button to execute the transition.

- The transition rate (transition time) can be used under the AUTO TRANS RATE – BKGD option in the TRANSITION/BKGD menu. It is enabled during AUTO button transition.
- The transition limit can be set in the FADER LIMIT – BKGD option in the TRANSITION/BKGD menu. It is enabled when the FADER LIMIT button is lit during fader transition.
- See section 6-3-2 and 6-9 for more details about WIPE and DVE transitions.

6-3-2. WIPE/DVE Pattern Transitions

In WIPE transitions and DVE transitions, preset patterns need to be selected. The patterns that can be selected in the transition section are the five types displayed on the five pattern buttons. The WIPE/DVE pattern transitions are executed using the procedure below.

① Press the WIPE button of the background transition. It lights orange.

② Select the NEXT output video signal in the PST bus. In the M/E bus, the on-air (PGM) output bus lights red and the NEXT output bus button lights orange.

③ Press the BKGD button to light it (in TIE mode).

④ Press the pattern button to light it, and then select the pattern. After the DVE pattern is selected, the DVE WIPE lamp lights up.

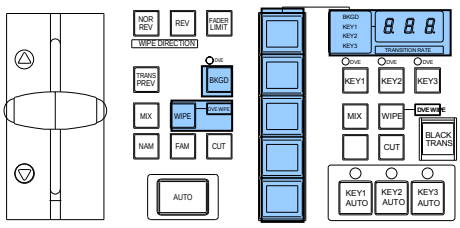
When the pattern you want to use is not displayed for the five pattern buttons in the transition section:

- Double-click one of the pattern buttons.
- The pattern menu is shown in the menu display.
- Turn the respective control (F1 to F5) to select the pattern that you want to use. You can also press the control button, enter the pattern number with the keypad, and then press ENTER.
- The pattern that you want to use is shown in the transition section.

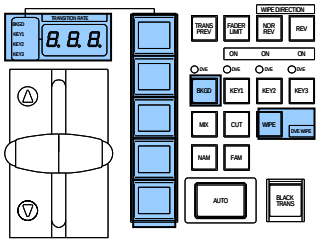
⑤ If necessary, set the transition direction using the WIPE DIRECTION option.

⑥ The BKGD text to the right of the pattern button lights up, and the transition rate is displayed. The transition rate is enabled during the AUTO button transition. If necessary, set the transition rate in the TRANSITION / BKGD menu. The default setting is 30 frames per second.

⑦ Execute the transition using the AUTO button or the fader lever.



HVS-16/24OUA



HVS-12ROUA

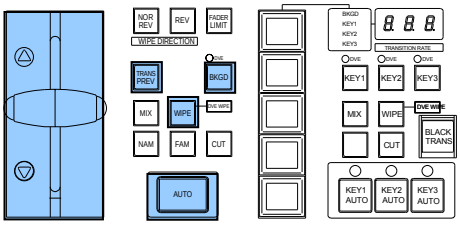
- For details about transition setup, refer to 6-9. "Other Transition Settings".
- The same procedure can also be used for transitions of modify patterns. The letter "M" is displayed above the modify pattern. For details about the modification method of the pattern, refer to section 6-7. "WIPE Pattern Modify" and 6-8. "DVE Pattern Modify".
- For details about selecting patterns, refer to section 6-6. "Selecting the Pattern".

6-3-3. Background Preview

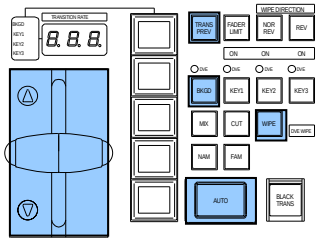
The TRANS PREV button in the transition section can be used to check the background transition using PREV output. In this example, we set a WIPE/DVE transition, and check the next transition.

① Press the WIPE button to light it. Press the BKGD button to light it. Press a pattern button to select a pattern.

② Use the fader lever or AUTO button to execute a transition while holding down the TRANS PREV button. The transition is executed in the PREV screen.



HVS-16/24OUA



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NOTE
While the TRANS PREV button is held down, the PGM output background video is displayed on the PREV screen. The key is not displayed even if it is set to ON in the PREVIEW menu. If the TIE function is set to ON, the transition for the linked key can be confirmed. The preview operation does not function during the background transition.

6-4. Key Transitions

The key transition operation is described here using the M/E2 KEY1. When a fill signal and key signal are input to IN01 and IN02 of the MU rear panel, the keys are set as shown below.

① Press the KEY1 button in the M/E2 group of the menu section to display the KEY1 menu.

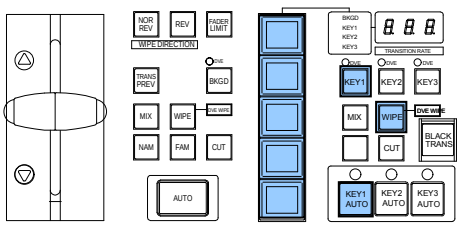
② Use the UP/DOWN button to align the cursor with the top row of the KEY1(1/6) menu.

③ Use KEY TYPE, INSERT-TYPE, INSERT-SIGNAL (fill signal), and SOURCE-SIGNAL (key signal) to confirm that the selections are made as shown in the figure below. If the settings are different, turn the respective control button (F1 to F4) to make the settings below.

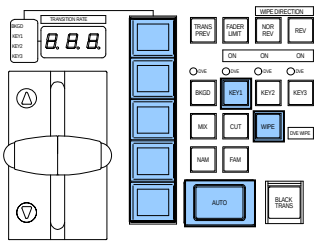
KEY1(1/6)	SOURCE/INSERT				
KEY TYPE	INSERT TYPE	INSERT SIGNAL	SOURCE SIGNAL	INVERT	FAM
BUS	BUS	IN01	IN02	OFF	OFF

KEY SIGNAL			TRANSITION		
GAIN	CLIP	TRANSP	RATE	LIMIT	LEVEL
1.0	50	0.0	30	OFF	100.0

④ Press the KEY1 button in the transition section to light it. For a CUT transition, press the CUT button to light it. For a MIX transition, press the MIX button to light it. For a pattern transition, press the WIPE button as shown in the figure below, and then use the left pattern buttons to select a pattern. The DVE WIPE lamp turns on when a DVE pattern is selected.



HVS-16/24OUA



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⑤ Execute the transition.

<HVS-16/24OUA>

Press KEY1-AUTO. If the key is on-air, the lamp on the KEY1-AUTO button lights.

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Press AUTO. If the key is on-air, the ON lamp on the KEY1 button lights.

- For details about key setup, refer to sections 5-6. "Key Setup", 5-7. "Key Adjustments", and 5-8. "Key Mask and Invert".
- For details about transition setup, refer to sections 6-9. "Other Transition Settings" and 6-9-8. "DVE patterns and number of channels".
- The same procedure can also be used for transitions of modify patterns. The letter "M" is displayed above the modify pattern. For details about the modification method of the pattern, refer to sections 6-7. "WIPE Pattern Modify" and 6-8. "DVE Pattern Modify".
- For details about selecting patterns, refer to section 6-6. "Selecting the Pattern".

6-4-1. FAM and NAM Transitions for Keyers

The FAM and NAM transitions for keyers are available with menu setting.（The hardware version for M/E1 and M/E2 must be 02-00 or higher.）

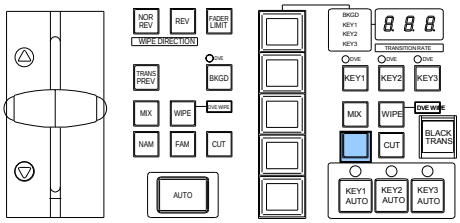
■ **Making FAM and NAM Transitions Available**

Change the KEYER FAM/NAM item in the OU SETUP - MODE (2/2) menu from DISBLE (DISABLE) to ENABLE.

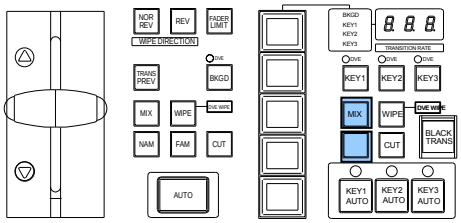
■ **Performing FAM or NAM Transition（HVS-16/24OUA）**

FAM transition: Use the button without label in the key transition section. (See the figure left-below.)

NAM transition: Use both MIX and the button without label at the same time in the key transition section. (See the figure right-below).



FAM (HVS-16/24OUA)



NAM (HVS-16/24OUA)

■ **Performing FAM or NAM Transition（HVS-12ROUA）**

Use the FAM or NAM button in the transition section.

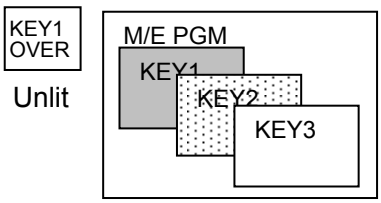
NOTE
The FAM or NAM transition is not available when LINE DVE is applied to keyer. The FAM or NAM transition type cannot be selected by GPI.

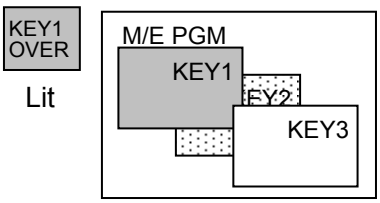
6-4-2. Changing the Key Priority

The priority can be changed for KEY1 and KEY2 only. KEY3 is fixed at the topmost layer.

■ **Changing the KEY1 and KEY2 priority（HVS-16/24OUA）**

Press the KEY1 OVER button in M/E1 or M/E2 in the menu section to light it. This enables KEY1 to move to the layer above KEY2. To move KEY2 to the layer above KEY1, press the KEY1 OVER button to turn it off.





■ **Changing the KEY1 and KEY2 priority（HVS-12ROUA）**

Assign the KEY1 OVER function to a user button and then press this function assigned user button. KEY1 will move above KEY2. (The user button turns on.) Pressing the button again to move KEY2 above KEY1. (The user button turns off.)

6-4-3. Key Preview

Confirmation of key setup and transitions are performed using the procedure below.

■ Signal confirmation

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To confirm the KEY1 setup in M/E1, press M/E1KEY1 in the BUS SELECT section to light up the key insert (fill) signal on the AUX/KEY bus section. Press M/E1KEY1 (with SHIFT lit) to light up the key source signal on the AUX/KEY bus section.

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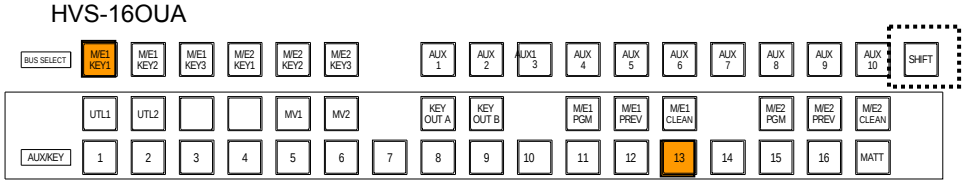
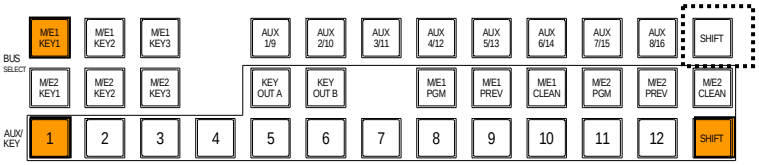


HVS-12ROUA



<HVS-24OUA>

To confirm the KEY1 setup in M/E1, press KEY1INS in M/E1 of the BUS SELECT section to light up the insert (fill) signal on the AUX/KEY bus section. Press KEY1SRC to light up the source signal on the AUX/KEY bus section.

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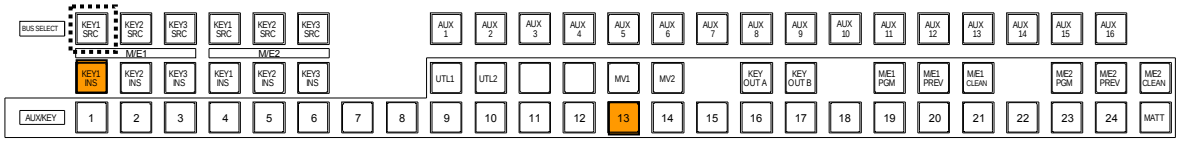
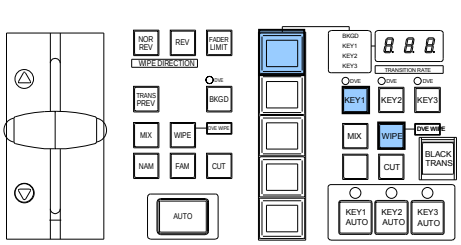
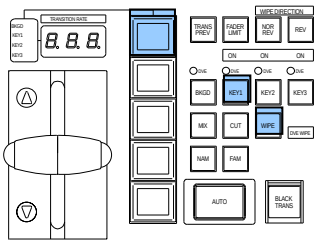


■ Transition setting confirmation

The key button that you want to check from KEY1, KEY2, and KEY3 buttons in the transition section is pressed to light it. The transition type button that was set is lit. If set to WIPE, the selected pattern button is lit.



HVS-16/24OUA



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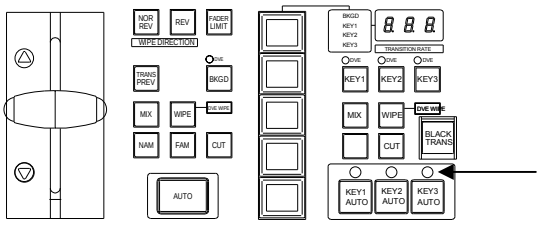
■ On-air confirmation

<HVS-16/24OUA>

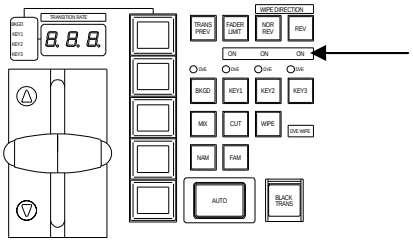
When the lamp above the KEY1 AUTO, KEY2 AUTO, or KEY3 AUTO is lit, the signal is on-air.

<HVS-12ROUA>

When the ON lamp above the KEY1, KEY2, or KEY3 is lit, the signal is on-air.



HVS-16/24OUA



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■ **Next output confirmation**

The video after the transition in the preview output screen can be confirmed. The preview output setting is made using the PREVIEW menu. For details, refer to section 5-5-2. "Selecting Preview Output". If the TIE function is set to ON, the transition of the key that is linked can also be confirmed (section 6-3-3. "Background ").

6-5. Simultaneous (TIE) Transitions

IMPORTANT
The transitions are always performed simultaneously (TIE transitions) when selecting the background and keyer(s) at the same time for transition in HVS-12ROUA. In HVS-16/24OUA, Simultaneous (TIE) transitions can be performed only when the TIE transition setup is made. This section presents examples of transition operation using M/E2. Operation with M/E1 is almost identical.

6-5-1. HVS-16/24OUA

By using TIE function, multiple layers (buses), such as background and keys, can perform a transition simultaneously. This is performed in the following way.

① Open the FADER submenu from the OU SETUP menu. Set the TIE option to ON. When the TIE function is set to ON, the BKGD, KEY1, KEY2, and KEY3 buttons in the transition section change to TIE mode.

② Set the transition types for the BKGD, KEY1, KEY2, and KEY3 buses. Select the pattern if using a WIPE/DVE transition.

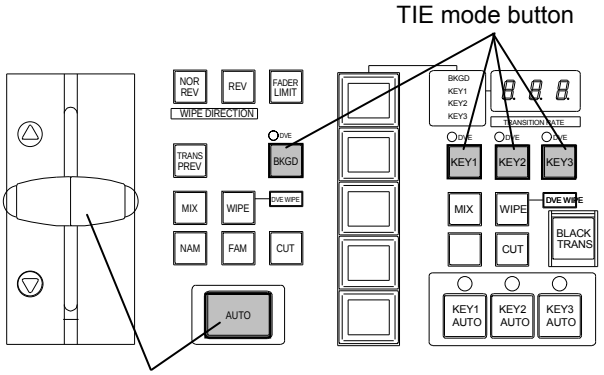
NOTE
The WIPE pattern can be applied to two buses at the same time, but it must be the same pattern. The DVE pattern can be applied to two or more buses, but it is limited to the available number of DVE channels. For details, refer to section 6-9-8. "DVE patterns and number of channels".

③ If necessary, set the transition rate, transition direction, and other parameters. For details, see 6-9. "Other Transition Settings".

④ After the transition settings are complete, check the image after transition in the Preview screen. For details about the Preview settings, refer to section 5-5-2. "Selecting Preview Output" and section 6-3-3. "Background Preview."

⑤ Press the TIE mode buttons where you want the TIE transition to be performed to light the button.

⑤ Use the fader lever or the AUTO button to perform the TIE transition. The selected buses perform the transition at the same time.



Fader lever or AUTO button is used to execute the TIE transition.

6-6. Selecting the Pattern

The pattern transition can be executed simultaneously for multiple buses. In this case a pattern must be set for each bus before execution of the transition. This section describes the procedure for selecting the pattern.

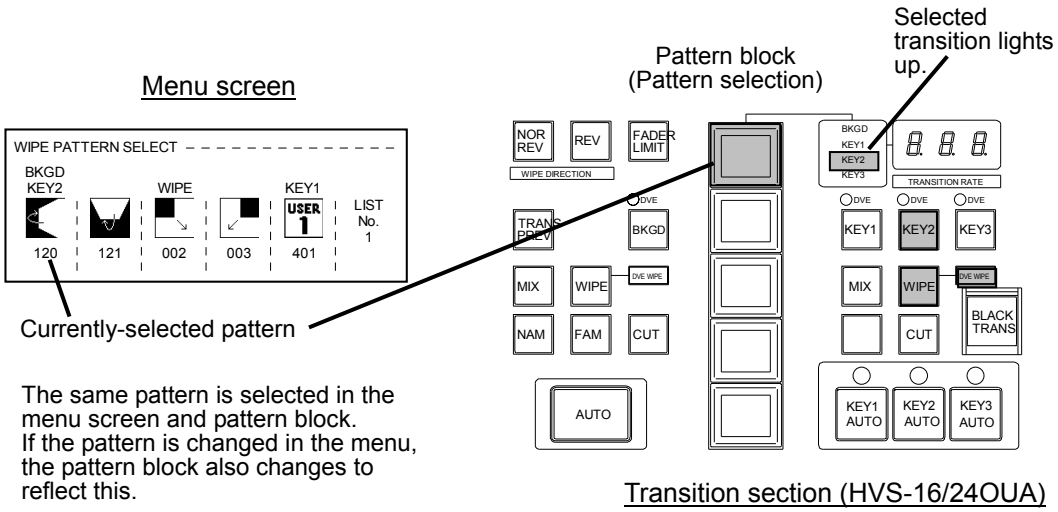
6-6-1. Selecting the Pattern

■ Bus that selects the pattern

Press the transition button from BKGD, KEY1, KEY2, and KEY3 so that the bus indicator next to the transition rate lights up. Next, press the WIPE button to light it, and set the transition type to WIPE so that the selected transition lights up at the right of the pattern block. (When a DVE pattern is selected for the pattern, the DVE WIPE lamp next to WIPE lights up.)

■ Selecting the pattern

Five pattern buttons are provided in the pattern block of the transition section. Press one of these pattern buttons to select a pattern. Also, double-clicking the pattern button displays the WIPE PATTERN menu on the screen. (The WIPE PATTERN menu can also be displayed by pressing the WIPE PATT button in the M/E1 or M/E2 group of the menu section.)
Currently, these five patterns are displayed in the transition section. The currently selected patterns are lit in the pattern block. In the example below, KEY2 is the No. 120 pattern and is set to DVE transition. When the TIE is OFF, the pattern selection can be made only when holding down a keyer button (KEY1, KEY2 or KEY3).

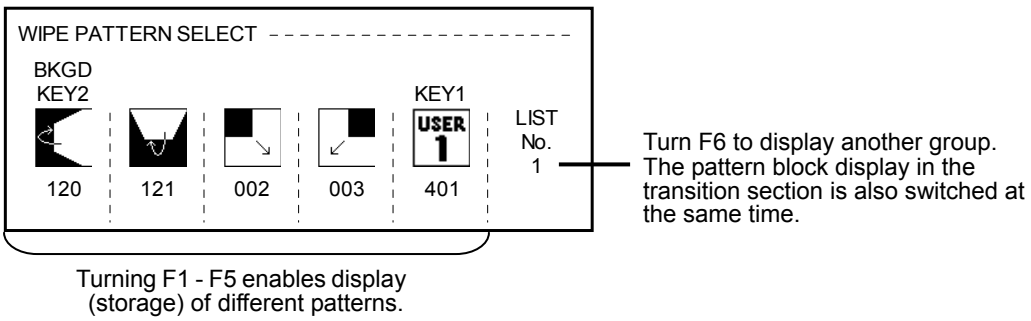


Displaying the pattern you want to use in the pattern block

The patterns displayed in the menu screen can be easily changed. Turning controls F1 to F5 enables the patterns for the respective blocks to be changed. When the patterns are changed here, the patterns are changed simultaneously in the transition section. In this way, 100 WIPE patterns, 120 DVE patterns, and 50 user patterns can be selected.

Pattern setup

In the WIPE PATTERN menu, 5 groups for a total of 25 patterns (1 group = 5 patterns) can be stored. In the default settings, Nos. 0 to 24 are stored. Turning F6 in the WIPE PATTERN list menu enables the group to be switched. When the group is switched, the pattern block display is also changed. For details about the available patterns, refer to the pattern list in the appendix at the end of this manual.



Patterns used in other transitions are also selected in the same way.

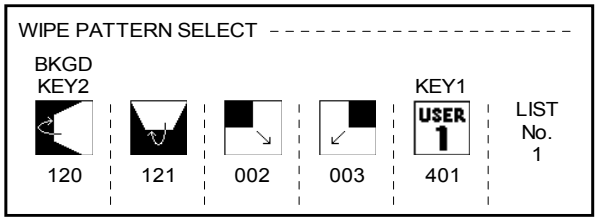
IMPORTANT
Note that only one WIPE pattern can be selected at a time, and so if the WIPE pattern is changed in another transition, the WIPE pattern in the previously-selected transition is also changed. Also, because the number of available simultaneous channels is predetermined for the DVE pattern (refer to section 6-9-8. "DVE patterns and number of channels"), when a setting is made that exceeds the number of channels used, the WIPE button does not light up. In this case, make the settings after canceling the bus that was already assigned to the DVE. The 2-channel DVE patterns designated by pattern numbers 200 to 219 can be used in the background, but that cannot be used with a key.

◆ Transition Type Auto Change

If the switcher is changed to EDIT mode (by selecting EDIT for the BUTTON CTRL item in the OU SETUP-MODE(1/2) menu), the transition type is automatically changed to WIPE or DVE by selecting a pattern button.

6-6-2. Pattern Confirmation

The currently selected pattern is displayed above the pattern icon in the WIPE PATTERN menu. The transition selected above the pattern icon (BKGD, KEY1, KEY2, and KEY3) is displayed.



The following patterns are selected in the example above.

BKGD pattern: No. 120
KEY1 pattern (user pattern): No. 401
KEY2 pattern: No. 120

Once a pattern is assigned to a transition, that pattern is applied until it is changed. Even when the transition type is changed to MIX, once the setting is returned to WIPE (DVE), the previous patterns are applied.

6-7. WIPE Pattern Modify

The WIPE preset pattern can be modified. The preset pattern can be changed by selecting the pattern and then modifying it with the MODIFY menu. To modify a pattern, select it in the transition section.

6-7-1. Opening the WIPE MODIFY Menu

① Press the WIPE button in the M/E2 (or M/E1) BKGD transition section or KEY transition section to light it.

② Select the WIPE pattern to be modified from the pattern buttons in the transition section.

③ Open the WIPE MODIFY menu and modify the selected pattern.

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Press the WIPE MODI button in the M/E2 (or M/E1) menu select section. Next, use the POS, EDGE, BORDER, and EFFECT buttons in the SYSTEM group to display the MODIFY menu.

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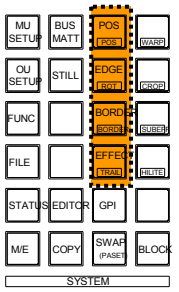
Press WIPE/DVE MODIFY in the M/E2 (or M/E1) group of the menu section. The button will light up. And then press WIPE-MOD in the KEYPAD section to display the Modify top menu. (The button will light up orange.) Press F1 to select a submenu to be displayed, then press F1 to display the Modify submenu.



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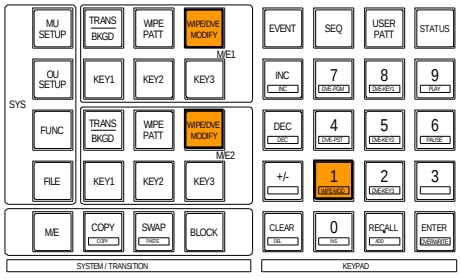

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④ Modify the pattern. For details about the WIPE MODIFY menu, refer to section 6-7. "WIPE Pattern Modify".

⑤ After the WIPE pattern is modified, an "M" is added before the pattern number in the WIPE PATTERN menu. In the same way, an "M" is added to the icon over the pattern block of the transition section. This modified pattern can be used in the same way as a preset pattern.

IMPORTANT
Once a pattern that was modified in the WIPE PATTERN menu is erased from the pattern list, the modified information is lost. Even if you register the same pattern again, the pattern parameters are all returned to their default values. It is recommended that important modified data be backed up to the event memory or a memory card. For details about backup procedures, refer to section 12-2, "Saving Events" and section 13-2 "Saving Data to CF Cards."

6-7-2. WIPE MODIFY Menu

When modifying a WIPE pattern, changes can be made to the WIPE position or movement angle, multi-wipe, aspect ratio, edges, borders, and mosaic and other subeffects. The parameters that can be set are shown in the table below.

Menu button	Menu			Description (Setting)	
POS	POSITION (*1)	X, Y		X-axis and Y-axis wipe center axis offset	
		ANGLE		Movement angle offset	
	MULTI	X, Y		Number of divisions in the X-direction and Y-direction during multi-wipe	
	ASPECT			Pattern aspect ratio	
	SOFT			Boundary edge softness setting	0: Hard edge
	ANGLE SPIN			Angle auto-move setting	
EFFECT	TYPE			Effect types	MOSAIC, MONO, PAINT, NEGA, SEPIA
	LEVEL			Effect level set by TYPE	1 to 16 (MOSAIC, PAINT only)
	INVERT			Effect invert ON/OFF set by TYPE	
EDGE	EDGE	TYPE		Edge type	OFF: No edge SQU: Square edge SAW: Saw tooth edge RIP: Wavy edge
		MODE		Edge effect direction	
		AMP (*2)		Edge height	
		FREQ (*2)		Edge pattern frequency	
		POS		Edge base position	
		POS MOVE		Position auto-move setting	
BORDER	BORDER	SELECT		Border ON/OFF	
		SIGNAL		Signal used for border	
		WIDTH		Border width	
		COLOR	SAT LUM HUE	Colors used for border	

* Some parameter setting cannot be changed depending on the WIPE pattern. The value cannot be changed when NONE is displayed.

(*1) The WIPE POS in the joystick section is a shortcut to the POSITION parameter. Clicking the button enables changes to be made using the joystick without opening the menu. Double-clicking moves to the menu fader effects.

(*2) Flicker can occur in the effects for certain AMP and FREQ settings. Therefore, be careful when making the settings.

6-7-3. Re-initializing WIPE MODIFY Menu

The WIPE MODIFY menu can be returned to the default settings using one of the following ways.

■ **Removing the modified preset patterns from the menu**

Use the WIPE PATTERN menu or PATTERN SELECT menu to remove the modified patterns from the WIPE PATTERN list (5 groups of 25 total patterns). All modified data of the pattern is lost, and even if the pattern is selected again, the setting values are returned to their defaults.

■ **Holding down the DEF button while the WIPE POS button is lit**

If a modified pattern is being used, holding down the DEF button while the WIPE POS button next to the joystick is lit will return all modified data to the default settings.

■ **Using the USER button**

The WIPE MODIFY RESET function is assigned to the USER button (refer to section 15-2. "USER Buttons"). When the button is pressed, the currently-selected WIPE pattern is returned to the default settings.

■ **Using INIT item in the WIPE MODIFY top menu（HVS-12ROUA only）**

In the WIPE MODIFY top menu, turn F6 to select ALL, POS, EDGE or BORDER from OFF. Then press F6 to return the selected items to the default settings.

6-8. DVE Pattern Modify

The DVE preset patterns can be modified. To modify a pattern, select the pattern in the transition section, and then set the modifier in the DVE MODIFY menu.

6-8-1. Opening the DVE MODIFY Menu

① Press the WIPE button in the M/E2 (or M/E1) BKGD transition section or KEY transition section to turn on the button light.

② Select the DVE pattern (100 to 120, 401 to 450) to be modified from among the pattern buttons in the transition section. When the DVE pattern is selected, the DVE light at the side of the WIPE button is turned on.

③ Open the DVE MODIFY menu and modify the selected pattern.

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Select the bus to which the modify settings are to be applied from the (DVE-PGM, DVE-PST, DVE-KEY1, DVE-KEY2 or DVE-KEY3) menu button in the M/E2 (or M/E1) section of the menu section. Next, display the modify menu using the POS, ROT, BORDER, TRAIL, WARP, CROP, SUBEFF or HILITE button in the SYSTEM group.

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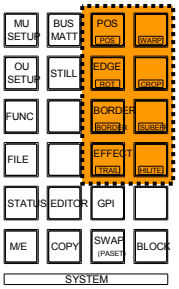
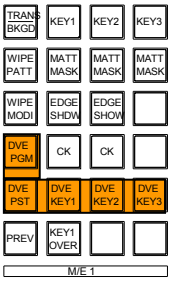
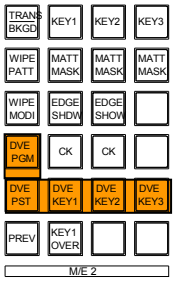
Press WIPE/DVE MODIFY in the M/E2 (or M/E1) group of the menu section. The button will light up. And then press a button (DVE-PGM, DVE-PST, DVE-KEY1, DVE-KEY2 or DVE-KEY3) in the KEYPAD section to display the Modify top menu of the selected bus. If the button lights up green, press the button again to change it to orange. Press F1 to select a submenu to be displayed, then press F1 to display the Modify submenu.







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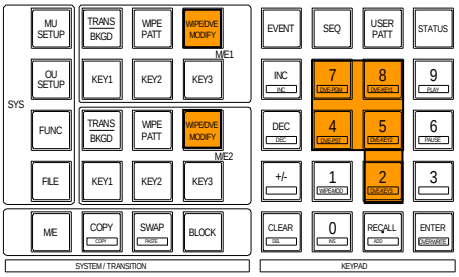

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NOTE
DVE preset patterns with numbers in the 200s are 2-channel patterns. When these patterns are to be modified, the PGM or PST bus must be allocated for each channel. Furthermore, when DVEs are assigned to a multiple number of buses, first select the pattern and select the bus, and then proceed with the modify settings.

④ Modify the pattern. For details on DVE MODIFY, refer to section 8. "DVE MODIFY".

NOTE
If a DVE pattern has not been selected in the transition section or if the DVE pattern cannot be assigned to the selected bus, the menu button will not light even when the button is pressed, and the DVE MODIFY menu will not be displayed.

⑤ On the WIPE PATTERN menu, the letter "M" is added in front of the number of the DVE pattern for which a modify setting has been performed. Similarly, the letter "M" is added to the icon on the pattern block of the transition section. This modify pattern can be used in the same way as a preset pattern.

NOTE
If two or more identical patterns have been registered on the WIPE PATTERN list, it is possible to use standard preset pattern and modify patterns or different modify patterns. Once a DVE pattern for which a modify setting has been performed on the WIPE PATTERN menu is deleted, the modify information is lost. Even if the same pattern is registered again, all the parameters of the pattern are returned to their defaults. It is recommended that the required modify data be backed up in the event memory or on the memory card while the work is being carried out. For details on how to back up the information, refer to section 12-2, "Saving Events" and section 13-2 "Saving Data to CF Cards."

6-8-2. Channels and Keyframes

When modifying DVE patterns, pay attention to the channels and keyframes.

■ **Keyframes to which the patterns are applied**

Depending on the effect concerned, in some cases a modified pattern is automatically applied to all keyframes and in other cases it is applied to the last keyframe (or first keyframe when REVERS is selected for the KF DIR item on the FUNCTION-DVE SETUP menu). Refer to the table below.

Keyframe to which the patterns are applied	Effects (parameters)
Last or first keyframe	POS (X,Y), SIZE (X,Y) GLOBAL POSITION (X,Y,Z), GLOBAL ROTATION (X,Y,Z), LOCAL POSITION (X,Y,Z), LOCAL ROTATION (X,Y,Z)
	FADE, WARP LEVEL
All keyframes	CROP, WARP TYPE, BORDER, HILITE, SHADOW, MONO, PERSP, NEGA, MOSAIC, PAINT, DEFOCUS, FREEZE, STROBE

6-8-3. EDIT Mode

When exercising control from an editor, it is more convenient to change to the EDIT mode first. Change the BUTTON CTRL item on the OU SETUP - MODE menu from LIVE (factory default setting) to EDIT. The main differences between the LIVE and EDIT modes are listed below.

Display information	LIVE	EDIT
Modify pattern number displayed	Preset button number with "M" added	M511 to M555 (M5 + list group number + list number)
Change transition type during transition	Not available	Available
Transition type auto-change by selecting a WIPE (DVE) pattern button	Not available	Available
Transition auto-start by deselecting FADER LIMIT	Not available	Available

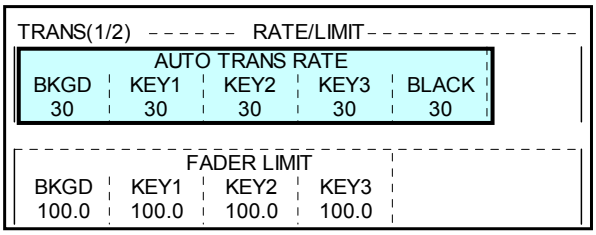
6-9. Other Transition Settings

6-9-1. Transition Rate

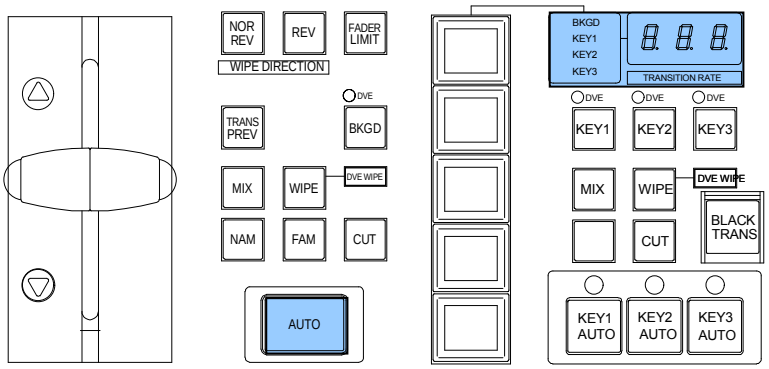
The transition rate setting determines how long your transition takes in picture frames to electrically complete. (Factory default is 30 frames.)

① Press the TRANS/BKGD button to display the TRANS(1/2) menu.

② Change the AUTO TRANS RATE value.
Check the transition rate display shown above the AUTO button.



③ Press the AUTO button to execute the transition.



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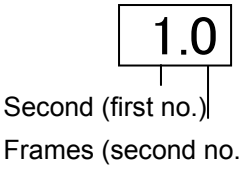
OPERATIONAL NOTE

You can set the transition rate to be displayed in either seconds or frames. This setting is made at RATE TYPE in the OU SETUP- MODE menu. Default setting is SEC. If you set to FRAME, a figure similar to at right should be displayed at the transition section.



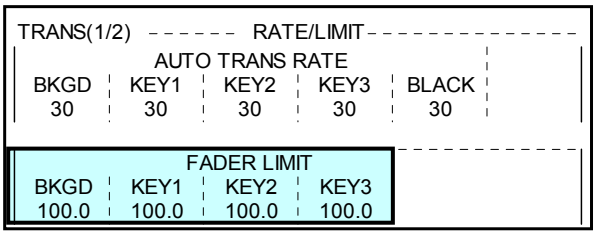
Transition rate setting will be applied during background and key transitions whenever AUTO button in the transition section is pressed to initiate automatic transition between output pictures. When moving fader lever to perform transition manually, rate will not be applied.

6-9-2. Fader Limit (Transition Limit)

The fader limit setting determines how far your transition does or does not proceed electrically. When performing transitions (mix or other) there may be times when you want the transition to the next signal to only complete to a certain degree instead of fully switching from one picture to another. In this case, you will need to limit the transition range of the fader lever process. The fader limit setting procedure for each signal layer is described below.

① Press the TRANS/BKGD button in the M/E2 (or M/E1) section to display the TRANS(1/2) menu. Press the DOWN button to move the cursor downward.

② Select the bus from the FADER LIMIT item, and change the value. With a key, the value can be changed on either the TRANS menu or KEY menu.



③ Press the FADER LIMIT button in the transition section to turn on the button light.

④ Move the fader lever or press the AUTO button to execute the transition. The transition finishes at the position where the fader limit has been set.

QUICK SET

You can quick set fader limit for the background transition by first physically setting the fader lever to the point that you want a translation to finish. With the fader at this position, press and briefly hold down the FADER LIMIT button. This will become the current electrical value at the fader position as the FADER LIMIT setting.

Transition is automatically performed by deselecting the FADER LIMIT button, when BUTTON CTRL in the OU-SETUP-MODE(1/2) is set to EDIT.

■ Showing / Hiding Fader Limit (Transition Limit)

You may select to show or hide the fader limit (transition limit) display for keyers. To hide the display, change the KEYTRS MENU item to HIDE from SHOW in the OU SETUP-MODE (2/2) menu.

6-9-3. Fader Operational Settings

■ Transition Operation Settings for Fader Lever

The following two types of fader lever operations can be selected for the transition level. This can be set on the TRANS CTRL in the MU SETUP-MODE menu.

TRANS CTRL Setting	Description
REG (regular)	Detects the transition level using the normalized operation of the fader lever. (Default).
ABS (absolute)	Detects the transition level using the absolute position of the fader lever.

■ **Offset for Fader Lever**

The offset for the fader lever can be adjusted in the FADER item on the OU SETUP - FADER menu. It is also possible to enable the fader's TIE function (refer to section 6-5. "Simultaneous (TIE) Transitions").

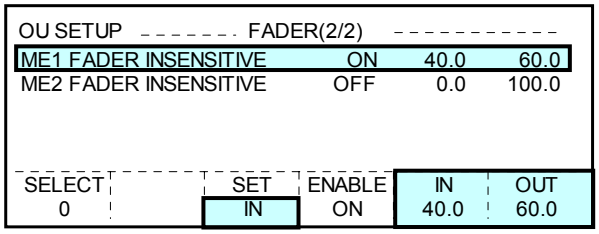
Parameter		Description	Default	Setting Range
FADER OFFSET	LOW	Offset of bottom part of fader lever	1.00	0.00 to 1.00
	HIGH	Offset of top part of fader lever	1.00	0.00 to 2.00
TIE		Fader TIE function setting	OFF	ON, OFF

6-9-4. Fader Insensitive Region

The fader insensitive (flat) region can be set during transition. This setting can be made for each M/E.

① Press the OU SETUP button to display the OU SETUP top menu.

② Turn F1 to select 4.FADER, press F1 or the DOWN button to open the FADER menu, and then press the DOWN button to go to the FADER(2/2) menu.



③ Turn F1 under the SELECT item to select 0. The cursor goes to the M/E1 fader setting. If 1 is selected, the cursor goes to the M/E2 fader setting.

④ Move the fader lever to the starting point of an insensitive region. Change the SET item to IN, then press F3 to set the current fader position to the beginning of the region. You can also set it manually by turning F5 to select a number and pressing F3.

⑤ Move the fader lever to the starting point of an insensitive region. Change the SET item to OUT, then press F3 to set the current fader position to the end of the region. You can also set it manually by turning F6 to select a number and pressing F3.

⑥ Change the ENABLE item to ON, then press F4 to apply the setting.

Parameter		Default	Setting Range	Description
SELECT		0	0, 1	Selects M/E
SET		IN	IN, OUT	Selects IN (beginning) or OUT (end).
ENABLE (*1)		OFF	OFF, ON	Enables/Disables insensitive region.
POINT	1	0.0	0.0 to 100.0	Sets starting position.
	2	100.0	0.0 to 100.0	Sets end position.

NOTE

Insensitive region is effective in all transitions (MIX, NAM, FAM, WIPE and DVE). It is not effective, however, in auto transition (by using the AUTO button).

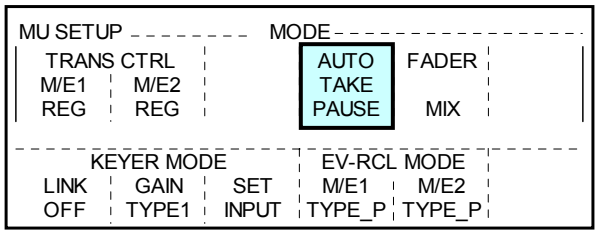
Insensitive region is not effective when the TIE is ON.

6-9-5. AUTO Button Operational Setting

The AUTO transition behavior when the AUTO button is pressed again during transition can be selected among the following three types. The operation performed when the AUTO button is pressed during an AUTO transition is changed. Operate as follows.

① On the MU SETUP top menu, turn control F1, and select 4. MODE.

② Press F1 or the DOWN button to display the MU SETUP - MODE menu.



③ F4, and select the AUTO button operation type using one of the AUTO TAKE item settings.

AUTO TAKE Setting	Description
PAUSE (initial setting)	Suspends the transition.
CUT	Terminates the transition.
RETURN	Brings the transition back to the starting point.

6-9-6. CUT Transitions Using the Fader Lever

CUT transitions can be executed using the fader lever. Operate as follows.

① Set the FADER item on the MU SETUP - MODE menu to CUT. (Default setting: MIX)

② Move the fader lever to execute the transition. The image changes when the fader approaches the other end.

NOTE

If the FADER item has been set to MIX, the CUT transition will be switched to the MIX transition even when the CUT button light is turned on and the transition is executed using the fader lever.

6-9-7. Type Change During Transition

The transition type can be changed during transition by setting as shown below.

① Press OU SETUP to open the OU SETUP top menu.

② Turn F1 to select 3.MODE. Turn F1 or press the DOWN button to go to the OU SETUP-MODE(1/2) menu. Turn F1 to select EDIT under the BUTTON CTRL item. Press F1 or ENTER in the keypad to apply the setting.

6-9-8. DVE patterns and number of channels

Operation for transitions using DVE patterns is the same as for transitions using WIPE patterns, though different patterns can be used by a multiple number of buses with the former. However, the number of buses available for transitions simultaneously is restricted by the DVE channels which can be used. Available patterns and number of channels are changed by adding DVE options.

■ DVE Preset Pattern

The Hanabi HVS-3800 series switchers have two kinds of DVE options. Page turns and other complicated 3D DVE preset patterns with WARP effects are available with the HVS-38DVE 3D option. Installation of option boards enables the operations shown in the table below.

Configuration	Number of Channels (Layers)		Number of Preset Patterns	Available Effects
	HD	SD		
Standard	1	2	58	DVE MODIFY
HVS-38DVE 2D installed	2	4	58	DVE MODIFY
HVS-38DVE 3D installed	2	4	120	DVE MODIFY with WARP effect

* Pattern numbers 100 and up denote DVE patterns. The numbers of 3D patterns at the end of this operation manual are indicated by shading.

■ DVE Channel (Layer)

The number of buses available for simultaneous DVE transitions is given in the table below.

Video Signal	HD		SD	
Channel numbers of pattern	1ch	* 2ch	1ch	* 2ch
Standard	1	0	2	1
HVS-38DVE 2D installed	2	1	4	2
HVS-38DVE 3D installed	2	1	4	2

* Two-channel patterns are preset patterns with numbers 200 and up. These patterns can be used only with BKGD transitions. Only 1-channel preset patterns can be used with KEY transitions.

The number of buses available for the DVE is determined by the number of available layers and number of channels for the patterns that are used. When using a standard DVE (one channel) pattern, simultaneous DVE transitions are possible for background and key in SD mode with the standard configuration. On the other hand, in SD mode with an optional configuration, simultaneous DVE transition is available using a two-channel pattern for the background or one-channel pattern for KEY1 and KEY2.

IMPORTANT

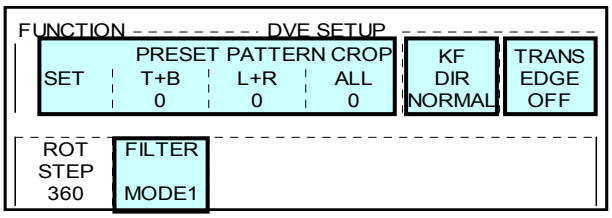
The number of buses available for the DVE is determined by the number of available layers and number of channels for the patterns that are used. When using a standard DVE (one channel) pattern, simultaneous DVE transitions are possible for background and KEY1 in SD mode with the standard configuration. On the other hand, in SD mode with an optional configuration, simultaneous DVE transition is available using a two-channel pattern for the background or one-channel pattern for KEY1 and KEY2.

If all available DVE channels (layers) are used, the settings cannot be made and the button will not light up when the DVE button on each bus or the DVE button in the NEXT TRANSITION section is pressed. In this case, cancel another DVE setting, and then press the button again.

6-9-9. DVE Transition Additional Settings

When DVE patterns are used, transition direction, endpoint processing, crop and other additional settings can be performed. Perform these settings on the sub menus of the FUNCTION menu and the DVE SETUP sub menu.

Press the FUNC button in the SYSTEM group of the menu section to display the FUNCTION - DVE SETUP menu. Turn control F1 to select DVE SETUP, and press F1 or the DOWN button to display the DVE SETUP sub menu.



■ DVE Transition Direction Control (KF DIR)

Just as with WIPE patterns, the transition direction can be changed using the WIPE DIRECTION buttons (NOR/REV and REV) even with DVE patterns. But it can also be changed using the KF DIR item. When the transition direction has been changed using the KF DIR item, the direction of the transition during modifications is also retained. Select NORMAL or REVERSE for the KF DIR item to change the transition direction. When the direction is changed to REVERSE, the preset pattern direction is changed and the display icon is changed as well.

■ Endpoint Processing for DVE Transitions

In DVE operations, differences in video delay when entering and exiting DVE effects can cause the video to appear choppy. This choppiness can be reduced by menu setting so that the DVE effect always exits at the transition start and end points (TRANS EDGE item to OFF). Note that, however, trails and certain other transitions must fade simultaneously with the end of the transition.

■ PRESET PATTERN CROP

Preset crop settings (trimming) can be made for all DVE preset patterns. In addition to uniform cropping on the top, bottom, left, and right (ALL item), cropping can also be performed separately for the top and bottom (T+B item) and right and left (L+R item). After completing the settings, press the F1 control and confirm the settings in the SET item.

NOTE
Individual crop settings can also be made for each DVE pattern in the DVE MODIFY menu. For details, see section 8-2-4. "CROP".

■ DVE FILTER MODE

The anti-aliasing filter is applied to the input video signals before processing the DVE effects. Two levels of filtering are selectable: MODE1 and MODE2. Select a suitable mode for your images. (See below.)

MODE1:	A stronger anti-alias filter. It smoothes out rough edges or jaggies that often appear on the edges of 3D geometry resizes to improve the downscaling results. It works best with flat-color and sharp-edged images such as animations or color bars.
MODE2:	A soft anti-alias filter. It also reduces color aliasing in images, however, maintains good image sharpness. It is suitable for soft images such as landscapes.

6-9-10. DVE Tally

The DVE tally feature allows you to light up a bus button or add DVE tally information to a tally output. For example, the button light of the M/E2PST bus turns red when shrinking the M/E2PGM image to see the M/E2PST image behind the M/E2PGM by using the LINE DVE, if the feature is enabled. Follow the procedure below to activate the DVE tally.

① Open the OU SETUP - BUS CONTROL(2/2) menu.

② Change the DVE TALLY item to ON from OFF.

IMPORTANT
The DVE tally feature may cause a delay for lightening bus buttons. And it is only effective to the background, but not to keys.

7. LINE DVE

LINE DVE is a setting that applies DVE effects to an individual bus and uses reduce, enlarge, rotation, lighting, and other operations to allow modification of the video for that bus. It can also apply the effects to the PGM, PST, KEY1, KEY2 and KEY3 buses of M/E1 and M/E2. There are two setting methods. Under one method, the LINE DVE ON/OFF function is assigned to one bus button; under the other, the LINE DVE ON/OFF function is assigned to a USER button. This chapter explains the LINE DVE settings using actual examples of operation.

