FOR.A®
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY

花火
HANABI

3G/HD/SD 2M/E VIDEO SWITCHER
HVS-2000
HANABI

New generation HANABI series, HVS-2000 7M/E* switcher launched

HANABI HVS-2000

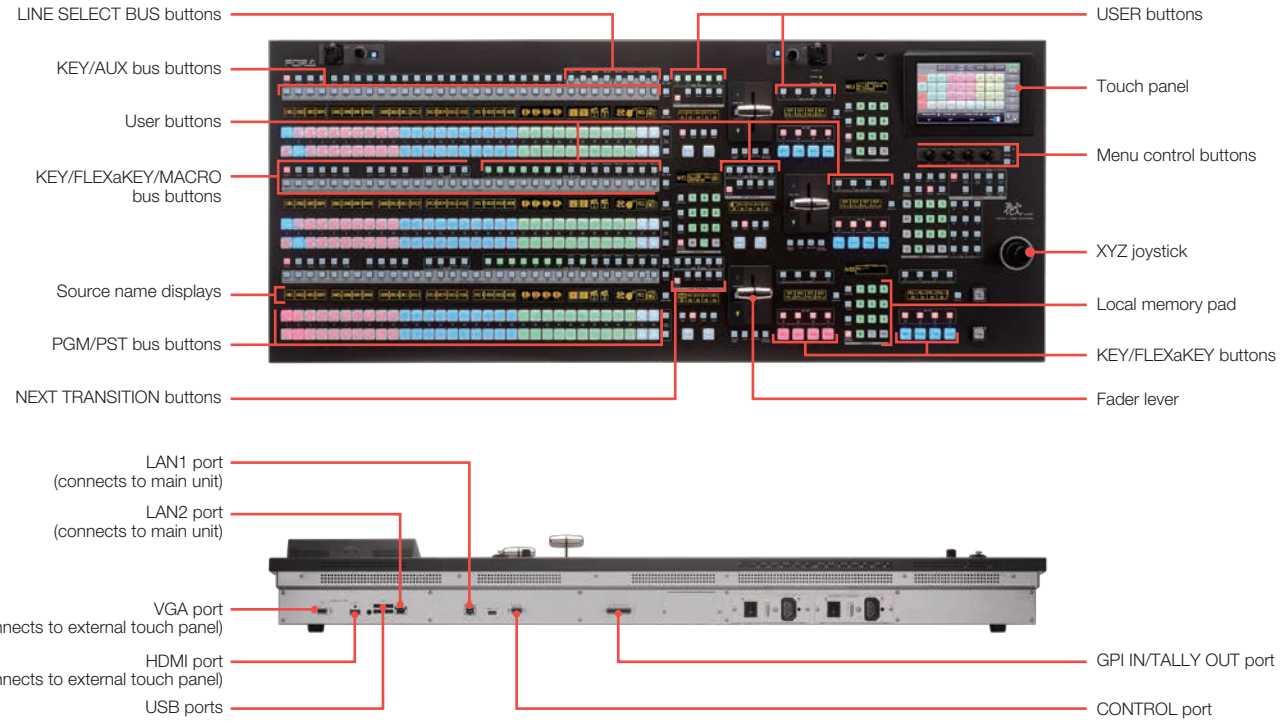
The new HVS-2000 switcher is a powerful 7 Video M/E machine and a game changer in today's video production switchers. Now with the power in our new HVS-7M/E technology, the switcher can be used in a variety of applications.

- **Up stream transition effects**
- **Down stream transition effects**
- **Add the pure power of 7 real M/Es for multiple independent on-stage monitor display control or add multiple control panels to operate from a control room…each with mixes, wipes, keys, and DVEs including preview control.**

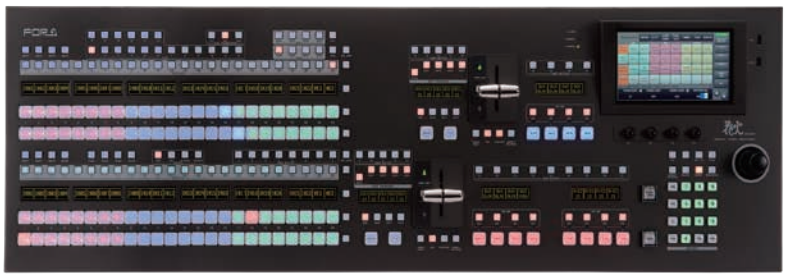
The new HANABI will allow its users to win the video production race with all of its quality features and ease of operation.