7-1. Using the Bus Button

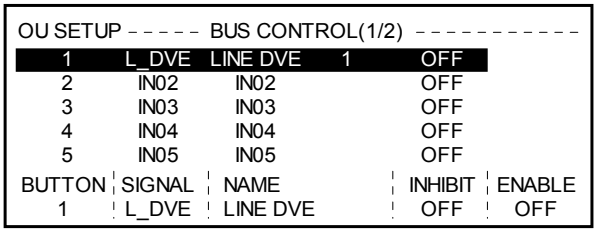
7-1-1. Setting the LINE DVE ON/OFF Function Button

Here, the LINE DVE ON/OFF function will be assigned to the bus button 10.

① Press the OU SETUP button in the menu section to open the OU SETUP top menu.

② Select 1 BUS CONTROL, and press the DOWN button to open the OU SETUP - BUS CONTROL menu.

③ Using the BUTTON item, select the button to which the function is to be assigned. (In this example, 1 is selected.) Using the SIGNAL item, select L_DVE. When bus button 1 is pressed, the corresponding bus is set to LINE DVE.



LINE DVE ON/OFF button
When the button light is turned on, only the lighted bus is set to LINE DVE.

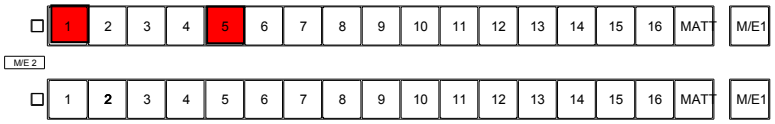
IMPORTANT
When this function is assigned to a bus button, signals cannot be assigned to that button.

7-1-2. Opening the DVE MODIFY menu

■ To Open DVE MODIFY menu for M/E2PGM Bus

In this procedure example, assume that the DVE ON/OFF function has been assigned to bus button 1.

① To apply the M/E2PGM bus to LINE DVE, press bus button 1 on the PGM bus to turn PGM LINE DVE to ON. The bus button 1 and the selected signal bus button on the PGM bus light up red.



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When turning the PGM LINE DVE to on, the DVE PGM button in the M/E2 group of the menu section lights up green.

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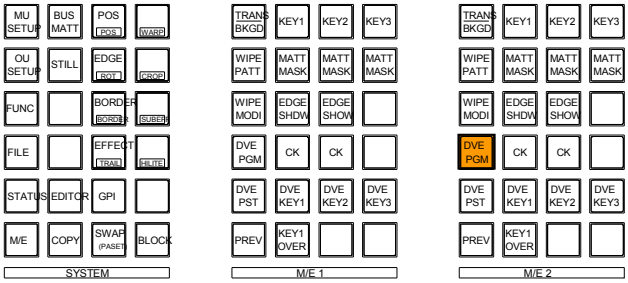
When turning the PGM LINE DVE to on, the WIPE/DVE MODIFY button in the M/E2 group of the menu section lights up green. Press WIPE/DVE MODIFY to light up to orange.

② Press the DVE PGM button to light it up orange. The DVE MODIFY menu for the PGM bus is opened, and LINE DVE modify operations are enabled.



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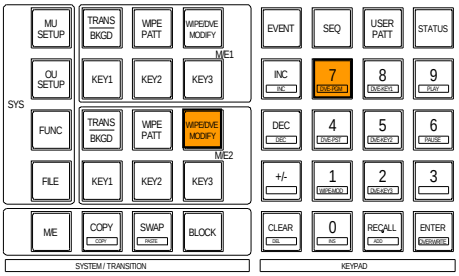

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■ To Open DVE MODIFY menu for M/E2PST Bus

In this procedure example, assume that the DVE ON/OFF function has been assigned to bus button 1.

① To apply the M/E2PST bus to LINE DVE, similarly press bus button 1 on the PST bus to turn PST LINE DVE to ON. The bus button 1 and the selected signal bus button on the PST bus light up orange.

<HVS-16/24OUA>

When turning the PST LINE DVE to on, the DVE PST button in the M/E2 group of the menu section lights up green.

<HVS-12ROUA>

When turning the PST LINE DVE to on, the WIPE/DVE MODIFY button in the M/E2 group of the menu section lights up green. Press WIPE/DVE MODIFY to light up to orange.

② Press the DVE PST button in the M/E2 group of the menu section. If DVE PST button is lighted up green, press the DVE PST button again to change it to orange. The DVE MODIFY menu for the PST bus is opened, and DVE MODIFY operations for the PST bus are now enabled.

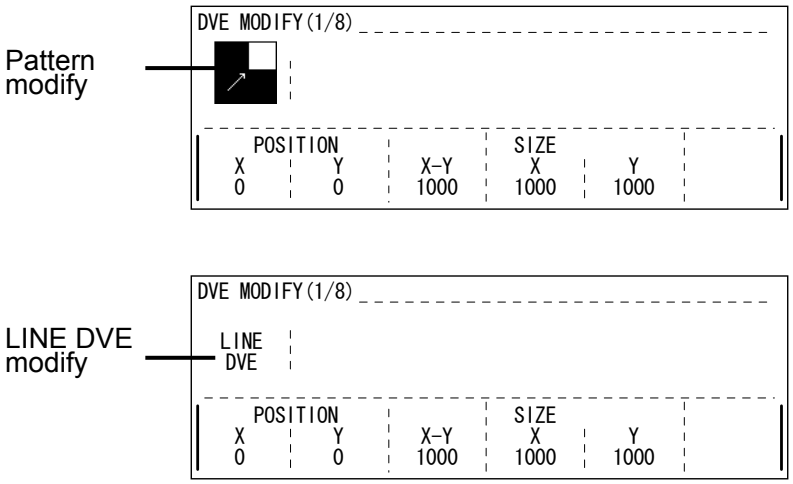
■ KEY1, KEY2 and KEY3

The settings are performed in the same way for KEY1, KEY2 and KEY3 as well. Press the DVE KEY1, DVE KEY2 and DVE KEY3 buttons respectively to light them up orange and open the DVE MODIFY menu.

IMPORTANT
When there are no free DVE channels, the LINE DVE function is not available, and the buttons will not light even if they are pressed. Cancel a BKGD, KEY1, KEY2 or KEY3 DVE transition, or another LINE DVE, and then press the button again. (For details on the number of DVE channels, see section 6-9-8 "DVE patterns and number of channels.")
The bus that is set in the DVE MODIFY menu is determined by the lighting colors of the DVE-PGM, DVE-PST, DVE KEY1, DVE KEY2 and DVE KEY3 buttons. Pressing the button opens the DVE MODIFY menu of the button that is orange.

■ Verifying what is to be modified

When the DVE MODIFY menu has been opened, it may be difficult to tell at a glance whether the modify menu shown is for preset patterns or for LINE DVE. In a case like this, double-click the WIPE POS button on the left of the joystick. The DVE MODIFY (1/1) screen is opened, making it possible to verify what is being modified.



7-2. Using the USER Buttons

This section uses the USER buttons to illustrate the assignment procedure of the LINE DVE ON/OFF functions of the M/E2PGM bus, M/E2PST bus and M/E2KEY1 bus. Setting will be as follows.

7-2-1. Setting the LINE DVE ON/OFF Function Buttons

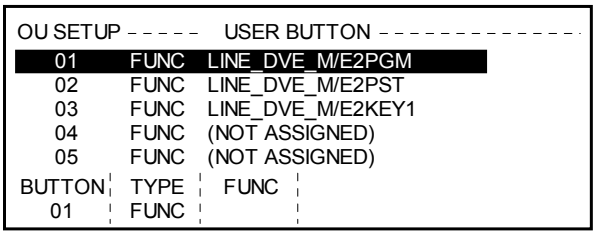
① Press the OU SETUP button in the menu section to open the OU SETUP top menu.

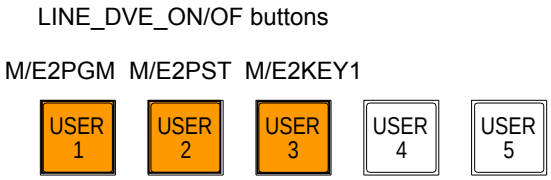
② Select 2. USER BUTTON and press the DOWN button to open the OU SETUP - USER BUTTON menu.

③ Select 1 (USER1 button) using the BUTTON item. The light of the selected button is now turned on. Select FUNC using the TYPE item. Turn F3 to select LINE_DVE_M/E2PGM. Either press F3 or ENTER on the keypad to enter the selection. The USER1 button now functions as the LINE DVE ON/OFF button of the M/E2PGM bus.

④ Select 2 using the BUTTON item. The light of the selected button is now turned on. Select FUNC using the TYPE item. Turn F3 to select LINE_DVE_M/E2PST. Either press F3 or ENTER on the keypad to enter the selection.

⑤ Select 3 using the BUTTON item. The light of the selected button is now turned on. Select FUNC using the TYPE item. Turn F4 to select LINE_DVE_M/E2KEY1. Either press F4 or ENTER on the keypad to enter the selection.





In the same way, other LINE_DVE ON/OFF functions can be assigned to other USER buttons.

7-2-2. Opening the DVE MODIFY Menu

As with the bus buttons, press the USER buttons to which the LINE DVE ON/OFF functions have been assigned to light them up and set LINE DVE to ON.

■ **To Open DVE MODIFY menu for M/E2PGM Bus**

In this procedure example, assume that the DVE ON/OFF function has been assigned to USER1.

■ **M/E2PGM bus**

① To apply the M/E2PGM bus to LINE DVE, press USER1 to turn PGM LINE DVE to ON. The selected signal bus button on the PGM bus lights up red.

<HVS-16/24OUA>

When turning the PGM LINE DVE to on, the DVE PGM button in the M/E2 group of the menu section lights up green.

<HVS-12ROUA>

When turning the PGM LINE DVE to on, the WIPE/DVE MODIFY button in the M/E2 group of the menu section lights up green. Press WIPE/DVE MODIFY to light up to orange.

② Press the DVE PGM button in the M/E2 group of the menu section. The DVE PGM button now lights up orange. At the same time, the DVE MODIFY menu for the PGM bus is opened, and LINE DVE modify operations are enabled.

■ **To Open DVE MODIFY menu for M/E2PST Bus**

In this procedure example, assume that the DVE ON/OFF function has been assigned to USER2.

① To apply the M/E2ST bus to LINE DVE, press USER2 to turn PST LINE DVE to ON. The selected signal bus button on the PST bus lights up orange.

<HVS-16/24OUA>

When turning the PGM LINE DVE to on, the DVE PST button in the M/E2 group of the menu section lights up green.

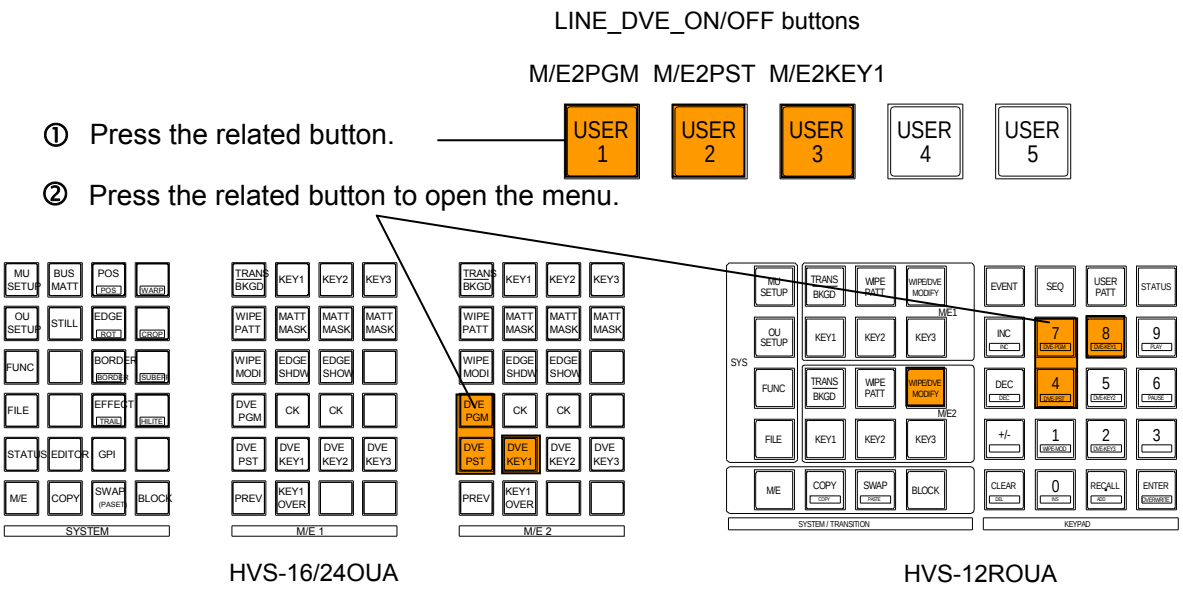
<HVS-12ROUA>

When turning the PGM LINE DVE to on, the WIPE/DVE MODIFY button in the M/E2 group of the menu section lights up green. Press WIPE/DVE MODIFY to light up to orange.

② Press the DVE PST button in the M/E2 group of the menu section. The DVE PST button now lights up orange. If it has lighted up green, press the DVE PST button again to light it up orange. The DVE MODIFY menu for the PST bus is opened, and LINE DVE modify operations are enabled.

■ **KEY1, KEY2 and KEY3**

LINE DVE for the keys can also be set in the same way as for the PGM bus and PST bus. The settings for M/E1 are the same as for M/E2.



HVS-16/24OUA HVS-12ROUA

IMPORTANT
If no DVE channel is available, the LINE DVE function cannot be used, and even if a button is pressed, its light will not be turned on. Release the DVE transitions of BKGD, KEY1, KEY2 or KEY3 or any other LINE DVE functions before pressing the button again. (For details on the number of DVE channels, refer to section 6-9-8. "DVE patterns and number of channels".) Which bus settings are to be performed on the DVE MODIFY menu is determined by the color in which the DVE-PGM, DVE-PST, DVE KEY, DVE KEY2 or DVE KEY3 button lights up in the M/E2 (or M/E1) section of the menu section. When a button is pressed, the DVE MODIFY menu for the bus whose button light is orange is opened.

7-3. LINE DVE Modify Setting Example

This section uses the example of setting the M/E2PGM bus to LINE DVE and reducing the PGM image to illustrate the LINE DVE modify setting procedure.

① Set the DVE function of the M/E2PGM bus to ON.
- If the LINE DVE function has been set in a bus button, press the bus button concerned to turn on the button light.
- If the LINE DVE function of the M/E2PGM bus has been set in a USER button, press the USER button concerned to turn on the button light.

② Display the MODIFY menu.

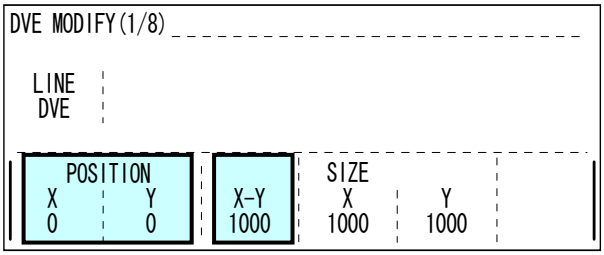
<HVS-16/24OUA>

Press the POS button in the SYSTEM group of the menu section. The button lights up orange, and the DVE MODIFY (1/8) menu appears. Now check that the DVE-PGM button in the M/E1 group of the menu section is lighted up orange. If it is lighted up green, press the DVE-PGM button to light it up orange.

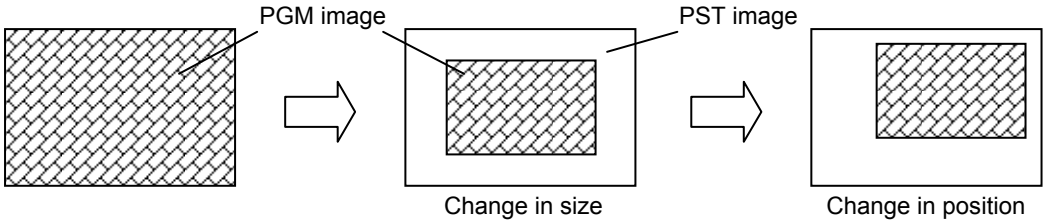
<HVS-12ROUA>

Press the WIPE/DVE MODIFY button in the SYSTEM group of the menu section. The DVE MODIFY top menu will be displayed. Turn F1 to select POS/SIZE and press F1 to display the DVE MODIFY(1/8) submenu. If DVE-PGM lights up green at this time, press DVE-PGM to light up to orange.

③ When the X-Y item is changed on the DVE MODIFY (1/8) menu, the size of the PGM image changes with the same aspect ratio.



④ By changing POSITION (X,Y), the position of the PGM image can be moved.



NOTE
When the WIPE POS button in the joystick section is pressed and the button light is turned on, the DVE POSITION (X,Y) can be set using the joystick without having to open the menu. When the WIPE POS button is double-clicked, the bottom page of the DVE MODIFY (1/8) menu is opened.

8. DVE MODIFY

The HVS-3800HS/S uses the DVE MODIFY menu to set what kind of effects are to be applied using the LINE DVE function. The DVE preset patterns themselves can be modified also using the DVE MODIFY menu. This chapter describes the modify effects which can be used for DVE and provides details on the DVE MODIFY menu. For details on the procedure for modifying LINE DVE, refer to sections 7-1-2. and 7-2-2. "Opening the DVE MODIFY Menu"; for details on the procedure for modifying DVE preset patterns, refer to section 6-8. "DVE Pattern Modify".

8-1. DVE MODIFY Menu

See the table below for the available DVE effects and parameters in the DVE MODIFY menu.

Menu button	Menu		Description	Reference/Note
POS/SIZE	DVE STILL	STORE, BACK IMAGE	Save and activate/deactivate DVE STILL.	10-2
	POSITION	X, Y	Changes position in XY plane.	
	SIZE	X-Y, X, Y	Changes horizontal and vertical sizes	
ROTATION	LOCAL POSITION	X, Y, Z	Sets position in local XYZ plane.	8-2-1
	LOCAL ROTATION	X, Y, Z	Sets rotation in local XYZ plane.	
	GLOBAL POSITION	X, Y, Z	Sets position in global XYZ plane.	
	GLOBAL ROTATION	X, Y, Z	Sets rotation in global XYZ plane.	
CROP	FADE LEVEL		Sets fade in / out level of image	
	PERSP		Changes reference viewpoint for image	8-2-2
	CROP	ENABLE, TOP, BOTTOM, LEFT, RIGHT, ALL	Crops DVE image.	8-2-4
WARP	WARP	TYPE, LEVEL, DIR, RAD, ROLL etc.	Sets Warp effects.	8-2-5 Some type effects cannot be used with HILITE or MOSAIC
BORDER	BORDER	EDGE SOFT, SELECT, OUTSIDE (X, Y, X/Y), BORDER SOFT (X, Y, X/Y), INSIDE (X, Y, X/Y),	Sets border effect.	8-2-6 Applicable to keyers
TRAIL/ MONO	TRAIL	TYPE, LENGTH	Sets trail effect.	8-2-7
	BORDER COLOR	COLOR (SAT, LUM, HUE)	Sets border color effect.	
	MONO COLOR	ENABLE, SAT, HUE	Sets monochrome color.	

Menu button	Menu	Description	Reference/Note	Menu button
SUB EFFECT	NEGA		Sets polarization effect.	8-2-8
	MOSAIC		Sets mosaic effect.	8-2-8 Unable to use with MULTI warp type.
	PAINT	Y-Lv, C-Lv, Y/C-Lv	Sets resolution for luminance / chrominance	8-2-8
	DEFOCUS	SELECT, LEVEL (H-Lv, V-Lv, H/V-Lv)	Sets defocus effect.	
	FREEZE		Sets the DVE image frozen.	
	STROBE RATE		Sets kind of strobe rate applied	
HILITE	HILITE	POSITION, WIDTH TYPE, COLOR (SAT, LUM, HUE)	Sets hilite position and color.	8-2-9 Unable to use with some warp types.
	SHADOW	SELECT, SOFT, X, Y, LEVEL	Sets shadow position, density and softness	8-2-9

The UP and DOWN buttons can be used to move between menus.
* BEVEL, the one of the WARP effect, can be used without an additional option.

8-1-1. Re-initializing DVE MODIFY Menu

To initialize the DVE MODIFY menu, use any one of the procedures below.

■ Removing modified preset patterns from the menu

Using the DVE PATTERN menu or PATTERN SELECT menu, remove the patterns for which modify settings have been performed from the DVE PATTERN list (25 patterns in 5 groups). All the modify data of the patterns is now lost, and all the settings are returned to their defaults even when the same pattern is selected again.

The procedures below serve to re-initialize the data of the DVE MODIFY menu assigned to the buses. (Use the keypad to check which of the buttons for the PGM, PST, KEY1, KEY2 and KEY3 buses are lighted up orange.)

■ Using WIPE POS and DEF Buttons in the Joystick Section

When using a modified pattern, press the WIPE POS button next to the joystick to light on. Then press and hold down the DEF button for a while. All settings in the DVE MODIFY menu return to factory default.

■ Using a USER button

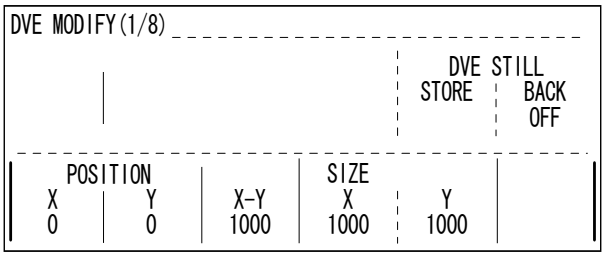
At first assign the DVE MODIFY RESET function to a desired USER button, (See section 15-2 "USER Buttons" for details.) and then press the respective USER button. The DVE MODIFY data will return to factory default settings.

■ Using INIT item in the DVE MODIFY top menu（HVS-12ROUA only）

In the DVE MODIFY top menu, turn F6 to change to ALL or other from OFF. Then press F6 to return the selected items to the default settings.

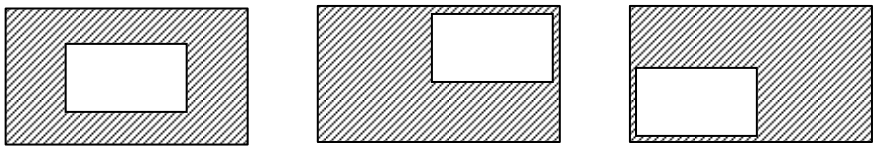
8-2. DVE Effects

8-2-1. Position and Size



■ **About POSITION:**

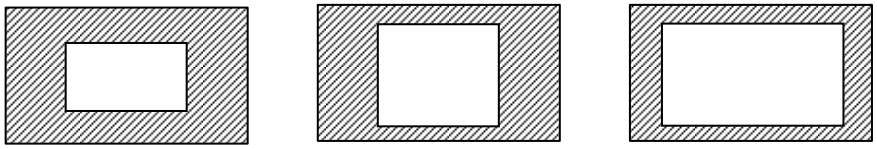
POSITION simply moves the picture to a different location in the effects space without changing size or effect spatial references. The examples below represent image positioning results when GLOBAL POSITION and LOCAL POSITION parameters are both set to default (0, 0, 0).



(0,0)　(200,200)　(-200,-200)

■ **About SIZE:**

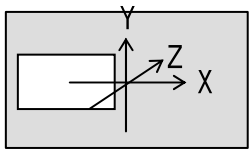
SIZE increases and decreases image area without changing the plane it is positioned on in the 3D effects space (Do not confuse this setting with Z axis image translation. In that case, image moves on Z-axis. Image will appear large when closer, smaller when moved back, but actual image area never changes.) The examples below represent image size results when POSITION parameters are set to default (0, 0).



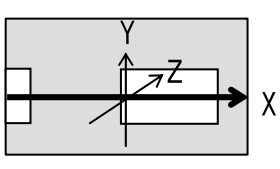
(500,500)　(500, 750)　(750, 750)

■ **About GLOBAL POSITION:**

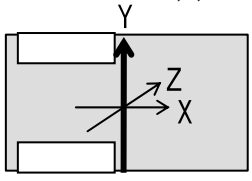
GLOBAL POSITION changes the spatial reference between the local axes positioning and the 3D effect space axes. Do not confuse global positioning with position / local position settings. Results look the same on a monitor, but results during effects performance are different. The examples below represent image movement response when POSITION parameters are set to -200, 0 and GLOBAL POSITION is to 0, 0, and 0.



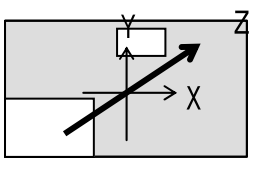
POSITION (-200,0)
GLOBAL (0,0,0)



Move along X axis



Move along Y axis

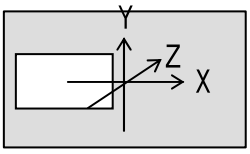


Move along Z axis

■ **About ROTATION:**

GLOBAL ROTATION defines the relationship between the image and the 3D effects space axial coordinates during image rotation in the space. It rotates the image around the center of the POSITION.

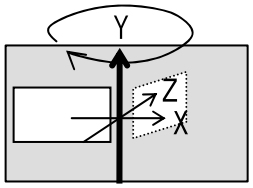
LOCAL ROTATION defines the relationship between the image and its axial coordinates during image rotation operations and is unrelated to global movement within the 3D effects space. It rotates the image around the center of the GLOBAL POSITION. The examples below represent image rotation results when POSITION parameters set to 0,0 and GLOBAL POSITION to -200, 0.



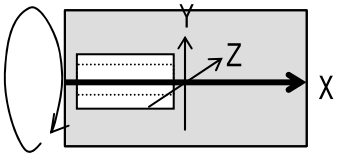
POSITION (0,0)
GLOBAL (-200,0,0)

NOTE
You can increase the step interval when setting the LOCAL and GLOBAL ROTATION parameters. Three types (360, 1000 and 4000) are available. This is set in the ROT STEP item in the SETUP - DVE SETUP menu.

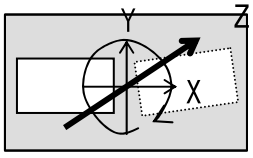
■ **GLOBAL ROTATION example**



X axis rotation

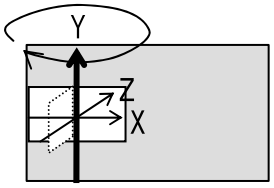


Y axis rotation

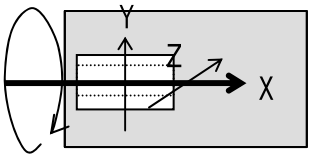


Z axis rotation

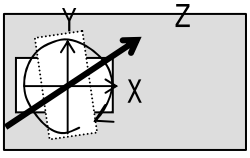
■ **LOCAL ROTATION example**



X axis rotation



Y axis rotation



Z axis rotation

■ **About LOCAL POSITION:**

LOCAL POSITION changes the spatial positioning reference between image location and the global position space reference. Note that the POSITION setting made on page 1 of the menu is a planar (X/Y) change along the local position axes. LOCAL POSITION is a positioning change of the image within the 3D effects space.

8-2-2. DVE STILL

The DVE STILL is used to save an image for DVE-specific still. This image can be applied to back side of the DVE image such as the reverse page of page turn effects or the side walls of PIZZA BOX.

■ **Saving DVE STILL**

① Make an image that you want to use for DVE STILL to output the program line of M/E1 (or M/E2).

② Press STILL in the SYSTEM group to display the STILL menu. In the STILL STORE (2/2) menu, turn F5 to select M/E1PGM (or M/E2PGM) to be captured at SIGNAL.

③ Press F6 to store the DVE STILL or open the DVE MODIFY (1/8) menu and press F5 to store the DVE STILL. (See section 7-1-2.) A "beep" sound will be heard and the program image is saved to the DVE STILL.

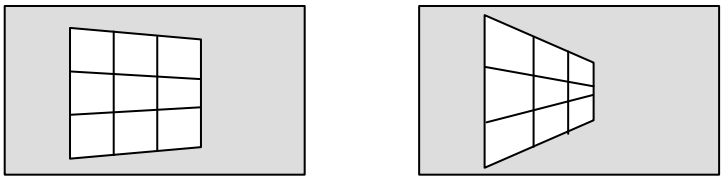
■ **Applying DVE STILL**

In the DVE MODIFY (1/8) menu, turn F6 to set BACK item to ON.

IMPORTANT
PIZZA SIDE image and DVE STILL use a same buffer. So when using a PIZZA BOX effect, DVE STILL cannot be used regardless of the BACK IMG setting.

8-2-3. PERSPECTIVE

This parameter changes the view angle reference for the image and does not change image size.



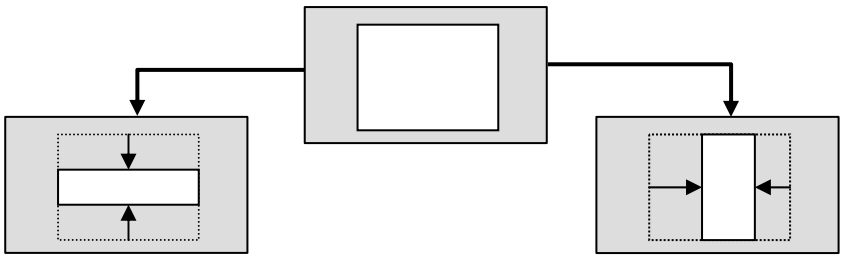
8-2-4. CROP

■ **PRESET PATTERN CROP (applied to all DVE patterns)**

Preset crop setting can be made for all DVE preset patterns. This setting is made in the FUNCTION - DVE SETUP menu. In addition to being able to crop uniformly on the top, bottom, left and right. (See section 6-9-9 "DVE Transition Additional Settings" for more details.)

■ **DVE MODIFY CROP (applied to each DVE pattern)**

Crop setting also can be made for each DVE pattern in DVE MODIFY menu. The background image will be applied to the cropped area.



TOP and BOTTOM crop

LEFT and RIGHT crop

8-2-5. WARP (Option)

Parameter		Range	Description
WARP	* TYPE	See "About TYPE" table following.	Selects the type of DVE effect applied to the pattern.
	LEVEL	OFF, -7999-7999	See "About TYPE" table following.
	DIR	OFF, -7999-7999	See "About TYPE" table following.
	RAD	0-7999	See "About TYPE" table following.
	ROLL	OFF, -7999-7999	See "About TYPE" table following.

* Note that the available setting parameters and setting ranges vary depending on the WARP type. Only the required parameters are displayed in the menu when the WARP type is selected. A WARP type such as SPHERE, MULTI and PIZZA each uses its own parameters. See TYPE table following for notes which types are not possible for certain settings.

■ **About TYPE:**

TYPE sets the type of warp effect used to modify your DVE pattern. The following table shows available types and which settings in the above menu apply or do not apply to the related type as well as how they are applied. (X mark equals setting is invalid.)

TYPE	LEVEL	DIR	RAD	ROLL
*PGTURN	0 to 2999	-7999 to 7999	0 to 7999	X
*HZTURN	0 to 2999	250 to 750		X
*VZTURN	0 to 2999	0 to 500		X
*QDTURN	0 to 2999	-125 to 125		X
*PGROLL	0 to 1500	-7999 to 7999		X
*HZROLL	0 to 1500	250 to 750		X
*VZROLL	0 to 1500	0 to 500		X
*QDROLL	0 to 1500	-125 to 125		X
WAVE	-1000 to 1130	-7999 to 7999	0 to 1900	-7999 to 7999
ACCORD	-1000 to 1130	-7999 to 7999	0 to 1900	-7999 to 7999
SPLIT	-1000 to 1130	-7999 to 7999	0 to 1900	-7999 to 7999
XSPLIT	-1000 to 1130	-7999 to 7999	0 to 1900	-7999 to 7999
BURST	0 to 1000	-7999 to 7999	X	-7999 to 7999
STREAM	0 to 1000	-7999 to 7999	X	X
*SW WIN	-1000 to 7999	-7999 to 7999	X	X
RIPPLE	0 to 1000	X	X	X
LENS	-1000 to 1000	X	X	X

TYPE	LEVEL	QUAD X, Y
*SPHERE	0 to 1000	-7999 to 7999
SCREW1-4	-1000 to 1000	X
STRM1-12	0 to 1000	X

TYPE	LEVEL	GAP SIZE
MULTI	1 to 45	-8000 to 1000

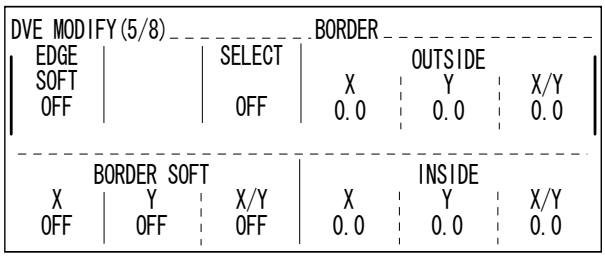
TYPE	LEVEL	RAD	PIZZA SIDE1 X, Y	PIZZA SIDE2 X, Y	SIDE BORDER
*PIZZA (PIZZA BOX)	1 to 1000	1 to 1000	-1000 to 1000	-1000 to 1000	OFF, ON

TYPE	LEVEL	SIDE1 X, Y	SIDE2 X, Y	
*BEVEL	0 to 1000	-1000 to 1000	-1000 to 1000	SIDE1, SIDE2 settings available only when BACK IMAGE is set to ON
W DROP	0 to 4			

IMPORTANT

1) For some types of the WARP effect, the use of HILITE is impossible and for other types it is limited. See section 8-2-9. "HILITE/SHADOW" for details.
2) MULTI type warp cannot be used with MOSAIC effect at the same time. (MULTI is given priority.)
3) Refer to sections 9-2-2 and 9-2-3 for more details about MULTI, PIZZA operations.

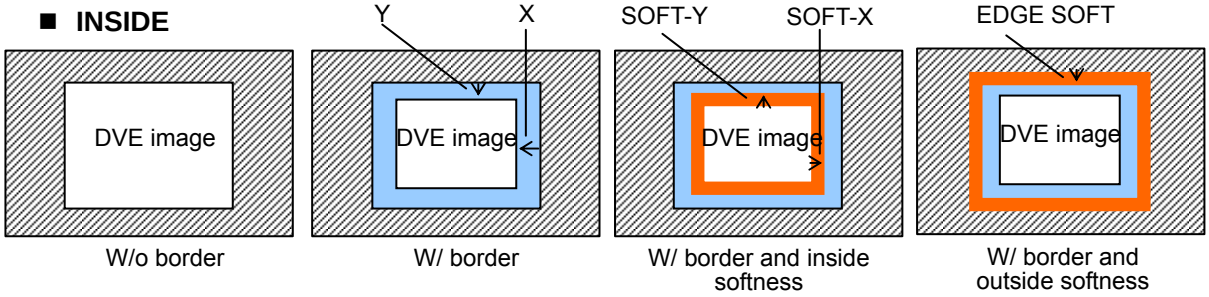
8-2-6. BORDER



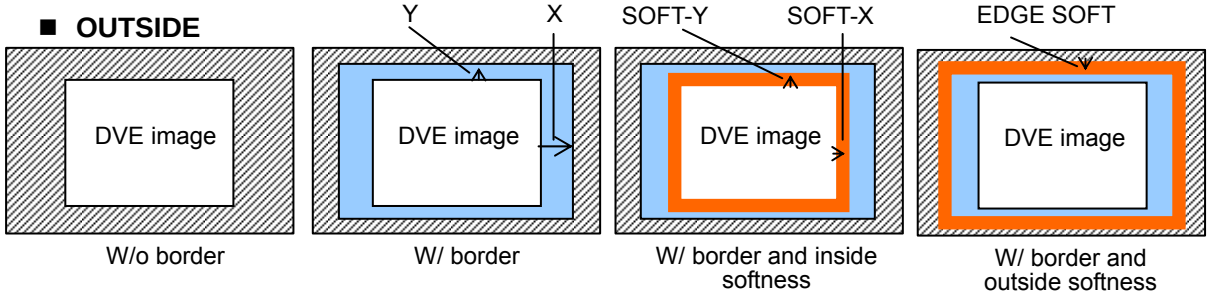
The figures below show examples of the DVE image with and without border effect applied. If applied, inner border and outer edge softness can be adjusted.

Line	Parameter		Description
BORDER	EDGE SOFT		Sets border outside softness.
	SELECT		Sets (inside/outside) border effect On or OFF.
	INSIDE	X, Y, X/Y	Sets inside border width.
	OUTSIDE	X, Y, X/Y	Sets outside border width.
	BORDER SOFT	X, Y, X/Y	Sets border inside softness.

■ **INSIDE**



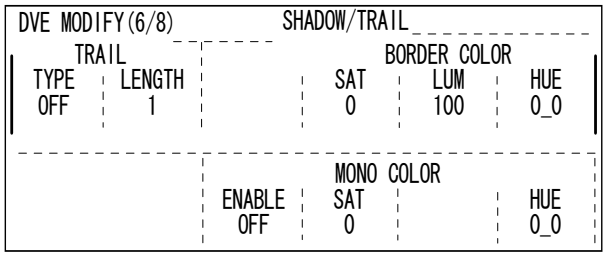
■ **OUTSIDE**



■ **EDGE SOFT**

NOTE
The border color settings can be found on the DVE MODIFY (6/8) menu.

8-2-7. TRAIL / BORDER COLOR / MONO COLOR



Parameter		Description
TRAIL	TYPE	Sets trail effect types
	LENGTH	Sets trail length if TRAIL ON.
BORDER COLOR	SAT, LUM, HUE	Sets border color
MONO COLOR	ENABLE	Sets monochrome color effect ON/OFF.
	SAT, HUE	Sets monochrome color.

■ **TRAIL TYPE:**

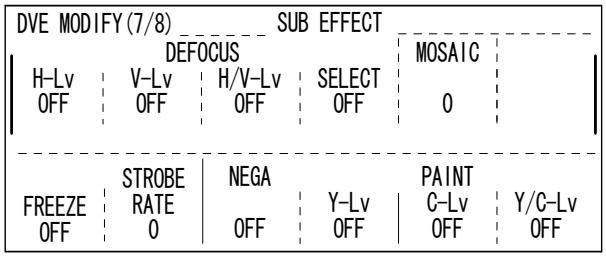
Both trails fade out according to LENGTH setting made by LENGTH. **DECAY** and **B-DECAY** trails look like after images of the effects channels, **STAR** and **B-STAR** trails look like a stream of particles behind the effects image. B-DECAY and B-STAR trails use a border color for fading images.

■ **MONO COLOR**

A monochrome color setting can be used for highlighting. Change the ENABLE item setting to ON, and use the SAT and HUE parameters to specify the color.

8-2-8. SUB EFFECT

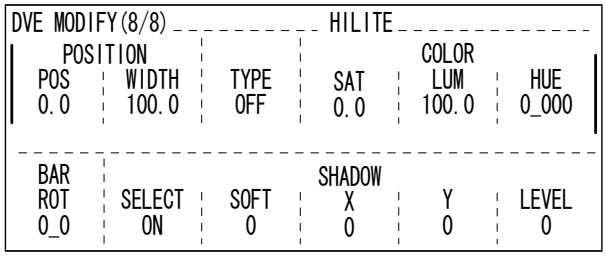
Following additional sub effects can be available. Note that these sub effects cannot be always used with other modify settings.



Parameter		Description
DEFOCUS	H-Lv, V-Lv, H/V-Lv	Sets defocus level.
	SELECT	Sets defocus level ON/OFF.
MOSAIC		Sets mosaic effect ON/OFF.
FREEZE		Sets freeze effect.
STROBE RATE		Sets strobe effect ON/OFF and illumination level.
NEGA		Sets negative look effect ON/OFF.
PAINT	Y-Lv, C-Lv	Sets paint effect OFF or Y/C levels concurrently or independently.
	Y/C-Lv	

DEFOCUS: Gives the image an out-of-focus look. Defocus level can be set.
MOSAIC: Creates a mosaic effect. Mosaic cell size can be changed using the level setting.
FREEZE: Freezes the image. Frame freeze and field freeze are available.
STROBE RATE: Makes the image look like it was filmed with a strobe light on. The strobe rate can be varied.
NEGA: Produces a negative look of the image by reversing the luminance level.
PAINT: Gives the image an oil painting look. Chrominance and luminance resolution level can be set independently or simultaneously.

8-2-9. HILITE/SHADOW



Set the hilite effect and shadow effect on the DVE MODIFY (8/8) menu. The hilite and shadow colors and positions can be selected. Bear the following restrictions in mind when using hilite and shadow together with WARP. The tables below shows which parameters can be set for hilite effect and which patterns the hilite can be applied to.

Parameter			Description
HILITE	POS or POSITION-X		See the table below.
	WIDTH or POSITION-Y		See the table below.
	TYPE		Sets hilite OFF or select types
	BAR ROT		Sets rotation of the hilite bar (when TYPE is BAR).
	SPOT RAD		Sets angle of the spotlight corn (when TYPE is SPOT).
	COLOR	SAT, LUM, HUE	Sets color of hilite effect.
SHADOW	SELECT		Sets shadow effect ON/OFF.
	SOFT		Sets shadow softness.
	X, Y		Sets shadow position.
	LEVEL		Sets shadow density level.

■ **HILITE TYPE:**

FLAT: Whole image lighted
BAR: Light bar across image
SPOT: Lighted spot on image
AUTO: Automated lighting effect applied to some specific WARP patterns (AUTO cannot be set, but it is automatically selected when adding a hilite to certain WARP patterns.)

Hilite adds a light source effect to the DVE image plane during DVE wipe pattern performance. Note that **this effect cannot be applied to all of the DVE wipe patterns** supported by the switchers. The table below indicates which patterns it can be applied to and what parameters are available for it.

WARP TYPE	HILITE TYPE	WIDTH	POS	POS-X	POS-Y	BAR ROT	SPOT RAD
WAVE ACCORD RIPPLE Page roll and page turn types	AUTO	0 to 100.0	-100.0 to 100.0	—	—	—	—
OFF	FLAT	0 to 100.0	-100.0 to 100.0	—	—	—	—
PIZZA BEVEL	FLAT			-100.0 to 100.0	-100.0 to 100.0	—	—
OFF	BAR	0 to 100.0	-100.0 to 100.0	—	—	-7999 to 7999	—
OFF SPHERE	SPOT	—	—	-100.0 to 100.0	-100.0 to 100.0	—	0 to 1000
W DROP (WATER DROP)	FLAT	—	—	—	—	—	—

9. Examples of Effect Operations

Besides the WIPE and DVE preset patterns, the HVS-3800HS/S also provides menus and tools that add a wide variety of effects to video. This section shows examples of some typical effects using these tools.

9-1. Effects using WIPE Modify

9-1-1. Jagged Edge

This example shows how to add a jagged edge to WIPE pattern 22.

① Press the WIPE button in the M/E2 (or M/E1) BKGD or KEY transition section to light it up.

② Select pattern 22 from the pattern buttons in the transition section. If pattern 22 is not displayed, double-click any pattern button to display the WIPE PATTERN menu. Turn control F1 (or one of the F2 to F5 controls) to select pattern 22.

③ When pattern 22 appears in the transition section, press the pattern button concerned to select the pattern.

④ Open the WIPE MODIFY-EDGE menu.

④ Press the WIPE MODI button in the M/E2 (or M/E1) section of the menu section to turn on the button light. Press the EDGE button in the SYSTEM group to display the WIPE MODIFY-EDGE menu.

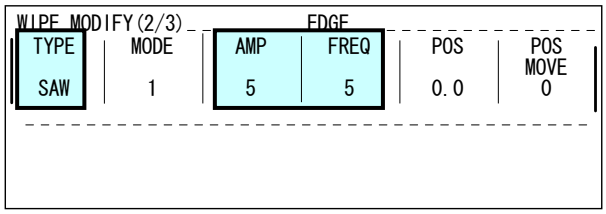
<HVS-16/24OUA>

Press the EDGE button in the SYSTEM group to display the WIPE MODIFY-EDGE menu.

<HVS-12ROUA>

Press the WIPE/DVE MODIFY button in the M/E2 (or M/E1) group of the menu section to turn on the button light. The WIPE MODIFY top menu will open. Turn F1 to select EDGE, then press F1 to open WIPE MODIFY-EDGE menu.

⑤ On the EDGE menu, change TYPE to SAW and both EDGE AMP and FREQ to 5.



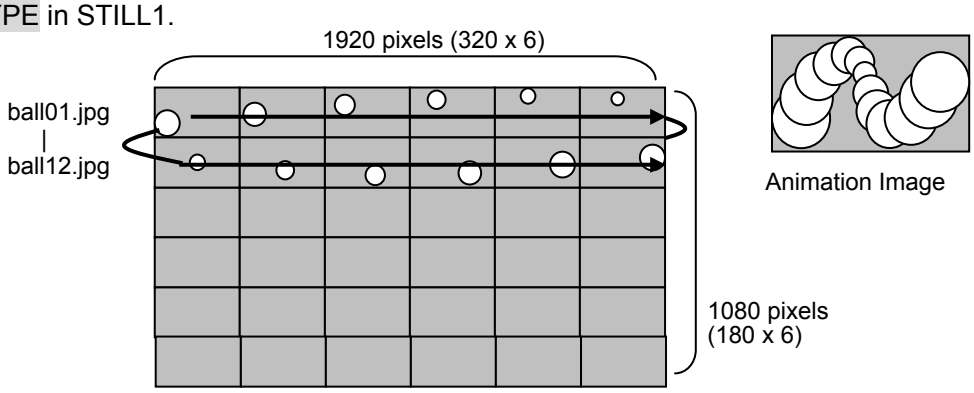
IMPORTANT
Be careful when making the AMP and FREQ settings. Flickering can occur in the effect if these settings are not made properly.

9-1-2. Animation Logo

Easy animation effects can be created using STILL STORE images. In this example, an animation will be created of a moving ping-pong ball and assigned to KEY3.

■ **Preparing the Animation Source Images**

Prepare 12 (maximum: 36) animation source image files in JPEG or TARGA format and following pixel size. (Refer to the column "Sending animation files" in the next page for more details about available file formats.) To make these images available as keys, set the background to black. In this example sequential files (ball01.jpg to ball12.jpg) are prepared and saved to the CF card. Refer to the column "Sending animation files" in the next page to send the source files to STILL1. A combined single file will be automatically saved to STILL1. For example, you can check the saved image source, by assigning STILL1 to a bus and turn it into on-air. The animation source image shown below can be seen, if FRAME is selected under TYPE in STILL1.



■ **STILL Menu Settings**

① Open the STILL menu.

② Set the STILL TYPE of the STILL1 to ANIME.

③ Select STILL1 under ANIMATION - SELECT item for the ANIMATION. Set 12 (number of source images) under FRAME item.

IMPORTANT
If a key video has a paired key source (alpha channel), change TYPE for STILL2 to ANIME and select S1(S2) under the ANIMATION - SELECT item so that the animation settings for both STILL1 and STILL2 are made at the same time. The animation function may use any one of STILL1 to STILL6, so up to four animation logos can be prepared. Note that if the power is set to OFF or a REBOOT is performed, STILL images will be lost. In this case, insert the CF card into the slot and load the file to a STILL again.

■ **Making the animation logo using the KEY3**

① Press the KEY3 button in the menu section to display the KEY3 menu.

② Set the TYPE of KEY3 to LUM.

③ Use the KEY3 menu or KEY bus selection button to select the STILL1 for the KEY3 signal.

IMPORTANT
If a key video has a paired key source (alpha channel), set TYPE for KEY3 to BUS and assign STILL1 to INSERT and STILL2 to KEY SOURCE.

④ Press the AUTO button in the KEY transition section to make KEY3 to ON. The STILL1 image will be displayed as an animation. The following parameters can be set under the ANIMATION option of STILL STORE(2/2) menu.

Item	Description
FRAME	Number of frames used. Normally, set the number of available original images (maximum: 36)
SPEED	Output time of one image. A higher value results in slower switching of animation images. Frame based. Maximum: 32
POS-X/Y	Sets where the animation logo is appeared in the monitor display.

IMPORTANT

If the animation cannot be displayed clearly, adjust the CLIP and GAIN for KEY3.

Sending animation files

The animation source image files in JPEG or TARGA format saved in the CF card can be sent to the STILL memories. Prepare 12 (maximum: 36) animation source image files named by sequential numbers in JPEG or TARGA format.

- File format and file name

Available files are Jpeg (except JPEG2000 format) and Targa with sequential names of up to 8 characters.

Example: XXXXXX01.JPG to XXXXXX36.JPG
(Any alphanumeric characters can be used for "XXXXXX".)

Available pixel sizes vary by the operating Video Signal Format. (See the table below.) The source files should be sent using the FILE menu and arranged as shown in the table below.

Sequential Array of the Source Files					
01	02	03	04	05	06
07	08	09	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

Video Signal Format	Available pixel size of the source file (W x H)
1080	320 x 180
720	212 x 120
NTSC	120 x 80
PAL	120 x 94

- Sending the source files

① Refer to above to prepare the suitable source files and save the files to the CF card using your PC, and then insert the card into the OU card slot.

② Press the FILE button to open the FILE top menu. Turn F1 to select FILE=>OU/MU, and press F1 or the DOWN button to open the menu.

③ Select JP* or TG* for the TYPE.

④ Select any one of the sequential source files under the SELECT item.

⑤ Select from STL1 L to STL4 L. For example, if you want to save the file to STILL1, select STL1 L.

⑥ Press F3 under the SEND item. A "beep" sound will be heard and the source data starts to be sent. When the data transmission has completed, a combined single file made form the source data is automatically saved to the STILL memory.

NOTE

If the type of an image file is TARGA and it includes an alpha channel, alpha channel data will be sent to the next STILL memory. For example, if a video is saved to STILL1, the alpha channel of this video will be saved to STILL2.

9-2. Effects Using DVE

9-2-1. WIPE Switchover in a Video Wall (LINE DVE)

The forced background function can be used to perform a WIPE transition in a Video Wall. When using the forced background function, first assign the LINE DVE function to a bus button.

① Set the DVE function of the M/E2PGM (or M/E1PGM) bus to ON.

- If the LINE DVE ON/OFF function has been set in a bus button, press the bus button concerned to turn on the button light.
- If the LINE DVE ON/OFF function of the PGM bus has been set in a USER button, press the USER button concerned to turn on the button light.

② Display the MODIFY menu.

<HVS-16/24OUA>

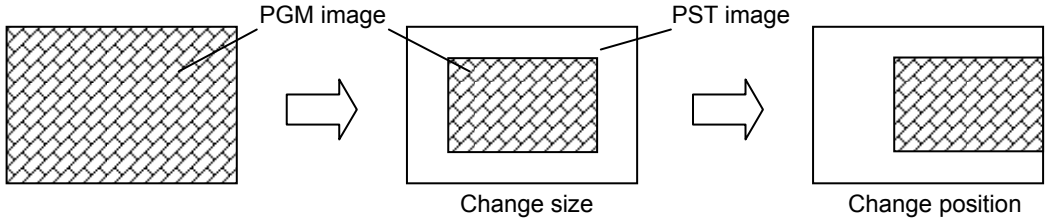
Press the POS button in the SYSTEM group of the menu section. The button lights up orange, and the DVE MODIFY (1/8) menu appears. Now check that the DVE-PGM button in the M/E1 section of the menu section is lighted up orange. If it is lighted up green, press the DVE-PGM button to light it up orange.

<HVS-12ROUA>

Press the WIPE/DVE MODIFY button in the M/E2 (or M/E1) of the menu section. The DVE MODIFY top menu will open. Turn F1 to select POS/SIZE, and then press F1 to open the DVE-MODIFY(1/8) menu. If the DVE-PGM(7) button in the KEYPAD section is lighted up orange. If it is lighted up green, press the DVE-PGM button to light it up orange.

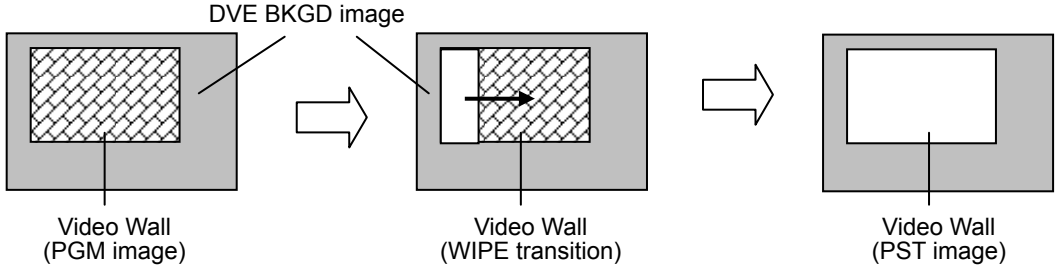
③ Double-click the WIPE POS button at the side of the joystick. The DVE MODIFY (1/8) menu is opened. Turn F3 below the X-Y parameter to reduce the size of the PGM image.

④ Move the joystick in any of the four directions (up, down, right, or left) to place the PGM image to the desired position.



⑤ Press the DVE button for the PST bus while holding down the DVE button for the PGM bus. The background changes to the DVE BKGD image. (The DVE background image can be changed in the TRANSITION menu.)

⑥ Select the WIPE type for the BKGD transition, and then turn F5 to select the WIPE pattern (No. 000 in the example below) on the menu screen. Either move the fader lever, or press the AUTO button to execute the transition. The WIPE transition is executed in the Video Wall. (This is also possible with a MIX transition.)



IMPORTANT
When using DVE effects, the DVE background signal will be displayed if the screen cannot be filled using only the PGM bus and PST bus signals. The DVE background signal can be selected in the TRANS/BKGD(2/2) menu. MATT, GMATT, AUX7 and AUX8 for M/E1 and MATT, GMATT, AUX9 and AUX10 for M/E2.

9-2-2. DVE MULTI MOVE (DVE Pattern Modify)

This setting example shows the adding of multi-effects to a DVE image. This effect can be applied to either DVE pattern or LINE DVE. The HVS-38DVE 3D option board is required for DVE MULTI MOVE.

① Display the MODIFY menu.

<HVS-16/24OUA>

Press the POS button in the SYSTEM group of the menu section. The button lights up orange, and the DVE MODIFY (1/8) menu appears. Now check that the DVE-PGM button in the M/E2 (or M/E1) section of the menu section is lighted up orange. If it is lighted up green, press the DVE-PGM button to light it up orange.

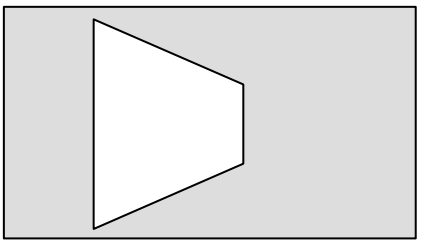
<HVS-12ROUA>

Press the WIPE/DVE MODIFY button in the M/E2 (or M/E1) of the menu section. The DVE MODIFY top menu will open. Turn F1 to select POS/SIZE, and then press F1 to open the DVE-MODIFY(1/8) menu. If the DVE-PGM(7) button in the KEYPAD section is lighted up orange. If it is lighted up green, press the DVE-PGM button to light it up orange.

② Change the POSITION, SIZE, and other parameters, and then place the DVE image in the center of the screen.

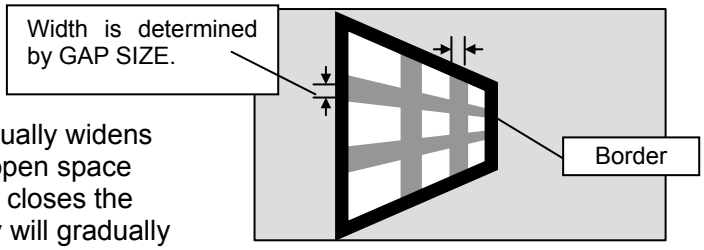
③ Press the DOWN button to open the DVE MODIFY (2/8) menu, and change LOCAL ROTATION.

④ Open the DVE MODIFY(3/8) menu and change PERSP to create the DVE image as shown at right.



⑤ Open the DVE MODIFY(4/8) menu and select MULTI under WARP TYPE.

⑥ Set the LEVEL to 3. Nine (3 x 3) multi-video will be displayed in the DVE image.



⑦ By increasing the GAP SIZE gradually widens the gap between videos, and the open space appears black. Lowering the value closes the gap between the images, and they will gradually overlap. Set the gap for split screens.

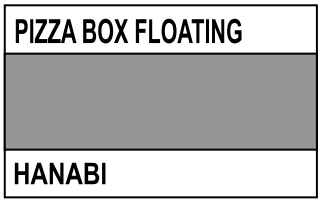
IMPORTANT
If borders are used, they are added to the outer frame of the DVE image, instead of the frames of each individual multi-video. This setting cannot be used together with MOSAIC.

9-2-3. PIZZA BOX (DVE Pattern Modify)

This example shows how to create a pizza box for a live image with a side logo. This effect can be applied to either DVE pattern or LINE DVE. The HVS-38DVE 3D option board is required for PIZZA BOX.

■ **Setting the side logo**

Set the logo to be positioned on the pizza box side.

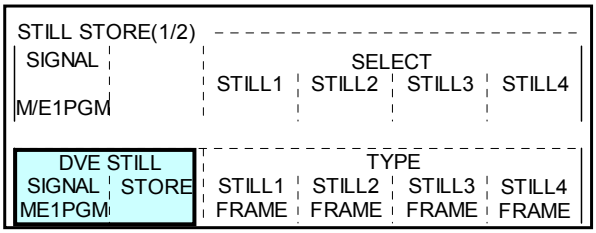


① Use a logo generator or other tool to prepare an image similar to that shown on the right.
In this example, the logo signal is input to INPUT2.

② Display the STILL menu.
HVS-16/24OUA: Press the STILL button in the SYSTEM group of the menu section.
HVS-12ROUA: Press the FUNC button, and then select 1. STILL and press F1.

② Press the WARP button in the SYSTEM group of the menu section. The button lights up orange, and the DVE MODIFY-WARP menu appears. Now check that the DVE-PGM button in the M/E2 (or M/E1) section of the menu section is lighted up orange. If it is lighted up green, press the DVE-PGM button to light it up orange.

③ Press the STILL button to display the STILL STORE menu. For the DVE STILL- SIGNAL item, select the bus for which the still is to be stored. Press control F2 below the DVE STILL- STORE item. The logo image used for the side is now stored.



IMPORTANT

Only one still image for PIZZA BOX can be stored. This remains the case even when two DVE boards are installed. The still image is lost when the MU is turned off. Also, be aware that the image may be shaken or distorted when STILL STORE is used.

DVE STILL STORE cannot be save during DVE-FREEZE operation.

When using PIZZA BOX, DVE STILL cannot be used as the back side of a DVE image regardless of the DVE STILL BACK item setting. (See section 8-2-2. "DVE STILL".)

■ **Creating PIZZA BOX**

① Display the MODIFY menu.

<HVS-16/24OUA>

Press the WARP button in the SYSTEM group of the menu section. The button lights up orange, and the DVE MODIFY-WARP menu appears. Now check that the DVE-PGM button in the M/E2 (or M/E1) section of the menu section is lighted up orange. If it is lighted up green, press the DVE-PGM button to light it up orange.

<HVS-12ROUA>

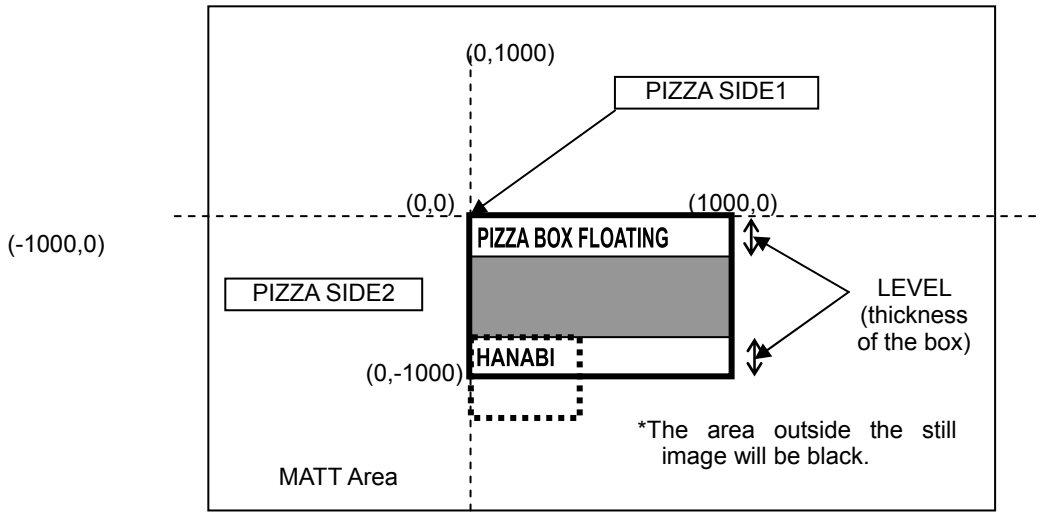
Press the WIPE/DVE MODIFY button in the M/E2 (or M/E1) of the menu section. The DVE MODIFY top menu will open. Turn F1 to select WARP, and then press F1 to open the DVE-MODIFY-WARP menu. If the DVE-PGM(7) button in the KEYPAD section is lighted up orange. If it is lighted up green, press the DVE-PGM button to light it up orange.

② Select PIZZA at WARP TYPE.

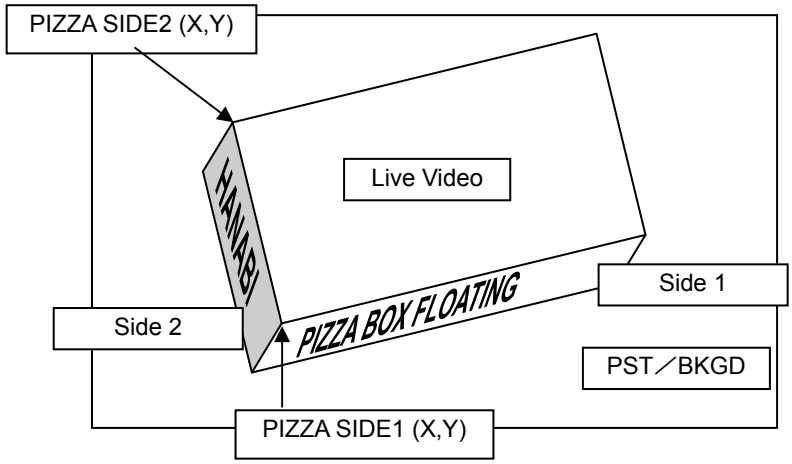
③ Check that PIZZA has been set for the TYPE item on the DVE MODIFY-WARP menu. If LEVEL is raised while a rotation is applied to the DVE image (live video), the side for PIZZA BOX becomes visible.

④ Adjust the logo on the side using the DVE MODIFY-WARP menu.
Set the reference point for side 1 at PIZZA SIDE1 (X, Y) to (0, 0).
Set the reference point for side 2 at PIZZA SIDE2 (X, Y) to (0, -750).

■ **Pizza box sides setting image**



■ **Pizza box appearance**

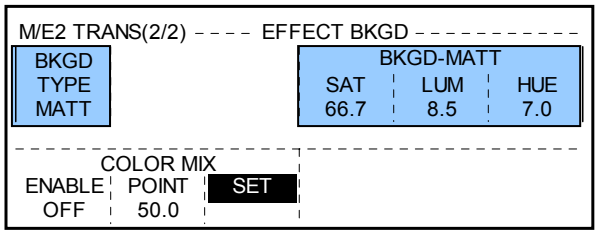


⑤ You can round the Pizza box corners at RAD item in DVE MODIFY-WARP menu.

NOTE
By changing the size, moving the position, and for rotation in the next keyframe , you can make effects such as the pizza box turns and becomes smaller until it disappears. When adding a border, set both BORDER - SELECT and SIDE BORDER to ON. it will be added to the frame of the SIDE1 and SIDE2 images. If set the SIDE BORDER to OFF, a border will be added to the frame of the live image. Borders cannot be applied to the pizza box as a whole and Soft edges cannot be used. As for the HILITE effects, the FLAT type is only available for the Pizza box.

9-3. Effect Background

The Effect Background is used to fill the bottom-most background layer of LINE DVE images. The Effect Background is also used in the color mix feature (See section 9-4. "Color Mix.")
The video signal for Effect Background is selectable for M/E1 and M/E2 independently from a matt or an AUX bus signal. This is done at the BKGD TYPE item in the M/E1 (or M/E2) TRANS (2/2) menu (See the menu example below.). Specify the color at BKGD MATT if you select MATT. Refer to section 5-3. "Gradation Matt" for setting up GMATT, if you select GMATT.

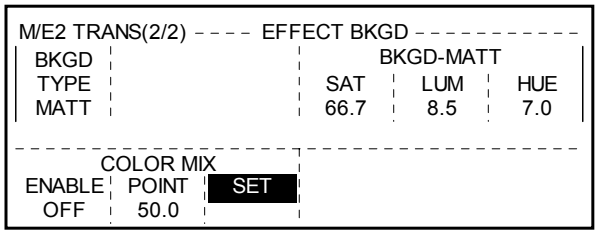


Parameter	Default	Settings	Description
BKGD TYPE (*1)	MATT	MATT, GMATT, AUX7-10 (*2)	Selects a video used for the lowest layer of LINE DVE images.

(*1) The selected signal is also applied to Color Mix effect (see section 9-4).
(*2) AUX7 and 8 can be selected for M/E1 and AUX9 and 10 for M/E2.

9-4. Color Mix

Another video can be mixed during the M/E (background) transition. This Color Mix feature is set in the TRANS(2/2) menu.



Parameter		Default	Settings	Description
BKGD TYPE (*1)		MATT	MATT, GMATT, AUX7-10 (*2)	Selects a video signal lately mixed to the background.
COLOR MIX	ENABLE	OFF	OFF, ON, ONCE (*3)	Enables/Disables color mixing.
	POINT	50.0	0.1-99.9	Specifies the point where the mixing starts.
	SET	-	-	Sets the current fader position to POINT.

(*1) The selected signal is also applied to the lowest layer of LINE DVE images (See section 9-3.)
(*2) AUX7 and 8 can be selected for M/E1 and AUX9 and 10 for M/E2.
(*3) The COLOR MIX ONCE function can be assigned to a USER button. (See section 15-2-2. "Assigning Menu/Function to USER Buttons.")

NOTE

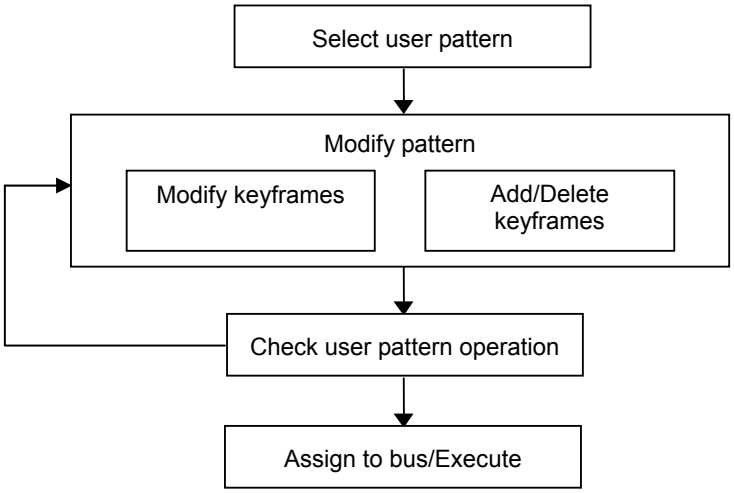
The Color Mix is effective only in the MIX transition.
The TRANS/BKGD button will turn on orange when ENABLE is set to ON.
If ENABLE is set to OFF, the color mixing is automatically changed to OFF after transition.

10. User Patterns

10-1. About the User Patterns

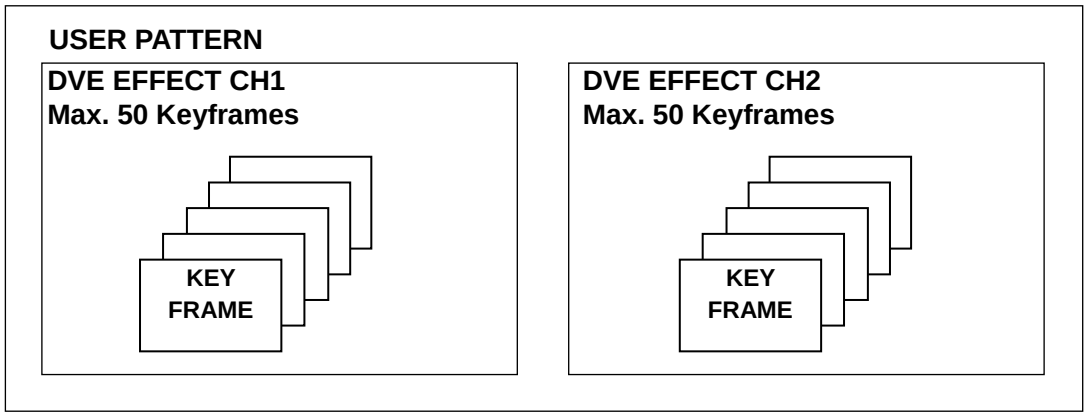
You will have a number of preprogrammed DVE patterns that can be immediately called up and applied to operation. In addition, the user can make and store up to 50 user effects patterns. User patterns can be also modified using the DVE MODIFY menu in the same way as preset patterns (No.401 to 450). User patterns data can be backed up using the CF card (U01 to U50 are used for file extensions for the user pattern data). Refer to section 13-2, "Saving Data to CF Cards" for saving the data.

The procedure for creating and executing user patterns is shown below.



Number of stored user patterns	50 patterns max.
Number of keyframes in one pattern	50 keyframes max.
Total available keyframes in all user patterns	704 keyframes

■ **DVE Pattern Data Structure**



IMPORTANT
The total number of available keyframes in the user pattern is a maximum of **704 keyframes**. If no keyframes are available, keyframes cannot be added to the user pattern.

10-2. Editing User Patterns

User patterns are edited using the **USER PATTERN menu** and **keypad.**

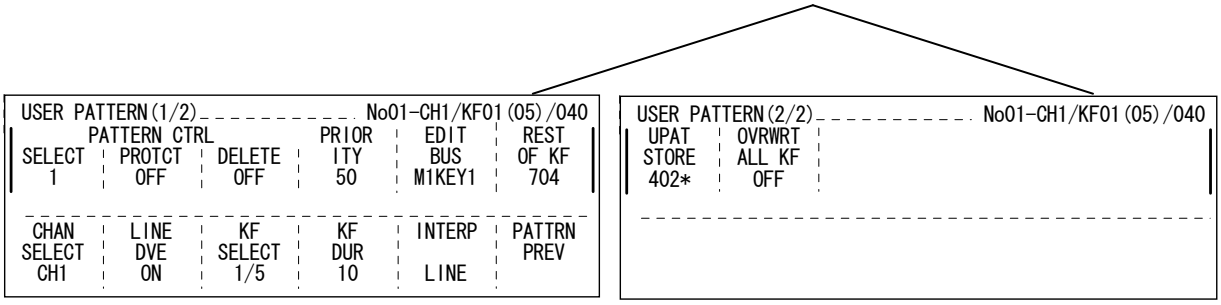
IMPORTANT
Pressing the USER PATT button above the keypad changes keypad operational features. Once the button is pressed (light on), the keypad becomes specific to the **USER PATTERN Editing**. Select a user pattern number under the SELECT item and set PROTCT (PROTECT) to OFF in the USER PATTERN menu to start editing.

Operation item			Operation section	Operation	Refer to
1	Open the USER PATTERN menu		Keypad	Press the USER PATT button.	10-2-1
2	Select the user pattern		USER PATTERN menu	Select the number under the SELECT item.	10-2-4
	Cancel overwrite protect setting		USER PATTERN menu	Set PROTECT item to OFF.	10-2-3
3	Edit pattern	Select channel	M/E2 (or M/E1) menu select section	Press CH1 (DVE-PGM) or CH2 (DVE-PST).	10-2-4
			USER PATTERN menu	Use CHAN SELECT item.	
		Select bus	USER PATTERN menu	Use EDIT BUS item.	
		LINE DVE ON	USER PATTERN menu	Set LINE DVE item to ON.	10-2-4
			LINE DVE button in the M/E bus	Press the LINE DVE button (light on).	7-1
			USER button	Press the corresponding user button (light on).	7-2
		Create new keyframe	Keypad	Press ADD.	10-2-6
		Select keyframe	Keypad	Use INC to move in the forward direction, and DEC to move in the reverse direction.	10-2-7
			USER PATTERN menu	Use KF SELECT item to make selection.	
		Add keyframe	Keypad	Press ADD.	10-2-8
		Insert keyframe	Keypad	Press INS.	
		Overwrite keyframe	Keypad	Press OVERWRITE.	
		Delete keyframe	Keypad	Press DEL and then OVERWRITE.	10-2-10
		Copy/Paste keyframe	Keypad	Press COPY to copy and PASTE to paste.	10-2-9
		Set keyframe duration	USER PATTERN menu	Use KF DUR item to make setting.	10-2-11
		Set interpolation type	USER PATTERN menu	Use INTERP item to make selection.	10-2-12
		Set switching point (2ch-patterns only)	USER PATTERN menu	Use PRIORITY item to make setting.	10-2-1
		Apply changes to all keyframes	USER PATTERN menu	Use OVRWRT ALL KF item	10-2-13
		Preview pattern	USER PATTERN menu	Use PATTERN PREV item	10-2-14
3	Exit USER PATTERN mode		USER PATTERN menu	Return the SELECT item to OFF.	10-2-15
4	Modify user pattern		DVE MODIFY menu	Used to modify user patterns.	8-1 10-3-2
	Delete user pattern		USER PATTERN menu	Use the DELETE item.	10-3-3

10-2-1. Displaying the USER PATTERN Menu

Press the USER PATT button on the keypad to display the USER PATTERN menu

USER PATTERN information
(Pattern No.) – (Channel) / (Current KF) / (Total KFs of the channel) / (Total duration)



■ **USER PATTERN menu**

The following operations are available in the USER PATTERN menu. For details about the respective parameters, refer to the relevant sections.

Parameter		Description	Refer to
PATTERN	SELECT	Used to select the user pattern number for editing.	10-2-1
	PROTCT	Used to set the selected pattern to overwrite protect.	10-2-2
	DELETE	Used to delete the selected pattern.	10-3-2
PRIORITY		Used to select the channel switching point from 0 to 100 0: Switches right after the transition starts (default) 50: Switches in the middle of the transition. 100: Switches after the transition.	
EDIT BUS		Used to select the edit bus.	10-2-4
REST OF KF		Used to display the rest of available keyframes.	
KF CTRL	CHAN SELECT	Used to select the channel for editing (linked with keypad operation).	10-2-4
	LINE DVE	Used to set the selected LINE DVE ON/OFF.	
	KF SELECT	Used to select the current keyframe (linked with keypad operation).	10-2-7
	KF DUR	Used to set the interval between the current keyframe and the next keyframe.	10-2-11
	INTERP	Used to set the interpolation type used between the current keyframe and next keyframe.	10-2-12
PATTERN PREV		Used to preview the user made pattern.	10-2-14
UPAT STORE		Used to copy a user pattern.	10-2-2
OVRWRT ALL KF		Used to apply changes made for one keyframe to all.	10-2-13

10-2-2. Selecting a User Pattern Number

The USER PATTERN number is selected from 1 to 50 under SELECT of the USER PATTERN menu. To select a user pattern when performing the DVE transition, specify the number from 401 to 450.
There are three types of ways to make a user pattern.

1. Create a user pattern from the beginning.
2. Copy a DVE pattern and edit the copied data to create a user pattern.
3. Copy a user pattern and edit the copied data to create a new user pattern.

1 To Create a User Pattern from the Beginning:

Select a number for the user pattern and create a pattern after the procedures in the next section and later.

2 To Copy a DVE Pattern and Edit the Copied Data to Create a User Pattern:

1) Select a (modified) DVE pattern to be copied.
2) Open the DVE MODIFY(1/8) menu. Select a user pattern number, a destination of the copied data, under the UPAT COPY item.
3) Press F4 to perform the copying. The current data of the DVE pattern is copied to the user pattern and an asterisk "*" is displayed at the end of the user pattern.
4) Select this user pattern number in the USER PATTERN(1/2) menu. Edit the pattern after the procedures in the next section and later.

3 Copy a User Pattern and Edit the Copied Data to Create a New User Pattern

1) Select a (modified) user pattern to be copied by turning F1 in the upper menu of the USER PATTERN(1/2) menu.
2) Press the DOWN button to open the USER PATTERN(2/2) menu. Select a user pattern number, a destination of the copied data, under the UPAT STORE item.
3) Press F1 to perform the copying. The current data of the user pattern is copied to the new user pattern number and an asterisk "*" is displayed at the end of the user pattern.
4) Select this user pattern number in the USER PATTERN(1/2) menu. Edit the pattern after the procedures in the next section and later.

10-2-3. PROTCT (PROTECT) Setting (Menu)

Before editing user patterns, set the PROTCT item in the USER PATTERN menu to OFF. To prevent changes or overwriting to the user pattern, set the PROTCT item to ON.

10-2-4. Selecting a Bus (Menu)

Select a bus used for the user pattern under the EDIT BUS item in the USER PATTERN menu.

IMPORTANT
Two-channel patterns can be made for a background bus (M1BKGD or M2BKGD). On the other hand, only one-channel patterns can be made for a key bus (M1KEY1 to M1KEY3 or M2KEY1 to M2KEY3).

10-2-5. Selecting a Channel (Menu)

If you are editing two-channel patterns, select a channel for editing under the CHAN SELECT item in the USER PATTERN menu. The currently selected DVE channel can be checked at the following parameters.

Section	Parameter
USER PATTERN menu	Status information at the top right of the screen. CHAN SELECT
DVE MODIFY menu	Status information at the top right of the screen.

10-2-6. Creating New Keyframes

① Check that the LINE DVE is set to ON for the bus selected at the EDIT BUS item. If it is OFF, change the LINE DVE item in the USER PATTERN menu to ON.

② Check that the DVE MODIFY is set for the selected bus. The relevant menu button on the menu section will light up orange. If not, press the button to light up orange.

③ Prepare an image to be the user pattern.

④ Press ADD on the keypad to create a new keyframe and save the image to it.

IMPORTANT
Use the keypad for the keyframe editing such as adding / overwriting / deleting keyframes. If the USER PATT button above the keypad section is pressed (lights on), the keypad changes to USER PATTERN editing. The editing buttons for user pattern whose label is written in reverse video are enabled. See "User Pattern Mode (Keypad)" below for more details about the edit buttons.

10-2-7. Selecting Keyframes (Menu/Keypad)

The number of the currently selected keyframe (**Current Keyframe**) can be checked under the following parameters.

Section	Parameter
USER PATTERN menu DVE MODIFY menu	Status information at the top right of the screen.
USER PATTERN menu	KF SELECT

Using the following keypad buttons allows users to move between keyframes.

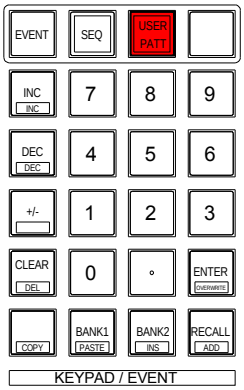
Button	Description
INC	Steps forward one keyframe.
DEC	Steps back one keyframe.

The keyframes can also be selected using the KF SELECT item in the menu.

■ **USER PATTERN Mode (Keypad)**

Press the USER PATT button above the keypad section (light on). The keypad changes to USER PATTERN editing. The editing buttons for user pattern whose label is written in reverse video are enabled.

Button	Description
INC	Use to move between keyframes in the forward direction.
DEC	Use to move between keyframes in the reverse direction.
ADD	Used to add the current DVE operational status as a new keyframe.
INS	Used to insert the current DVE operational status as a new keyframe.
OVER-WRITE	Used to write the current DVE operational status to a selected keyframe (current keyframe).
DEL	Used to delete a keyframe. (Press KF DELETE(CLEAR) and then press OVERWRITE(ENTER).)
COPY	Used to copy a keyframe.
PASTE	Used to overwrite a keyframe.



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ADD, INS, DEL, OVERWRITE buttons cannot be used when the PROTECT is set to ON.

About Keypad Modes

■ Keypad Modes

The keypad is used for numeric input in the menu setting. The switcher also provides 3 special keypad modes: EVENT, SEQUENCE and USER PATTERN. Some buttons in the keypad section have two labels. Top label of the buttons such as "ENTER" or "CLEAR" is enabled in EVENT mode. Bottom label of the buttons such as " ADD " or " INS " is enabled in SEQUENCE and USER PATTERN mode.

■ Switching to the Special Keypad Mode

Three mode buttons (EVENT, SEQ and USER PATT) are used to enter/exit their special keypad mode. When the button is pressed, it lights up orange and changes the keypad section to the corresponding mode.

■ Mode Indications

Four mode buttons illuminate orange to indicate the mode that the keypad section is currently in. When the USER PATT (or SEQ) button illuminates green, a user pattern (or a sequence) is selected and edited, however, the keypad section is not in USER PATTERN (or SEQUENCE) mode.

Example)When SEQ is lit orange and USER PATT is lit green:

User pattern is in editing, however, the keypad is not in USER PATTERN mode, but in SEQUENCE mode. In this case, if you want to edit user pattern using the keypad section, press USER PATT to activate the USER PATTERN mode.

10-2-8. Adding and Overwriting Keyframes (Keypad)

Keyframes can be added in one of two ways, by pressing the INS button for the INSERT command or by pressing the ADD button for the ADD command. Also, if keyframes are added when the KF DUR and INTERP items are already set, the current keyframe duration (KF DUR) and interpolation (INTERP) settings will be applied to the new keyframe.

■ **Before adding keyframes**

Total number of keyframes: 5 / Current keyframe: 3

CH1	1	2	3	4	5

■ **Using KF INSERT to add keyframe**

The current DVE status is created as a new keyframe and set **before** the current keyframe.

CH1	1	2	3	4	5	6

KF3 is inserted as a new keyframe so that the total number of keyframes becomes 6, and the current keyframe becomes KF3.
The keyframes KF3, KF4, and KF5 before adding become **KF4**, **KF5**, and **KF6**, respectively.

■ **Using KF ADD to add keyframe**

The current DVE status is created as a new keyframe and set **after** the current keyframe.

CH1	1	2	3	4	5	6

KF4 is added as a new keyframe so that the total number of keyframes becomes 6, and the current keyframe becomes KF4.
The keyframes KF4 and KF5 before adding become **KF5** and **KF6**.

■ **Overwriting keyframes**

Press the OVERWRITE button on the keypad. The current DVE status is overwritten to the current keyframe.

10-2-9. Copying and Pasting Keyframes (Keypad)

① Use the INC and/or DEC button on the keypad to select the keyframe to be copied.

② Press the keypad COPY button to copy the keyframe information.

③ Select the target keyframe for copying. Press the PASTE button to paste the keyframe information to the target keyframe.

10-2-10. Deleting Keyframes (Keypad)

① Use the INC and/or DEC button on the keypad to select the keyframe to be deleted.

② Press the keypad DEL button. OVERWRITE flashes red.

③ Press the OVERWRITE button to delete the keyframe.
Pressing DEL before pressing OVERWRITE will cancel the operation.

10-2-11. Setting the Keyframe Duration (Menu)

The default setting for keyframe duration is 10 frames. This can be set for each keyframe respectively.

① Select a keyframe using the keypad or in the USER PATTERN menu. (To set the duration between KF1 and KF2, select KF1.)

② Change the duration using the KF DUR item in the USER PATTERN menu.

③ Press the keypad OVERWRITE button to overwrite the keyframe. The currently set duration is now applied to the keyframe.

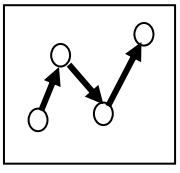
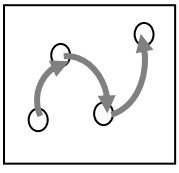
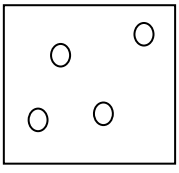
NOTE
The "Total Duration" information of the currently editing user pattern is shown at the top right of the menu display. Total Duration is displayed for each channel.

10-2-12. Selecting the Interpolation Type (Menu)

The interpolation type can be set for each keyframe respectively in user patterns.

① Select a keyframe using the keypad or in the USER PATTERN menu. ((To set the duration between KF1 and KF2, select KF1.)

② In the USER PATTERN menu, set the interpolation type to LINE, SMOOTH, or CUT under the INTERP item.

LINE: Linear Interpolation	SMOOTH: Curve Interpolation	CUT: No Interpolation
		

③ Press the keypad OVERWRITE button to overwrite the keyframe. The currently set interpolation is now applied to the keyframe.

10-2-13. Applying Changes to All Keyframes (Menu)

You can apply the changes made for one keyframe to all as in the procedure below.

① Set the OVRWRT ALL KF item to ON. The OVERWRITE on the keypad will brink.

② Edit a keyframe.

③ Press OVERWRITE (flashing). The changes made for the keyframe are applied to all keyframes in the pattern.

10-2-14. Previewing User Patterns (Menu)

The editing user pattern can be previewed. Follow the procedure below to preview and check the editing pattern.

① Open the USER PATTERN menu and press the control under the PATTERN PREV item.

② Move the fader lever or press the AUTO to perform the transition for the editing pattern. (The PGM (or PST) bus is automatically changed to DVE transition mode from LINE DVE mode.)

10-2-15. Exiting User Pattern Editing

To exit the USER PATTERN editing, set SELECT to OFF in the USER PATTERN menu.

10-3. User Pattern Control

10-3-1. Executing User Patterns

User patterns can be modified and the modified user patterns can be also assigned to buses and executed in the same way as DVE preset patterns. When the numbers 1 to 50 in the USER PATTERN menu are assigned to a bus as a pattern, they become numbers 401 to 450.

10-3-2. Modifying Created User Patterns

The following procedure is used to modify created user patterns in the same way as DVE patterns.

① Select the user pattern. (See section 11-2-1. "Displaying the USER PATTERN Menu.")

② Select the channel. (See section 10-2-4. "Selecting the DVE Channel.")

③ Select the keyframe to be modified. (See section 10-2-7. "Selecting Keyframes.") If PGM output is connected to a monitor, the status of the selected keyframe is output to the monitor.

④ Modify the keyframe.

■ **Changing KF DUR and INTERP**

Use the settings in the USER PATTERN menu to change the parameters. (See sections 10-2-11 and 10-2-12.)

■ **Changing the DVE modify item**

Open the DVE MODIFY menu to display the status of the selected keyframe. Use the parameters to make any changes. When connected to a monitor, you can check the changes viewing the monitor.

⑤ After the all modified settings are made, press the OVERWRITE button to overwrite the keyframe. The modify setting currently made is not applied to the keyframes unless the overwrite is performed. Also, if the keyframe is changed without overwriting, all modified settings will be lost.

10-3-3. Deleting User Patterns

This procedure deletes all setting information in a user pattern.

① Select the pattern to be deleted under the SELECT item in the USER PATTERN menu.

② Set the DELETE item to ON in the USER PATTERN menu.

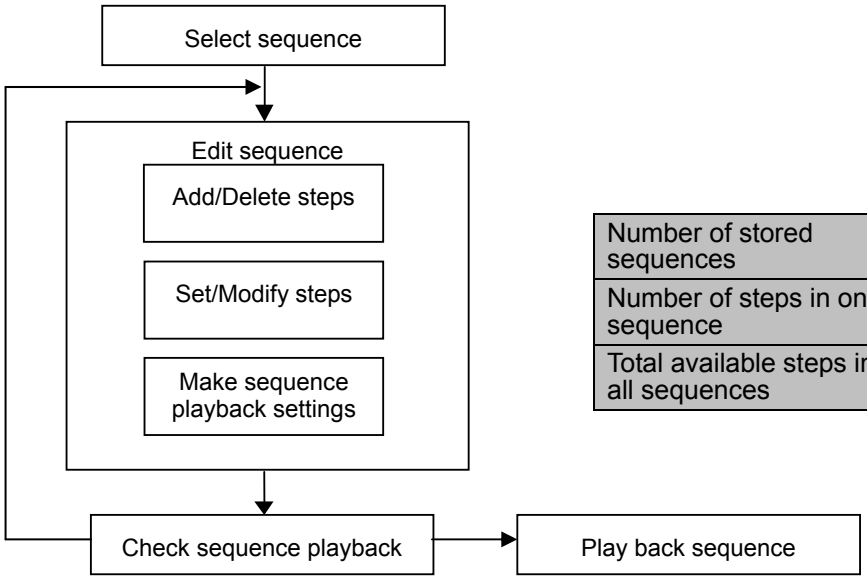
③ Press F3 to delete the user pattern. If the DELETE is set to OFF, pressing F3 will cancel the operation.

11. Sequence Operation

11-1. Overview of Sequence Function

A sequence is a function for joining individual settings and statuses on the control panel into a data set for linked playback as a single operation. Up to 20 sequences can be saved. Each sequence is comprised of data called steps, and a maximum of 50 steps can be stored in a sequence. When creating a sequence, the steps serves as the basic building block, and it must be created first. Once steps are registered to the memory, they are linked together to make a continuous sequence.

The procedure for creating sequences is shown below.



Number of stored sequences	20 sequences max.
Number of steps in one sequence	50 steps max.
Total available steps in all sequences	200 steps

Settings and Effects Available for Sequence Control	
XPT information for each bus (except AUX)	Keyer settings (only shadow effect cannot be interpolated.)
Transition type for each bus	Keyer priority setting
Transition direction	WIPE modify settings
Transition time (except for rate value information)	DVE pattern modify settings
PGM output bus(es)	WIPE assignment pattern number
NEXT TRANSITION settings	DVE assignment pattern number
Line DVE assignments	Color corrector settings except AUX buses.

Settings and Operations Not Available for Sequence Control	
Event memory operation	Sequence editing
MATT color settings	SETUP menu settings
STILL STORE operation	FILE operation

IMPORTANT
Sequence steps and events share the same memory, and up to 200 data slots can be saved. When the memory is full, the sequence editing function cannot be used.

11-2. Editing Sequences

Sequences are edited using the **SEQUENCE menu** and **keypad.**

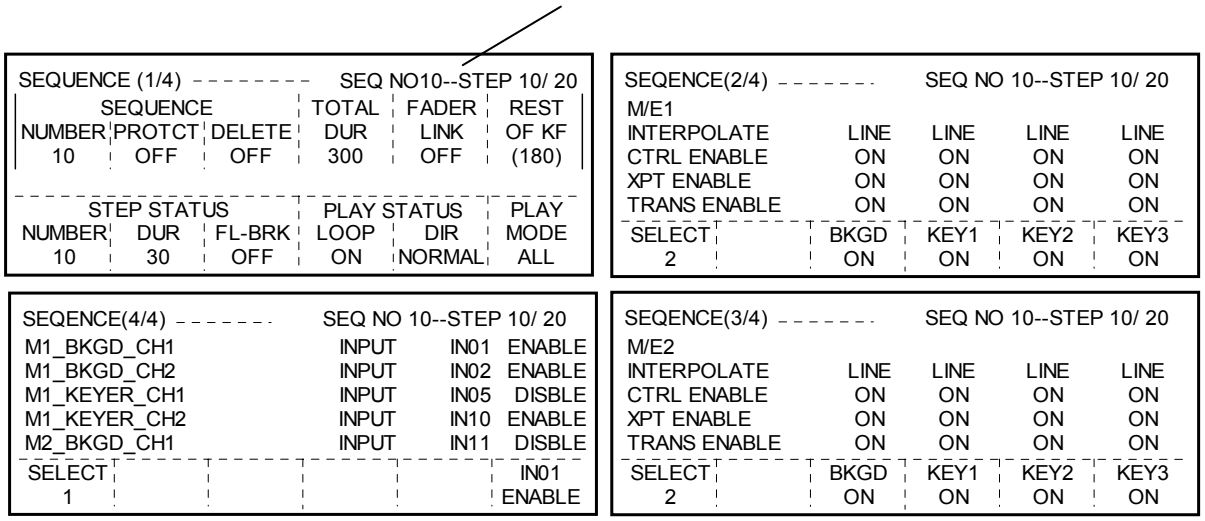
IMPORTANT
Pressing the SEQ button above the keypad changes keypad operational features. Once the button is pressed (light on), the keypad becomes specific to the **SEQUENCE Editing**. Select a sequence number under the SELECT item and set PROTCT (PROTECT) to OFF in the SEQUENCE menu to start the editing.

Operation item			Operation section	Operation	Refer to
1	Open the SEQUENCE menu		Keypad	Press SEQ.	11-2-1
2	Select the sequence		SEQUENCE menu	Select the number under the NUMBER item.	11-2-2
	Cancel overwrite protect setting		SEQUENCE menu	Set the PROTCT item to OFF.	11-2-3
3	Editing	Create new step	Keypad	Press ADD.	11-2-5
		Select step	Keypad	Use INC to move in the forward direction, and DEC to move in the reverse direction.	11-2-6
			SEQUENCE menu	Select under the STEP STATUS – NUMBER item.	
		Add step	Keypad	Press ADD.	11-2-7
		Insert step	Keypad	Press INS.	
		Overwrite step	Keypad	Press OVERWRITE.	
		Delete step	Keypad	Press DEL and then OVERWRITE.	11-2-8
		Copy/Paste step	Keypad	Press COPY to copy and PASTE to paste.	11-2-9
		Set interpolation type	SEQUENCE menu	Use the INTERPOLATE item to make setting for each transition.	11-2-10
		Duration	SEQUENCE menu	Use the DUR item to set.	11-2-11
4	Exit SEQUENCE mode		SEQUENCE menu	Return the NUMBER item to OFF.	11-2-12
5	Play/stop sequence		Keypad	Use PLAY and PAUSE.	11-3
	Delete sequence		SEQUENCE menu	Use the DELETE item.	11-2-13

11-2-1. Displaying the SEQUENCE Menu

Press the SEQ button above the keypad section to display the SEQUENCE menu.

SEQUENCE information
(Sequence No.) – (Step No.) / (Total steps for the sequence)



■ SEQUENCE menu

The following operations are available in the SEQUENCE menu. For details about the respective parameters, refer to the relevant sections.

Parameter		Description	Refer to
SEQUENCE	NUMBER	Used to select the sequence number for editing.	11-2-2
	PROTECT	Used to set the selected sequence to overwrite protect.	11-2-3
	DELETE	Used to delete the selected sequence.	11-2-9
TOTAL DUR		Used to set the total duration of the sequence.	11-2-10
FADER LINK		Used to set if playback is performed by fader lever operation.	11-3-5
REST OF KF		Used to display the number of steps available for sequences.	
STEP STATUS	NUMBER	Used to select step.	11-2-6
	DUR	Used to set the duration value of the selected step.	11-2-10
	FL-BRK	Used to set the break for the step.	11-3-5
PLAY STATUS	LOOP	Used to set if loop playback is performed.	11-3-1
	DIR	Used to select the playback direction.	
PLAY MODE		Used to select step playback ON/OFF	
INTERPOLATE	BKGD	Used to set interpolation type for each transition: the BKGD, KEY1, KEY2, and KEY3.	11-2-11
	KEY1		
	KEY2		
	KEY3		
CTRL ENABLE	BKGD	Used to set if the bus setting (crosspoint selection, transition and transition type selection) saved in the sequence is used (ON) or not (OFF) during playback for each transition.	11-3-3
	KEY1		
	KEY2		
	KEY3		
	BLACK		
XPT ENABLE	BKGD	Used to set if the crosspoint selection saved in the sequence is used (ON) or not (OFF) during playback for each transition.	11-3-2
	KEY1		
	KEY2		
	KEY3		
	EFF BKGD		
BLACK ENABLE	BKGD	Used to select whether the BLACK TRANS is performed or not during sequence playback, if it is saved in the sequence.	
TRANS ENABLE	BKGD	Used to select whether each transition is performed or not during sequence playback, if it is saved in the sequence.	11-3-4
	KEY1		
	KEY2		
	KEY3		

11-2-2. Selecting the Sequence Number

In the SEQUENCE menu, select the sequence number to be edited under NUMBER item.

11-2-3. PROTCT (PROTECT) Setting (Menu)

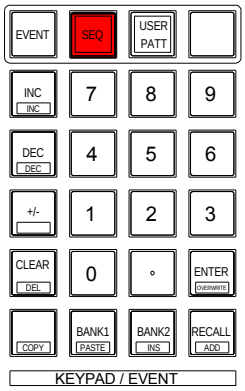
Before editing sequences, set the PROTCT item in the SEQUENCE menu to OFF. To prevent changes or overwriting to the sequence, set the PROTCT item to ON.

IMPORTANT
Playback settings can still be made when PROTCT is set to ON.

11-2-4. SEQUENCE Mode (Keypad)

Press the SEQ button above the keypad to light the button. The keypad changes to SEQUENCE editing. Press the SEQ button above the keypad section (light on). The keypad changes to SEQUENCE editing. The editing buttons for sequence whose label is written in reverse video are enabled.

Button	Description
INC	Use to move between steps in the forward direction.
DEC	Use to move between steps in the reverse direction.
ADD	Used to add the current control panel status to the sequence as a step. After adding the step, the sequence moves to the next step.
INS	Used to insert a step.
OVER-WRITE	Used to overwrite the current control panel status or copied step information to the current step.
DEL	Used to delete a step.
COPY	Used to copy a step.
PASTE	Used to add a copied step as a new step.