* 7M/E capability: 3M/E + exclusive 4MELite™ with FLEXaKEY™

HVS-3320OU control panel



HVS-2240OU control panel



Reasons to buy

1 Easy-to-use control panel

Offers enhanced usability and supports accurate control through color-coded button lights for specific material or button functions, a built-in 7-inch mini menu touch panel with thumbnail display, button/macro bus macro name display, and more. Direct input via a three-axis (XYZ) joystick, dials, and a keyboard. Several user-customizable buttons are available to assign as functions.

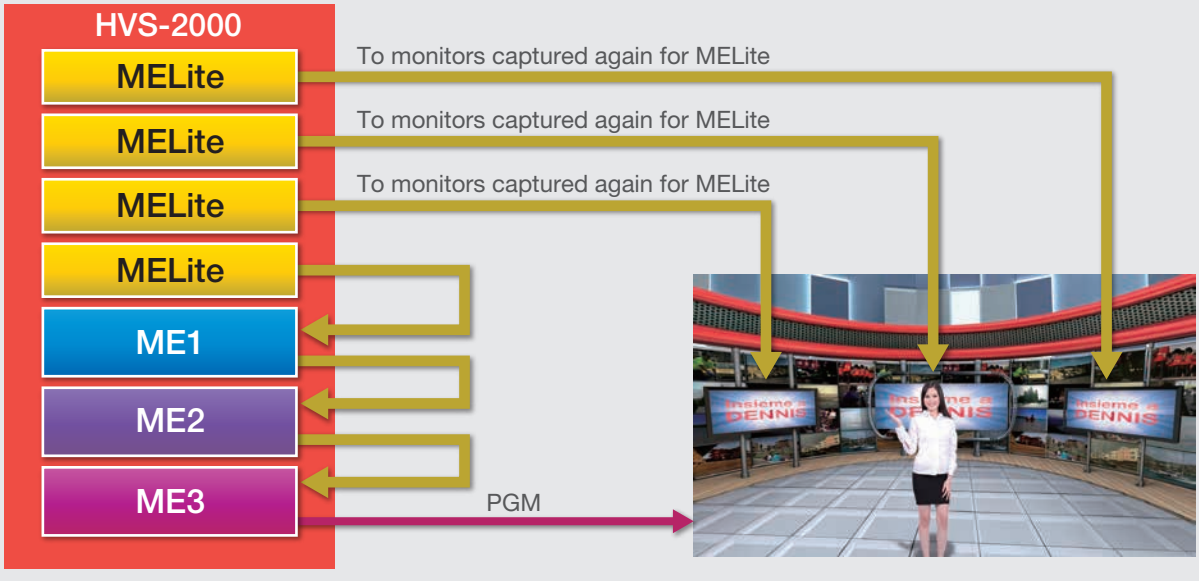
2 4 keyers per M/E, plus 4 FLEXaKEY per system

The four FLEXaKEY system can be freely assigned to M/E 1, M/E 2, or MELite™ (AUX output). When assigned to M/E 2, up to eight keyers (4 keys and 4 FLEXaKEY) can be combined. DVE is available for FLEXaKEY to generate multiple P-in-Ps. FLEXaKEY can also be assigned to an MELite bus and Advanced Aux as an upstream keyer, and to multiple AUX buses to change each with keying output. Useful in many scenarios.

3 7M/E performance—3M/E + 4 MELite, with FLEXaKEY architecture

In addition to three full M/E's (optional), the switcher includes MELite. With cuts, mixing, wiping, and keying "all with preview" available from four MELite buses. Operators will enjoy the performance of 7M/E's in a single unit. Versatile in re-entry, MELite is ready for a broad range of scenarios, such as providing an independent "web cut" output, expanding an operation with multiple control surfaces, delegating M/E resource and even allowing a single operator from a single desk to easily control independent transitions on multiple monitors. Excellent for staging applications.