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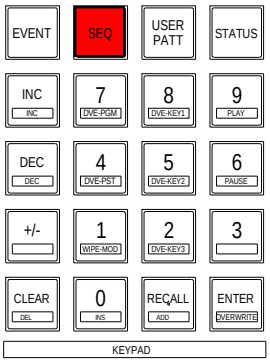

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ADD, INS, DEL, OVERWRITE, COPY, PASTE buttons cannot be used when the PROTECT is set to ON.

IMPORTANT
When USER PATT is lit orange and SEQ is lit green, sequence is in editing, however, the keypad is not in SEQUENCE mode, but in USER PATTERN mode. In this case, if you want to edit sequence using the keypad section, press SEQ to activate the USER PATTERN mode.

11-2-5. Creating New Steps (Keypad)

If no step is saved to the selected sequence, a new step needs to be created first. The following procedure is used to create a step.

① Create the video that you want to save as a step.

② Press ADD on the keypad to create a new step.

11-2-6. Selecting Steps (Menu/Keypad)

The number of the currently selected step (**Current Step**) can be checked at the top right of the screen.

Steps can be selected by using the following keypad buttons.

Button	Description
INC	One push makes one step forward.
DEC	One push makes one step back.

The steps can also be selected by using the STEP STATUS - NUMBER item.

11-2-7. Adding and Overwriting Steps (Keypad)

Steps can be added in one of two ways, by pressing the INS button to insert a step or by pressing the ADD button to add a step.

■ **Before adding steps**

Total number of steps: 5 / Current step: 3

1	2	3	4	5	

■ **Using STEP INSERT to add step**

The current operating status is created as a new step **before** the current step.

1	2	3	4	5	6

The step 3 is inserted as a new step so that the total number of steps becomes step 6, and the current step becomes step 3.
The steps 3, 4, and 5 before adding become steps **4**, **5**, and **6**, respectively.

■ **Using STEP ADD to add step**

The current operating status is created as a new step **after** the current step.

1	2	3	4	5	6

The step 4 is inserted as a new step so that the total number of steps becomes step 6, and the current step becomes step 4.
The steps 4 and 5 before adding become steps **5** and **6**.

■ **Overwriting steps**

Press the OVERWRITE button on the keypad. The current operating status is overwritten to the current step.

11-2-8. Copying and Pasting Steps (Keypad)

① Use the keypad INC and/or DEC buttons to select the step to copy.

② Press the keypad COPY button to copy the step information.

③ Select the target step for copying. The step information will be inserted as a new step before the target step.

④ Press the INS button on the keypad to insert the new step.

11-2-9. Deleting Steps (Keypad)

① Use the keypad INC and/or DEC buttons to select the step to delete.

② Press the keypad DEL button. OVERWRITE flashes red.

③ Press the OVERWRITE button to delete the step. Pressing DEL before pressing OVERWRITE will cancel the operation.

11-2-10. Setting the Duration (Menu)

The default setting for duration is 30. This is the ratio of the total duration. So it is also an actual value (i.e. 30 frames), if TOTAL DUR has not changed.

① Select a step under the STEP STATUS-NUMBER item in the SEQUENCE menu. (To set the duration between step1 and step2, select step1.)

② Change the duration under the STEP STATUS - DUR item.

IMPORTANT
When the total duration value (TOTAL DUR) has changed, the length of keyframes is also changed in accordance with the total duration value. However each duration value (DUR) is not changed. In this case, each duration value (DUR) represents the proportion to the transition duration (total duration)

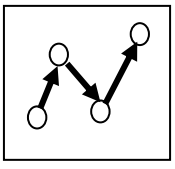
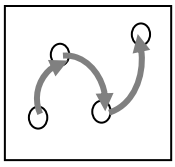
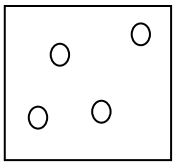
11-2-11. Selecting the Interpolation Type (Menu)

The interpolation type can be set for each transition in a sequence.

① Open the SEQUENCE(2/4) menu if performed on M/E1. Open the SEQUENCE(3/4) menu if performed on M/E2.

② Set the interpolation type to LINE, SMOOTH, or CUT under the INTERPOLATE - BKGD, KEY1, KEY2, and KEY3 respectively.

■ **The operation of each interpolation type is illustrated in the diagram below.**

LINE: Linear Interpolation	SMOOTH: Curve Interpolation	CUT: No Interpolation
		

11-2-12. Exiting Sequence Editing

To exit sequence editing, set NUMBER to OFF in the SEQUENCE (1/4) menu.

11-2-13. Deleting Sequences

This procedure deletes all setting information in a sequence.

① Select the sequence to be deleted under the NUMBER item in the SEQUENCE(1/4) menu.

② Set DELETE to ON in the SEQUENCE(1/4) menu.

③ Press F3 to perform the delete operation. If pressing F3 with OFF will cancel the operation.

11-2-14. Storing/Loading Each Sequence to CF Card

Each sequence data can be stored to and loaded from a CF card. Refer to section 13-2. "Saving Data to CF Cards" and section 13-3. "Downloading from CF Cards" for how to store and load a sequence.

11-3. Playing Back Sequences

Sequences are played back using the **SEQUENCE menu** and **keypad**. To play back a sequence, change the OU to **SEQUENCE mode**, and then change the keypad to SEQUENCE editing for operation.

IMPORTANT
When the keypad is mentioned in this section, it normally refers to the **SEQUENCE Mode** keypad.

Operation item			Operation section	Operation	Refer to
1	Open the SEQUENCE menu		Keypad	Press the SEQ button.	11-2-1
2	Select the sequence		SEQUENCE menu	Select the number under the NUMBER item (change OU to SEQUENCE MODE).	11-2-2
3	Playback setting	Crosspoint ON/OFF	SEQUENCE menu	Set if the crosspoint selection saved in the sequence is used during playback for each transition.	11-3-2
		Bus information ON/OFF	SEQUENCE menu	Set if the bus data saved in the sequence (crosspoint selection, transition, transition type selection) is used during playback for each transition.	11-3-3
		Transition ON/OFF	SEQUENCE menu	Set if each transition is played back or not.	11-3-4
		Fader link setting	SEQUENCE menu	Set FADER LINK to ON	
		Playback direction	SEQUENCE menu	Use the DIR item to set.	11-3-5
		Break	SEQUENCE menu	Use the FL-BRK item to set.	11-3-6
		Loop playback	SEQUENCE menu	Set LOOP to ON	11-3-1
		Step playback	SEQUENCE menu	Set PLAY MODE to STEP.	
	* Playback		Keypad	Press PLAY for automatic playback.	
			BLACK TRANS button	Assign playback function and use as PLAY button.	

* If the SEQ button above the keypad is not lit orange, press the button to light up orange. The keypad section enters SEQ mode.

NOTE
For details about the SEQUENCE menu, see section 11-2-1. "Displaying the SEQUENCE Menu" For details about the SEQUENCE editing keypad, see section 11-2-4. "SEQUENCE Mode (Keypad)."

■ **Playback / Stop Sequence with BLACK TRANS**

The BLACK TRANS button can be used for playback and stop button. Once this function is assigned to BLACK TRANS (see the procedure below), it works same as the PLAY button on the keypad.

① Press the OU SETUP button to open the OU SETUP top menu.

② Turn F1 to select 2.USER BUTTON. Press F1 or the DOWN button to open the OU SETUP-USER BUTTON menu.

③ Go to Page 2 of USER BUTTON menu. Turn F1 to select S_PLAY for BLACK TRANS. Press F1 or ENTER on the keypad to confirm the change.

Lit Indication of sequence function assigned BLACK TRANS button

Button Indication	Description
Lit Green	Pausing sequence
Lit Orange	Playing sequence
Unlit	No sequence selected or no step to be played back.

11-3-1. Playback (Normal / Loop / Step)

Pressing PLAY performs AUTO PLAY of the sequence and AUTO PLAY automatically stops after playing the last step (Normal playback).

NOTE
Verify that SEQ above the keypad is lit orange, if AUTO PLAY is not executed by pressing PLAY. If the button is not lit orange (unlit or lit green), press SEQ to illuminate orange. The keypad will be switched to SEQUENCE mode.

■ **Loop Playback**

When LOOP in the menu set to ON, loop playback is enabled. The switching between the last and first steps is executed by a cut. To make switching smoother, use the same settings both for last and first steps. Pressing PAUSE stops loop playback.

■ **Step Playback**

Since the sequence play is normally performed to the last step (Normal playback), the single step playback can be also selected. In step playback mode you can also specify a step number. To do this, select a sequence number and change the mode to step playback by changing the PLAY MODE item to STEP from ALL.

11-3-2. Setting Crosspoint ON/OFF

During sequence playback, you can select to use the saved crosspoint selection or the current crosspoint selection for each transition. When the setting is ON, the data saved in the sequence is applied during sequence playback. When the setting is OFF, the current panel setting is applied during sequence playback.

① Select a sequence under the NUMBER item in the SEQUENCE menu.

② Use the XPT ENABLE item to make the settings for each transition.

11-3-3. Setting Bus Setting ON/OFF

During sequence playback, you can select to use the saved data in the sequence or the current panel setting data for each transition (crosspoint selection, transition and transition type selection). When the setting is ON, the data saved in the sequence is applied during sequence playback. When the setting is OFF, the current panel setting is applied during sequence playback.

① Select a sequence under the NUMBER item in the SEQUENCE menu.

② Use the CTRL ENABLE item to make the settings for each transition.

11-3-4. Setting Transition ON/OFF

During sequence playback, you can select to perform transition for each, if it is saved in the sequence. When the setting is ON, the transition is performed during sequence playback. When the setting is OFF, the transition is not performed during sequence playback.

① Select a sequence under the NUMBER item in the SEQUENCE menu.

② Use the TRANS ENABLE item to make the settings for each transition.

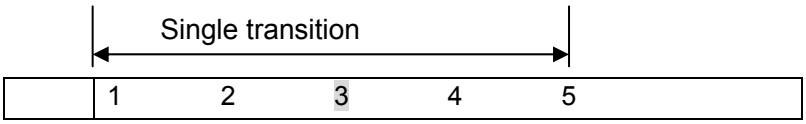
11-3-5. Using Fader Link for Sequence Playback

Sequence playback can be linked to fader lever operation.

① Select a sequence under the NUMBER item in the SEQUENCE menu.

② Select a M/E bus to be linked with the fader lever between M/E1 and M/E2 under the FADER LINK item. Setting to M/E1 or M/E2 enables playback of the current sequence by using M/E fader lever or AUTO button operation.

■ **Playback example of a sequence with 5 total steps**



The sequence plays in a loop by performing a transition until the final point.

During sequence playback using the AUTO button, pressing the AUTO button again performs operation based on the AUTO item setting in the MU SETUP- MODE menu.

Setting	Description
PAUSE	This pauses sequence playback.
CUT	This stops playback and returns to the status in the first step.
RETURN	This plays in reverse from the position where the AUTO button was pressed.

IMPORTANT
The buses where the XPT ENABLE is set to ON cannot be operated during fader link. See section 11-3-2 "Setting Crosspoint ."

11-3-6. Break Settings during Fader Link

Setting this item to ON enables to quit the fader link at a target step during sequence playback.

① Select a sequence under the NUMBER item in the SEQUENCE menu.

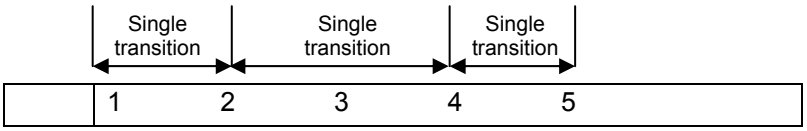
② Select a step under the STEP STATUS – NUMBER item.

③ Set FL-BRK to ON.

- **Break during fader link playback**

  When sequence playback is performed using fader link, the step where Break is set to ON becomes the final point of the transition.

- **Sequence with 5 total steps and steps 2 and 4 set to Break ON**



The sequence plays in a loop using a total of three transitions.

12. Event Memory

Hanabi series switchers can save control panel setup statuses as data for recall when needed. An event is the data for a setting status of the control panel. The events are saved as data and can be recalled when needed. This function can be used to instantly recreate the same setting status. The events are stored and recalled by a keypad operation. The stored event data can be saved and downloaded to CF cards. Refer to section 12-2, "Saving Events" for details. Each of them has 10 pages of 10 event buffers. So, up to 200 events can be stored to the memory.

Items Not Stored to Events.

- System setup in MU SETUP, OU SETUP and other menus such as AUX bus output signal assignments.
- FILE and STILL menu settings.
- CLIP, GAIN and FAM ON/OFF for keyers.
- Not saved to events, if KEYER MODE - SET in the MU SETUP - MODE menu is set to INPUT (saved as setup data).
- Saved to events, if KEYER MODE - SET in the MU SETUP - MODE menu is set to KEYER.
- WIPE and DVE pattern lists.
- WIPE and DVE modification settings.

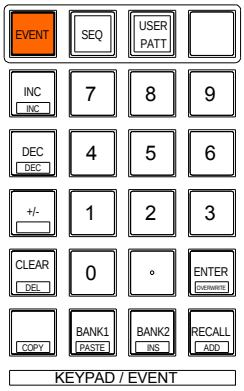
12-1. Specifying the Number of Pages

12-1-1. HVS-16/24OUA

① Press EVENT above the keypad to enter EVENT mode.

② Press BANK1 or BANK2 to select a bank.

③ Press 0 to 9 to select a page. When the page is opened, event stored buttons light up green.



■ **Button Indication when an event page is selected**

Button	Indication	Description
BANK1-2	Lit orange	Indicates the selected bank.
	Lit green	Indicates the not selected bank.
	Flashing orange or green	Indicates available memory pages.
0 to 9	Lit orange	Indicates the currently selected page
	Lit green	Indicates the pages where events are stored.
	Unlit	Indicates the pages where events are not stored.

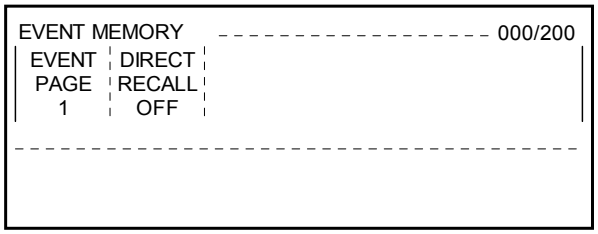
NOTE

If the DIRECT RECALL function is enabled (DIRECT RECALL in the EVENT MEMORY menu is set to ON), events are recalled by only pressing the number buttons (0-9) without using the RECALL button. Once the Direct Recall function is enabled, it is applied to all event pages.

12-1-2. HVS-12ROUA

① Press EVENT above the keypad to enter EVENT mode. The EVENT MEMORY menu will open.

② Turn F1 to select a page under the EVENT PAGE in the EVENT MEMORY menu. An asterisk (*) is added to the right of the page numbers if events are stored. At the same time, the number buttons (0 to 9) light up green if an event is stored.



NOTE

If the DIRECT RECALL function is enabled (DIRECT RECALL in the EVENT MEMORY menu is set to ON), events are recalled by only pressing the number buttons (0-9) without using the RECALL button. The Direct Recall function can be enabled or disabled for each event page.

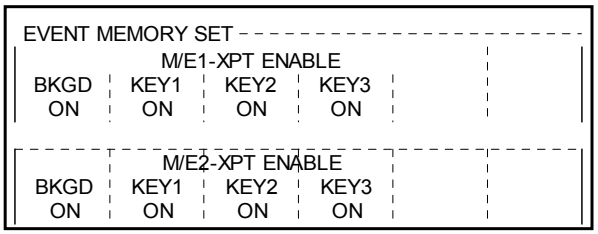
12-2. Saving Events

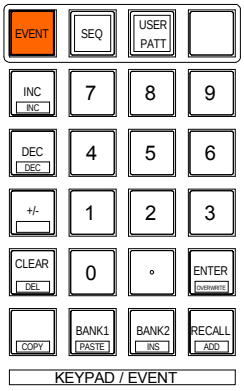
① Refer to section 12-1."Specifying the Number of Pages" to open the memory page where you want to save events.

② Press ENTER. Menu buttons in the menu section will light green to indicate that their menu settings can be stored and the EVENT MEMORY menu appears in the window.

③ Turn off the menu buttons that you don't want to save to by pressing the buttons and keep light on the menu buttons that you want to save to.

④ The EVENT MEMORY menu is used to select whether background and key bus signal setups are stored or not. It can be set for individual buses. For example, if you don't want to store the background signal setup of M/E1, set BKGD of M/E1 to OFF. (All to ON at factory default).





HVS-16/24OUA

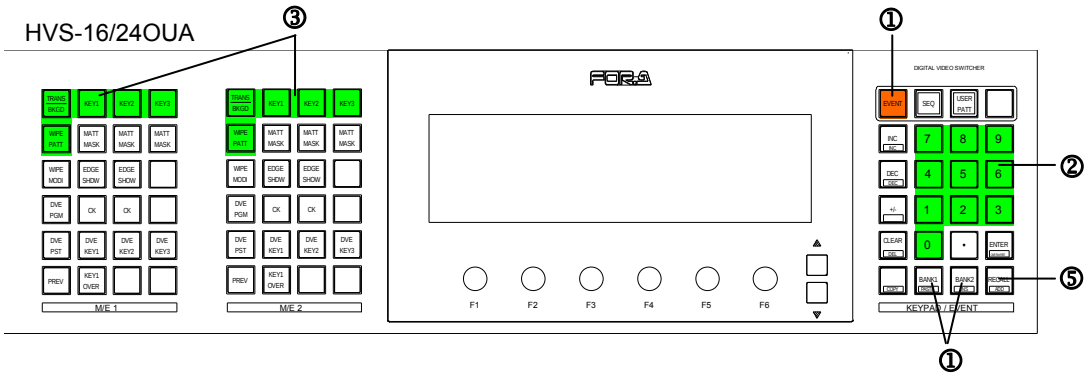
HVS-12ROUA

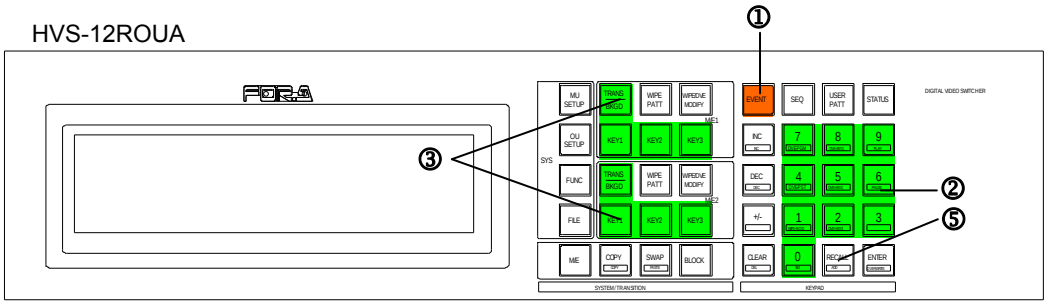
⑤ Press a buffer button (0 to 9) to store event. When you pressed the button where an event is already saved (lit green), it goes to flashing. Pressing the button again overwrites the event. If you press another button (event not stored) without pressing the button again, the event will be stored to that button.

12-3. Recalling from Event Memory

① Refer to section 12-1."Specifying the Number of Pages" to open the memory page where the event that you want to load is stored.

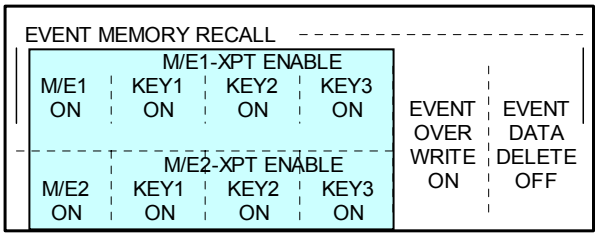
② At this time, menu buttons in the menu section also go to lit green to indicate that their settings will be loaded and the EVENT MEMORY RECALL menu will open. Press the number button (0-9). The pressed number button goes to flashing orange and RECALL goes to lit green.





③ You can select which menu settings should be loaded. Set light on menu buttons to which you want to load data as needed.

④ You can also select individually to load the bus signal setup data in the EVENT MEMORY RECALL menu. To load data to the bus, set to ON, and if not, set to OFF in the menu.



<HVS-12ROUA>

Pressing the HOLD button to the right of each bus section can hold the current bus signal selection.

⑤ Press RECALL to load the data. A long beep sound will be heard when the event data is loaded.

NOTE
If an event is inadvertently loaded, the data recovery function can be used to return to the previous settings. For details, see section 15-5 "Data Recovery."

When DIRECT RECALL is enabled for the memory page:
Follow the procedure below if DIRECT RECALL in the EVENT PAGE menu is set to ON.

① Refer to section 12-1."Specifying the Number of Pages" to open the memory page where the event that you want to load is stored.

② At this time, menu buttons in the menu section also go to lit green to indicate that their settings will be loaded and the EVENT MEMORY RECALL menu will open. Press the number button (0-9) to load the event.

EV-RCL MODE Setting
The button light indications in M/Es may be switched between the upper row and lower row In some cases when recalling events in A/B bus mode. This happens because the EV-RCL MODE is set to TYPE_P, which allows for avoiding "dummy swing of the fader" when recalling events in A/B mode. To change the EV-RCL MODE setting, proceed as follows.

① Press MU SETUP button to open the MU SETUP top menu.

② Turn F1 to select 4 MODE. Then press F1 or the DOWN button to go to the MU SETUP - MODE menu.

EV-RCL MODE setting	Description
TYPE_P	The dummy swing of the fader is **not required** whenever recalling events.
TYPE_A	The dummy swing of the fader is **required** in some cases when recalling events.

* The EV-RCL MODE setting is disabled when the BUS TYPE item in the OU SETUP - BUS CONTROL menu is set to P/P.

12-4. Overwrite Protect / Data Delete

① Press button with a stored data indication (lit green). When pressed, the button will go to flashing orange indication and the EVENT MEMORY RECALL menu should be displayed.

② To set overwrite protection to the button, turn F5 to set EVENT OVERWRITE to DISBL(DISABLE).

To delete event data of the button, turn F6 to set EVENT MEMORY DELETE to ON, then press F6. A "beep" sound will be heard and the memory button will go to unlit once setting made or data delete is completed.

NOTE
When pressing a control, press it down lightly and release it within 1 sec. Note that if you press and hold a control for more than 1 sec., related operation will be cancelled.

13. File Operations

The HVS-3800HS/S Hanabi switchers are capable of storing operational data to the CF memory card and also of recalling and downloading previous card saved data for application to production operations. Operational data which can be card saved / downloaded includes still images, WIPE data, and system setup data.

13-1. CF Card

For available CF memory cards, see "Available File List" in the Appendix. Inserting and removing of the CF card should be performed slowly and firmly.

■ Card Access Lamp

The indicator at the CF card drive turns red when saving or reading data to/from the CF card. Check access to the CF card while performing the operations. While viewing the FILE menu, the FILE button lights orange.

IMPORTANT
Do not remove the CF card while the FILE button is lit red. This could corrupt the stored data or damage the card.

■ Card Space Indicator

To check the available space, insert the CF card into the card slot, and then press the FILE button to open the FILE menu. The available space in the inserted CF card is displayed at the top right of the FILE menu.

13-2. Saving Data to CF Cards

Operational data files can be saved to memory card using the following procedure.

① First insert a CF card into the card drive.

② Press the FILE button to display the FILE top menu. In the FILE menu, turn F1 to select 2 OU/MU=>FILE, and then press F1 or the DOWN button to open the submenu.

③ Use the TYPE item in the menu to select the file extension of data you want to save to the card. See "Available File List" in the Appendix 2 for which file formats of the operational data can be saved to card by HVS-3800 series switchers.

④ If multiple files are displayed in the menu, turn F2 and use SELECT to select which file you want to save.

⑤ Once you have selected the file you want to save to, press F3 to send the file to the CF card. A message "RENAME or SAVE?" will pop up. Turn F4 to select SAVE to save the data. If you want to rename the file, select RENAME and then refer to the section 13-5 "Renaming Saved Files" to give a new name to the file. If the same file exists in the CF card already, a message "OVERWRITE?" will pop up that warns you that if you overwrite the existing file. Turn F4 to select CANCEL, OVERWR (overwrite) or RENAME. If you want to overwrite the file, select OVERWR. If you want to cancel the operation, select CANCEL.

⑥ A "beep" sound will be heard when the data is sent.

NOTE
When pressing a control, press it lightly and release it within 1 sec. Note that if you press and hold a control for more than 1 sec., related operation will be cancelled. Do not try to remove the CF card from the card drive while the CF card access lamp lights red.

13-3. Downloading from CF Cards

All operational data file extensions that are saved on memory cards can be downloaded using the following procedure See "File Extensions" in the Appendix for which file formats can be downloaded from card by Hanabi series switchers.

① First insert a CF card containing data files into the card drive on the Hanabi series control panel.

② Press the FILE button to display the FILE top menu. Turn F1 to select FILE=>OU/MU. Then press F1 or the DOWN button to open the submenu.

③ Use the TYPE item in the menu to select the file extension of data you want to download from the card. See "Available File List" in the Appendix 2 for which file formats can be downloaded from card by Hanabi series switchers.

④ If multiple files are displayed in the FILE menu, turn F2 to select which file you want to download.

⑤ If you want to load an image file such as JPG or TGA, press F3 to select which still memory (STILL1 to STILL6) the downloaded data to be saved to.

⑥ A "beep" sound will be heard when the data is downloaded.

■ **To Download files from CF Card**

When loading a JPEG or TARGA file from the PC card, you can select a centered or tiled format as well as a normal one. After selecting image file to download, turn F3 to select format referring the table below. And then press F3 to load the data. A long beep sound will be heard when the data is loaded.

Setting	Description
STL1 to STL6	File sent to STILL1 to STILL6 in standard format.
STL1 C to STL6 C	File sent to STILL1 to STILL6 in centered format.
STL1 T to STL6 T	File sent to STILL1 to STILL6 in tiled format.
STL1 L to STL4 L	Animation source files sent to and saved as a combined file to STILL1 to STILL4.

NOTE
The Targa files with alpha channels can be also accepted. They can be also loaded in centered or tiled format. When a Targa file with Alpha is loaded to STILL1, the fill video of the file is saved to STILL1 and the key video of the file (Alpha channel) is saved to STILL2.

13-4. Deleting Memory Card Files

Any data file saved to CF cards can be deleted using the following procedure if you need to make more space on a card or simply no longer need the files.

① First insert a CF card containing data files into the card drive on the control panel.

② Press the FILE button to display the FILE top menu. Turn F1 to select 1 FILE=>OU/MU. Then press F1 or the DOWN button to open the sub menu.

③ In the sub menu, turn F1 to select the TYPE of data you want to delete from the card.

④ Turn F2 to select the SELECT of data you want to delete from the card.

⑤ Turn F4 to set the DELETE item to ON and press F4.

⑥ A "beep" sound will be heard when the data is deleted.

NOTE
When pressing a control, press it lightly and release it within 1 sec. Note that if you press and hold a control for more than 1 sec., related operation will be cancelled. Do not try to remove the CF card from the card drive while the CF card access lamp lights red.

13-5. Renaming Saved Files

The user can input an identifying name of up to 8 alphanumeric characters for any file stored to CF cards. Existing files can also be named / renamed using the following procedure.

① First insert a CF card containing data files into the card drive on the control panel.

② Press the FILE button to display the FILE top menu. Turn F1 to select 1 FILE=>OU/MU. Then press F1 or the DOWN button to open the sub menu.

③ In the sub menu, turn F1 to select the TYPE of data you want to rename on the card.

④ Turn F2 to select the SELECT of data you want to rename on the card.

⑤ Turn F5 to select the character (0 – 7 from the left) to be changed. The selected character is displayed above F6.

⑥ Turn F6 to select the character to be used.

⑦ Repeat steps 4 and 5 to change each character in the name of the selected file.

⑧ When all needed characters are input, press F5 below RENAME in the menu. Press F6 to cancel the setting.

13-6. Aborting File Transfer

During saving or loading of a file, file transfer can be canceled while the percent progress is displayed. Use the following operation.

① Press F3 under SAVE or LOAD. YES/NO confirmation will be displayed.

② Set to YES and then press F3 to abort transfer. It takes several seconds to complete processing after aborting the operation

14. Color Correction (Option)

HVS-38CC/SCC Color Corrector options provide Color Correction and Proc Amp capabilities for HVS-3800 series switchers. These options support all HD/SD SDI signal formats handled by HVS-3800 switchers.

14-1. Color Correction Overview

- Supports all inputs and output of HD SDI (multi-format) and SD SDI (multi bit-rate) digital signal formats supported by HVS-3800HS/S
- Provides up to 10 color correction channels : 2 for each M/E bus and 2 for keyers of each M/E and 2 for AUX buses.
- Assignable to PGM, PST, KEY1, KEY2, KEY3 buses of each M/E and AUX1-10 buses.
- Proc Amp capability includes Video Level, Chroma Level Chroma Phase and Black Level control.
- Separate or group adjustment for RGB White/Black/Gamma levels.
- Three Color Correction modes available: BAL(balanced), DIF(differential) and SEPIA.
- Two Clip modes available: YPbPr(YCbCr) and RGB(GBR)
- Color Correction, Clip Adjustment and Proc Amp settings can be stored in the event memory and sequence memory.
- The assignment function of Color Correction channels and the channel status display can be allocated to USER buttons.

14-2. Color Corrector Specifications

One option of HVS-38CC or HVS-38SCC (software option) can be installed into HVS-3800HS/S. This means up to 10 channels of Color Correction channels can be used in HVS-3800 series switchers.

Color Corrector	HVS-38CC/SCC				
Module	ME1 BG	ME1KEY	ME2 BG	ME2KEY	AUX
Number of channels	2	2	2	2	2
Assignable bus	M/E1PGM M/E1PST	M/E1KEY1-3	M/E2PGM M/E2PST	M/E2 KEY1-3	AUX1-10
Assignment type	Output bus, Input signal, Bus button				
Proc Amp	Luminance level, Chroma level, Chroma phase, Black level				
Color Correction	RGB White/Black/Gamma				
Clip Adjustment	YPbPr, RGB				

14-3. Color Correction Flow

Color correction can be set using the Color Correction menu. Press the FUNC button in the menu section to open the COLOR CORRECTION menu from the FUNCTION top menu.

Select a color correction channel (MODULE, CHAN)	See section 14-4.
↓	
Select a signal to be assigned to the channel (TYPE, SELECT)	See section 14-4.
↓	
Enable the color correction channel (Set ENABLE to ON)	See sections 14-4 and 14-8-2.

Proc Amp Control (See section 14-5.)	Color Correction Adjustment (See section 14-6.)			Clip Adjustment (See section 14-7.)	
Luminance level (Y LEVEL) Chroma level (C LEVEL) Chroma phase (C PHASE) Video level (V LEVEL) Black level (BLACK)	Mode Selection (CC MODE)			Mode Selection (CLIP MODE)	
	BALANCE	DIFFERENTIAL	SEPIA	YPbPr	RGB
	RGB WHITE LEVEL RGB BLACK LEVEL RGB GAMMA LEVEL RGB GAMMA CURVE		SAT HUE	Y WHITE LEVEL Y BLACK LEVEL C WHITE LEVEL	WHITE LEVEL BLACK LEVEL

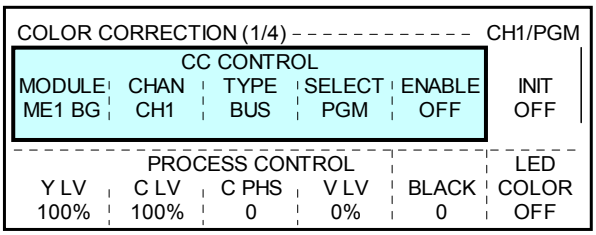
IMPORTANT

To fully or partly initialize color correction menu settings, select under the INIT parameter from ALL, PROC , CC or CLIP and then press and hold the relevant function button down for a while.

14-4. Assigning A Color Correction Channel

To assign a signal to a color correction channel, proceed as follows:

① Press the FUNC button in the menu section to open the FUNCTION top menu. Turn F1 in the menu to select 5 COLOR CORR. Then press F1 or DOWN button to open the COLOR CORRECTION menu.



② Turn F2 to select a color correction channel under the CHAN item. The selected channel is indicated in upper right of display.

③ To select a signal to be assigned to the selected color correction channel, at first specify the control type (BUS, INPUT or BUTTON) under the TYPE item and then select a signal under the SELECT item. (See the below tables.)

MODULE setting	Assignable bus
ME1 BG	M/E1PGM (A BUS), M/E1PST (B BUS)
ME1KEY	M/E1KEY1, M/E1KEY2, M/E1KEY3
ME2 BG	M/E2PGM (A BUS), M/E2PST (B BUS)
ME2KEY	M/E2KEY1, M/E2KEY2, M/E2KEY3
AUX	AUX1-10

MODULE	ME1 BG	ME1KEY	ME2 BG	ME2KEY	AUX
TYPE setting	SELECT setting				
BUS	M/E1PGM M/E1PST	M/E1KEY1 -3	M/E2PGM M/E2PST	M/E2 KEY1-3	AUX1-10
INPUT	BLACK, IN01 - 28, MATT1, MATT2, STILL1 - 6, WHITE, COLBAR				
BUTTON	BUTTON1 - 34				

When INPUT or BUTTON is set, assignable input buses or buttons are the same regardless of the module.
If a different color correction channel is applied to the same signal, the priority levels are as follows:
BUS > BUTTON > INPUT

④ Turn F5 to ENABLE to ON to activate the color correction channel.

⑤ Now the selected video signal can be processed using Proc Amp, Color Correction and Clip adjustment. Check and adjust the signal using a waveform monitor and vectorscope. Also use an SDI monitor to compare between pre and post-processed images.

IMPORTANT

Color Correction channels can be assigned to USER buttons only when the control type (TYPE) is set to INPUT or BUTTON. See section 4-4-1 and 4-4-2 for more details.

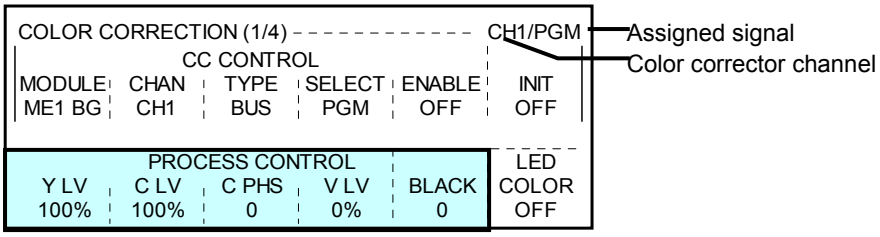
Name indicators of bus signals will light up orange, if color correctors are assigned to the input bus signals by using INPUT or BUTTON type setting for ME1BG or ME2BG and LED COLOR is set to ON. In HVS-12ROUA the indicator to the right side of each bus section will light up when BUS is selected for the control type (TYPE).

14-5. Proc Amp

To adjust the video signal using Proc Amp, proceed as follows.

① Refer to section 14-4 "Assigning A Color Correction Channel" to assign a signal to the color corrector channel.

② Press DOWN button to go to the bottom of the COLOR CORRECTION (1/4) menu.



③ Use F1 to F5 to adjust the following parameters. (See the table below.)

■ **COLOR CORRECTION（1/4）Menu**

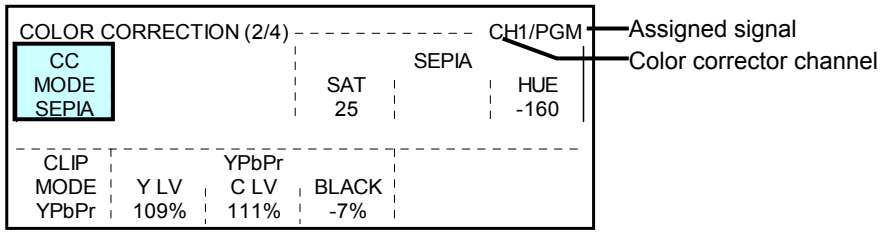
Parameter	Description	Default	Setting Range
Y LEVEL	Adjusts luminance level.	100%	0% ~ 200%
C LEVEL	Adjusts chroma level.	100%	0% ~ 200%
C PHASE	Adjusts chroma phase.	0	-179 ~ 180
VIDEO LEVEL	Adjusts video level.	0%	0% ~ 200%
BLACK LEVEL	Adjusts black level.	0	-150 ~ 150

14-6. Color Correction

To adjust the video signal using Color Correction, proceed as follows.

① Refer to section 14-4 "Assigning A Color Correction Channel" to assign a signal to the color corrector channel.

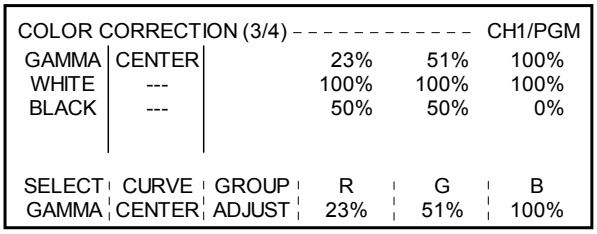
② Press the DOWN button to go to the COLOR CORRECTION (2/4) menu.



③ Turn F1 to select the color correction mode from BAL (balanced), DIF (DIFFERENTIAL) and SEPIA (Sepia) under CC MODE. Refer to section 14-6-1 "Balanced Mode and Differential Mode" for more details about the difference between these modes.

If Balance or Differential is selected:

a) Press the DOWN button twice to open the COLOR CORRECTION (3/4) menu.



b) Turn F1 to select the item to adjust. Use F3 if adjusting RGB as a group. Use F4 to F6 if adjusting RGB independently. Use F2 to select gamma curve.

■ **COLOR CORRECTION(3/4) menu**

SELECT setting	Parameter	Description	Default	Setting Range
GAMMA	CURVE	Selects gamma curve	CENTER	CENTER, BLACK, WHITE
	GROUP ADJUST	RGB group adjustment	100%	0% ~ 200%
	R / G / B	RGB separate adjustment		
WHITE	GROUP ADJUST	RGB group adjustment	100%	0% ~ 200%
	R / G / B	RGB separate adjustment		
BLACK	GROUP ADJUST	RGB group adjustment	100%	0% ~ 200%
	R / G / B	RGB separate adjustment		

If Sepia is selected:

a) Use F4 and F5 to adjust SAT and HUE in the COLOR CORRECTION(2/4) menu.

■ **COLOR CORRECTION (2/4) menu**

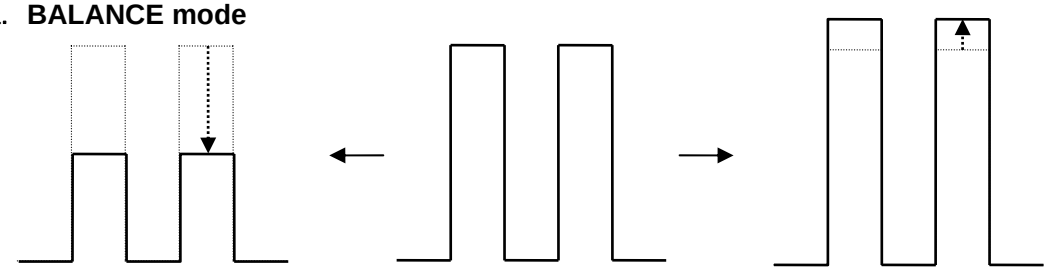
Parameter	Description	Default	Setting Range
SAT	Adjusts saturation level.	25	0 ~ 100
HUE	Adjusts hue.	-160	-179 ~ 180

14-6-1. Balanced Mode and Differential Mode

When adjusting a video signal in balanced or in differential mode, the associated waveforms will appear differently as shown below. (A 100% color bar signal is used in the following example.)

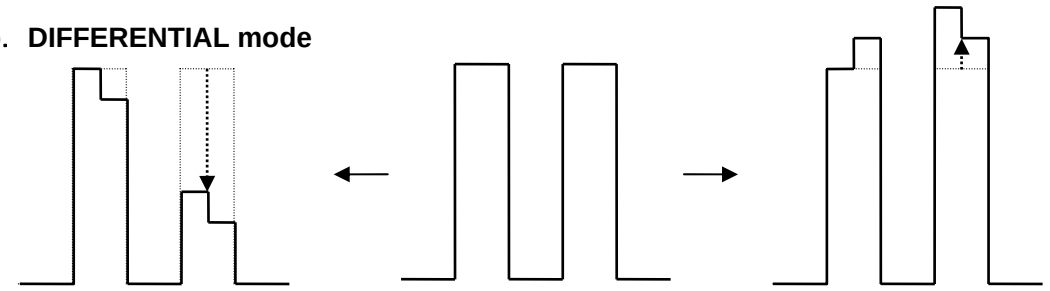
(1) The figures below illustrate the change of the signal waveform when the WHITE level is adjusted along the R axis in balanced or in differential mode. This also applies to G or B axis.

1-a. BALANCE mode



When set to negative value: Default When set to positive value

1-b. DIFFERENTIAL mode

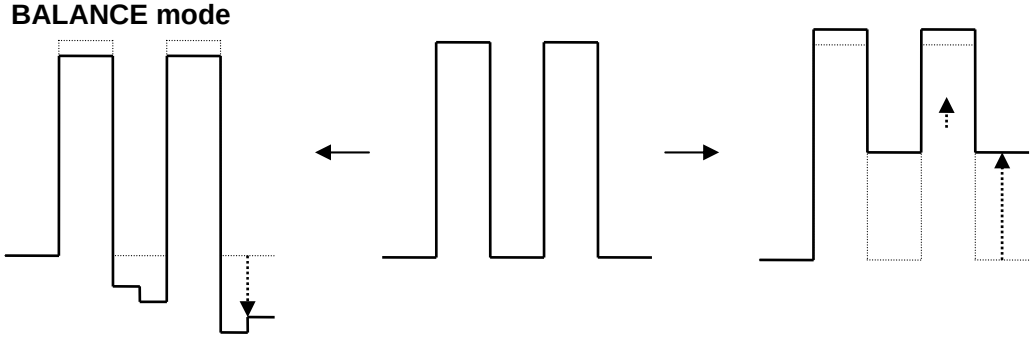


When set to negative value: Default When set to positive value

Notice that on vectorscope displays the signal level transition in the above example is different between balanced mode and differential mode when observing the R, G or B axis positive territories.

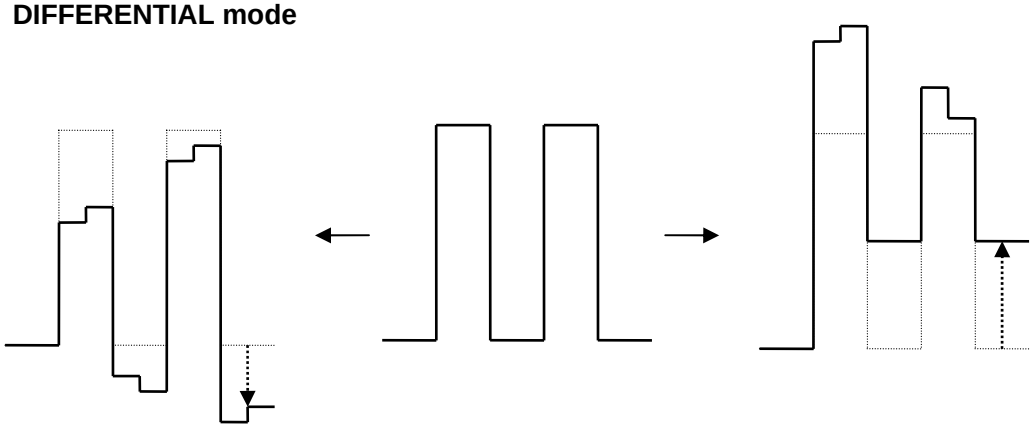
(2) The figures below illustrate the change of the signal waveform when the BLACK level is adjusted along R axis in the balanced or in the differential mode. This will be also applied to G or B axis.

2-a. BALANCE mode



When set to negative value: Default When set to positive value:
(The signal will be clipped)

2-b. DIFFERENTIAL mode



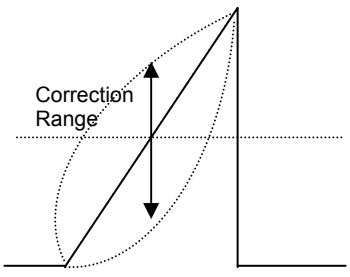
When set to negative value: Default When set to positive value:
(The signal will be clipped)

14-6-2. Gamma Curve

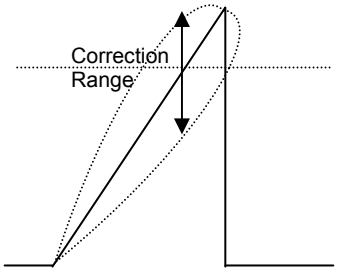
When performing gamma corrections, the following three adjustment type are available:

Center: Gamma curve is weighted toward the mid tones (near 50%).
White: Gamma curve is weighted toward Highlights (near 75%).
Black: Gamma curve is weighted toward Shadows (near 25%)

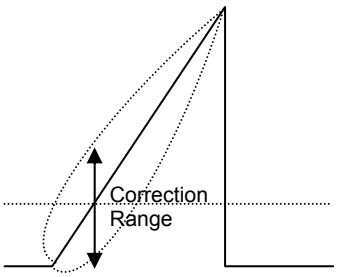
50% If CENTER is selected: (default)



75% If WHITE is selected:



25% If BLACK is selected:



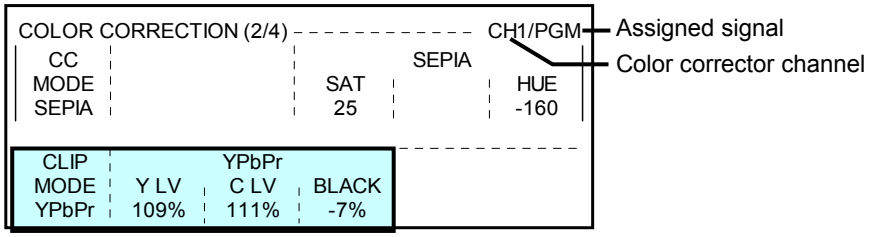
Three type Gamma Correction Curves

14-7. Clip Adjustment

Clip settings can be selected from two types according to your system format; YPbPr (YCbCr) clip or RGB clip. If set to Clip off in the menu, factory set default clip settings should be applied. To set Clip adjustment, proceed as follows:

① Refer to section 14-4 "Assigning A Color Correction Channel" to assign a signal to the color corrector channel.

② Press the DOWN button to go to the COLOR CORRECTION (2/4) menu.



③ Turn F1 to select YPbPr or RGB under CLIP MODE. See section 14-7-1 "YPbPr Mode and RGB Mode" about the difference in adjustments between YPbPr mode and RGB modes.

If YPbPr selected:
In the YPbPr CLIP line, use F2 to F4 to adjust the following parameters. (See the table below.)

Parameter	Description	Default	Setting Range
YPbPr Y LV CLIP	Clips Y signal White level.	109%	50% ~ 109%
YPbPr C LV CLIP	Clips C signal White level.	111%	50% ~ 111%
YPbPr BLACK LV CLIP	Clips Black level	-7%	-7% ~ 50%

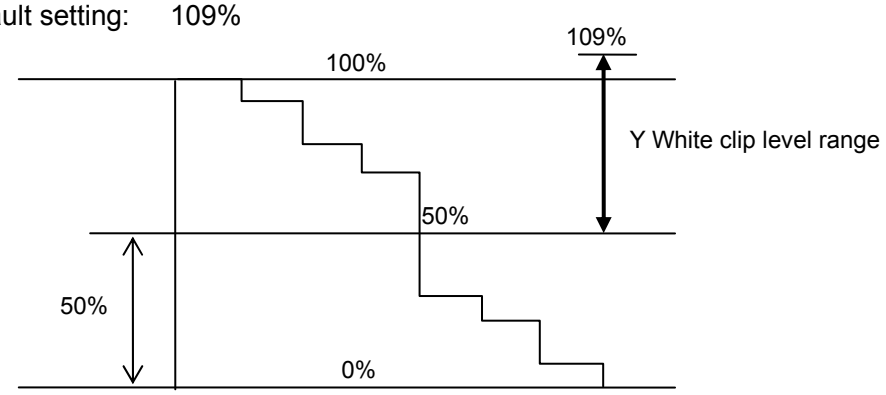
If RGB selected:
Use F2 and F3 to adjust the following parameters.

Parameter	Description	Default	Setting Range (unit)
WHITE CLIP	Clips White level	300%	50% ~ 300%
BLACK CLIP	Clips Black level	-200%	-200% ~ 50 %

14-7-1. YPbPr Mode and RGB Mode

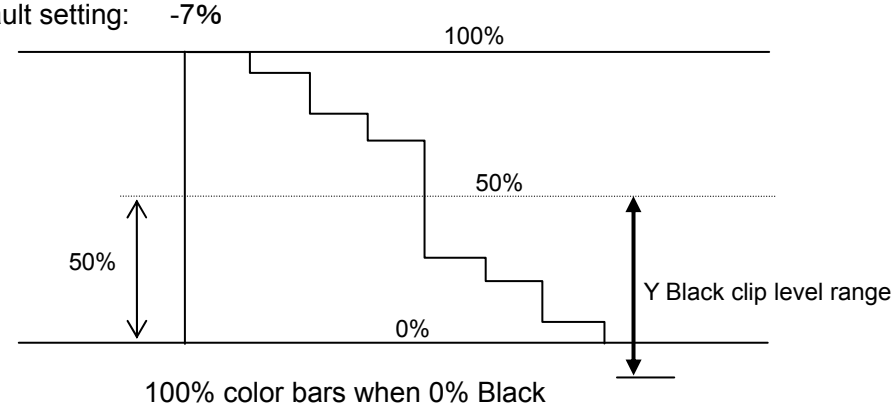
(1) YPbPr mode

(a) Y White Clip Level
Setting range: 50 to 109%
Default setting: 109%



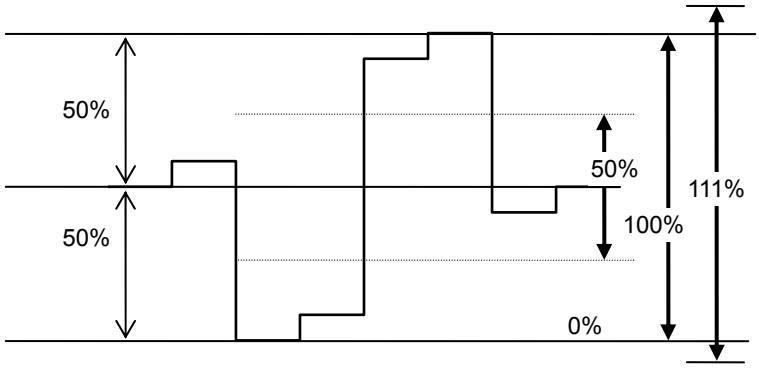
100% color bars when 100% white.

(b) Y Black Clip Level
Setting range: -7% to 50%
Default setting: -7%



100% color bars when 0% Black

(c) C White Clip Level
Setting range: 50 to 111%
Default setting: 111%



100% color bars when color 100%

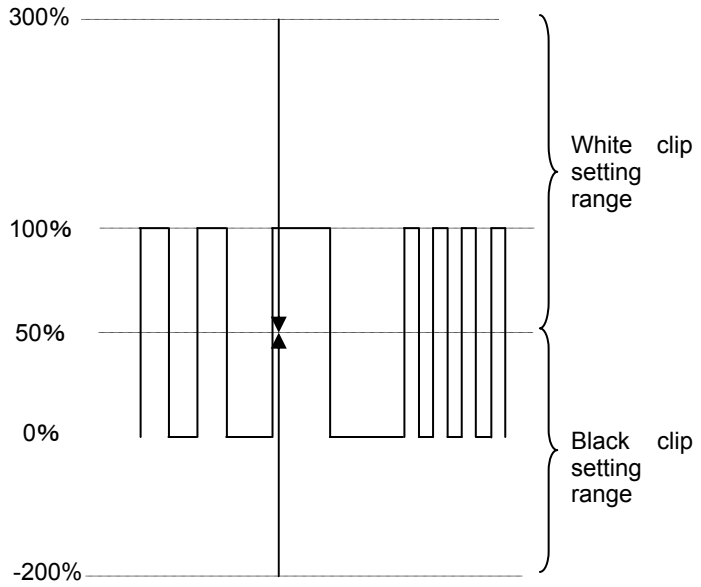
(2) RGB mode

Once "RGB clip" is selected, YPbPr input video signal is converted to RGB signal in the unit. The converted RGB signal is processed so as not to exceed the RGB gamut range set per RGB White and Black Clip menu parameters.

The processed RGB signal is then converted again to YPbPr format. This correction is used to eliminate out-of RGB gamut problems.

IMPORTANT
Video process controls for Y LEVEL, C LEVEL, C PHASE, VIDEO LEVEL and BLACK LEVEL are performed after a RGB gamut correction.

RGB Clip Processing White and Black cllip setting ranges are shown in the figure below.



RGB Clip Processing

14-8. Assigning Functions to User Buttons

The color corrector channels can be allocated to video signals by using user buttons, if the color corrector type is set to INPUT or BUTTON. If the color corrector type is set to BUS, user button assignments cannot be used. To assign a signal to the color corrector with a user button, a signal should be specified in the AUX/KEY bus.
In addition, the usage status of color correction channels can be dynamically obtained by using user buttons.

14-8-1. Allocating Channels to User Buttons

■ **Selecting a Color Correction Channel**

To allocate a color correction channel to a desired user button, proceed as follows.

① Press the OU SETUP button in the menu section to open the OU SETUP top menu.

② Turn F1 to select USER BUTTON. Press F1 or the DOWN button to open the USER BUTTON menu.

③ In the USER BUTTON menu, turn F1 to select a user button. The selected user button will be flashing green.

④ Turn F2 to select FUNC under the TYPE item. Press F2 to confirm the selection.

⑤ Turn F3 to select a color correction channel to be allocated to the user button. (See the table below.) Press F3 to confirm the selection.

FUNC setting
ME1 BG-CC1 SEL（INPUT/BTN）
ME1 BG-CC2 SEL（INPUT/BTN）
ME1KEY-CC1 SEL（INPUT/BTN）
ME1KEY-CC2 SEL（INPUT/BTN）
ME2 BG-CC1 SEL（INPUT/BTN）
ME2 BG-CC2 SEL（INPUT/BTN）
ME2KEY-CC1 SEL（INPUT/BTN）
ME2KEY-CC2 SEL（INPUT/BTN）
AUX-CC1 SEL(INPUT/BTN)
AUX-CC2 SEL(INPUT/BTN)

Once the color correction channel is allocated to a user button, the Color Correction menu will open by pressing the user button twice quickly.

■ **Selecting a Video Signal**

① Press and light up the user button where the color correction channel is allocated. All of the buttons in the AUX/KEY bus light off.

② Select a signal to be assigned to the color correction channel in the AUX/KEY. If the color corrector type is set to INPUT, the channel is assigned to the input signal. If the color corrector type is set to BUTTON, the channel is assigned to the bus button. This color corrector assignment is applied to both M/E and AUX/KEY buses.

14-8-2. Displaying Usage Status of CC Channels

To assign color correction channels to user buttons, proceed as follows.

① Press the OU SETUP button in the menu section to open the OU SETUP top menu.

② Turn F1 to select USER BUTTON. Press F1 or the DOWN button to open the USER BUTTON menu.

③ In the USER BUTTON menu, turn F1 to select a user button. The selected user button will be flashing green.

④ Turn F2 to select FUNC under the TYPE item. Press F2 to confirm the selection.

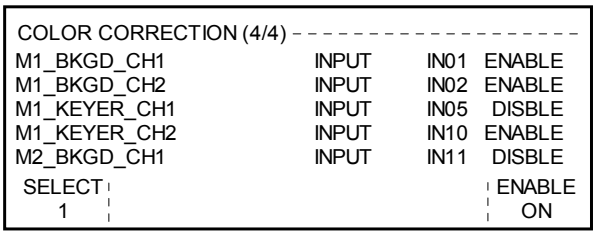
⑤ Turn F3 to select a color correction channel display to be allocated to the user button. (See the table below.) Press F3 to confirm the selection.

Once the color correction channel display is allocated to a user button, the user button lights up whenever the color correction channel (corresponding signal) is selected on the panel. It turns off, if the channel is deselected.

FUNC setting	TYPE setting	Status display (user button)
COLOR CORRECT LED	BUS INPUT BUTTON	Lights up orange when the channel is selected on the panel
COLOR CORRECT ME1 BKGD CH1 COLOR CORRECT ME1 BKGD CH2	INPUT BUTTON	Lights up orange when the channel is selected on the M/E1 bus.
COLOR CORRECT ME1 KEY CH1 COLOR CORRECT ME1 KEY CH2	INPUT	Lights up orange when the channel is selected for INSERT or SOURCE of KEY1-3.
	BUTTON	Lights up orange when the channel is selected for keyers on the AUX/KEY bus.
COLOR CORRECT ME2 BKGD CH1 COLOR CORRECT ME2 BKGD CH2	INPUT BUTTON	Lights up orange when the channel is selected on the M/E2 bus.
COLOR CORRECT ME2 KEY CH1 COLOR CORRECT ME2 KEY CH2	INPUT	Lights up orange when the channel is selected for INSERT or SOURCE of KEY1-3.
	BUTTON	Lights up orange when the channel is selected for keyers on the AUX/KEY bus.
COLOR CORRECT AUX CH1 COLOR CORRECT AUX CH2	INPUT	Lights up orange when the channel is selected for auxiliary buses on the AUX/KEY bus.

■ The Color Correction Channel List and ON/OFF Selection

Pressing twice quickly the user buttons to which the color correction channels are allocated (except the COLOR CORRECT LED assigned button) opens the color correction channel list.
In this list each channel can be activated / deactivated by using F1 and F6.



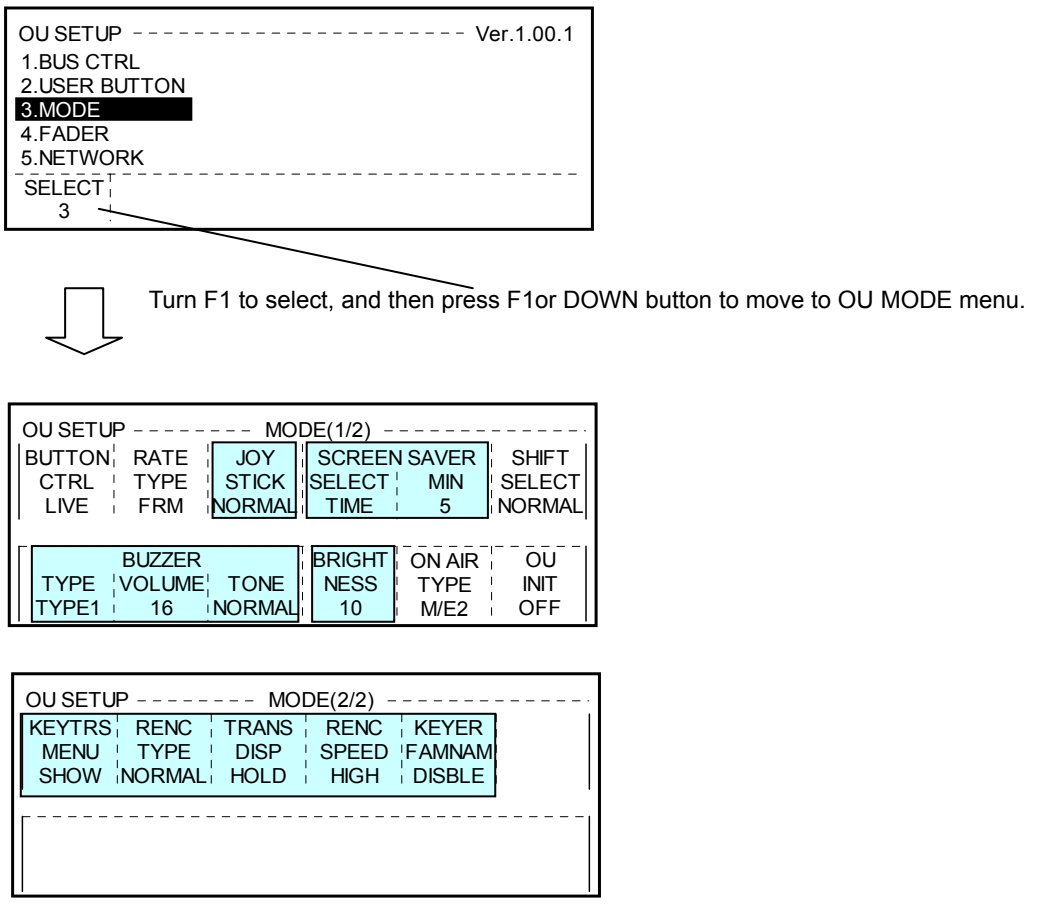
15. Additional Features

In addition to signal switching features explained thus far, the SETUP menu of the HVS-3800series switchers also allows users to make several settings and checks that are more of a convenience nature.

15-1. System Setup

Operation settings, such as the brightness of the menu screen, buzzer sound mode, fader lever and joystick response, and screensaver, can be made in the OU SETUP - MODE menu. To access the OU SETUP menu page, use the F1 control in the OU SETUP top menu (see the figures below) to select the respective submenu, and then press the F1 control or the DOWN button.

15-1-1. OU SETUP Menu



■ **Joystick response, screen saver and display brightness, and fader lever response**

Parameter		Description	Default	Setting Range
JOYSTICK		Sets the joystick response level.	ACCEL	LOW, NOR, HIGH, ACCEL
	TYPE	Selects screen saver type.	TIME	TIME, BALL, OFF
	MIN	Defines wait time (in minutes).	5	1 to 60
BRIGHTNESS		Adjusts brightness level of the screen.	10	1-15

■ Warning Buzzer

Parameter		Description	Default	Setting Range
BUZZER	TYPE *	Sets buzzer type.	TYPE1	TYPE1, TYPE2, TYPE3, TYPE4, OFF
	VOLUME	Sets buzzer volume set.	20	0-31
	TONE	Sets buzzer tone.	NORMAL	LOW, NORMAL, HIGH

* Following four kinds of indication buzzer available:
(1) Operational alarm buzzer (three short beeps sound)
(2) Page overflow alarm buzzer (two short beeps sound)
(3) Confirm setting buzzer when rebooting system, initiating menus, saving/loading files, handling events, etc.
(one long beep sound)
(4) Other indication buzzer for operational setting (one short beep sound)

TYPE1: Enables all four kinds of buzzer:
TYPE2: Enables all four kinds of buzzer, but uses one short beep sound for all.
TYPE3: Enables three kinds of buzzer except (1).
TYPE4: Enables only (3) and (4).
OFF: Mutes all buzzer sounds.

■ Fader Limit ON/OFF in KEYER menu

Parameter	Default	Setting	Description	Refer to
KEYTRS MENU	SHOW	SHOW	Displays Fader Limit item	6-9-2
		HIDE	Hides Fader Limit item.	

■ RIGHT side control mode and speed for KEY MASK and DVE CROP.

Parameter	Default	Setting	Description	Refer to
RENC TYPE	NORMAL	NORMAL	Turning clockwise increases value.	5-8-2 8-2-4
		INVERT	Turning counter-clockwise increases value. Joystick also moves inversely.	
RENC SPEED	NORMAL	NORMAL, HIGH	Select between normal or high speed of the knob control.	

■ Transition Information Display Mode for Background and Keyers (HVS-16/24OUA)

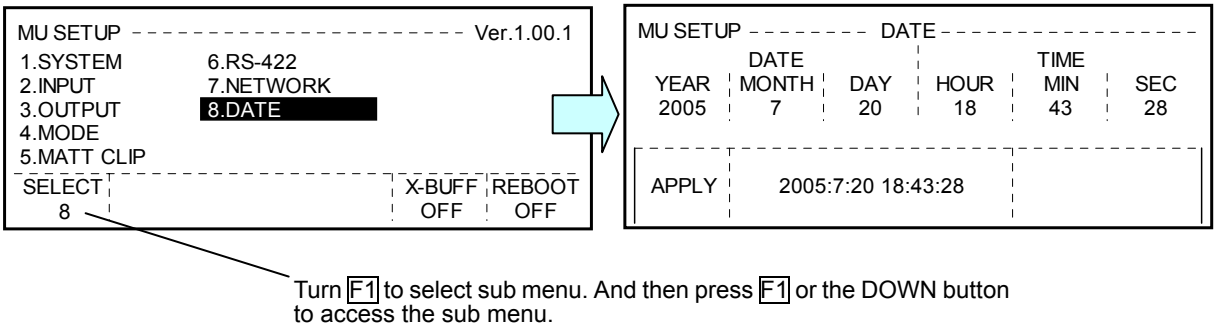
Parameter	Default	Setting	Description	Refer to
TRANS DISP	HOLD	HOLD	Keyer (KEY1, KEY2 or KEY3) information is only displayed during pressing a button (KEY1, KEY2, or KEY3) in the Transition section.	6-6-1
		PRESS	Keyer (KEY1, KEY2 or KEY3) or BKGD information is displayed when a button (KEY1, KEY2, KEY3 or BKGD) or a bus is selected in the Transition section.	

* The transition information display in HVS-12ROUA is same as PRESS.

■ Setting FAM and NAM Transitions ON/OFF for Keyers(in KEYER menus)

Parameter	Default	Setting	Description	Refer to
KEYER FAMNAM	DISBLE	DISBLE	Disables FAM and NAM transitions for keyers.	6-4-1
		ENABLE	Enables FAM and NAM transitions for keyers.	

15-1-2. MU SETUP Menu



■ **Date setting**

Parameter		Description
DATE	YEAR, MONTH, DAY	Date setting
TIME	HOUR, MIN, SEC	Time setting
APPLY		Applies setting

* After date setting is complete, press F1 under APPLY to confirm the setting.

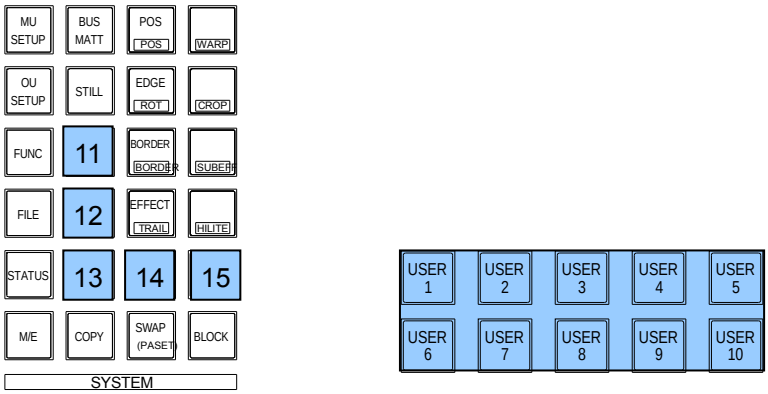
15-2. USER Buttons

The USER buttons to the left of the joystick can be used to assign a menu page or a function to improve the usability of the switcher. So, they can act as menu short cut buttons or an enable button for EDITOR, GPI IN or LINE DVE. Fifteen user buttons are provided for HVS-16/24OUA and eight for HVS-12ROUA.

15-2-1. Factory Default Assignments

The functions are assigned to the user buttons at the factory shipping as shown in the table below.

HVS-16/24OUA			HVS-12ROUA		
Button	Type	Setting	Button	Type	Setting
1	FUNC	M/E1 LINE_DVE_PGM	1	FUNC	M/E1 LINE_DVE_PGM
2	FUNC	M/E1 LINE_DVE_PST	2	FUNC	M/E1 LINE_DVE_KEY1
3	FUNC	M/E1 LINE_DVE_KEY1	3	FUNC	M/E1 LINE_DVE_KEY2
4	FUNC	M/E1 LINE_DVE_KEY2	4	FUNC	M/E1 LINE_DVE_KEY3
5	FUNC	M/E1 LINE_DVE_KEY3	5	FUNC	M/E2 LINE_DVE_PGM
6	FUNC	M/E2 LINE_DVE_PGM	6	FUNC	M/E2 LINE_DVE_KEY1
7	FUNC	M/E2 LINE_DVE_PST	7	FUNC	M/E2 LINE_DVE_KEY2
8	FUNC	M/E2 LINE_DVE_KEY1	8	FUNC	M/E2 LINE_DVE_KEY3
9	FUNC	M/E2 LINE_DVE_KEY2			
10	FUNC	M/E2 LINE_DVE_KEY3			
11	-	(NOT ASSIGNED)			
12	-	(NOT ASSIGNED)			
13	FUNC	EDITOR			
14	FUNC	GPI			
15	-	(NOT ASSIGNED)			



USER buttons on HVS-16/24OUA

15-2-2. Assigning Menu/Function to USER Buttons

① In the OU SETUP top menu, select the USER BUTTON menu. Press F1 or the DOWN button to access the USER BUTTON submenu.

② Select a user button to be used for the BUTTON item. The selected user button will light up green.

③ To assign a menu page to the user button, set TYPE to MENU. To assign a function, select FUNC for TYPE.

④ If a function is assigned to a USER button, the USER button will be lit green. If a function is assigned, it will be lit orange if the corresponding function is ON, and lit green if it is OFF.

When MENU was selected for the TYPE item		
Setting		Menu
M/E1 M/E2	TRANS/FADER LIMIT	TRANS
	BKGD XPT / MATT	
	KEY1 GAIN / CLIP	KEY1
	KEY1 MATT MASK	
	KEY1 EDGE	
	KEY1 SHADOW	
	KEY1 AUTO CK	
	KEY1 MANUAL CK	
	KEY2 GAIN / CLIP	KEY2
	KEY2 MATT MASK	
	KEY2 EDGE	
	KEY2 SHADOW	
	KEY2 AUTO CK	
	KEY2 MANUAL CK	
	KEY3 GAIN / CLIP	KEY3
	KEY3 MATT MASK	
	WIPE / DVE PATTERN SELECT	
-	STATUS BTN XPT STATUS	STATUS
	DVE MODIFY MENU	
	M/E1 PREV MENU (HVS-12ROUA only)	
	M/E2 PREV MENU(HVS-12ROUA only)	

When FUNC was selected for the TYPE item		
Setting		Indication
-	EDITOR ENABLE	ON: lit orange OFF: unlit
-	GPI IN ENABLE	
M/E1 M/E2	SAFETY AREA PGM, SAFETY AREA PREV, SAFETY AREA CLN	
-	SAFETY AREA AUX1-16	ON: lit orange OFF: unlit
-	SIDECUT AUX1-16	
M/E1 M/E2	SIDECUT PGM, SIDECUT CLN, SIDECUT PREV	
	BUS INHIBIT	
-	GPI USER FLG 1- 16 (*1)	Lit orange while pressing the button
M/E1 M/E2	LINE_DVE_PGM, LINE_DVE_PST, LINE_DVE_KEY1-3	ON (On Air side): lit red or green ON (Next side): lit orange, OFF: unlit
-	KF DIRECTION	NORMAL: unlit, REVERSE: lit orange
-	STILL1-6 STORE	Always lit orange
-	WIPE BORDER ENABLE	ON: lit orange OFF: unlit
-	WIPE BORDER SIGNAL	
-	WIPE EDGE TYPE SQU / SAW/RIP	
M/E1 M/E2	KEY1 INVERT	
	KEY1 MASK BOX_A / BOX_O / KEY3_A / KEY3_O	
	KEY1 MASK INVERT	
	KEY1 EDGE NORMAL	
	KEY1 EDGE OLINE	
	KEY1 SHADOW ENABLE	
	KEY2 INVERT	
	KEY2 MASK BOX_A / BOX_O / KEY3_A / KEY3_O	
	KEY2 MASK INVERT	
	KEY2 EDGE NORMAL	
	KEY2 EDGE OLINE	
	KEY2 SHADOW ENABLE	
	KEY3 INVERT	
	KEY3 MASK BOX_A / BOX_O	
	KEY3 MASK INVERT	
-	WIPE MODIFY RESET	Always lit orange
	DVE MODIFY RESET	
	ME1 BG-CC1 SEL(INPUT/BTN)	Lit orange when selected Unlit at other times (See section 14-8-1)
	ME1 BG-CC2 SEL(INPUT/BTN)	
	ME1KEY-CC1 SEL(INPUT/BTN)	
	ME1KEY-CC2 SEL(INPUT/BTN)	
	ME2 BG-CC1 SEL(INPUT/BTN)	
	ME2 BG-CC2 SEL(INPUT/BTN)	
	ME2KEY-CC1 SEL(INPUT/BTN)	
	ME2KEY-CC2 SEL(INPUT/BTN)	
	AUX-CC1 SEL(INPUT/BTN)	
	AUX-CC2 SEL(INPUT/BTN)	
	COLOR CORRECT LED	Lit orange when selected Unlit at other times (See section 14-8-1)
	COLOR CORRECT ME1 BKGD CH1	
	COLOR CORRECT ME1 BKGD CH2	
	COLOR CORRECT ME1 KEY CH1	
	COLOR CORRECT ME1 KEY CH2	
	COLOR CORRECT ME2 BKGD CH1	
	COLOR CORRECT ME2 BKGD CH2	
	COLOR CORRECT ME2 KEY CH1	
	COLOR CORRECT ME2 KEY CH2	
	COLOR CORRECT AUX CH1	
	COLOR CORRECT AUX CH2	

(Continued to next page.)

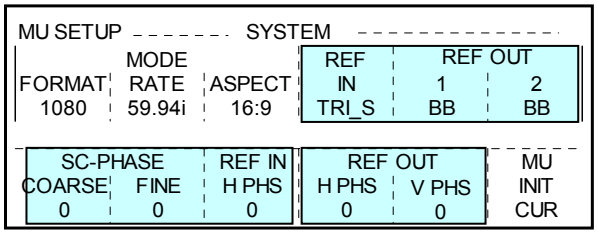
When FUNC was selected for the TYPE item		
Setting		Indication
	ROUTER ENABLE	ON: lit orange, OFF: unlit
	VTR REV, PLAY, FWD, PAUSE, STOP, REV	
	VTR1-5, STILL5, STILL6, STILL5 (STILL6), STILL6(STILL5)	ON: lit orange, OFF: unlit
	VTR MENU	Always lit orange
	GPI USER FLG 1-16(TOGGLE) (*1)	ON: lit orange, OFF: unlit
	SEQUENCE NO.1-20 SELECT	Sequence selected: lit orange Sequence not selected: lit green Sequence mode OFF: unlit
M/E1 M/E2	COLOR MIX ONE TIME	ON: lit orange, OFF: unlit
	PREVIEW BKGD, KEY1, KEY2, KEY3 (HVS-12ROUA only)	ON: lit orange, OFF: unlit
	ME1 KEY1 OVER (HVS-12ROUA only)	ON: lit orange, OFF: unlit (See 6-1-4)
-	MENU GO BACK (HVS16/24OUA only)	Lit orange if you can go back / forward. Unlit at other times.
	MENU GO FORWARD (HVS16/24OUA only)	
	USER PATT ALL KF OVERWRITE	Lit orange during editing. Unlit at other times.
	USER PATT OW ALL KF ENABLE	ON: lit orange, OFF: unlit

(*1) GPI USER FLG 1-16 are the same output functions assigned to GPI USER FLG 1-16 at the FUNCTION - GPI/TALLY OUT menu.
GPI USER FLG 1-16(TOGGLE) are the same as GPI USER FLG 1-16. The only difference is that the output mode alternately switches between ON and OFF by pressing the assigned button.

15-3. Advanced Signal Settings

15-3-1. Selecting and Adjusting Reference Signal

The switcher has two dedicated genlock inputs one for tri-level sync signal and another for black burst signal, which signal is used in the system is selected at the REF IN item of the MU SETUP - SYSTEM menu. This can be also looped through. The switcher provides two reference outputs for other system devices. Reference output signal can be also selected in REF OUT in the MU SETUP - SYSTEM menu.
Phase adjustment is required for black burst of both input and output signals. This is also set in the MU SETUP - SYSTEM menu.



■ Selecting a System Sync Signal

Parameter		Description		Default	Setting Range
REF	IN	Selects sync signal to be used.	1080/59.94i, 1080/50i, 720/59.94p	BB	BB, TRI S
			720/50p	BB	BB
			Other HD signals	TRI S	
			SD signals	BB	
	OUT1 OUT2	Selects sync signal to be output	1080/59.94i, 1080/50i, 720/59.94p	BB	BB, TRI S, * SETUP
			720/50p	BB	BB
			Other HD signals	TRI S	TRI S
			NTSC	BB	BB, * SETUP
			PAL	BB	

BB: Black Burst signal
SETUP: 7.5% Setup Black Burst signal
TRI S: Tri-level Sync signal
* When SETUP is selected for OUT1, SETUP is automatically set for OUT2. Black burst and SETUP cannot be output at a time.

■ **Adjusting Input Sync Signal Phase (BB only)**

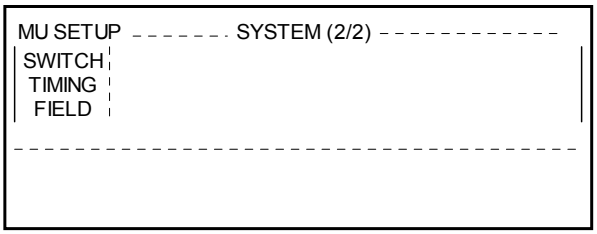
Parameter		Description		Default	Setting Range
SC PHS	COARSE	Coarse adjustments of the subcarrier phase.		0	-170 to 170
	FINE	Fine adjustments of the subcarrier phase.		0.0	-15.0 to 15.0
REF IN	H PHS	Horizontal phase adjustments	1080/50i	0	-19 to 19
			1080/59.94i, 720/59.94p, 720/50p		-15 to 15
			NTSC		-15 to 15
			PAL		-19 to 19

■ **Adjusting Output Sync Signal Phase**

Parameter		Description		Default	Setting Range
REF OUT PHS	H PHS	Horizontal phase adjustments	1080/50i	0	-1314 to 1314
			1080/60i, 1080/59.94i		-1094 to 1094
			1080/24p, 1080/23.98p, 1080/24PsF, 1080/23.98PsF		-1369 to 1369
			720/59.94p, 720/60p		-819 to 819
			720/50p		-984 to 984
			NTSC		-852 to 852
			PAL		-858 to 858
	V PHS	Vertical phase adjustments		0	-100 to 100

15-3-2. Switching Timing of Interlaced Video

The switching timing of interlaced video can be selected from FIELD (default), EVEN and ODD.



NOTE
This setting does not apply while performing transition or sequence playback.

15-3-3. Ancillary Data

The switcher supports the pass-through, blank and insert of ancillary data of the Program (Clean) and Preview outputs. It blanks the ancillary data area in the video stream, and then inserts the selected data. And it can also pass-through or blank the ancillary data area of the Auxiliary outputs respectively. The settings can be done in the FUNCTION - ANCILLARY menu. The factory default setting is OFF (blank).

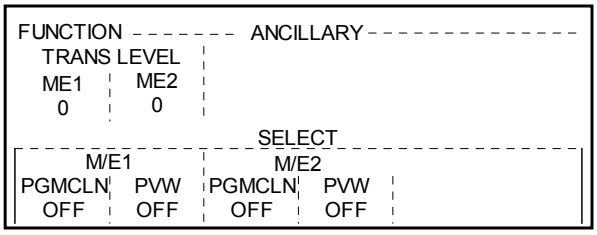
■ **PROGRAM (CLEAN) and REVIEW Outputs**

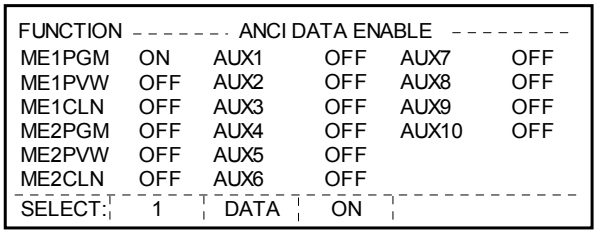
① Select ANCILLARY in the FUNCTION top menu to display the ANCILLARY DATA submenu.

② Use the UP or DOWN button to go to the ANCILLARY DATA ENABLE submenu. In the submenu turn F1 to select a bus to be set. If you want to blank the ancillary data area, turn F3 to set DATA item to OFF (default). If you want to pass or insert ancillary data, turn F4 to set to ON.

③ If you set DATA item to ON, use the UP or DOWN button to go to the ANCILLARY menu. Use F1 to F4 to select the ancillary data source (AUX1 to AUX10) under the corresponding bus.

④ TRANS LEVEL item in the upper of the ANCILLARY menu determines when the ancillary signals are switched during transition. If it is set to 50, they are switched in the halfway point of the transition.





IMPORTANT

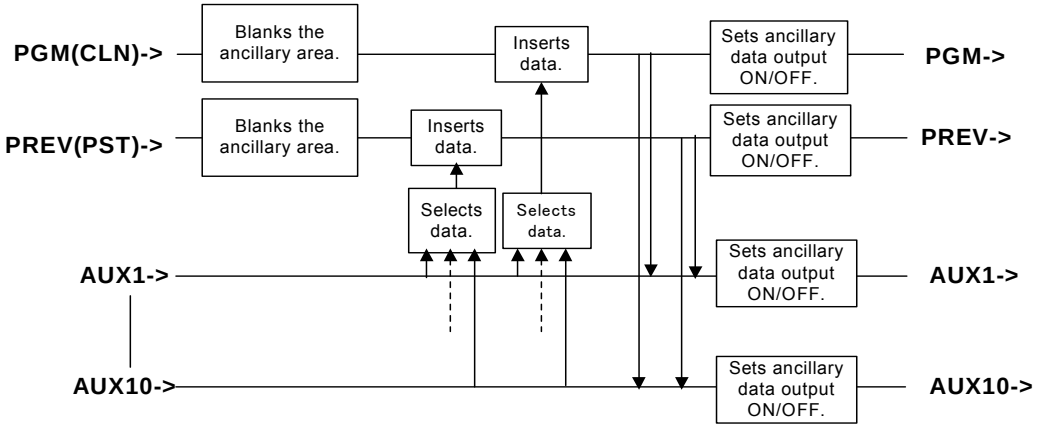
The clean outputs use the same ancillary data setting as for the program outputs. The embedded ancillary data (from AUX1 to AUX10) will output from the Program or Preview bus even when the corresponding ANC DATA ENABLE item is set to OFF.

■ Auxiliary Outputs

Select ANCILLARY in the FUNCTION top menu to display the ANCILLARY DATA sub menu. Use the UP or DOWN button to go to the ANCILLARY DATA ENABLE submenu. Turn F1 to select a bus to be set (AUX1 to AUX10). Turn F3 to set to OFF or ON.

If set to OFF: Blanks the ancillary area.
If set to ON: Passes through the ancillary data.

■ Block Diagram for Ancillary Data Processing

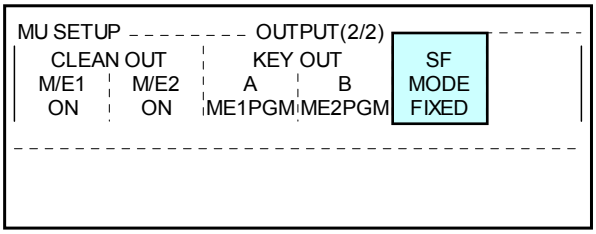


15-3-4. Safety Area Markers

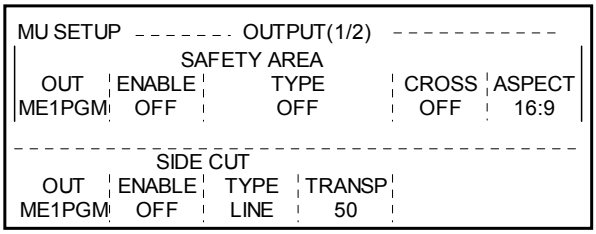
In Hanabi series switchers Safety Area marker and Side Cut marker (HD only) are available. The safety area markers can be displayed ON/OFF for each output bus. In addition, the marker type can be selected from various options.
There are two modes for the safety area markers: Fixed mode (default) and Variable mode. If you wish to adjust finely the safety area size for each output, select the Fixed mode. If the Variable mode is selected, the safety area settings are almost the same for all outputs. The items displayed on the menu page are different in two modes.

■ Selecting Mode between Fixed and Variable

Marker functions are set at the SF MODE item in the MU SETUP-OUTPUT (2/2) menu. Note that if you change the safety area mode, the safety area settings are reset to default values.



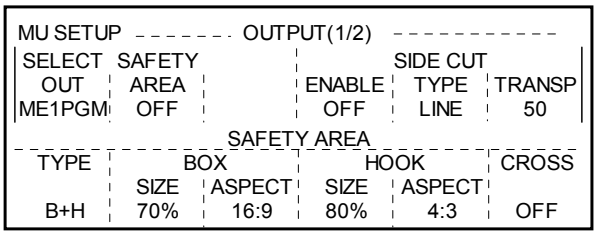
■ Fixed Mode（Default）



Parameter		Description	Default	Setting Range
SAFETY AREA	OUT	Sets which output safety marker applied to.	ME1PGM	ME1PGM, ME1PRV, ME1CLN, ME2PGM, ME2PRV, ME2CLN, AUX1-16
	ENABLE	Sets safety marker ON/OFF.	OFF	OFF, ON
	TYPE	Selects marker type.	OFF	OFF, 90%KEY, 85%KEY, 80%KEY, 90%BOX, 85%BOX, 80%BOX, 85%B+80%K, 90%B+85%K, 90%B+80%K, 85%B+80%B, 90%B+85%B, 90%B+80%B
	CROSS	Displays safety area center point.	OFF	OFF, ON
	ASPECT (*1)	Selects aspect ratio for the safety area.	HD 16:9	16:9, 4:3
SIDE CUT (HD only)	OUT	Sets which output side cut applied to.	ME1PGM	ME1PGM, ME1PRV, ME1CLN, ME2PGM, ME2PRV, ME2CLN, AUX1-16
	ENABLE	Sets side cut ON/OFF.	OFF	OFF, ON
	TYPE	Selects marker type.	LINE	LINE, TRANSP
	TRANSP	Sets the transparency level if TYPE set to TRANSP.	50	0~100

(*1) The aspect ratio is fixed to 4:3 in SD mode, therefore ASPECT item is not displayed in SD mode.

■ **Variable Mode**



Parameter		Description	Default	Setting Range
SELECT OUT		Sets which output safety marker applied to.	ME1PGM	ME1PGM, ME1PRV, ME1CLN, ME2PGM, ME2PRV, ME2CLN, AUX1-16
SAFETY AREA		Sets safety marker ON/OFF.	OFF	OFF, ON
SIDE CUT (HD only)	ENABLE	Sets side cut ON/OFF.	OFF	OFF, ON
	TYPE	Selects marker type.	LINE	LINE, TRANSP
	TRANSP	Sets the transparency level if TYPE set to TRANSP.	50	0-100
TYPE		Selects marker type.	B+H	B+H, BOX, HOOK
BOX (*1)	SIZE	Sets safety area size.	70%	70%-90%
	ASPECT	Selects aspect ratio for box.	HD 16:9	16:9, 4:3
HOOK (*1)	SIZE	Sets safety area size.	70%	70%-90%
	ASPECT	Selects aspect for hook.	HD 16:9	16:9, 4:3
CROSS		Displays safety area center point.	OFF	OFF, ON

(*1) The size for BOX and HOOK is the same for all outputs. The aspect can be selected for each output in HD. The aspect ratio is fixed to 4:3 in SD mode, therefore ASPECT item is not displayed in SD mode.

15-3-5. MATT CLIP

If you are using the color matt signal for productions, chroma / luminance clip processing at matt top and bottom edges can be used to eliminate out-of gamut problems. This can be done in the MU SETUP menu. MATT CLIP setting is applied to not only bus matt but also all other matt colors set in menu.

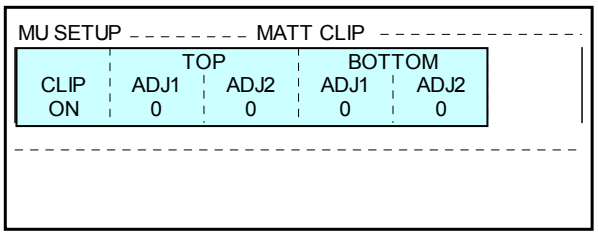
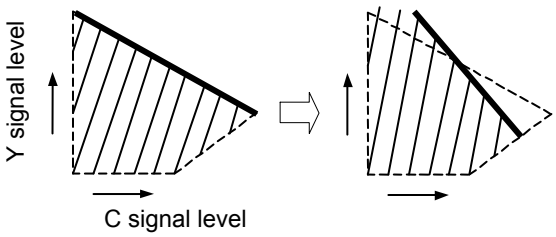
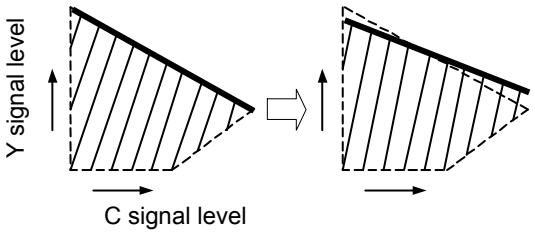


Figure examples below illustrate how upper and lower range settings affect signal results shown in waveform monitor using the arrowhead display. An area marked with diagonal lines that are not actually displayed in the waveform monitor indicates legal range. Note that only changes for TOP settings are shown at examples (1) - (4), while BOTTOM settings remain at default (ADJ1 = 0, ADJ2 = 0). In examples (5) - (8), only BOTTOM settings changes are shown while TOP settings stay to default (ADJ1 = 0, ADJ2 = 0).

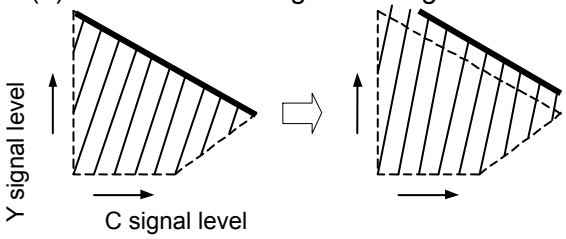
(1) If TOP-ADJ1 to higher setting:



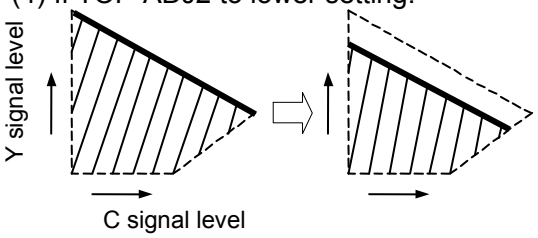
(2) If TOP-ADJ1 to lower setting:



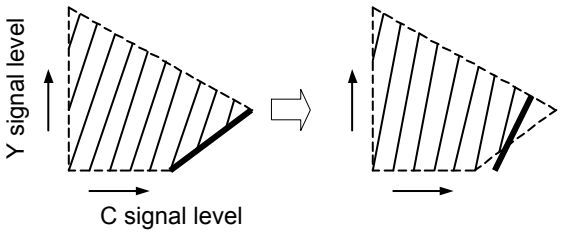
(3) If TOP-ADJ2 to higher setting:



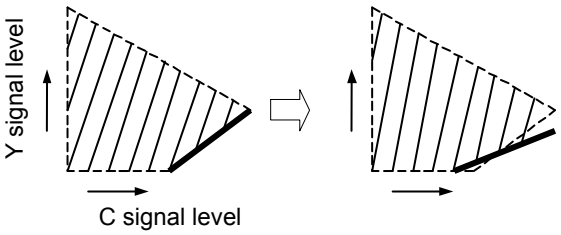
(4) If TOP-ADJ2 to lower setting:



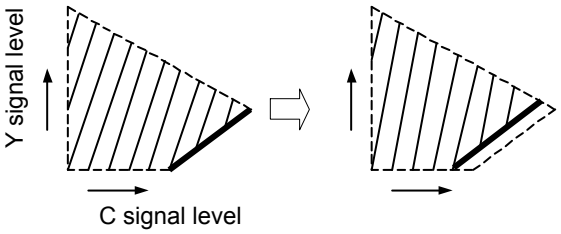
(5) If BOTTOM-ADJ1 to higher setting:



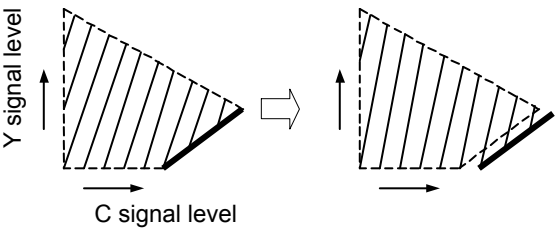
(6) If BOTTOM-ADJ1 to lower setting:



(7) If set higher at BOTTOM-ADJ2:



(8) If BOTTOM-ADJ2 to lower setting:



15-4. User Default

User default is a function that allows the user to change the parameter defaults from the factory defaults to user-selected values. Once a user default is saved, whenever the parameters or menu are initialized, the saved user default values are used as the default values. The user default values can be saved or recalled in one operation.

15-4-1. User Default Setting

① Set the values that you want to save as the parameter values.

② Press the ENTER button while holding down the MU SETUP button. All parameter values of the MU SETUP, FUNC, TRANSITION, BUS MATT, KEY1 to KEY3 and WIPE PATTERN menus are saved as the user default.

③ Press the ENTER button while holding down the OU SETUP button. All parameter values of the OU SETUP menus are saved as the user default.

IMPORTANT
The following parameters are not saved to the user default. Parameters in the WIPE MODIFY and DVE WIPE MODIFY menus Parameters in the TALLY, GPI IN and GPI OUT menus

15-4-2. Recalling the User Default

All of the preset user default values can be recalled in a single operation.

① Press the RECALL button twice while holding down the MU SETUP button. All preset user default values of the MU SETUP, BUS MATT, TRANSITION, KEY1 to KEY3, and WIPE PATTERN menus (except TALLY, GPI IN, GPI OUT menus) are loaded.

② Press the RECALL button twice while holding down the OU SETUP button. All preset user default values of the OU SETUP menus are loaded.

15-4-3. Saving the User Default

The user default values can be saved and loaded from the PC card in a single operation. For the saving/loading operations, see section 12-1 "File Operations." The user default data is saved to the files shown below.

Extension	File Name	Description
all	data.all	MU and OU system data, MU and OU user default data, All WIPE data and all event memory data

15-4-4. Restoring the Factory Default

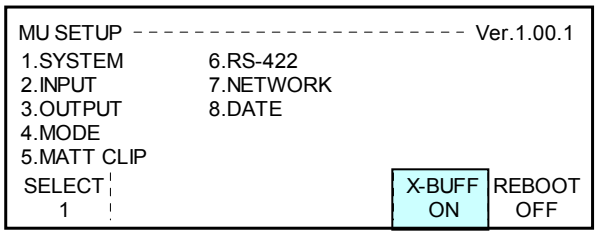
The default values can be restored to the factory default from the user default.
The default values are restored to the factory defaults by performing the system initialization operation. For details about system initialization, see section 15-6 "Reboot and Initialization"

15-5. Data Recovery

In some cases, the settings may be inadvertently altered in the event recall or copying/swapping operations. When this happens, the data recovery function can be used to restore to the state before the data was recalled.

① Immediately after the faulty recall, press the MU SETUP button to open the MU SETUP top menu.

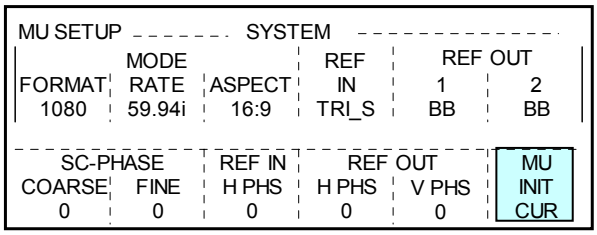
② Turn F5 to set X-BUFF to ON. Then, press F5. The recalled values are canceled, and the original values are restored.



15-6. Reboot and Initialization

■ **MU Initialization**

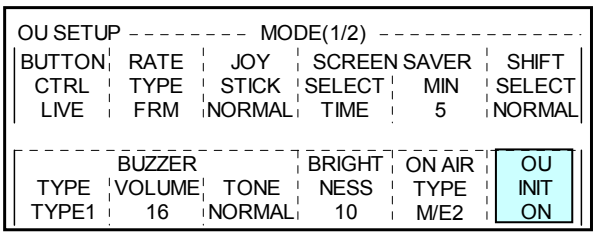
MU INIT in the MU SETUP - SYSTEM menu initializes all system setup data. You can select a type of initialization from CUR, SYS and ALL by turning F6. Then press and hold down F6 at least 1 sec to initialize data. A long beep sound will be heard when the data is initialized.



Setting	Description
CUR	All parameter data for MATT, TRANS, PATTERN SELECT, KEY1, KEY2 and KEY3 menus will be reinitialized. Related data can be saved to event memory.
SYS	Reinitialize only SYSTEM data settings. Related data cannot be event memory saved.
ALL	Reinitialize all system setup data

■ **OU Initialization**

OU INIT in the OU SETUP - OU MODE menu initializes only the settings data related to operation unit. To do this, turn F6 to set OU INIT to ON, and then press and hold down F6 at least 1 sec. A long beep sound will be heard when the data is initialized.



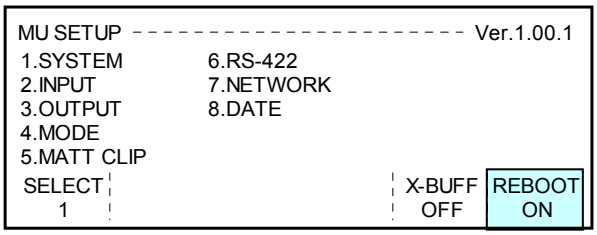
NOTE

Do not turn power OFF at your units during the OU re-initialization (while the OU SETUP button flashing). Otherwise this may indicate initialization failure and cause the system to malfunction.

■ **Rebooting MU**

① Display the MU SYSTEM top menu.

② Turn F6 to set REBOOT to ON. Then press and hold down F6 at least 1 sec to restart MU. A "beep" sound will be heard when the MU is restarted.

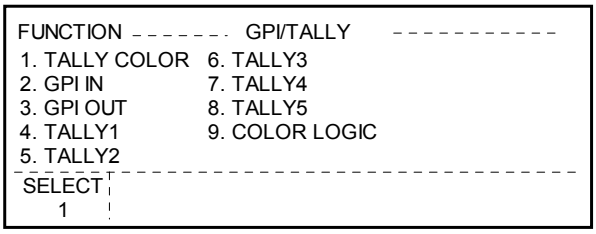


IMPORTANT
Items requiring re-start display REBOOT MU on the menu screen are as follow: All settings in the MU SETUP - MODE menu ARCNET ID setting in the MU SETUP-NETWORK menu IP ADDRESS and NETMASK settings in the NETWORK menu

16. Interface Setting

16-1. GPI and Tally Control

HVS-3800HS/S units have GPI IN / OUT interface capability to allow other devices to initiate switcher operations and for output of switcher operational status / tallies to other devices. Use of GPI IN/OUT pins can be freely assigned within GPI IN, GPI OUT and TALLY1-5 sub-menu pages of the FUNCTION - GPI/TALLY menu.

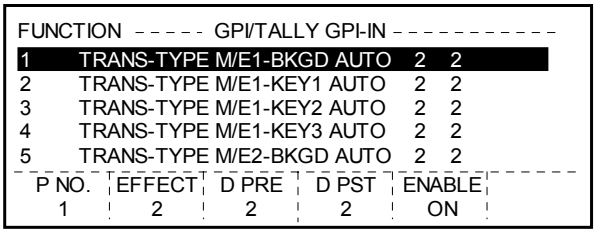


NOTE
In HVS-16/24OUA, you can quickly access the FUNCTION - GPI/TALLY menu above by rapidly pressing the GPI button in the EFFECT/STILL section twice.

16-1-1. GPI IN Free Assignments

① In the FUNCTION - GPI/TALLY submenu, set the SELECT to 2.

② Press F1 or the DOWN button to display GPI IN submenu page.



For GPI IN pin hardware assignments see section 2-2-3 "Interfaces-GPI IN Connector."

③ Turn F1 at P NO. to select the pin you are making the assignment for. When pin 6 or higher is selected, the screen will switch to the next page.

④ Turn F2 at FUNC to select the signal setting. The following FUNC settings are available.

Description	FUNC.	EFFECT Setting
Sets aspect ratio of the output signals.	1	ASPECT 4: 3⇔16: 9 (Open: 4: 3, Short: 16: 9)
Triggers an auto transition.	2	TRANS-TYPE M/E1-BKGD-AUTO
	3	TRANS-TYPE M/E1-KEY1-AUTO
	4	TRANS-TYPE M/E1-KEY2-AUTO
	5	TRANS-TYPE M/E1-KEY3-AUTO
	6	TRANS-TYPE M/E2-BKGD -AUTO
	7	TRANS-TYPE M/E2-KEY1-AUTO
	8	TRANS-TYPE M/E2-KEY2-AUTO
	9	TRANS-TYPE M/E2-KEY3-AUTO
	10	TRANS-TYPE-M/E2-BLACK-AUTO
Changes transition type to FAM.	11	TRANS-TYPE M/E1-BKGD -FAM
	12	TRANS-TYPE M/E2-BKGD -FAM

Description	FUNC.	EFFECT Setting
Changes transition type to NAM.	13	TRANS-TYPE M/E1-BKGD -NAM
	14	TRANS-TYPE M/E2-BKGD -NAM
Changes transition type to CUT.	15	TRANS-TYPE M/E1-BKGD -CUT
	16	TRANS-TYPE M/E1-KEY1-CUT
	17	TRANS-TYPE M/E1-KEY2-CUT
	18	TRANS-TYPE M/E1-KEY3-CUT
	19	TRANS-TYPE M/E2-BKGD -CUT
	20	TRANS-TYPE M/E2-KEY1-CUT
	21	TRANS-TYPE M/E2-KEY2-CUT
	22	TRANS-TYPE M/E2-KEY3-CUT
Changes transition type to MIX.	23	TRANS-TYPE M/E1-BKGD -MIX
	24	TRANS-TYPE M/E1- KEY1-MIX
	25	TRANS-TYPE M/E1- KEY2-MIX
	26	TRANS-TYPE M/E1- KEY3-MIX
	27	TRANS-TYPE M/E2-BKGD -MIX
	28	TRANS-TYPE M/E2- KEY1-MIX
	29	TRANS-TYPE M/E2- KEY2-MIX
	30	TRANS-TYPE M/E2- KEY3-MIX
Changes transition type to WIPE.	31	TRANS-TYPE M/E1-BKGD -WIPE
	32	TRANS-TYPE M/E1- KEY1-WIPE
	33	TRANS-TYPE M/E1- KEY2-WIPE
	34	TRANS-TYPE M/E1- KEY3-WIPE
	35	TRANS-TYPE M/E2-BKGD -WIPE
	36	TRANS-TYPE M/E2- KEY1-WIPE
	37	TRANS-TYPE M/E2- KEY2-WIPE
	38	TRANS-TYPE M/E2- KEY3-WIPE
Changes transition type to CUT (press) /MIX (press and hold).	39	TRANS-TYPE M/E1-BKGD -CUT/MIX
	40	TRANS-TYPE M/E1- KEY1-CUT/MIX
	41	TRANS-TYPE M/E1- KEY2-CUT/MIX
	42	TRANS-TYPE M/E1- KEY3-CUT/MIX
	43	TRANS-TYPE M/E2-BKGD -CUT/MIX
	44	TRANS-TYPE M/E2- KEY1-CUT/MIX
	45	TRANS-TYPE M/E2- KEY2-CUT/MIX
	46	TRANS-TYPE M/E2- KEY3-CUT/MIX
Performs same action as pressing PLAY.	47	SEQUENCE PLAY
Performs same action as pressing PAUSE.	48	SEQUENCE PAUSE
Performs same action as pressing SEQ LINK.	49	SEQUENCE AUTO TRANS
Performs same action as pressing AUTO for the BKGD transition.	50	TRANS-TYPE ME1 AUTO BUTTON (If TIE function is ON in HVS-16/24OUA)
	51	TRANS-TYPE ME2 AUTO BUTTON (If TIE function is ON in HVS-16/24OUA.)
Toggles GPI USER FLG 01-16 On/Off (GPI OUT).	52-67	GPI USER FLG01-16

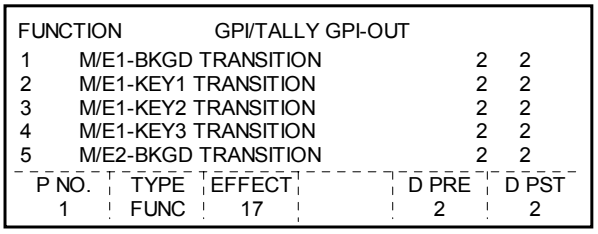
⑤ If necessary, a preset delay and / or post delay can be set at the D PRE and D PST respectively. Setting range for both parameters is 0 – 15 fields. D PRE sets how long control input is received for initiation to occur. D PST sets how long initiate condition is held after command received and initiated.

⑥ When using GPI IN, set ENABLE to ON. In HVS-16/24OUA, GPI IN can also be set to ON by pressing GPI IN button in the EFFECT/STILL section of the menu section.

16-1-2. GPI OUT Free Assignments

① In the FUNCTION - GPI/TALLY submenu, set the SELECT to 3.

② Press F1 or DOWN button to display GPI OUT submenu page.



For GPI OUT pin hardware assignments see section 2-2-3 "Interfaces-GPI OUT Connector."

③ Turn F1 at P NO. to select the pin you are making the assignment for.

④ Turn F2 at TYPE to select between the FUNC or TALLY.

⑤ If FUNC is selected, the following EFFECT setting is available.

EFFECT No.	EFFECT Setting	Note
01	GPI USER FLG01	Each signal (function) can be assigned to user buttons in the FREE ASSIGN menu. (See section 15-2 "USER Buttons.") Each signal (function) can be also assigned to GPI IN. (See section 16-1-1. GPI IN Free Assignments.)
02	GPI USER FLG02	
03	GPI USER FLG03	
04	GPI USER FLG04	
05	GPI USER FLG05	
06	GPI USER FLG06	
07	GPI USER FLG07	
08	GPI USER FLG08	
09	GPI USER FLG09	
10	GPI USER FLG10	
11	GPI USER FLG11	
12	GPI USER FLG12	
13	GPI USER FLG13	
14	GPI USER FLG14	
15	GPI USER FLG15	
16	GPI USER FLG16	
17	M/E1 BKGD TRANSITION	GPI OUT is to ON when the related transition is in process.
18	M/E1 KEY1 TRANSITION	
19	M/E1 KEY2 TRANSITION	
20	M/E1 KEY3 TRANSITION	
21	M/E2 BKGD TRANSITION	
22	M/E2 KEY1 TRANSITION	
23	M/E2 KEY2 TRANSITION	
24	M/E2 KEY3 TRANSITION	
25	M/E1 BKGD AUTO TRANSITION	
26	M/E1 KEY1 AUTO TRANSITION	
27	M/E1 KEY2 AUTO TRANSITION	
28	M/E1 KEY3 AUTO TRANSITION	
29	M/E2 BKGD AUTO TRANSITION	
30	M/E2 KEY1 AUTO TRANSITION	
31	M/E2 KEY2 AUTO TRANSITION	
32	M/E2 KEY3 AUTO TRANSITION	
33	ASPECT 16:9 TALLY	GPI OUT is to ON when the aspect mode of the switcher is set to 4:3 or 16:9.
34	ASPECT 4:3 TALLY	

EFFECT No.	EFFECT Setting	Note
35	M/E1 KEY1 ON TALLY	GPI OUT is to ON when the related key is on the program image.
36	M/E1 KEY2 ON TALLY	
37	M/E1 KEY3 ON TALLY	
38	M/E2 KEY1 ON TALLY	
39	M/E2 KEY2 ON TALLY	
40	M/E2 KEY3 ON TALLY	
41	TRANS-TYPE M/E1-BKGD-FAM	GPI OUT is to ON when the related transition pattern is selected.
42	TRANS-TYPE M/E2-BKGD-FAM	
43	TRANS-TYPE M/E1-BKGD-NAM	
44	TRANS-TYPE M/E2-BKGD-NAM	
45	TRANS-TYPE M/E1-BKGD-CUT	
46	TRANS-TYPE M/E1-KEY1-CUT	
47	TRANS-TYPE M/E1-KEY2-CUT	
48	TRANS-TYPE M/E1-KEY3-CUT	
49	TRANS-TYPE M/E2-BKGD-CUT	
50	TRANS-TYPE M/E2-KEY1-CUT	
51	TRANS-TYPE M/E2-KEY2-CUT	
52	TRANS-TYPE M/E2-KEY3-CUT	
53	TRANS-TYPE M/E1-BKGD-MIX	
54	TRANS-TYPE M/E1-KEY1-MIX	
55	TRANS-TYPE M/E1-KEY2-MIX	
56	TRANS-TYPE M/E1-KEY3-MIX	
57	TRANS-TYPE M/E2-BKGD-MIX	
58	TRANS-TYPE M/E2-KEY1-MIX	
59	TRANS-TYPE M/E2-KEY2-MIX	
60	TRANS-TYPE M/E2-KEY3-MIX	
61	TRANS-TYPE M/E1-BKGD-WIPE	
62	TRANS-TYPE M/E1-KEY1-WIPE	
63	TRANS-TYPE M/E1-KEY2-WIPE	
64	TRANS-TYPE M/E1-KEY3-WIPE	
65	TRANS-TYPE M/E2-BKGD-WIPE	
66	TRANS-TYPE M/E2-KEY1-WIPE	
67	TRANS-TYPE M/E2-KEY2-WIPE	
68	TRANS-TYPE M/E2-KEY3-WIPE	

If necessary, a preset delay and / or post delay can be set at D PRE and D PST respectively. Setting range for both parameters is 0 – 15 field.

Preset delay:
Sets how long control input is received for initiation to occur.

Post delay:
Sets how long initiate condition is held after command received and initiated.

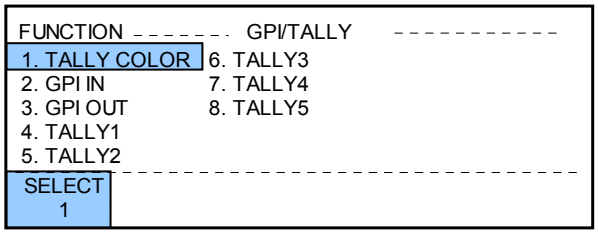
⑥ If TALLY is selected, refer to section 16-1-3. "TALLY Free Assignments. Step 5 and later"

16-1-3. TALLY Free Assignments

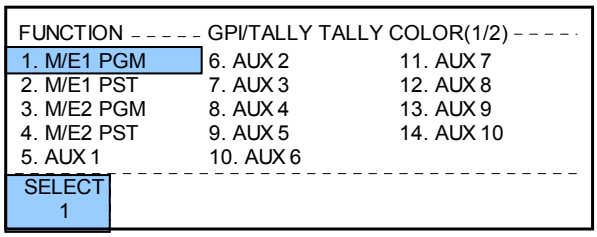
TALLY1-5 are the optional Hanabi tally units connectable to the RS-422 port 3 on the HVS-3800HS/S rear panel. Up to 5 tally units (HVS-TALOC20/32 or HVS-TALR20/32) are configurable by cascading units. To make tally assignments proceeds as follows.

①	GPI/TALLY TALLY COLOR (1/2)	Selects the output to be indicated to.
②	GPI/TALLY TALLY COLOR (2/2)	Selects tally color(s).
③	FUNCTION GPI/TALLY	Selects the tally unit.
④	FUNCTION GPI/TALLY TALLY1-5	Pin assignments for the selected tally unit.

① Display the FUNCTION - GPI/TALLY submenu. Then press F1 or the DOWN button to display the TALLY COLOR menu.

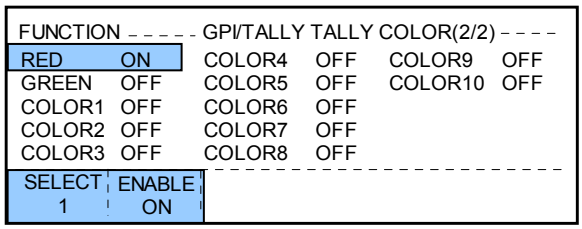


② In the TALLY COLOR menu, turn F1 to select the bus to be set. Press F1 to display tally color selection menu.

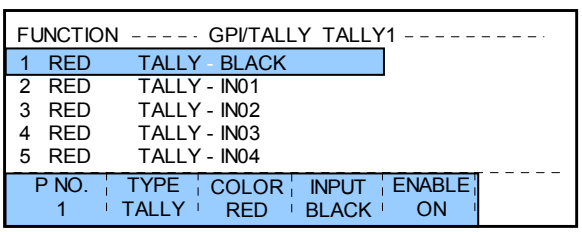


③ Turn F1 at SELECT to select a tally color. To enable the tally color setting, turn F2 to set ENABLE item to ON. Press UP button to return to the FUNCTION - GPI/TALLY submenu.

④ Select the TALLY output in the FUNCTION - GPI/TALLY submenu. Turn F1 at SELECT to select the tally color and turn F2 to change to ON.



⑤ The TALLY menu as shown below is displayed. Select the output pin of the selected TALLY unit.



⑥ Turn F2 to set TYPE to TALLY. Turn F3 at COLOR to select a tally color. Turn F4 at INPUT to select a signal to be indicated by the tally (See the table below).

COLOR	INPUT
RED	BLACK
GREEN	IN01 to IN28
COLOR1	STILL1 to STILL6
COLOR2	MATT
COLOR3	M/E1 RE-ENTRY
COLOR4	ME1PGM
COLOR5	ME1PREV
COLOR6	ME1CLN
COLOR7	ME2PGM
COLOR8	ME2PREV
COLOR9	ME2CLN
COLOR10	AUX01-AUX16 *

* When AUX01-16 are selected for INPUT, the tally signals are sent (tally lamps light up) when the tally color set to a video source and the tally color set to an AUX output are the same. The optional AUX11-16 also have this feature.

⑦ Set ENABLE to ON to enable the selected tally unit setting.

⑧ If FUNC is selected, follow the function assignment procedure in the section16-1-2. "GPI OUT Free Assignments."

NOTE
When assigning tallies with the Tally Relay Units, specify the output number instead of the pin number. (See "HVS-TALOC/TALR20/32 Operation Manual".)

16-1-4. Setup Example for AUX OUT Tally

The AUX OUT tally, which indicates the status of an AUX output, can be also used in the switcher. It would be useful in a case where AUX outputs are used for video source monitoring. This section shows how to set up an AUX OUT tally. As an example, let us take a case when Red tally is sent (red tally on) when the video source monitored through AUX1 is sent to on-air (displayed on the program out).

Conditions:

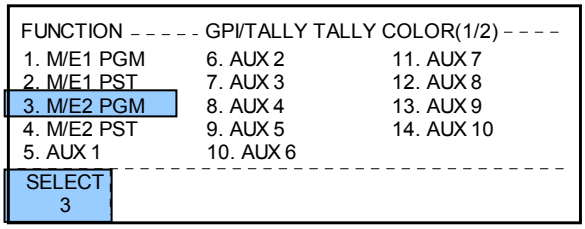
AUX OUT:	AUX1
On-air bus:	M/E2PGM
Tally color:	RED
Output pin:	Pin1 on TALLY Unit1

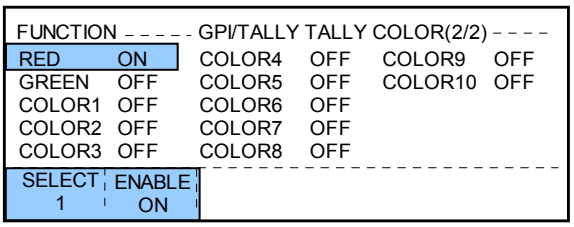
Setting:

① Open the [FUNCTION - GPI/TALLY - TALLY COLOR] menu.

② Turn F1 to select M/E2PGM at SELECT. Press F1 to open the submenu.

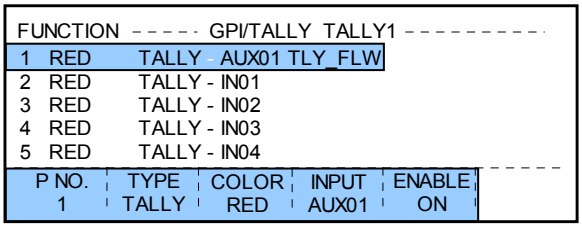
③ Turn F1 to select RED at SELECT. Turn F2 to set ENABLE to ON to enable the selected tally color.





④ Press the UP button to return to the [FUNCTION - GPI/TALLY] menu. Then open the [FUNCTION-GPI/ TALLY - TALLY 1] menu.

⑤ Make the setting for the TALLY1 menu as shown below.



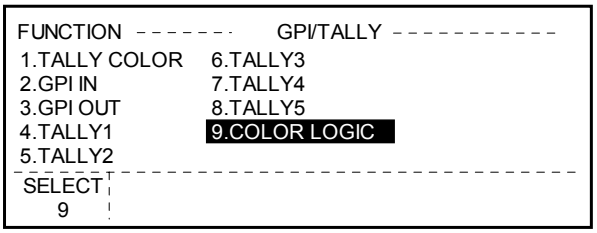
16-1-5. Color Logic

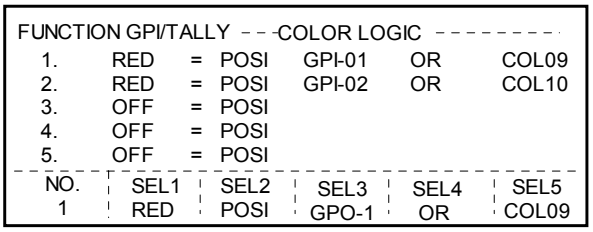
Applying logics (conditions or formula) to tallies allows you to control the tallies with conditions as shown below.

To open COLOR LOGIC menu:

① Open the [FUNCTION - GPI/TALLY] menu.

② Turn F1 to select COLOR LOGIC. Press F1 to open the menu as shown below.





COLOR LOGIC Setting Menu

In the COLOR LOGIC menu, logic circuits can be incorporated in the following way.

Conditions:
GPO signals (1 to 16) are POSI or NEGA.

Logical formula:
TARGET_COLOR=TARGET_COLOR <Operator> SRC_COLOR

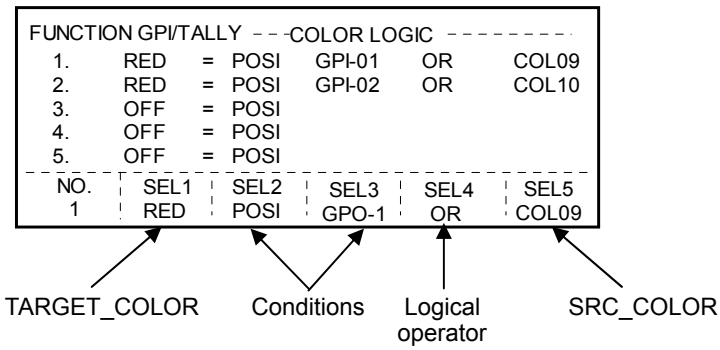
↓

OR/AND/XOR

Available colors:
RED/GREEN/COLOR1 to COLOR10

In terms of program language, this is written in the following way:
if(Condition=GPO ”XX” is POSI or NEGA.)
then TARGET_COLOR=TARGET_COLOR and/or/xor SRC_COLOR

In the Hanabi switcher, the statement above is expressed using the menu shown below.



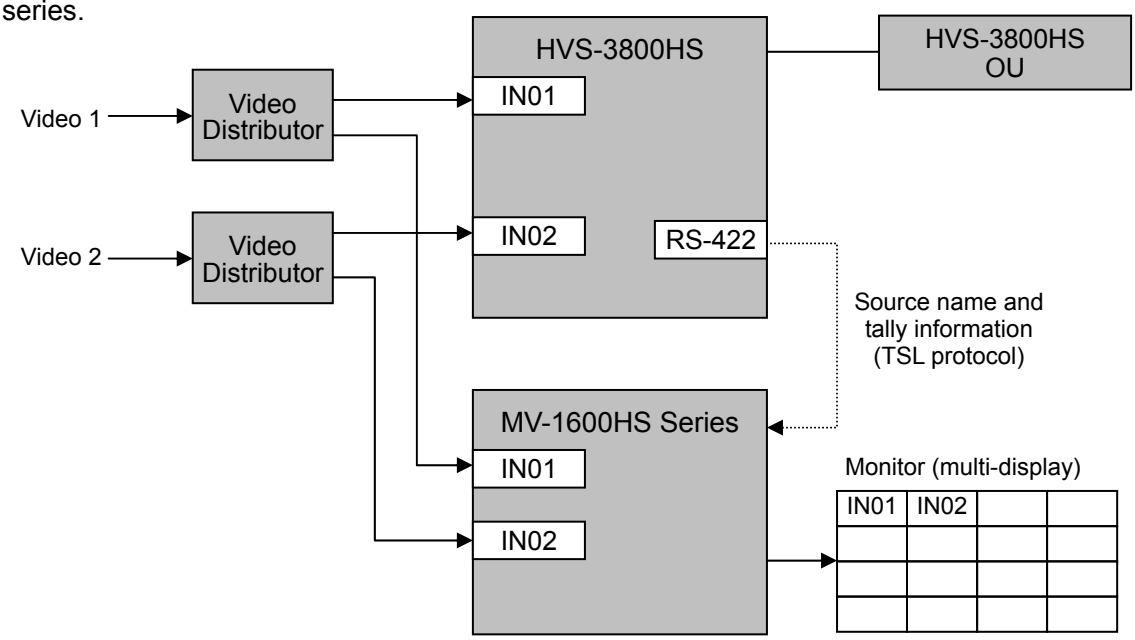
NO. Select from 1 to 30.
SEL1 TARGET COLOR is selected from OFF, RED, GREEN and COL01 to COL10.
SEL2 The condition (signal polarity) is selected between POSI and NEGA.
SEL3 The condition (signal) is selected from GPO-01 to GPO-16.
SEL4 The logical operator when the conditions are met is selected from OR/AND/XOR.
SEL5 SRC COLOR is selected from NON, RED, GREEN, COL01 to COL10.

16-1-6. TSL Tally

The TSL tally function of the switcher uses the TSL protocol (developed by of Television Systems Ltd.). It allows you to send tally information to the TSL devices such as FOR-A MV-1600HS series.

Connection Example with TSL Tally

The figure example below shows the connection with a FOR-A Multi Viewer, the MV-1600HS series.



Connecting to External Devices (RS-422 Setting)

Use an RS-422 straight cable to connect the MU and MV-1600HS series using RS-422 Port1 to 5 on the MU. (See the MU-1600HS series' Operation Manual for how to setup the connection with the switcher via RS-422.)

① Display the [MU SETUP-RS-422] menu.

② Select TSLTLY for the port setting for RS-422 port to be used.

③ Set PARITY to EVEN and BAUD (Baud rate) to 38400. (These settings vary by external devices.)

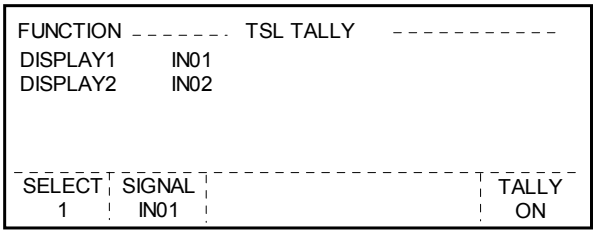
④ After all changes are made, reboot the MU to apply the changes.

TSL Tally Setting

To use the TSL tally information of IN01 and IN02 in the connection example above, set up TSL tally as shown below.

① Display the [FUNCTION - TSL TALLY] menu.

② Select IN01 for DISPLAY1 and IN02 for DISPLAY2. Then turn F6 to set TSL tally to ON.

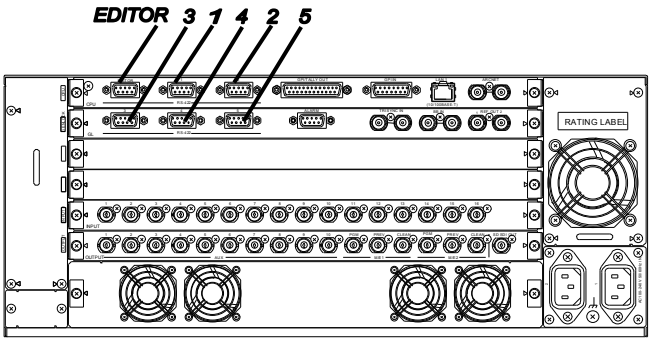


For TSL tally setup in external devices, see their user's manuals.

16-2. VTR Control

Installing VTR Control Function to the HVS-3800HS/S enables VTR control based on the Sony VTR protocol. A Free Assign function is also provided to enable its operation from the panel. This allows the switcher operator to easily control the VTR from the control panel. This makes it easy to, for instance, start the VTR or select a camera input for recording in synchronization with the transition

To use VTR control, the HVS-3800HS/S rear outputs need to be connected to the VTR. Up to 5 VTR devices can be configured.



Connect the RS-422 **ports 1 to 5** on the HVS-3800HS/S rear panel and VTR device with an RS-422 straight cable. Refer to the manual supplied for connection on the VTR side.

16-2-1. Assigning VTR Control Function to Serial Port

① Press the MU SETUP button in the menu section to display the MU SETUP top page.

② Press the control F1 or the DOWN button to display the MU SETUP-RS-422 menu.

③ Select a VTR (VTR1 to 5) under the RS-422 serial port where the VTR device is connected.

④ Reboot the MU after making the settings. (Note that the settings do not take effect until the unit is rebooted.)

16-2-2. RS-422 Port Setting

Follow the procedure below to make RS-422 port settings.

① Press the MU SETUP button in the menu section to display the MU SETUP top page.

② Set SELECT to RS-422. Press the control F1 or the DOWN button to display the MU SETUP-RS-422 menu.

③ Make the settings for the port that was assigned the VTR control function in the previous section. Normally the settings are ODD parity and 38400 for the baud rate. Settings may differ for some VTRs.

④ Reboot the MU after making the settings. (Note that the settings do not take effect until the unit is rebooted.)

16-2-3. Assigning the VTR Operation to the USER Button

① Press the FUNC button in the menu section to display the FUNCTION top page.

② Set SELECT to USER BUTTON. Press the control F1 or the DOWN button to display the FUNCTION-FREE ASSIGN menu.

③ Select the user button to use for assigning the VTR Control Function under the BUTTON item. The light of the corresponding USER button turns on.

④ Set TYPE to FUNC.

⑤ Turn F3 to select the VTR control operation that you want to assign for the selected USER button. Press ENTER in the keypad to confirm the setting.

■ VTR Control Using User Buttons

VTR operations are assigned using the Free Assign function.

■ Step 1. VTR function set to ON

Press the upper right button to set the VTR function to ON. When pressed, the button turns orange. (If you want to set the VTR function OFF, press the button again to light off.)

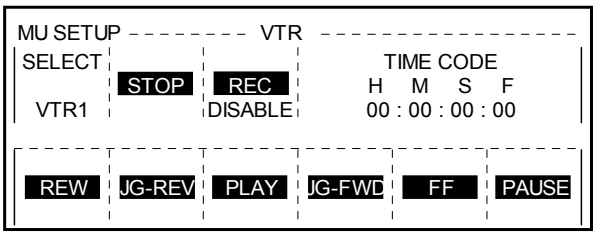
■ Step 2. Operating the VTR

Press the VTR control buttons (REW, PLAY, FF, PAUSE, STOP, or REC) to operate the VTR. The button does not turn on or off during this operation.

16-2-4. VTR Control Using the Menu (VTR Protocol)

① Press the FUNC button in the menu section to display the FUNCTION top page.

② Set SELECT to VTR. Press F1 or the DOWN button to display the FUNCTION - VTR menu.



③ Turn F1 to select the VTR to be controlled.

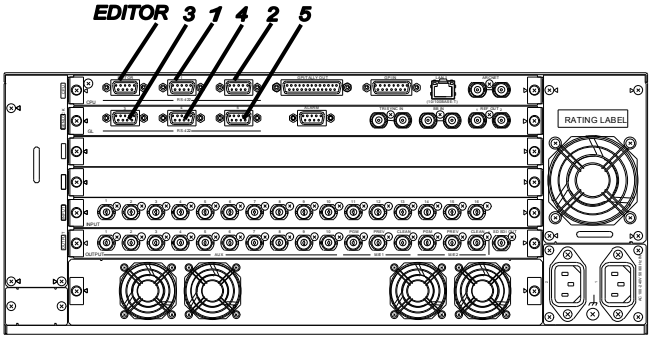
④ Use the control F1 to F6 in the bottom page to control the selected VTR. To perform the recording operation, turn F3 to change to ENABLE and then press F3 to start recording.

NOTE
STILL5, STILL6, S5(S6) or (S5)S6 can be selected for the SELECT item if the HVS-38SSAM6/12 optional card is installed to your unit. This allows you to playback moving video. See the HVS-38SSAM6/12 operation manual for details.

16-3. VDCP Control

Installing VDCP Control Function to the HVS-3800HS/S enables VDCP control based on the Video Disk Control Protocol (Harris/Louth).

To use VDCP control, the HVS-3800HS/S rear outputs need to be connected to the VDCP devices. Up to 5 VDCP devices can be configured.



Connect the RS-422 **ports 1 to 5** on the HVS-3800HS/S rear panel and VDCP device with an RS-422 straight cable. Refer to the manual supplied for connection on the VDCP side.

16-3-1. Assigning VDCP Control Function to Serial Port

① Press the MU SETUP button in the menu section to display the MU SETUP top page.

② Press the control F1 or the DOWN button to display the MU SETUP-RS-422 menu.

③ Select VDCP under the RS-422 serial port where the VDCP device is connected.

④ Reboot the MU after making the settings. (Note that the settings do not take effect until the unit is rebooted.)

16-3-2. RS-422 Port Setting

Follow the procedure below to make RS-422 port settings.

① Press the MU SETUP button in the menu section to display the MU SETUP top page.

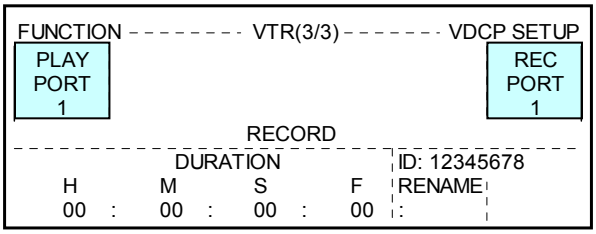
② Set SELECT to RS-422. Press the control F1 or the DOWN button to display the MU SETUP-RS-422 menu.

③ Make the settings for the port that was assigned the VDCP control function in the previous section. Normally the settings are ODD parity and 38400 for the baud rate. Settings may differ for some VDCP devices.

④ Reboot the MU after making the settings. (Note that the settings do not take effect until the unit is rebooted.)

16-3-3. VDCP Setup

Make port settings for the connected VDCP device in the FUNCTION -VTR(3/3) menu page before operation.



PLAY PORT	Specifies the serial port.
REC PORT	Specifies the serial port.
RECORD DURATION	Sets recording duration.
RECORD ID	Displays the Record ID.
RECORD RENAME	Changes the Record ID.

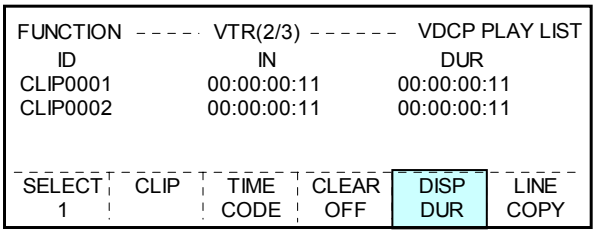
16-3-4. VDCP Operation Using the Menu (VDCP Protocol)

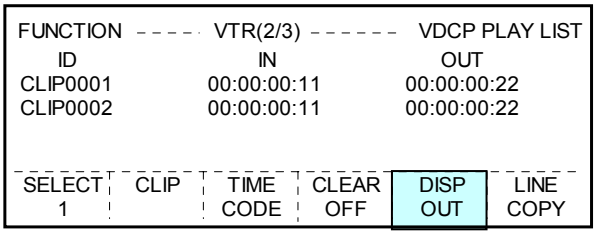
■ **Playback and Recording**

The VDCP control is almost the same as VTR control. See section 16-2-4. " VTR Control Using the Menu (VTR Protocol)." For the VDCP device control, select VDCP for the SELECT item in the VTR menu. The VDCP operation with user buttons is also available in the same way as in VTRs.

■ **Displaying PLAY LIST**

Display the FUNCTION -VTR(2/3) menu page.





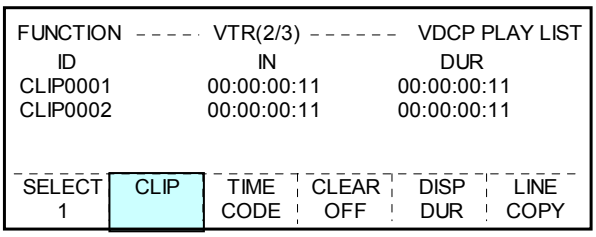
The DISP (DISPLAY) item switches the display mode for VDCP PLAY LIST. If DUR is selected, CLIP ID, IN point and Duration are displayed. . If OUT is selected, CLIP ID, IN point and OUT point are displayed.

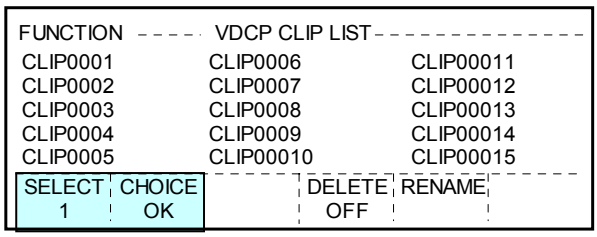
■ **Adding Clips**

① Press F2 under CLIP in the FUNCTION - VTR(2/3) menu page to display the VDCP CLIP LIST page.

② Turn F1 to select a clip to be added to the VDCP PLAY LIST.

③ Turn F2 to select OK. And then press F2. The selected clip is added to the current cursor position.





NOTE
Up to two clips can be added to the VDCP PLAY LIST. In the VDCP CLIP LIST page, you can rename and delete clips.

■ **Deleting Clips**

① Turn F1 in the VTR(2/3) page to go to a clip to be deleted from the PLAY LIST.

② Change CLEAR to ON. And then press F4.

■ **Copying and Pasting Clips**

① Turn F1 in the VTR(2/3) page to go to a clip to be copied.

② Select COPY for the LINE Item. And then press F6.

③ Move the cursor to the destination clip.

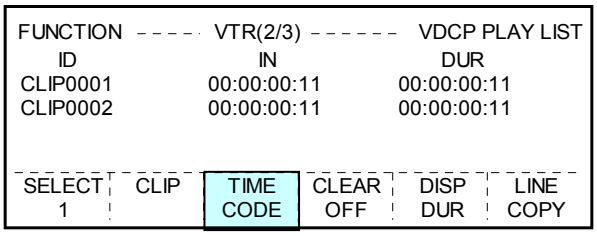
④ Select PASTE for the LINE Item. And then press F6.

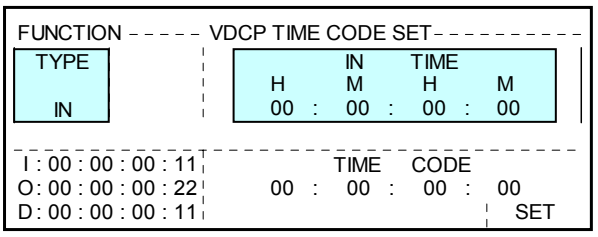
■ **Setting Time Code**

① Press F3 under TIME CODE in the VTR(2/3) page to display the VDCP TIME CODE SET page.

② Select the item to be changed from IN point, OUT point and Duration in the TYPE item.

③ Turn F3 - F6 to change the time code.





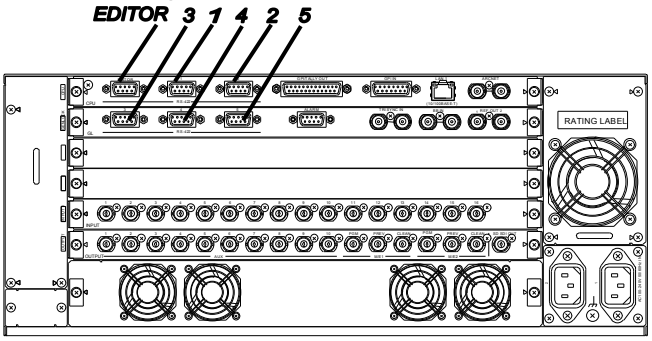
NOTE
The current time is displayed in the bottom of the VDCP TIME CODE SET page. Pressing F6 sets IN TIME or OUT TIME in the top right page to the current time.

16-4. Router Control

Router Control feature allows the user to control a routing switcher remotely via the RS-422 serial connection. A Free Assign function is also provided to enable its operation from the control panel. This allows the switcher operator to easily control the signal routing from the panel.

IMPORTANT
Note that this router control feature supports the **HARRIS Integrator** Series of Routing Switchers only.

To use signal routing control, the HVS-3800HS/S needs to be connected to an RS-422 serially controlled routing switcher using an RS-422 port on the rear panel.



Connect the RS-422 **ports 1 to 5** on the HVS-3800HS/S rear panel and the routing switcher with an RS-422 crossover cable. Refer to the manual supplied for connection on the router side.

16-4-1. Assigning Routing Control to Serial Port

① Press the MU SETUP button in the menu section to display the MU SETUP top page.

② Set SELECT to RS-422. Press F1 or the DOWN button to display the MU SETUP-RS-422 menu.

③ Assign the ROUTING function to the RS-422 serial port where the routing switcher is connected by selecting the router under the target RS-422. For example, turn the F2 to set No.2 to ROUTER (if the router is connected to the RS-422 (2) port on the MU rear panel.)

④ Reboot the MU after making the settings. (Note that the settings do not take effect until the unit is rebooted.)

16-4-2. RS-422 Port Setting

Follow the procedure below to make RS-422 port settings.

① Press MU SETUP to display the MU SETUP top page.

② Set SELECT to RS-422. Press the control F1 or the DOWN button to display the MU SETUP-RS-422 menu.

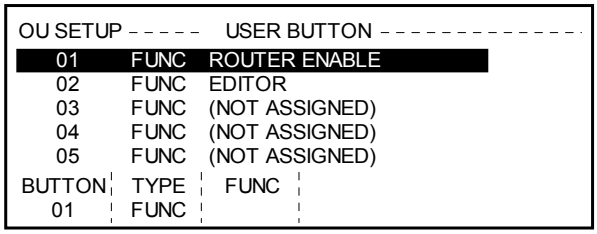
③ Make the settings for the port that was assigned the VTR control function in the previous section. Normally the settings are ODD parity and 38400 for the baud rate. Settings may differ for some VTRs.

④ Reboot the MU after making the settings. (Note that the settings do not take effect until the unit is rebooted.)

16-4-3. Assigning the ROUTER Control to the USER Button

① Press the OU SETUP button in the menu section to display the OU SETUP top page.

② Set SELECT to USER BUTTON. Press the control F1 or the DOWN button to display the FUNCTION-USER BUTTON menu.



③ Turn F1 to select the user button to use for assigning the ROUTER Control Function. The light of the corresponding USER button turns on.

④ Set TYPE to FUNC.

⑤ Turn F3 to select 146 ROUTER ENABLE. Press ENTER in the keypad to confirm the setting. The routing control ON/OFF function is applied to the selected USER button.

16-4-4. Assigning Destination/Source Channel

■ **Assigning Destination Channels to the AUX/KEY Bus**

① Press the FUNC button in the menu section to display the FUNCTION top page.

② Set SELECT to ROUTER. Press F1 or the DOWN button to display the FUNCTION - ROUTER(1/2) - DEST menu.

③ Turn F1 to select the button under the BTN item for destination channel assignment.

④ Select the router destination channel to be assigned to the selected bus button under the DEST item.

⑤ Repeat steps 3 to 4 for other bus buttons to complete the output channel mapping.

■ **Assigning Source Channels to the AUX/KEY Bus**

① Display the FUNCTION-ROUTER (2/2)-SRC menu.

② Select the router source channel to be assigned to the selected bus button.

③ Select the button under the BNT item for source channel assignment.

16-4-5. Signal Switching Operation

Signal switching commands can be sent to the connected router from the control panel. The functions can be operated as follows:

① Press the USER button where the routing control ON/OFF function is applied in the previous section to light on. Once the button is pressed, the AUX/KEY bus buttons become to serve as router destination buttons.

IMPORTANT
Even if the routing control is set to ON, Bus buttons set to NONE in the FUNCTION-ROUTER(1/2)-DEST menu will not light on.

② Press the desired destination button for switching signal on the AUX/KEY bus.

③ When the destination button is pressed, HVS-3800HS/S requests a routing status of the selected destination channel to the router. When the command response is received, the AUX/KEY bus buttons turn to serve as router source buttons and the corresponding source button on the AUX/KEY turns orange to indicate the current signal routing.

④ Press the desired source button on the AUX/KEY bus to change the source signal. HVS-3800HS/S will send a crosspoint switching command to the router.

⑤ After an appropriate period of time, HVS-3800HS/S sends a status command for the specified destination channel to the router to verify the setting. The corresponding source button on the AUX/KEY bus will light orange according to the router response.

16-5. Editor Control (Option Software)

Display FUNCTION menu by pressing FUNC button, and then open the EDITOR menu.

Parameters	Description		Setting Range	
TYPE	Protocol type		GVG-100 (default), BVS-3000	
DELAY (*1)	Adds delay to offset timing mismatch		OFF: No delay ON: Delay added (default)	
ENABLE (*2)	Editor control ON/OFF		ON: Editor control disabled OFF: Editor control enabled (default)	
SELECT (*3)	Selects which bus used by the editor.	BVS3K	ME	ME operation when ENABLE is set to ON.
			PVW	PVW operation when ENABLE is set to ON.
			ALL	ME and PVW operation when ENABLE is set to ON.
			ME ON	M/E operation regardless of the ENABLE setting. ME and PVW operation when ENABLE is set to ON
			PVW ON	PVW operation regardless of the ENABLE setting. ME and PVW operation when ENABLE is set to ON.
WIPE	Selects how pattern selections are made by editor	NORMAL		100 wipe patterns are available at editor (default)
		LIST		Uses 25 patterns (as no. 75-99) saved at MU pattern lists. (When GVG-100 is set)
BAUD	Sets baud rate	9600, 19200, 38400 (default)		
PARITY	Sets parity	NONE, ODD (default), EVEN		
XPT CTRL(*4)	Sets XPT control type	INPUT	Crosspoint switching command from the editor by specifying the input connector number (default).	
		BUTTON	Crosspoint switching command from the editor by specifying the bus button number.	
PATT SELECT	Sets pattern selection ON/OFF	ON	Accepts pattern commands from the editor (default).	
		OFF	Not accept pattern commands from the editor.	
KEYER CTRL	Sets keyer commands ON/OFF	ON	Accepts keyer commands from the editor(default).	
		OFF	Not accept keyer commands from the editor (Receiving "ALL STOP" command does not set keyers OFF.)	

(*1) If DELAY set to OFF, command delay for DVE processing can be removed. Once command delay is removed, MIX or WIPE transition can start at IN point of the effect, but note that in this case DVE transition operation and commands normally issued from OU will be delayed by one frame, for example, a background image can be accidentally seen for a moment at the beginning of the switching.

(*2) The switcher will be editor controlled only when the ENABLE is set ON.

(*3) When PVW, PVW ON or ALL is set for SELECT, AUX10 will be editor controlled as an Edit Preview bus.

(*4) Refer to the tables below to specify the number for the signals when the XPT CTRL is set to INPUT or to BUTTON.

BUTTON（HVS-16OUA）

Number	Button Name
1-16	1 o 16
17	MATT
18-33	SHIFT+1 to 16
34	SHIFT+MATT

BUTTON（HVS-24OUA）

1-24	1 to 24
25	MATT
26-49	SHIFT+1 to 24
50	SHIFT+MATT

BUTTON（HVS-12ROUA）

Number	Button Name
1-12	1 to 12
13-24	SHIFT+1 to 12
25	M/E

INPUT

Number	Button Name
0	BLACK
1-28	IN01-IN28
35	COLOR BAR
36	WHITE
29-36	STILL1-6
37-38	MATT1-2
39	M/E

IMPORTANT

The EDITOR ON/OFF function can be also assigned to a USER button. Once the function is assigned to a USER button, turning the USER button on/off allows users to set EDITOR to ON/OFF and pressing the USER button twice will open the EDITOR menu. See section 15-2. "USER Buttons" for the assignment.

16-6. Network Settings

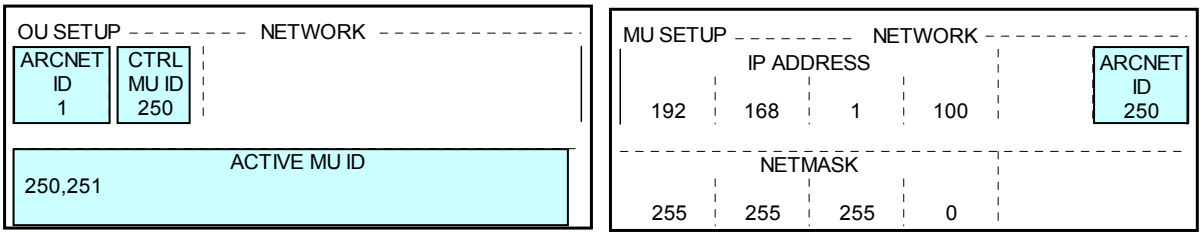
16-6-1. Arcnet

■ **OU and MU are configured for ARCNET as below**

For the MU and OU to communicate, use the BNC cable to connect an Arcnet port of each unit. If you want to connect other devices to the Arcnet, use the other Arcnet port of the MU or the OU. If the MU or the OU is the last device in the network, the other port has to be 75 ohm terminated. Refer to section 3-2 "Optional Configuration" for Arcnet configuration and operation manual for HVS-AUX16/32 (Hanabi Auxiliary unit).

■ **Arcnet Setting**

The factory default settings for the ARCNET are shown in the table below. Change ARCNET settings only when if necessary. The settings can be made in the MU SETUP – NETWORK menu and OU SETUP – NETWORK menu.



If you are configuring one each OU and MU via ARCNET, connect them in P2P (peer-to-peer) configuration and leave MU and OU to factory default set ID numbers (250 and 1 respectively). Accessible MU ID(s) will be shown under the ACTIVE MU ID item in the menu. If you want to disconnect the MU from the OU on the Arcnet, select any ID other than shown in the ACTIVE MU ID block.

Parameters		Description	Default	Range
OU SETUP	ARCNET OU ID	Sets Arcnet ID for the OU.	1	1-255
	CTRL MU ID	Selects MU Arcnet ID controlled by the OU.	250	1-255
MU SETUP	ARCNET ID	Sets Arcnet ID for the selected MU	250	1-255

■ **Expanding ARCNET Devices**

If you are configuring additional OU, MU or other ARCNET devices, different ID numbers will need to be set for each unit and additional connection cables will be required. Please consult your FOR-A supplier regarding needed items for your configuration.
Be careful not to use the same ARCNET ID for two different units. If ARCNET ID conflict has occurred and network communication fails, turn unit power OFF at one of the units in conflict and disconnect from the network. Power on the conflicting unit and change the ID to a valid network ID. If you want to change the conflicting MU ID, connect the conflicting MU to the OU at peer-to-peer and change the MU ID from the OU. Turn all units power off, re-connect all the units in the system and turn the system power back on to re-configure the network. Note that new ID will not be valid until units are powered ON again.

<System File Loading>

Before downloading system data from an installed memory card, verify ARCNET ID currently assigned to OU and MU for operation is the same as in the data being downloaded. If a conflicting ARCNET ID (one assigned to another OU or MU in the network) is downloaded and applied, network operation will fail after download is complete.

16-6-2. Ethernet

Multiple units can be configured to communicate via LAN (Ethernet 10BASE-T / 100BASE-TX) MU interface connection. Related settings must be made in the MU SETUP - NETWORK menu.

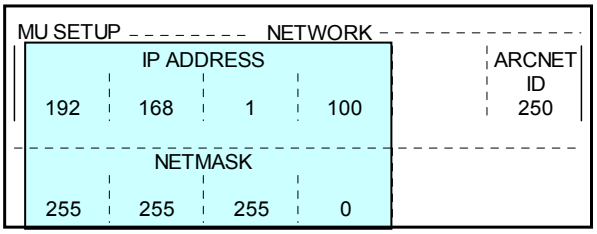
■ Connecting the MU on LAN

Use the twisted pair, Category 5 (UTP) cable (straight- through type) to connect the MU to LAN. If connecting the MU to a PC directly, use the cross-connect type cable.

IMPORTANT
You should consult your network administrator before connecting the MU to the LAN.

■ MU IP Address and Mask Settings

Turn F1 in the MU SETUP-NETWORK menu and press F1 or the DOWN button to open MU SETUP – NETWORK menu.
Align the cursor with the IP ADDRESS or NET MASK line to make Ethernet connection settings. Note that IP ADDRESS and NET MASK are default set as IP ADDRESS 192.168.1.100 and NET MASK 255.255.255.0. Change each setting only when necessary. After the setting is made, press ENTER to confirm setting.



16-7. Upgrading Operational Version

IMPORTANT
Consult your FOR-A supplier for upgrading your HVS-3800 series OU and MU.

You will need to use the FILE special menu function to download and apply the operational software files on the CF card received with this upgrade explanation. The files listed below contain the software upgrades for your HVS-3800 series OU and MU.

(HVS-3800HS/S main software)	**PM8054XX.MMU**
(HVS-3800HS/S sub software)	**PM8051XX.SMU**
(HVS-16/24OUA software)	**PM8060XX.OUA**
(HVS-12ROUA software)	**PM8520XX.OUA**

16-7-1. How to Verify Version

Open the STATUS-VERSION menu to verify current MU and OU versions following the procedure below.

① Press STATUS button to display the STATUS top page.

② Turn F1 to select VERSION then press F1 or the DOWN button to open the STATUS VERSION menu.

16-7-2. Upgrade Procedure

To upgrade your HVS-3800 series OU and MU, follow the procedure below:

Set	Description	Refer to
1	Save current setting data to the CF card.	16-7-3
2	Upgrade the MU software.	16-7-4
3	Upgrade the OU software.	16-7-5
4	Reboot the MU.	15-6
5	Initialize the MU.	15-6
6	Load the setting data saved at step 1.	16-7-6
7	Reboot the MU.	16-7-6
8	Turn power off then on at MU and OU.	---

IMPORTANT
Once upgrading the system, the setting data will be lost and return to factory default. Important setting data should be backed up by saving to the CF card before upgrading your system. Refer to section 13-2 "Saving Data to CF Cards" for backing up the data.

16-7-3. Saving Setting Data

① Insert the CF card into the card drive.

② Press the FILE button to display the FILE menu.

③ Press the DOWN button to display the second page.

④ In the FILE menu, set the file extension TYPE to ALL.

⑤ Press F3 to save all panel settings. A "beep" sound will be heard when the data is saved as data.all to the CF card.

16-7-4. To Upgrade MU

① Select FILE=>MU/OU while pressing and holding down the FILE button. Turn F1 to select the file extension MMU while pressing and holding down the FILE button. The MMU files are recognized by the MU as the MU upgrade files.

② Turn F2 to select the MMU file to be downloaded.

③ Press F3 to load (download) the selected upgrade file to the MU.

IMPORTANT
DO NOT turn power OFF at your units or try to remove the CF card from the card drive until file download is complete!

④ OU lamp buttons will go dark after 30 sec. (The data will start to be written to MU flash ROM.)

⑤ After 1-2 min., panel indications will return to normal. (Download / ROM write complete.)

⑥ Software upgrade will be applied after rebooting MU. (MU power OFF then power ON)

IMPORTANT
You will have to upgrade your HVS-3800HS/S sub software by loading an upgrading file with SMU extension in a same way as the HVS-3800HS/S main software upgrading procedure. (Writing to MU flash ROM will take about 1 min.)

16-7-5. To Upgrade OU

① Select FILE=>MU/OU while pressing and holding down the FILE button. Turn F1 to select the file extension OUA while pressing and holding down the FILE button. The OUA files are recognized by the OU as the OU upgrade files.

② Turn F2 to select the OUA file to be downloaded.

③ Press F3 to send (download) the selected upgrade file to the OU.

IMPORTANT
DO NOT turn power OFF at your units or try to remove the CF card from the card drive until file download is complete!

④ "FLASH ERASE" will appear on the screen, indicating flash ROM data being erased.

⑤ "FLASH WRITING" will appear on the screen, indicating data is being written to OU flash ROM.

⑥ Software upgrade is applied successfully when the start-up screen appears. If an error occurs, "VERSION UP ERROR" will appear on the screen.

16-7-6. Loading Setting Data

All menu settings previously made for the MU and OU can be set again by loading the "data.all" file from the CF card.

① Insert the CF card, where the data is saved, into the card drive.

② Press the FILE button to display the first page of the FILE menu.

③ In the FILE menu, set the file extension TYPE to ALL.

④ When there are multiple files in the FILE menu, turn the F2 to select the file to be sent. (The file name will be "data.all" if it has not been changed.)

⑤ Press F3 to load the data. Then a "beep" sound will be heard and the data is loaded from the CF card.

⑥ "SEND" on the screen will start flashing, indicating data is being sent from the OU to MU.

⑦ After about a half min. the data transmission will be finished.

⑧ The loaded data will be applied to the MU and OU after rebooting MU . (MU power OFF then power ON.

IMPORTANT
Once the saved system data is loaded, you will have to restart both MU and OU. (Each power off then power ON.) The Arcnet ID is applied only after the units are restarted.

16-8. Upgrading DVE Card

The purpose of this chapter is to explain how to upgrade the DVE card (HVS-38DVE2D/3D) installed in the HVS-3800HS/S. Hanabi series DVE cards hold five upgradeable firmware files; three applied to hardware and two applied to software. By upgrading these firmware files, you can add new features / facilities to your existing DVE card. New firmware files can also be provided to improve or change existing operation or features of your DVE card.

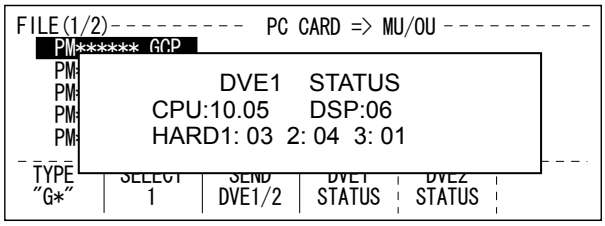
IMPORTANT
Consult your FOR-A suppliers for details about upgrading DVE card. Do not turn the power off or pull the card out during upgrade process. Unless it may damage your DVE card.

16-8-1. Checking the DVE Card Version

Before upgrading your DVE card, use the procedure below to check the current version of your DVE Card.

① Press and hold down the FILE button. Turn F1 while holding down the FILE button to select the file extension G*. Release the FILE button.

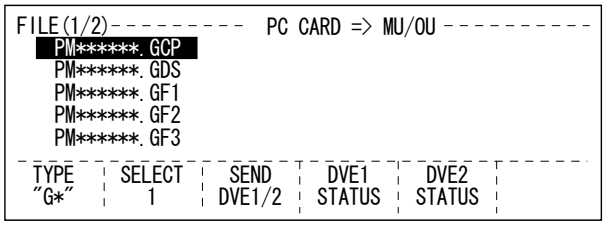
② Press F4 for DVE1 (or F5 for DVE2). DVE status of the DVE card will pop up on the screen as shown below. To close the pop-up window, press the same control again.



CPU: CPU Version
DSP: DSP Version
HARD1 to 3: Hardware Version

16-8-2. Upgrading the DVE Card

① Press and hold down the FILE button. Turn F1 while holding down the FILE button to select the file extension G*. Release the FILE button.



② Turn F2 to select a firmware upgrade file under the SELECT item. The Types in the name of the firmware file including file extension are as in the table below.

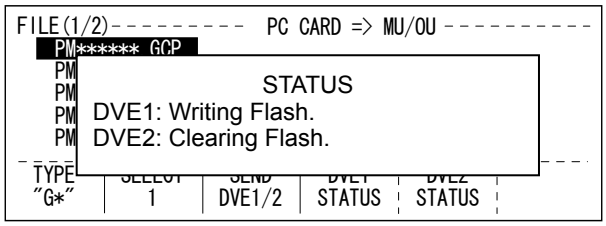
File Name	Firmware File Type
PM******.GCP	CPU firmware
PM******.GDS	DSP firmware
PM******.GF1	Firmware for hardware1
PM******.GF2	Firmware for hardware2
PM******.GF3	Firmware for hardware3

You can upgrade only one firmware at a time. Repeat this procedure until all necessary upgrading of files is completed.

③ Turn F3 to select a DVE card to be changed under the SEND item. Normally select DVE1/2 if two DVE cards configured or select DVE1 if only one DVE card configured.

④ Press the control F3. Data transmission to MU will be started.

⑤ The transmission status will be indicated in the pop-up window.

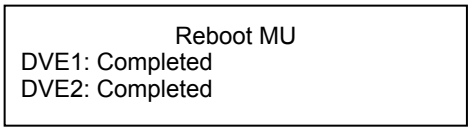


IMPORTANT
Do not turn the power off or pull the card out until " Reboot MU." is displayed on the screen.

Message List

Message	Status
Clearing Flash.	Clearing Flash data
Writing to Flash.	Writing data
Writing to CPU.	Writing to CPU
Check	Checking sum
Completed.	Upgrade finished successfully

⑥ Once the firmware upgrade is finished successfully, "Completed." is displayed on the screen as shown below. This process takes from three to five minutes to complete.



If any error messages in the table below are displayed, check the following points and repeat the procedure from step 3. Select only the failed card in the next upgrade process, if an error appears on either one of two cards.

- Is the upgrade file selected correctly?
- Is the DVE card selected correctly?

Error Message	Status
Err. [5]	Error occurred (DVE timed out)
Err. [6]	Error occurred (DVE format data clearing error)
Err. [7]	Error occurred (DVE format data writing error)
Err. [8]	Error occurred (Transmission SUM error)
Err. [9]	Error occurred (Writing SUM error)
No DVE board.	No DVE card is installed.
MU-OU trans err.	MU-OU transmission error (MU Busy, SEQ ERR)

⑦ Reboot the MU.

⑧ Repeat this procedure from step1 to step 7 until all necessary upgrading of files is completed.

⑨ After upgrading is finished, verify that the new version number of the DVE card appears on the menu. (See section 16-8-1. "Checking the DVE Card Version.")

17. Specifications and Dimensions

17-1. System Specifications

17-1-1. HVS-3800HS (HD Mode)

TV Standard	1080/60i, 1080/59.94i, 1080/50i, 1080/23.98PsF, 1080/24PsF, 1080/23.98p, 1080/24p, 720/59.94p, 720/60p, 720/50p	
Signal Processing	Digital component 4: 2: 2: 4 (key)	
Quantization	Y: 10-bit, C: 10-bit, Key: 10-bit	
Sampling Frequency	Y: 74.25/1.001MHz or 74.25MHz C: 37.125/1.001MHz or 37.125MHz Key: 74.25/1.001MHz or 74.25MHz	
Video Inputs	HD SDI 1.485/1.001Gbps or 1.485Gbps, 6 inputs (optionally expand to 28 inputs.), 75Ω, BNC	
Reference Input	TRI-level sync: ±0.3V, 75Ω or loopthrough, BNC, 1 input or BB: 0.429 (0.45) Vp-p, 75Ω or loopthrough, BNC, 1 input	
Video Outputs	HD SDI 1.485/1.001Gpbs or 1.485Gbps, 16 outputs (2 ea. for PGM, 2 ea. for PREV, 2ea. for CLN and AUX1-10) plus 7 outputs possible (6 AUXs and 1 SD SDI), 75Ω, BNC	
Reference Output	TRI-level sync, ±0.3V 75Ω, BMC, 2 outputs or BB, 0.429 (0.45) Vp-p, 75Ω, BNC, 2 outputs	
S/N Ratio	Better than 58dB	
I/O Delay	1H + 1 frame (with KEY1 and KEY2) +1 frame (when DVE applied to output)	
Interfaces		
RS-422	9-pin D-sub connector (female), 5 ports	
GPI IN	15-pin D-sub connector (female), 1 port	
GPI/TALLY OUT	25-pin D-sub connector (female), 1 port	
EDITOR	9-pin D-sub connector (female), 1 port (optional software required)	
ALARM	9-pin D-sub connector (female), 1 port with loop-through	
ARCNET	Token passing, 10Mbps, 75Ω or loopthrough, BNC, 1 port	
ETHERNET	10/100BASE-TX, RJ-45; 1 port	
Temperature	0°C - 40°C	
Humidity	30% - 90% (no condensation)	
Power	100VAC-240VAC±10%, 50/60Hz	
Power Consumption	Standard: 400VA (at 100VAC), 400VA (at 240VAC) Full option: 510VA (at 100VAC), 505VA (at 240VAC)	
Weight	Approx. 20kg (26kg: Full option installed)	
Dimensions	430 (W) x 176 (H) x 505 (D) mm, EIA 4RU	
Consumables	Memory backup battery	CR2450 (Replace every 2 - 4 years at room temperature.) (If the power is too low, STATUS button will turn on red. Check the POWER BTRY item in STATUS - MU ALARM (1/2) menu. The battery must be replaced if "TOO LOW" or "EMPTY" is displayed.)
	Power unit	P-1346 (Replace every 3 - 5 years at room temperature.)
	Fan	FRONT (2 ea.) P-1389 (Replace every 4 years at room temperature.) SIDE (2 ea.) P-1390 (Replace every 4 years at room temperature.) REAR UPPER(1 ea.) P-1391 (Replace every 4 years at room temperature.) REAR (4 ea.) P-1392 (Replace every 4 years at room temperature.) See fan LEDs or STATUS menu for the operational condition of the fans.

17-1-2. HVS-3800HS (SD Mode) / HVS-3800S

TV Standard	525/60, 625/50
Signal Processing	Digital component 4: 2: 2: 4 (key)
Quantization	Y: 10-bit, C: 10-bit, Key: 10-bit
Video Inputs	SD SDI 270Mpbs, 16 inputs (optionally expand to 28 inputs.), 75Ω, BNC
Reference Input	BB: 0.429 (0.45) Vp-p, 75Ω or loopthrough, 1 input, BNC
Video Outputs	SD SDI 270Mpbs, 16 outputs (2 ea. for PGM, 2 ea. for PREV, 2ea. for CLN and AUX1-10) plus 7 outputs possible (6 AUXs and 1 SD SDI), 75Ω, BNC
Reference Output	BB, 0.429 (0.45) Vp-p, 75Ω or loopthrough, BNC, 2 outputs
S/N Ratio	Better than 58dB
I/O Delay	1H + 1 frame (with KEY1 and KEY2) +1 frame (when DVE applied to output)
Interfaces	
RS-422	9-pin D-sub connector (female), 5 ports
GPI IN	15-pin D-sub connector (female), 1 port
GPI/TALLY OUT	25-pin D-sub connector (female), 1 port
EDITOR	9-pin D-sub connector (female), 1 port (optional software required)
ALARM	9-pin D-sub connector (female), 1 port with loop-through
ARCNET	Token passing, 10Mbps, 75Ω or loopthrough, BNC, 1 port
ETHERNET	10/100BASE-TX, RJ-45; 1 port
Temperature	0°C - 40°C
Humidity	30% - 90% (no condensation)
Power	100VAC-240VAC±10%, 50/60Hz
Power Consumption	Standard: 400VA (at 100VAC), 400VA (at 240VAC) Full option: 510VA (at 100VAC), 505VA (at 240VAC)
Weight	Approx. 20kg (26kg: Full option installed)
Dimensions	430 (W) x 176 (H) x 505 (D) mm, EIA 4RU
Consumables	Memory backup battery: CR2450 (Replace every 2 - 4 years at room temperature.) (If the power is too low, STATUS button will turn on red. Check the POWER BTRY item in STATUS - MU ALARM (1/2) menu. The battery must be replaced if "TOO LOW" or "EMPTY" is displayed.) Power unit: P-1346 (Replace every 3 - 5 years at room temperature.) Fan: FRONT (2 ea.) P-1389 (Replace every 4 years at room temperature.) SIDE (2 ea.) P-1390 (Replace every 4 years at room temperature.) REAR UPPER (1 ea.) P-1391 (Replace every 4 years at room temperature.) REAR (4 ea.) P-1392 (Replace every 4 years at room temperature.) See fan LEDs or STATUS menu for the operational condition of the fans.

17-1-3. HVS-16/24OUA

Card Drive		Accepts Compact Flash memory cards.
Interfaces		
TO MU		Token passing, 10Mbps, 75Ω or loopthrough, BNC, 1 port
TO DISPLAY PANEL		50-pin D-sub connector (male) (PC-3164)
Temperature		0°C - 40°C
Humidity		30% - 90% (no condensation)
Power		100VAC-240VAC±10%, 50/60Hz
Power Consumption	HVS-16OUA	65VA (100V), 85VA (240V) (full option installed)
	HVS-24OUA	100VA (100V), 110VA (240V) (full option installed)
Weight	HVS-16OUA	16kg
	HVS-24OUA	20kg
Dimensions	HVS-16OUA	640 (W) x 460 (D) x 95 (H) mm
	HVS-24OUA	787 (W) x 460 (D) x 95 (H) mm
Consumables	Power unit	P-1396 (Replace every 3-5 years at room temperature.)

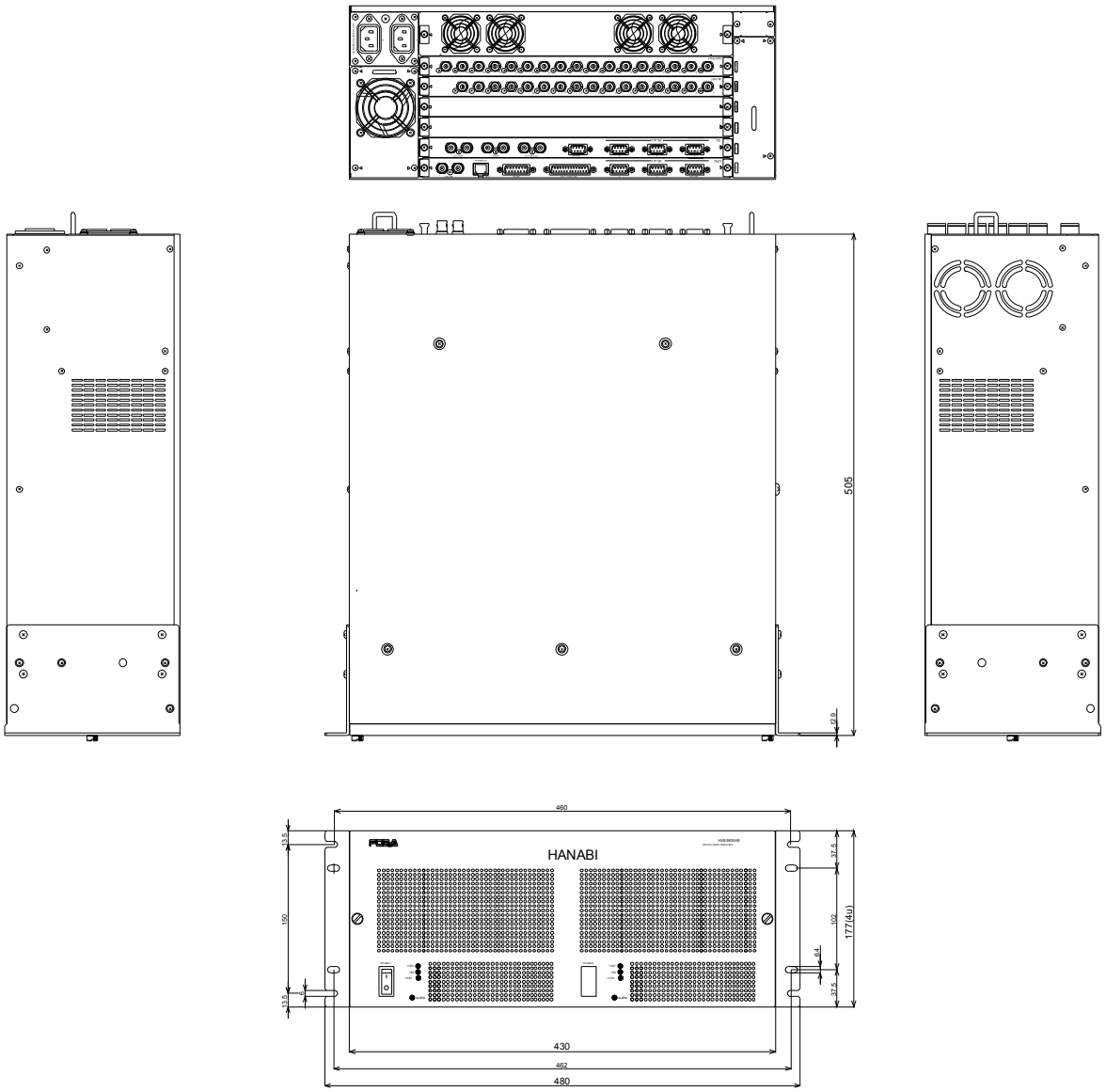
17-1-4. HVS-12ROUA

Card Drive		Accepts Compact Flash memory cards.
Interfaces		
TO MU		Token passing, 10Mbps, 75Ω or loopthrough, BNC, 1 port
Temperature		0°C - 40°C
Humidity		30% - 90% (no condensation)
Power		100VAC-240VAC±10%, 50/60Hz
Power Consumption		61VA (at 100V), 77VA (at 240V) (full option installed)
Weight		10kg
Dimensions		430 (W) x 468 (D) x 165.8 (H) mm
Consumables	Power unit	P-1395 (Replace every 3-5 years at room temperature.)
	Cooling fan	P-1394 (Replace every 4 years at room temperature.)

17-2. External Dimensions

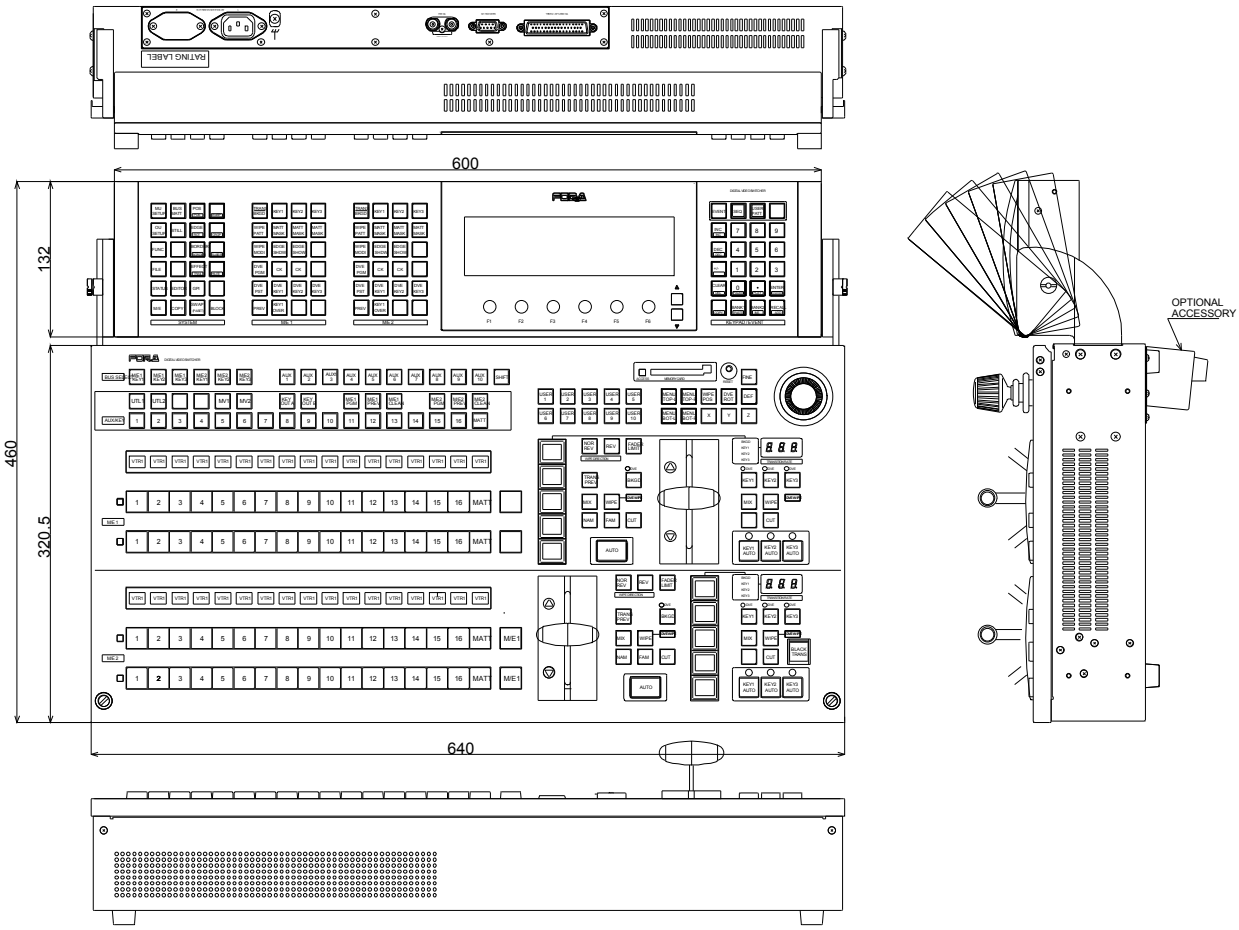
17-2-1. HVS-3800HS/S

(All dimensions in mm)



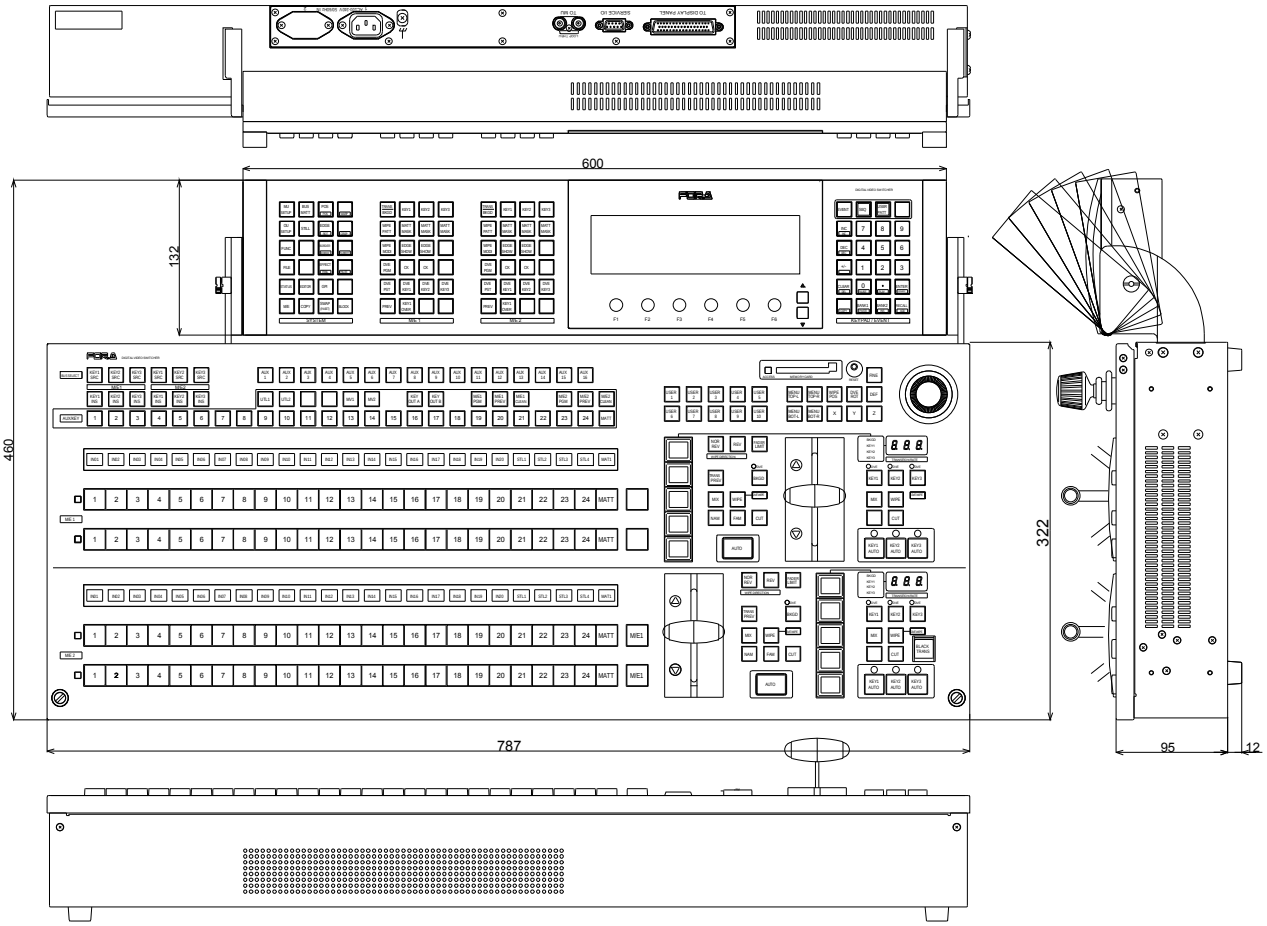
17-2-2. HVS-16OUA

(All dimensions in mm)



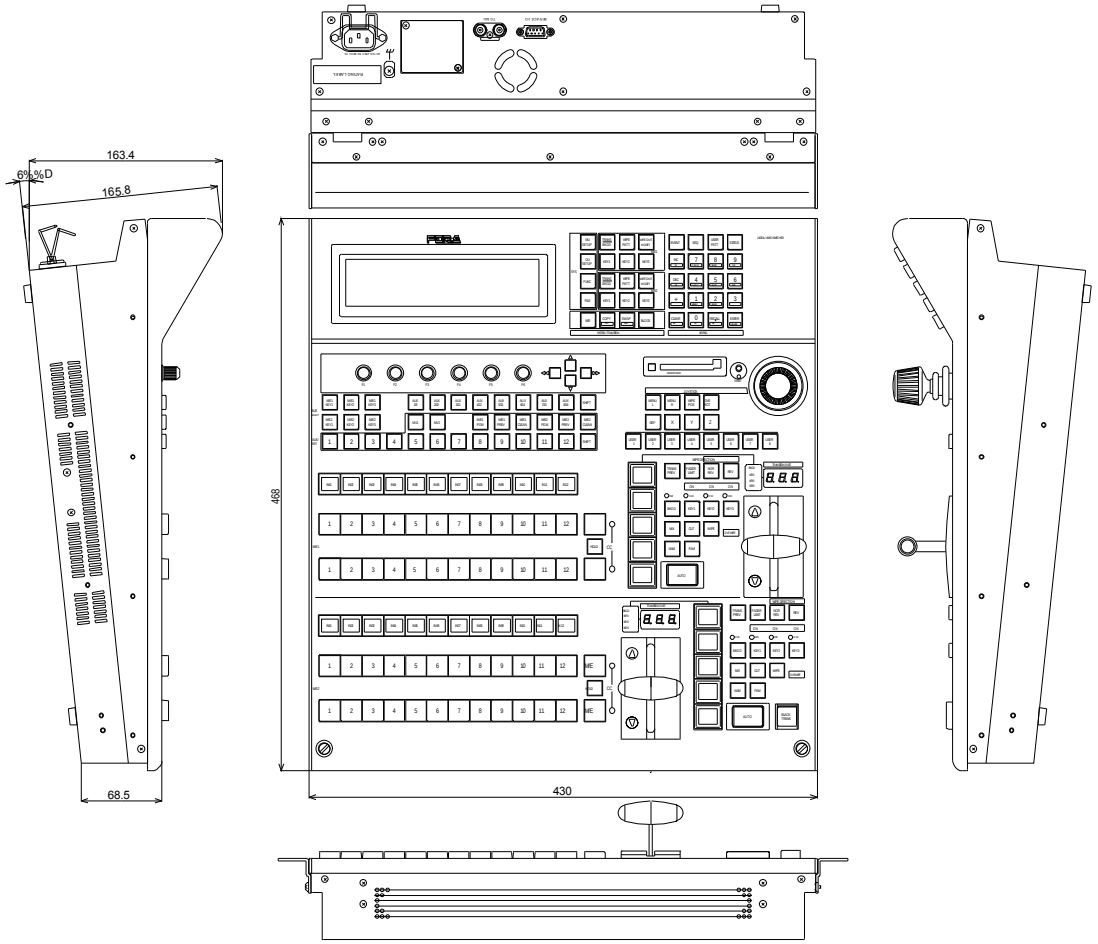
17-2-3. HVS-24OUA

(All dimensions in mm)



17-2-4. HVS-12ROUA

(All dimensions in mm)



Appendix 1. Menu List

1-1. MU SETUP Menu

MU SETUP - TOP menu (MU SETUP button)			
Submenu	Description		
1. SYSTEM	Sets the system signal format and adjusts input and output reference signals.		
2. INPUT	Sets input signal names.		
3. OUTPUT	Sets the safety area of output signals.		
4. MODE	KEYER MODE, MATT CLIP and other settings.		
5. MATT CLIP	Adjusts internally generated matt signals		
6. RS-422	RS-422 baud rate and parity settings.		
7. NETWORK	Arcnet and Ethernet settings (option).		
8. DATE	Sets date and time.		
Parameter	Description	Default	Setting Range
SELECT	Selects submenus (Press F1 or the DOWN button to select submenus).	-	-
X-BUFF	Used to enable the undo operation. (See section 15-5.)	OFF	OFF, ON
REBOOT	Used to reboot the MU. (See section 15-6.)	OFF	OFF, ON

MU SETUP sub menus are accessed from the MU SETUP top menu. It is not allowed to move between sub menus.

MU SETUP – SYSTEM menu						
Submenu	Parameter			Default	Setting Range	Refer to
MODE	FORMAT	HD		1080	1080, 720	3-4
		SD		NTSC	NTSC, PAL	
	RATE	HD	1080	59.94i	60i, 59.94i, 50i, 24p, 23.98p, 24sF, 23.98sF	
			720	59.94p	60p, 59.94p, 50p	
	ASPECT	1080, 720		16: 9	4: 3, 16: 9	
		NTSC		4: 3	4: 3, SQUEEZ, LETTER	
		PAL		4: 3	4: 3, SQUEEZ	
REF	IN	HD	1080/59.94i, 1080/50i, 720/59.94p	BB	BB, TRI S	15-3-1
			720/50p	BB	BB	
			1080/60i, 1080/24PsF, 1080/23.98PsF, 1080/24p, 1080/23.98p, 720/60p	TRI S	TRI S	
		SD		BB	BB	
REF	OUT	HD	1080/59.94i, 1080/50i, 720/59.94p	BB	BB, TRI S, SETUP	
			720/50p	BB	BB	
			1080/60i, 1080/24PsF, 080/23.98PsF, 1080/24p, 1080/23.98p, 720/60p	TRI S	TRI S	
		SD	NTSC	BB	BB, SETUP	
			PAL	BB	BB	
SC PHS	COARSE	BB	0		-170 to 170	15-3-1
	FINE	BB	0.0		-15.0 to 15.0	
REF IN	H PHS	TRI S		0	0	15-3-1
		BB	1080/50i		-19 to 19	
			1080/59.94i, 720/59.94p, 720/50p		-15 to 15	
			NTSC		-15 to 15	
			PAL		-19 to 19	
SC PHS	COARSE	BB	0		-170 to 170	
	FINE	BB	0.0		-15.0 to 15.0	

MU SETUP – SYSTEM menu					
Submenu	Parameter		Default	Setting Range	Refer to
REF OUT PHS	H PHS	1080/60i, 1080/59.94i	0	-1094 to 1094	15-3-1
		1080/50i		-1314 to 1314	
		1080/24p, 1080/23.98p, 1080/24PsF, 1080/23.98PsF		-1369 to 1369	
		720/59.94p, 720/60p		-819 to 819	
		720/50p		-984 to 984	
		NTSC		-852 to 852	
		PAL		-858 to 858	
	V PHS		0	-100 to 100	
INIT (Turn F6 to select value and press F6 to initialize all or the selected parameters.)			CUR	CUR, SYS, ALL	15-6
SWITCH TIMING			FIELD	FIELD, ODD, EVEN	15-3-2

MU SETUP - INPUT menu					
Submenu	Parameter		Default	Setting Range	Refer to
SIGNAL NAME	SIGNAL		BLACK	BLACK, 01-28, STILL1-STILL6, MATT1, MATT2, WHITE, DVE	5-1-5
	RENAME		0	0-8, CANCEL	
	CHANGE		BIG	BIG, SMALL, SYMBOL, NUMBER	
	CHARA	CHANGE=BIG	-	'A' - 'Z'	
		CHANGE=SMALL	-	'a' - 'z'	
		CHANGE=SYMBOL	-	Symbols	
		CHANGE=NUMBER	-	'0' - '9'	
	PNL EN	If IN01-IN28 or STILL1-STILL6 is selected for SIGNAL.	OFF	OFF, ON	5-1-7
	PNLSEL		BLACK	BLACK, AUX7-10, MATT1, MATT2	
	SIDE PNLPOS		0	Setting range varies by operational signal format.	

MU SETUP - OUTPUT (1/2)-(2/2) menu				
Submenu	Parameter	Default	Setting Range	Refer to
SAFETY AREA	(See section 15-3-4. Safety Area Markers.)			
SF MODE		FIXED	FIXED, VAR	15-3-4
CLEAN OUT	M/E1	ON	OFF, ON	5-5-3
	M/E2	ON		
KEY OUT	A	ME1PGM	ME1PGM, ME1PST, ME1 A, ME1 B ME1KEY1, ME1KEY2, ME2PGM, ME2PST, ME2 A, ME2 B ME2KEY1, ME2KEY2, D KEY1, D KEY2, D KEY3, D KEY4, M2 KEY	
	B	ME2PGM		

MU SETUP - MODE menu				
Submenu	Parameter	Default	Setting Range	Refer to
TRANS CONTROL	M/E2	REG	REG, ABS	6-9-3
	M/E2	REG	REG, ABS	
AUTO TAKE		PAUSE	PAUSE, CUT, RETURN	6-9-5
FADER		MIX	MIX, CUT	6-9-6
KEYER MODE	KEY LINK	OFF	OFF, ON	5-6-6
	GAIN	TYPE1	TYPE1, TYPE2	4-7-2, 5-7
	SET	INPUT	INPUT, KEYER	
EV-RCL MODE	M/E1	TYPE_P	TYPE_P, TYPE_A	12-3
	M/E2	TYPE_P	TYPE_P, TYPE_A	

MU SETUP - MATT CLIP menu				
Submenu	Parameter	Default	Setting Range	Refer to
MATT CLIP	CLIP	ON	ON, OFF	15-3-5
	TOP ADJ1	0	-20 to 20	
	TOP ADJ2	0	0 to 50	
	BOTTOM ADJ1	0	-20 to 20	
	BOTTOM ADJ2	0	0 to 50	

MU SETUP - RS-422 menu				
Submenu	Parameter	Default	Setting Range	Refer to
SELECT		-	NONE, ODD, EVEN	16-1-4 16-3 16-4 16-5
FUNC		-	EDITOR, ROUTER, TALLY, VTR1-5, VDCP	
PARITY		-	NONE, ODD, EVEN	
BAUD		-	9600, 19200, 38400	

MU SETUP - NETWORK menu				
Submenu	Parameter	Default	Setting Range	Refer to
IP ADDRESS		192.168.250.250		16-6
ARCNET ID		250	1-255	
NET MASK		255.255.255.0		

MU SETUP - DATE/TIME menu			
Submenu	Parameter	Description	Refer to
DATE	YEAR	Current date	15-1-2
	MONTH		
	DAY		
TIME	HOUR	Current time	
	MIN		
	SEC		
APPLY	Enables DATE/ TIME settings.		

1-2. OU SETUP Menu

OU SETUP - TOP menu (OU SETUP button)	
Submenu	Description
1. BUS CONTROL	Assigns signals to M/E and AUX/KEY bus buttons
2. USER BUTTON	Assigns menu page or function to USER buttons.
3. MODE	Initializes or customizes operation units.
4. FADER	Sets fader lever response.
5. NETWORK	Sets Arcnet connection and selects main unit to control.
Parameter	Description
SELECT	Selects submenus (Press F1 or the DOWN button to select submenus).

OU SETUP sub menus are accessed from the OU SETUP top menu. It is not allowed to move between sub menus.

OU SETUP - BUS CONTROL menu				
Submenu	Parameter	Default	Setting Range	Refer to
BUTTON		1	1-34, M/E	5-1-6
SIGNAL		IN01	NONE, BLACK, IN01-17, STILL1-STILL4, MATT1, CB, MATT2, WHITE, L_DVE, IN17-28 (option), STILL5-STILL6 (option)	
NAME		IN01	(Signal names set in the MU SETUP-INPUT menu)	
INHIBIT		OFF	OFF, M/E1, M/E2, M/E1,2	
INHIBIT ENABLE		OFF	OFF, ON	
AUX BUS SEL	BUS	AUX01	AUX01-10, AUX11-16 (option)	
	ENABLE	ON	ON, OFF	
DVE TALLY		OFF	ON, OFF	6-9-10
BUS TYPE	M/E1	P/P	P/P, A/B	5-1-3
	M/E2	P/P	P/P, A/B	

OU SETUP - USER BUTTON menu				
Submenu	Parameter	Default	Setting Range	Refer to
BUTTON		1	1 to 6	4-4-4, 7-2, 14-8, 15-2, 16-3-3
TYPE		MENU	MENU, FUNC	
FUNC		---		
BLACK TRANS		B_TRS	B_TRS, S_PLAY	11-3

OU SETUP - MODE menu				
Submenu	Parameter	Default	Setting Range	Refer to
BUTTON CTRL		LIVE	LIVE, EDIT	6-8-3
RATE TYPE	FRM	FRM	FRM, SEC	6-9-1
JOYSTICK		ACCEL	LOW, NORMAL, HIGH, ACCEL	15-1-1
SCREEN SAVER	SELECT	TIME	OFF, TIME, BALL	
	MIN	5	1-60	
SHIFT SELECT		NORMAL	NORMAL, TOGGLE, OFF	5-1-2
BUZZER	TYPE	TYPE1	TYPE1, TYPE2, TYPE3, TYPE4, OFF	15-1-1
	VOLUME	20	0-31	
	TONE	NORMAL	LOW, NORMAL, HIGH	
BRIGHTNESS		10	1-15	
ON AIR TYPE		M/E2	M/E1, M/E2	
OU INIT (Select ON and press F6.)		OFF	OFF, ON	
KEYTRS MENU		SHOW	SHOW, HIDE	
RENC TYPE		NORMAL	NORMAL, INVERT	
TRANS DISP (HVS-16/24OUA)		HOLD	HOLD, PRESS	
RENC SPEED		HIGH	NORMAL, HIGH	
KEYER FAMNAM		DISBLE	DISBLE, ENABLE	

OU SETUP - FADER (1/2)-（2/2） menu				
Submenu	Parameter	Default	Setting Range	Refer to
M/E1 OFFSET M/E2 OFFSET	LOW	1.00	0.00~2.00	6-9-3
	HIGH	1.00	0.00~2.00	
M/E1 TIE, M/E2 TIE		OFF	ON, OFF	6-5
FADER INSENSITIVE	SELECT	0(M/E1)	0(M/E1), 1(M/E2)	6-9-4
	SET	IN	IN, OUT	
	ENABLE	OFF	OFF, ON	
	IN	0.0	0.0 - 100.0	
	OUT	100.0	0.0 - 100.0	

OU SETUP - NETWORK menu				
Submenu	Parameter	Default	Setting Range	Refer to
ARCNET ID		1	1-255	16-6-1
CTRL MU ID		250	1-255	
ACTIVE MU ID		-	1-255	

1-3. FUNCTION Menu

HVS-16/24OUA

FUNCTION - TOP menu (FUNC button)		
Submenu	Description	
1. DVE SETUP	DVE operational settings	
2.GPI/TALLY	Sets GPI input / output and tally assignments.	
3. EDITOR	Editor control	
4. GMATT	Sets up Gradation Matt signals	
5. COLOR CORR	Proc Amp, Signal Clip and Color Correction settings (Optional HVS-38CC required.)	
6. ANCILLARY	Ancillary data settings	
7. VTR	VTR control	
8. ROUTER	Router control	
9. MULTIVIEW	Multiviewer control (option)	(*1)
10. UC/DC	Up-converter and down converter control (option)	(*2)
11. SS/AM	Still store and moving image control (option)	(*3)
12. AUX LINK	AUX LINK settings	
13. TSL TALLY	TSL tally setings	
Parameter	Description	
SELECT	Selects submenus (Press F1 or the DOWN button to select submenus).	

FUNCTION sub menus are accessed from the top menu. It is not allowed to move between sub menus
(*1)(*2)(*3) For menu details, see the separate manual of each option.

HVS-12OUA

FUNCTION - TOP menu (FUNC button)		
Submenu	Description	
1.STILL	Still Store operation (See Appendix 1-5. STILL STORE menu.)	
2.MATT	Matt settings (See Appendix 1-4. Matt menu.)	
3. DVE SETUP	DVE operational settings	
4.GPI/TALLY	Sets GPI input / output and tally assignments.	
5. EDITOR	Editor control	
6. GMATT	Sets up Gradation Matt signals	
7. COLOR CORR	Proc Amp, Signal Clip and Color Correction settings (Optional HVS-38CC required.)	
8. ANCILLARY	Ancillary data settings	
9. VTR	VTR control	
10. ROUTER	Router control	
11. MULTIVIEW	Multiviewer control (option)	(*1)
12. UC/DC	Up-converter and down converter control (option)	(*2)
13. SS/AM	Still store and moving image control (option)	(*3)
14. AUX LINK	AUX LINK settings	
15. TSL TALLY	TSL tally setings	
Parameter	Description	
SELECT	Selects submenus (Press F1 or the DOWN button to select submenus).	

FUNCTION sub menus are accessed from the top menu. It is not allowed to move between sub menus
(*1)(*2)(*3) For menu details, see the separate manual of each option.

FUNCTION - DVE SETUP menu				
Submenu	Parameter	Default	Setting Range	Refer to
PRESET PATTERN CROP	SET			8-2-4
	T+B	0	0 to 100.0	
	L+R	0	0 to 100.0	
	ALL	0	0 to 100.0	
KF DIR		NORMAL	NORMAL, REVERS	6-9-9
TRANS EDGE		OFF	OFF, ON	
ROT STEP		1000	360, 1000, 4000	
FILTER		MODE1	MODE1/MODE2	

FUNCTION - GPI/TALLY menu		
Submenu	Description	Refer to
1. TALLY COLOR	Sets tally output color.	16-1
2. GPI IN	Sets GPI input pin assignments.	
3. GPI/TALLY OUT	Sets GPI output pin assignments.	
4. TALLY1	Sets tally1 to output pin assignments.	
5. TALLY2	Sets tally2 to output pin assignments.	
6. TALLY3	Sets tally3 to output pin assignments.	
7. TALLY4	Sets tally4 to output pin assignments.	
8. TALLY5	Sets tally5 to output pin assignments.	
SELECT	Selects submenus (Press F1 or the DOWN button to select submenus).	

FUNCTION - EDITOR menu				
Submenu	Parameter	Default	Setting Range	Refer to
PARITY		ODD	NONE, ODD, EVEN	16-5
BAUD		38400	9600, 19200, 38400	
TYPE		GVG100	GVG100, BVS3K	
DELAY		ON	ON, OFF	
ENABLE		OFF	ON, OFF	
SELECT	BVS3K	ME	ME, PVW, ALL, ME ON, PVW ON	
WIPE	GVG100	NORMAL	NORMAL, LIST	
	BVS3K	NORMAL	NORMAL	
XPT CTRL		INPUT	INPUT, BUTTON	
PATT SELECT		ON	ON, OFF	
KEYER CTRL		ON	ON, OFF	

FUNCTION - GMATT menu				
Submenu	Parameter	Default	Setting Range	Refer to
MON OUT		AUX7	AUX7 - 10	5-3
GMATT COLOR		5	2 to 5	
SOFT LEVEL		0.0	0.0 to 150.0	
GRAD PATTERN		-	0 to 99	
ASPECT		See section 6-7-2 "WIPE MODIFY Menu."		
POSITION	X, Y			
ANGLE				
MULTI	X, Y			

FUNCTION - COLOR CORRECTION (1/4) menu								
Submenu	Parameter		Default	Setting Range				
CC CONTROL （See section14）	MODULE		ME1 BG	ME1 BG, ME1KEY, ME2 BG ME2KEY, AUX				
	CHAN		CH1	CH1, CH2				
	TYPE		INPUT	BUS, INPUT, BUTTON				
	SELECT	MODULE	ME1 BG	ME1KEY	ME2 BG	ME2KEY	AUX	
		TYPE=BUS	M/E1PGM M/E1PST	M/E1 KEY1-3	M/E2PGM M/E2PST	M/E2 KEY1-3	AUX1 - 10	
		TYPE=INPUT	BLACK, IN01 - 16, IN17 - 28(option), MATT1, MATT2, WHITE, COLBAR, STILL1 - 4, STILL5-6 (option)					
		TYPE=BUTTON	BUTTON1-34					
CC CONTROL	Parameter		Default	Setting Range				Refer to
	ENABLE		OFF	ON/OFF				14-3
	INIT		OFF	OFF, PROC, CC LV, CLIP, ALL				

Submenu	Parameter		Setting Range	Refer to
PROCESS CONTROL	Y LEVEL	100%	0% ~ 200%	14-5
	C LEVEL	100%	0% ~ 200%	
	C PHASE	0	-179 ~ 180	
	VIDEO LEVEL	0%	0% ~ 200%	
	BLACK LEVEL	0	-150 ~ 150	

FUNCTION - COLOR CORRECTION (2/4) menu				
Submenu	Parameter		Setting Range	Refer to
CC MODE		BAL	BAL, DIF, SEPIA	14-7
CC MODE = SEPIA	SEPIA SAT	25	0 ~ 100	
	SEPIA HUE	-160	-179 ~ 180	
CLIP MODE		YPbPr	YPbPr, RGB	
CLIP MODE = YPbPr	Y LEVEL	109%	50% ~ 109%	
	C LEVEL	111%	50% ~ 111%	
	BLACK LV	-7%	-7% ~ 50%	
CLIP MODE = RGB	WHITE	300%	50% ~ 300%	
	BLACK	-200%	-200% ~ 50%	

FUNCTION - COLOR CORRECTION (3/4) menu				
Parameter		Default	Setting Range	Refer to
SELECT (if CC MODE = BAL or DIF)		YPbPr	Gamma	14-6
SELECT = GAMMA	CURVE	CENTER	CENTER, BLACK, WHITE	
	GROUP ADJUST	100%	0% ~ 200%	
	R / G / B			
SELECT = WHITE	GROUP ADJUST	100%	0% ~ 200%	
	R / G / B			
SELECT = BLACK	GROUP ADJUST	100%	0% ~ 200%	
	R / G / B			

FUNCTION - COLOR CORRECTION (4/4) menu	
Parameter	Setting Range
SELECT	See section 14-8-2. "Displaying Usage Status of CC Channels."
ENABLE	OFF, ON

FUNCTION - ANCILLARY menu				
Submenu	Parameter	Default	Setting Range	Refer to
TRANS LEVEL	M/E1	0	0 - 100	15-3-2
	M/E2			
SELECT- M/E1	PGM	OFF	OFF, AUX1 - 10	
	PREV			
SELECT- M/E2	PGM	OFF	OFF, AUX1 - 10	
	PREV			
ANTI DATA ENABLE	ME1PGM, ME1PVW, ME1CLN, ME2PGM, ME2PVW, ME2CLN, AUX1-10	OFF	ON, OFF	

FUNCTION - VTR menu				
Submenu	Parameter	Default	Setting Range	Refer to
SELECT		NON	NON, VTR1-5, STILL5, STILL6, S5(S6), (S5)S6 (Option), VDCP	16-1-4
CONTROL	REW, JOG REV, PLAY, JOG FWD, FF, PAUSE, STOP, REC		(See section 16-2-4.)	

FUNCTION - ROUTER menu	
Submenu	Setting Range
1.DEST	See section 16-4-4 "Assigning Destination/Source Channel."
2. SRC	

1-4. MATT Menu

MATT menu (HVS-16/24OUA: BUS MATT button, HVS-12ROUA: FUNC button)					
Submenu	Parameter		Default	Setting Range	Refer to
SELECT			BUS MATT1, BUS MATT2, BKGD MATT KEY1 MATT, KEY1 EDGE, KEY1 SHDW KEY2 MATT, KEY2 EDGE, KEY2 SHDW KEY3 MATT		5-2
SAT		HD	66.3	0.0 to 100.0	
		SD	66.7		
LUM		HD	5.4	0.0 to 100.0	
		SD	8.5		
HUE		HD	3.5	0.0 to 359.5	
		SD	7.5		

MATT SPIN menu		
Submenu	Setting Range	
SELECT	BUS MATT1, BUS MATT2, BKGD MATT KEY1 MATT, KEY1 EDGE, KEY1 SHDW KEY2 MATT, KEY2 EDGE, KEY2 SHDW, KEY3 MATT	5-2
SAT, LUM, HUE	-127~127	

1-5. STILL STORE Menu

STILL STORE (1/2)-(2/2) menu (HVS-16/24OUA: STILL button, HVS-12ROUA: FUNC button)					
Submenu	Parameter		Default	Setting Range	Refer to
SIGNAL			PGM	PGM, PREV, CLN, AUX1 to AUX10, AUX11-16 (option), MATT1, MATT2, XAUX1 to XAUX10, DVE KEY	5-4
SELECT	STILL1-STILL4 STILL5-STILL6 (option)		(Selects signal when any of XAUX1 to XAUX10 is selected for SIGNAL.)		
DVE STILL					8-2-2
TYPE	STILL1-STILL4 STILL5-STILL6 (option)		FRAME	FRAME, ODD, EVEN, ANIME (Only FRAME and ANIME are available, if progressive or segment frame signal format is selected.)	5-4
ANIMATION	SELECT		STILL1	STILL1-STILL6, S1(S2), S2(S3), S3(S4), S4(S1), STILL5-STILL6(option)	9-1-2
	FRAME		36	1 to 36	
	SPEED		1	1 to 32	
	POS-X	1080i	0	0 to 1600	
		720p		0 to 1068	
		NTSC		0 to 600	
		PAL		0 to 600	
	POS-Y	1080i	0	0 to 450	
		720p		0 to 300	
		NTSC		0 to 202	
		PAL		0 to 239	
MOTION BLUR			OFF	OFF, STILL1-STILL4, STILL5-STILL6(option)	

1-6. STATUS Menu

STATUS menu (STATUS button)		
Submenu / Parameter	Description	Refer to
1. MU ALARM	Displays alarm information for the MU power supply and cooling fan.	
2. OU ALARM	Displays alarm information for the OU power supply.	
3. AUX XPT STATUS	Displays signal assignment information for AUX output.	
4. KEY XPT STATUS	Displays signal assignment information for keys.	
5. VERSION	Displays software information.	
6. OPTION STATUS	Displays option information.	
6. OPTION STATUS	Displays option information.	
SELECT	Selects submenus (Press F1 or the DOWN button to select submenus).	

STATUS (1/6) menu				
Submenu	Parameter		Description	Refer to
POWER	PS1		Displays alarm information for the MU standard power supply.	2-2-1
	FAN1		Displays fan alarm information for MU standard power supply.	
	PS2		Displays alarm information for the MU redundant power supply.	
	FAN2		Displays fan alarm information for MU redundant power supply.	
	BTRY		Displays memory backup battery information.	
FAN	FRONT	LEFT	Displays fan alarm information for the front right (the observer's left) cooling fan.	
		RIGHT	Displays fan alarm information for the front left (the observer's right) cooling fan.	
	SIDE	UPPER	Displays fan alarm information for side upper cooling fan.	
		BOTTOM	Displays fan alarm information for side bottom cooling fan.	
	REAR	UPPER	Displays fan alarm information for the upper rear.	
		1-4	Displays alarm information for the four lower rear fans (1 - 4 from left to right).	

STATUS (2/6) menu			
Submenu	Parameter	Description	Refer to
POWER	PS1	Displays alarm information for the OU standard power supply.	
	PS2	Displays alarm information for the OU redundant power supply.	
	FAN (HVS-12ROUA)	Displays alarm information for the OU cooling fan.	
CARD	BUS_CD	Displays the BUS_CARD information.	
	TRANS_CD	Displays the TRANS_CARD information.	

STATUS (3/6) menu			
Submenu	Parameter	Description	Refer to
AUX	1-16	Displays signal assignments of the AUX 1-16.	
SELECT	INPUT/BUS NAME	Displays which display type is selected, INPUT or BUT NAME.	

STATUS (4/6) menu				
Submenu		Parameter	Description	Refer to
M/E1 M/E2	KEY1 KEY2 KEY3	INS	Displays signal assignments of the KEY INSERT.	
		SRC	Displays signal assignments of the KEY SOURCE.	

STATUS (5/6) menu			
Submenu	Parameter	Description	Refer to
MU SOFT		Displays the MU main software version.	16-7-1
-SUB CPU		Displays the MU sub software version.	
OU SOFT		Displays the OU software version.	
-SUB CPU (HVS-16/24OUA)		Displays the OU sub software version.	
DVE	1	Displays the DVE software version.	16-8
	2	Displays the optional DVE software version.	

STATUS (6/6) menu			
Submenu	Parameter	Description	Refer to
EDITOR		Indicates the installation status of editor.	16-5
COLOR CORR		Indicates the installation status of Color Corrector.	8-2-5
ADVANCED DVE		Indicates the installation status of Advanced DVE.	8-1
DEFAULT TIE (HVS-16/24OUA)		Indicates the installation status of Default TIE.	
DVE CARD1		Displays the DVE CARD1 information.	16-8
DVE CARD2		Displays the DVE CARD2 information.	
HVS-38AUMV		Displays if multiviewer option is installed.	
HVS-38IOEX		Displays if I/O expansion card (multiviewer option) is installed.	
HVS-38UC		Displays if up-converter option is installed.	
HVS-38DC		Displays if down-converter option is installed.	
HVS-38SS		Displays if still store option is installed.	
HVS-38AM		Displays if animation option is installed.	

1-7. FILE Menu

FILE - TOP menu (FILE button)		
Submenu	Description	Refer to
1. FILE => MU/OU	Loads data to the MU/OU from CF card.	
2. MU/OU => FILE	Saves data to CF card.	
SELECT	Selects submenus (Press F1 or the DOWN button to select submenus).	

FILE - FILE => MU/OU menu				
Parameter		Default	Setting Range	Refer to
TYPE		ALL	ALL, MMU, SMU, OUA, MSY, OSY, MEM, U*, P*, JP*, TG*, G*	13-3
SELECT		(Selects files.)		
SEND (F3 to load data to the MU/OU from CF card.)	Image files only	STL1 L to STL6 L, STL1 C to STL6 C, STL1 T to STL6 T, STL1 L to STL4 L		
DELETE		OFF	ON, OFF	13-4
RENAME		0	0 to 7	13-5
CHARA		---	Alphanumeric Characters	

FILE - MU/OU => FILE menu			
Parameter	Default	Setting Range	Refer to
TYPE	ALL	ALL, MSY, OSY, MEM, U*, P*, JP*, TG*	13-2
SELECT	(Selects files.)		
SAVE (Press F3 to save data to CF card.)	---	---	

1-8. TRANSITION Menu

TRANS (1/2)-（2/2）menu (TRANS button)					
Submenu	Parameter		Default	Setting Range	Refer to
AUTO TRANS RATE	BKGD	1080	30, 25, 24	0 to 999	6-9-1
	KEY1	720	60		
	KEY2	NTSC	30		
	KEY3	PAL	25		
FADER LIMIT	BKGD		100.0	0 to 100.0	6-9-2
	KEY1		100.0	0 to 100.0	
	KEY2		100.0	0 to 100.0	
	KEY3		100.0	0 to 100.0	
BKGD TYPE		ME/1	MATT	MATT, GMATT, AUX7, AUX 8	9-3 9-4
		ME/2	MATT	MATT, GMATT, AUX9, AUX 10	
BKGD MATT	SAT	HD	66.3	0 to 100.0	
		SD	66.7		
	LUM	HD	5.4	0 to 100.0	
		SD	8.5		
	HUE	HD	3.5	0 to 359.5	
		SD	7.5		
COLOR MIX	ENABLE		OFF	OFF, ON, ONCE	9-4
	POINT		50.0	0.1-99.9	
	SET		Sets current fader position to POINT.		

FADER LIMIT can be set both in the TRANSITION RATE and KEY menus.

1-9. WIPE PATTERN Menu

WIPE PATTERN menu				
Submenu	Parameter	Description	Setting Range	Refer to
WIPE PATTERN	(1)	WIPE pattern list	0 to 99	6-6 App.3 App.4
	(2)			
	(3)			
	(4)			
	(5)			
LIST NO.	1		1 to 3	

To access WIPE PATTERN menu, double clicking a WIPE pattern button in the transition section.

1-10. USER PATTERN Menu

USER PATTERN menu				
Submenu	Parameter	Default	Setting Range	Refer to
PATTERN CTRL	SELECT	OFF	OFF, 1 to 50	10-2-2
	PROTCT	OFF	OFF, ON	10-2-3
	DELETE	OFF	OFF, ON	10-3-3
PRIORITY		0	0 to 100	10-2-4
EDIT BUS		M1BKGD	M1BKGD, M1KEY1, M1KEY2, M1KEY3 M2BKGD, M2KEY1, M2KEY2, M2KEY3	
REST OF KF		(Display only)		
KF CTRL	CHAN SELECT	CH1	CH1, CH2	10-2-5
	LINE DVE	OFF	OFF, ON	10-2-6
	KF SELECT	1	1 or higher	10-2-7
	KF DUR	0	0 to 999	10-2-11
	INTREP	LINE	SMOOTH, LINE, CUT	10-2-12
PATT PREV				10-3-1
UPAT STORE				10-2-2

1-11. DVE MODIFY Menu

To open DVE MODIFY menu for a pattern, press a DVE pattern button in the transition section before pressing DVE modify menu buttons. To open DVE MODIFY menu for a bus, press any one of DVE PGM, DVE PST, DVE KEY1, DVE KEY2, DVE KEY3 before pressing DVE modify menu buttons.

DVE MODIFY-TOP menu (HVS-12ROUA)			
Sub-menu		Description	Refer to
1. POS/SIZE	(If applied to a pattern:)	Changes initial/final position and size of a pattern.	8-2-1
	(If applied to a bus:)	Changes position and size of a DVE image.	
2. ROTATION	(If applied to a pattern:)	Changes local/global position/rotation of pattern.	
	(If applied to a bus:)	Changes local/global position/rotation of pattern.	
3. CROP	(If applied to a pattern:)	Crops out the initial or final image of a pattern.	8-2-4
	(If applied to a bus:)	Crops out the part of a DVE image.	
4. WARP (option)	(If applied to a pattern:)	Adds warp modification to a pattern.	8-2-5
	(If applied to a bus:)	Adds warp modification to a DVE image.	
5. BORDER	(If applied to a pattern:)	Adds a border to the image of a pattern.	8-2-6
	(If applied to a bus:)	Adds a border to a DVE image.	
6. TRAIL/MONO	(If applied to a pattern:)	Adds a trail or sets monochrome for a hilite.	8-2-7
	(If applied to a bus:)	Adds a trail or sets monochrome for a hilite	
7. SUB EFFECT	(If applied to a pattern:)	Adds sub effects such as paint, defocus, mosaic, nega, freeze and strobe to a pattern.	8-2-8
	(If applied to a bus:)	Adds sub effects such as paint, defocus, mosaic, nega, freeze and strobe to a DVE image.	
8. HILITE	(If applied to a pattern:)	Adds hilite and shadow effects to the image of a pattern.	8-2-9
	(If applied to a bus:)	Adds hilite and shadow effects to a DVE image.	
SELECT		Used to select a sub menu (Pressing F1 or DOWN button will open the selected sub menu.)	

Use the UP/DOWN buttons to move between the DVE MODIFY (1/8) to (8/8) menus.

DVE MODIFY (1/8) menu		POS button		
Submenu	Parameter	Default	Setting Range	Refer to
(If applied to a pattern:)	Pattern image will be shown at the right above of the menu.			
(If applied to a bus:)	"LINE-DVE" will be shown at the right above of the menu.			
UPAT	STORE	OFF	ON, OFF	10-2
DVE STILL	IMAGE	OFF	ON, OFF	8-2-1
	STORE	Saves DVE STILL images.		
POSITION	X	0	-7999 to 7999	
	Y	0	-7999 to 7999	
SIZE	X-Y	0	0 to 7999	
	X	0	0 to 7999	
	Y	0	0 to 7999	

DVE MODIFY (2/8) menu		ROT button		
Submenu	Parameter	Default	Setting Range	Refer to
LOCAL POSITION	X, Y, Z	0	-7999 to 7999	8-2-1
LOCAL ROTATION	X, Y, Z	0_0	-7_999 to 7_999 (*1)	
GLOBAL POSITION	X, Y, Z	0	-7999 to 7999	
GLOBAL ROTATION	X, Y, Z	0_0	-7_999 to 7_999 (*1)	

(*1) When ROT STEP is set to 1000 in the SETUP-DVE SETUP menu.

DVE MODIFY (3/8) menu			CROP button		
Submenu	Parameter		Default	Setting Range	Refer to
FADE LEVEL			0.0	0.0 to 100.0	
PERSP			1000	0 to 7999	8-2-2
CROP	ENABLE		ON	OFF, ON	8-2-4
	TOP		0.0	0.0 to 100.0	
	BOTTOM		0.0	0.0 to 100.0	
	LEFT		0.0	0.0 to 100.0	
	RIGHT		0.0	0.0 to 100.0	
	ALL		0.0	0.0 to 100.0	

DVE MODIFY (4/8) menu (option)			WARP button		
Submenu	Parameter		Default	Setting Range	Refer to
WARP	TYPE		OFF	PGTURN, HZTURN, VZTURN, QDTURN, PGROLL, HZROLL, VZROLL, QDROLL, WAVE, ACCORD, SPLIT, XSPLIT, BURST, STREAM, SW WIN, RIPPLE, LENS, SPHERE, SCREW1- 4, STRM1 to 12, MULTI, PIZZA, BEVEL, W DROP	8-2-5
	LEVEL		(Varies depending on the WARP type)		
	* DIR		(Varies depending on the WARP type)		
	* RAD		(Varies depending on the WARP type)		
	* ROLL		0	-7999 to 7999	
	* QUAD	X	OFF	OFF, -7999 to 7999	
		Y	OFF	OFF, -7999 to 7999	
	* GAP SIZE		0	-8000 to 1000	
	* SIDE1	X	0	-1000 to 1000	
		Y	0	-1000 to 1000	
	* SIDE2	X	0	-1000 to 1000	
		Y	0	-1000 to 1000	
	SIDE BORDER		OFF	OFF, ON (When TYPE is set to PIZZA.)	

* Note that the available setting parameters and setting ranges vary depending on the WARP type. Only the required parameters are displayed in the menu when the WARP type is selected.

DVE MODIFY (5/8) menu			BORDER button		
Submenu	Parameter		Default	Setting Range	Refer to
BORDER	EDGE SOFT		OFF	OFF, 1 to 15	8-2-6
	SELECT		OFF	OFF, ON	
	OUTSIDE	X	0.0	0.0 to 20.0	
		Y	0.0	0.0 to 20.0	
		X/Y	0.0	0.0 to 20.0	
	BORDER SOFT	X	OFF	OFF, 1 to 15	
		Y	OFF	OFF, 1 to 15	
		X/Y	OFF	OFF, 1 to 15	
	INSIDE	X	0.0	0.0 to 100.0	
		Y	0.0	0.0 to 100.0	
		X/Y	0.0	0.0 to 100.0	

DVE MODIFY (6/8) menu			TRAIL button		
Submenu	Parameter		Default	Setting Range	Refer to
TRAIL	TYPE		OFF	OFF, DECAY, STAR, B-DECAY, B-STAR	8-2-7
	LENGTH		1	1 to 6	
BORDER COLOR	SAT		0.0	0.0 to 100.0	
	LUM		100.0	0.0 to 100.0	
	HUE		0.0	-7_359 to 7_359	
MONO COLOR	ENABLE		OFF	OFF, ON	
	COLOR	SAT	0.0	0.0 to 100.0	
		HUE	0.0	-7_359 to 7_359	

DVE MODIFY (7/8) menu			SUBEFF button		
Submenu	Parameter		Default	Setting Range	Refer to
DEFOCUS	H-Lv		0.0	0.0 to 120.0	8-2-8
	V-Lv		0.0	0.0 to 120.0	
	H/V-Lv		0.0	0.0 to 120.0	
	SELECT		OFF	OFF, ON	
MOSAIC			OFF	OFF, 1 to 15	
FREEZE			OFF	OFF, FIELD, FRAME	
STROBE RATE			1	OFF, 1 to 100	
NEGA			OFF	OFF, ON	
PAINT	Y-LV		0	0 to 31	
	C-LV		0	0 to 31	
	Y/C-LV		0	0 to 31	

DVE MODIFY (8/8) menu			HILITE button		
Submenu	Parameter		Default	Setting Range	Refer to
HILITE	*POS		0.0	-100.0 to 100.0	8-2-9
	*WIDTH		0.0	0.0 to 100.0	
	*POSITION X		0.0	-100.0 to 100.0	
	*POSITION Y		0.0	-100.0 to 100.0	
	TYPE		OFF	OFF, FLAT, BAR, SPOT, AUTO	
	BAR ROT		0.0	-7999 to 7999	
	SPOT RAD		0	0 to 1000	
	COLOR	SAT	0.0	0.0 to 100.0	
		LUM	50.0	0.0 to 100.0	
		HUE	0.0	-7_359 to 7_359	
SHADOW	SELECT		OFF	OFF, ON	
	SOFT		OFF	OFF, 1 to 3	
	X		0	-100 to 100	
	Y	HD	0	-12 to 12	
		SD	0	-6 to 6	
	LEVEL		1	1 to 13	

* Note that the available setting parameters and setting ranges vary depending on the WARP type. Only the required parameters are displayed in the menu when the HILITE type is selected.

1-12. WIPE MODIFY Menu

First select WIPE pattern in the transition section and then press WIPE MODIFY button to open the WIPE MODIFY menu specific to the selected pattern.

WIPE MODIFY –TOP menu (HVS-12ROUA)		
Sub-menu	Description	Refer to
1. POS/ANGLE	Changes an initial/final position and angle of a pattern. Adds other sub effects to a pattern.	
2. EDGE	Adds a wipe edge to a pattern.	
3. BORDER	Adds a wipe border to a pattern.	
SELECT	Used to select a sub menu (Pressing F1 or DOWN button will open the selected sub menu.)	

Use UP/DOWN buttons to move WIPE MODIFY menu pages.

WIPE MODIFY (1/3) menu					
Submenu	Parameter		Default	Setting Range	Refer to
POSITION	X	1080	0	-1500 to 1500	6-7
		720		-1000 to 1000	
		SD		-640 to 640	
	Y	1080	0	-1100 to 1100	
		720		-720 to 720	
		NTSC		-500 to 500	
		PAL		-600 to 600	
ANGLE OFFSET			0.0	0.0 to 359.5	
ANGLE SPIN			0	-1000~1000	
MULTI	X		1	1 to 64	
	Y		1	1 to 64	
ASPECT			0.0	-300.0~300.0	
SOFT			0.0	0.0 to 150.0	
EFFECT	TYPE		OFF	OFF, MOSAIC, MONO, PAINT, NEGA, SEPIA	
	LEVEL	MOSAIC, PAINT	0	0 to 16	
	INVERT		OFF	OFF, ON	

WIPE MODIFY (2/3) menu				
Submenu	Parameter	Default	Setting Range	Refer to
EDGE	TYPE	OFF	OFF, SQU, SAW, RIP	9-1-1
	MODE	HOR	HOR, VER, H+V	
	AMP	1	1 to 8	
	FREQ	1	1 to 8	
	POS	0.0	0.0 to 100.0	
	POS MOVE	0	-1000~1000	

WIPE MODIFY (3/3) menu						
Submenu	Parameter			Default	Setting Range	Refer to
BORDER	SELECT			OFF	OFF, ON	6-7
	SIGNAL		M/E1	MATT	MATT, GMATT, AUX7, AUX8	
			M/E2	MATT	MATT, GMATT, AUX9, AUX10	
	WIDTH			0.80	0.0 to 100.0	
	COLOR	SAT	HD	66.3	0.0 to 100.0	
			SD	66.7		
		LUM	HD	5.4	0.0 to 100.0	
			SD	8.5		
		HUE	HD	3.5	0.0 to 359.5	
			SD	7.5		

1-13. KEY Menu

KEY1 - SOURCE/INSERT (1/6) menu
KEY2 - SOURCE/INSERT (1/6) menu
KEY3 - SOURCE/INSERT (1/2) menu

Submenu	Parameter		Default	Setting Range	Refer to
KEY TYPE			BUS	BUS, LUM, CHR	5-6-2
INSERT	TYPE		BUS	BUS, MATT	5-6-6
	SIGNAL	TYPE=BUS	IN01	Signal name	5-6-3
SOURCE	SIGNAL		IN01	Signal name	5-6-4
	INVERT		OFF	OFF, ON	5-8-1
FAM			OFF	OFF, ON	5-7
KEY SIGNAL	GAIN		1.0	0.0 to 27.0	
	CLIP		50	0.0 to 100.0	
	TRANSP		0.0	0.0 to 100.0	
TRANSITION	RATE*		30	0 to 999	6-9-1
	LIMIT		OFF	OFF, ON	6-9-2
	LEVEL		100.0	0.0 to 100.0	

* TRANSITION RATE and TRANSITION LEVEL can be also set at AUTO TRANS RATE - KEY1 (KEY2) and FADER LIMIT - KEY1 (KEY2) parameters in the TRANS menu respectively.

KEY1 - MATT/MASK (2/6) menu
KEY2 - MATT/MASK (2/6) menu
KEY3 - MATT/MASK (2/2) menu

Submenu	Parameter			Default	Setting Range	Refer to
MATT COLOR	SAT	HD		66.3	0.0 to 100.0	5-6-6
		SD		66.7		
	LUM	HD		5.4	0.0 to 100.0	
		SD		8.5		
	HUE	HD		3.5	0.0 to 359.5	
		SD		7.5		
MASK	TYPE			OFF	OFF, BOX_A, BOX_O, KEY3_A, KEY3_O	5-8-2
	INVERT			OFF	OFF, ON	
	TOP	1080		0	0 to 540	
		720			0 to 360	
		NTSC	4: 3, SQUEEZ		0 to 242	
			LETTER		0 to 180	
		PAL			0 to 287	
	LEFT	1080		0	0 to 1920	
		720			0 to 640	
		SD			0 to 720	
	RIGHT	1080		0	0 to 1920	
		720			0 to 640	
		SD			0 to 720	
	BOTTOM	1080		0	0 to 540	
		720			0 to 360	
		NTSC	4: 3, SQUEEZ		0 to 242	
			LETTER		0 to 180	
		PAL			0 to 287	

KEY1 - EDGE (3/6) menu
KEY2 - EDGE (3/6) menu

Submenu	Parameter		Default	Setting Range	Refer to
TYPE			OFF	OFF, NOR, O_LINE	5-9-1
WIDTH			1	1 to 8	
SOFT LEVEL			0	0 to 15	
TRANSP LEVEL			0.0	0.0 to 100.0	
EDGE COLOR	SAT	HD	66.3	0.0 to 100.0	
		SD	66.7		
	LUM	HD	5.4	0.0 to 100.0	
		SD	8.5		
	HUE	HD	3.5	0.0 to 359.5	
		SD	7.5		

KEY1 - SHADOW (4/6) menu
KEY2 - SHADOW (4/6) menu

Submenu	Parameter		Default	Setting Range	Refer to
SELECT			OFF	OFF, ON	5-9-2
SOFT LEVEL			0	0 to 15	
TRANSP LEVEL			0.0	0.0 to 100.0	
POSITION	X	1080	10	-960 to 960	
		720		-640 to 640	
		NTSC, PAL		-360 to 360	
	Y	1080	10	-540 to 540	
		720		-360 to 360	
		NTSC		-254 to 254	
		PAL		-288 to 288	
SHADOW COLOR	SAT	HD	66.3	0.0 to 100.0	
		SD	66.7		
	LUM	HD	5.4	0.0 to 100.0	
		SD	8.5		
	HUE	HD	3.5	0.0 to 359.5	
		SD	7.5		

KEY1 - AUTO CHROMAKEY (5/6) menu
KEY2 - AUTO CHROMAKEY (5/6) menu

Submenu	Parameter			Default	Setting Range	Refer to
POSITION	X	1080		---	-960 to 960	5-10-2
		720			-640 to 640	
		SD		---	-360 to 360	
	Y	1080		---	-540 to 540	
		720			-360 to 360	
		NTSC	4: 3, SQUEEZ	---	-243 to 243	
			LETTER	---	-176 to 176	
		PAL	4: 3, SQUEEZ	---	-288 to 288	
SELECT				OFF	OFF, ON	
PGM OUT				OFF	OFF, ON	
CURSOR SIZE			HD	8*8	8*8	
			SD	4*4	4*4	
EDGE	POS			0	-3 to 3	
	LEFT			0	0 to 3	
	RIGHT			0	0 to 3	

KEY1 - MANUAL CHROMAKEY (6/6) menu KEY2 - MANUAL CHROMAKEY (6/6) menu				
Submenu	Parameter	Default	Setting Range	Refer to
MANUAL ADJUST	CLIP	50	0.0-100.0	5-10-3
	GAIN	1.00	0.00-63.99	
	HUE	0	0.0 to 359.9	
MANUAL SUPPRESSION	Y	0.00	0.00 to 31.99	
	C1	0.00	0.00 to 31.99	
	C2	0.00	0.0 to 100.0	
COLOR CANCEL		ON	ON, OFF	
ANGLE		45.00	5.00 to 90.00	
ANGLE OFFSET	Y	0.00	-45.00 to 45.00	
	C	0.00	-45.00 to 45.00	
	K	0.00	-45.00 to 45.00	

1-14. PREVIEW SELECT Menu

PREVIEW SELECT menu (HVS-16/24OUA: PREVIEW button, HVS-12ROUA: User button to which PREVIEW menu is assigned.)			
Parameter	Default	Setting Range	Refer to
BKGD	ON	ON/OFF	5-5-2
KEY1	OFF	ON/OFF	
KEY2	OFF	ON/OFF	
KEY3	OFF	ON/OFF	

Appendix 2. Available File List

The following file formats can be saved / loaded to / from CF Card

File Format	File Name	File Data Description
all	DATA.all	MU and OU system data, MU and OU user default data, All WIPE data and all event memory data.
msy	HVS-3800.msy	MU system data
osy	HVS-3800.osy	OU system data
mem	EVENT.mem	All event memory data
u*	WIPE.u01 - u50	User pattern data
p*	SEQUENCE.p01 - p20	Sequence pattern data
jpg(*1)	*.jpg	JPEG format files (standard RGB)
	STILL1.jpg to STILL6.jpg	Still 1-6 capture video
tga(*1)	*.tga	TARGA format files (uncompressed RGB)
	STILL1.tga to STILL6.tga	Still 1-6 capture video

Note that file names are limited to max. 8 characters in length (ASCII code).
(*1) When loading a JPEG or TARGA file from the PC card, you can select a centered or tiled format as well as a normal one. In this case, a centered or tiled format image file is saved to STILL as either jpg or tga.

The following picture file formats can only be loaded from CF Card to MU

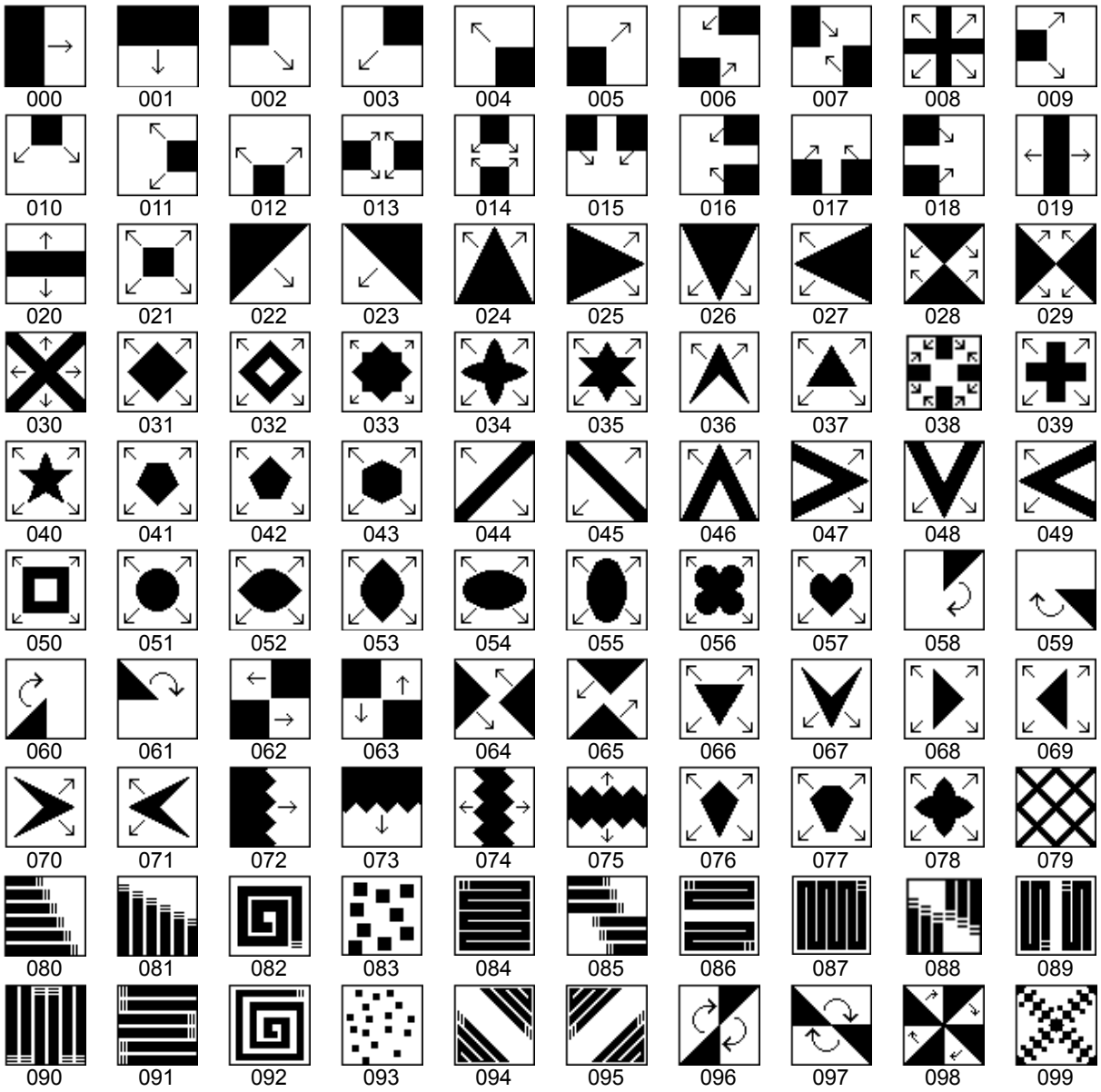
File Format	File Name	File Data Description
mmu	pm8054XX.mmu	HVS-3800HS/S MU software main upgrade data
smu	pm8051XX.smu	HVS-3800HS/S MU software sub upgrade data
oua	pm8060XX.oua	HVS-16/24OUA software upgrade data
oua	pm8520xx.oua	HVS-12ROUA software upgrade data
gcp	pmXXXXX.gcp	CPU firmware upgrade data for DVE card
gds	pmXXXXX.gds	DSP firmware upgrade data for DVE card
gf1	pmXXXXX.gf1	DVE firmware upgrade data 1
gf2	pmXXXXX.gf2	DVE firmware upgrade data 2
gf3	pmXXXXX.gf3	DVE firmware upgrade data 3

Note that file names are limited to max. 8 characters in length (ASCII code).

■ Available CF Cards

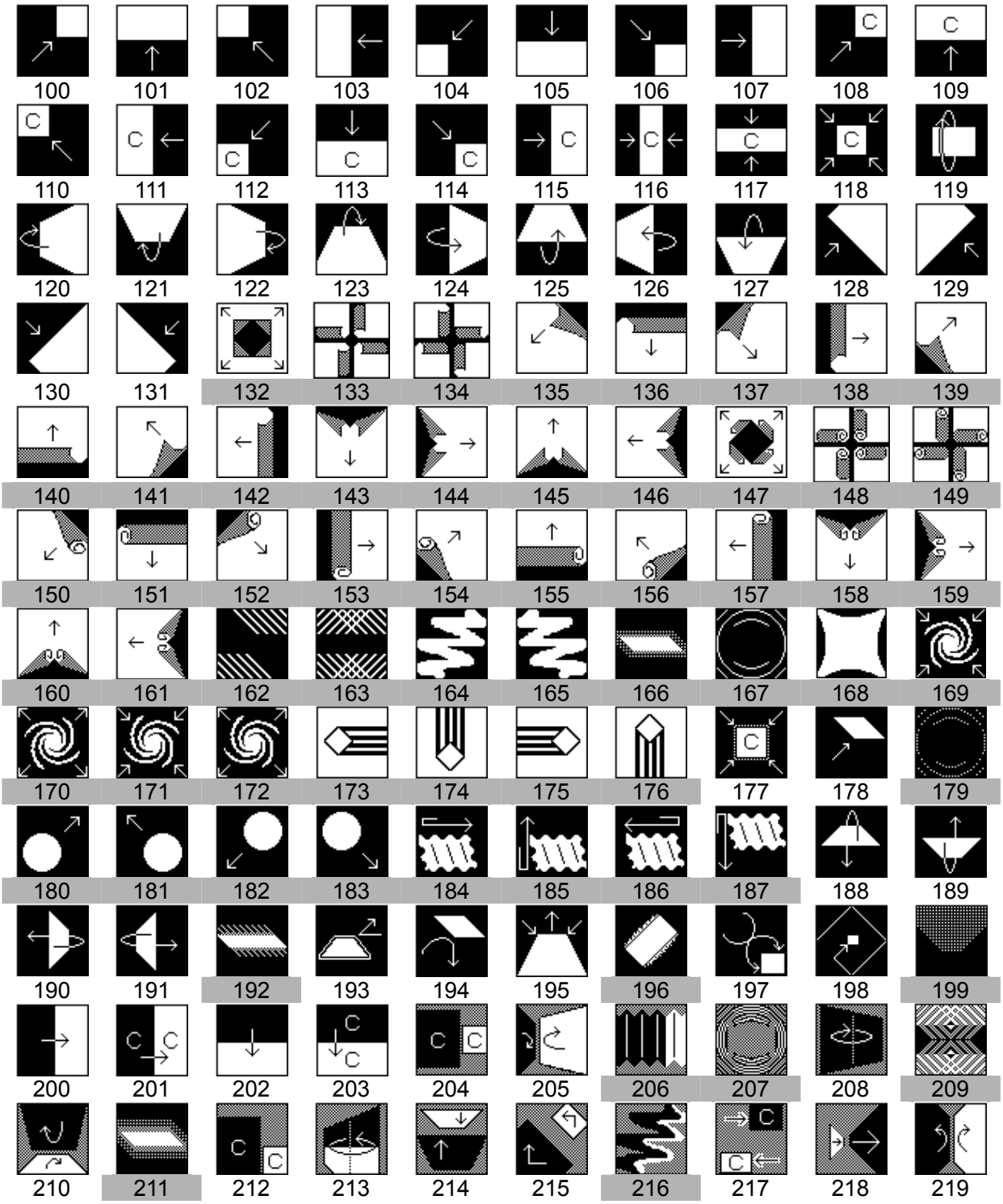
Manufacturer	Series	Model	Storage capacity
HITACHI	HB Series	HB28B064C8C	64MB
I/O DATA	CFS Series	CFS-128M	128MB
BUFFALO	RCF-X Series	RCF-X64MY	64MB
HAGIWARA	V Series	HPC-CF256V	256MB
Qmemory	60x Xpress Series		256MB
SanDisk	Standard Series		256MB, 512MB
Apacer	NR-CF Series	AP-CF512MC2CG-NR	512MB

Appendix 3. WIPE Pattern List

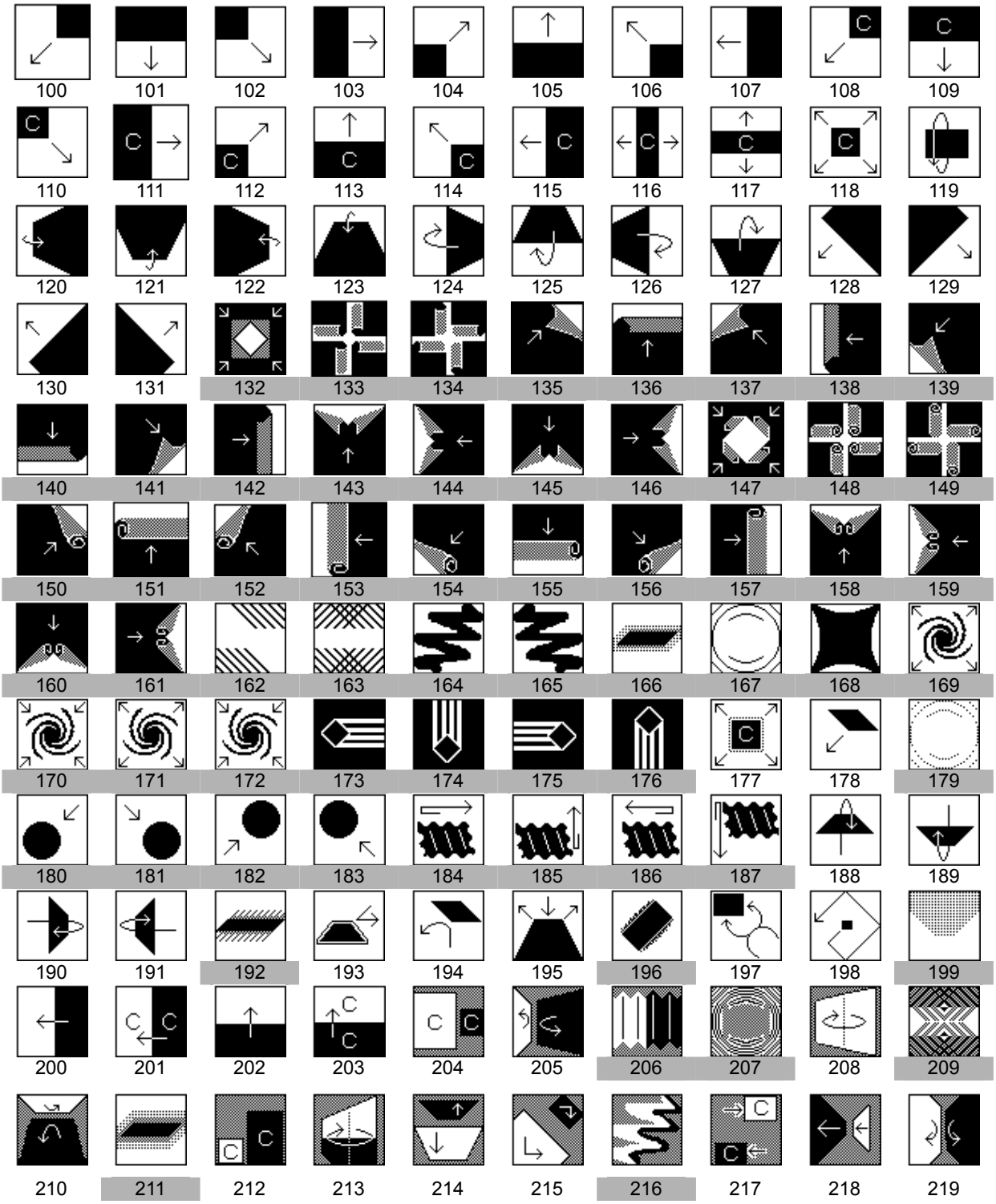


Appendix 4. DVE Pattern List

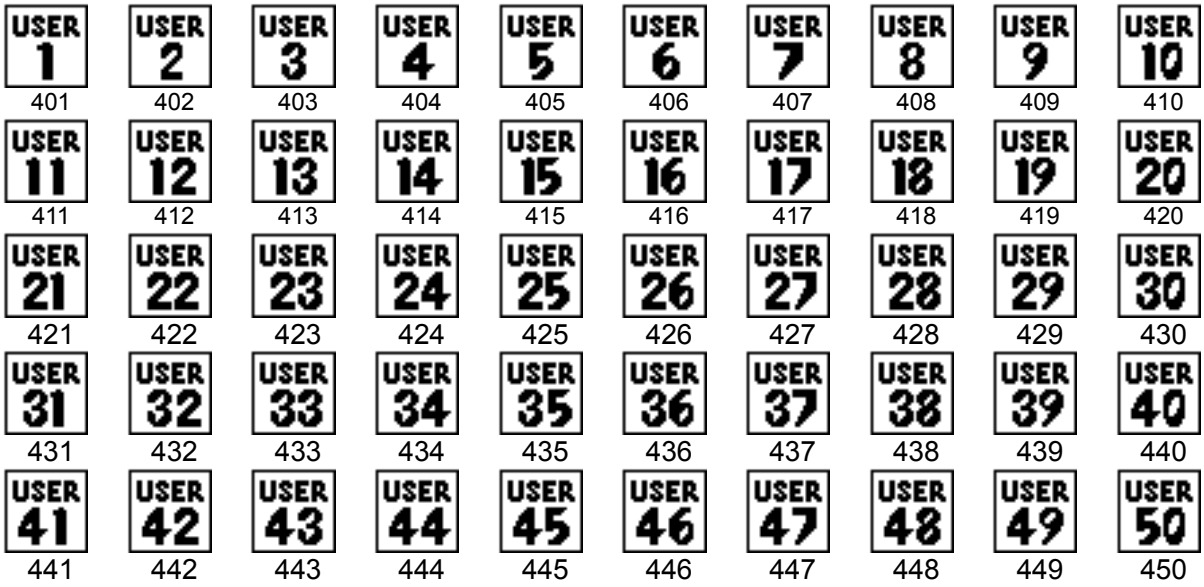
■ **Normal Pattern (options are shaded)**



■ **Reverse Pattern (options are shaded)**



Appendix 5. User Preset Patterns (50 patterns)



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Warning

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

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