Example

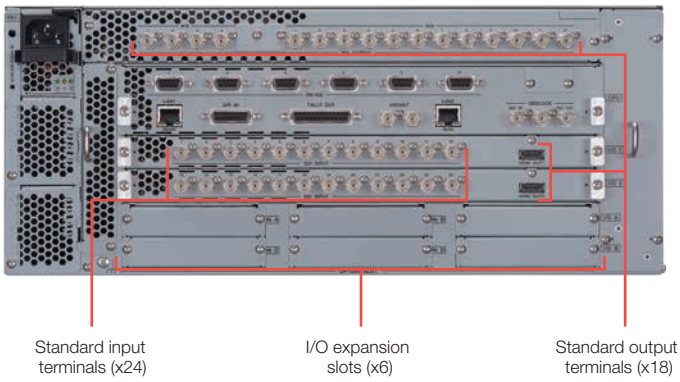


Reasons to buy

4 24 inputs/18 outputs standard, expandable to 48/18 or 40/22

Besides standard inputs and outputs, six expansion slots enable you to add optional I/O cards for easy in-field expansion. Easily incorporate an array of content from PC sources (such as PowerPoint, videos played on computers, webcam images, or Skype calling screens) and combine it with broadcast material. Even analog composite I/O can be added.

Main unit back panel



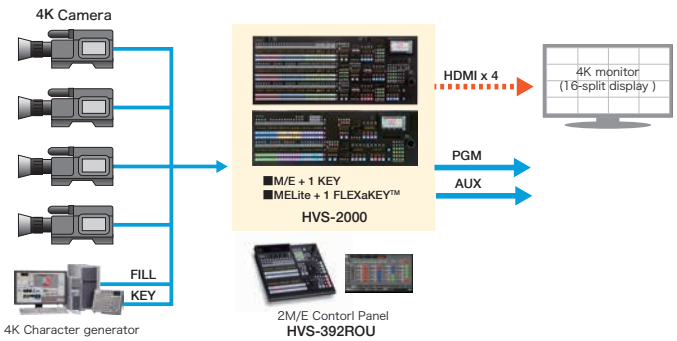
5 2.5D DVEs (total: 8 per system), 3D DVEs (total: 4; optional per system) up to 4 channels per M/E or MELite

2.5D DVEs enable free arrangement of P-in-Ps in a 3D space using global axes. Also combines exceptionally well with 3D content, as with virtual studios. Flying key, which moves titles with DVEs applied, is available from all DVEs and can be assigned to all resources in any M/E, whether PGM, PST, or KEY 1–4. P-in-Ps are available in a variety of other shapes besides standard shapes such as quadrilaterals, and can be used in live sports coverage, for example. The switcher's 3D DVEs include page turn and other warping effects.

6 Expanded 4K mode

No need to configure I/O settings when using 4K systems. Four 3G-SDI lines (I/O or bus) are automatically grouped. Expanded system settings enable output of down-resized video or DVE from built-in multi viewers.

Example of 4K system configuration



Applications

Broadcasting environments/control rooms

The HVS-2000 can be the main switcher for: Broadcasting Stations/control rooms, cable TV stations, Internet television providers and satellite studios. The advanced features and programmability of HVS-2000 allow you to create high quality content without any compromise. FOR-A's quality and attention to detail ensures a reliable solution for live programming.

Live staging / Event production

The combination of the HVS-2000 and its rich feature set makes it the best suited switcher for live applications where systems need to be set up temporarily in a short amount of time. MELite allows multiscreen staging with effects, including cuts, mix, wipe, keys and DVE. You can reduce the number of switchers and streamline system operation, keeping everything simple and easy for everyone.

Mobile OB and Up-Link production trucks

The HVS-2000 is perfect for mobile video production or Up-Link applications in which space is limited. The HVS-2000 switcher offers a rich feature set perfect for live or recorded production. With integrated frame synchronizers and up to 4 multi viewers, the HVS-2000 can reduce the amount of equipment required in the truck. Using multiple control panels, the system can also provide an environment for several operators, each in charge of separate tasks, including a dual-feed operation.

Main features

- 6M/E capability: 2M/E + exclusive 4 MELite with FLEXaKEY architecture
- Expandable to 3M/E (Optional), offering the performance of up to 7M/E: 3M/E + 4 MELite (with FLEXaKEY)
- 24 in/18 out standard (including 2 HDMI). Up to 48 in/18 out or 40 in/22 out (optional)
- 6 I/O expansion slots: HVS-100 series optional cards can be installed
- PGM, PVW and 2 CLEAN outputs per full M/E
- Supports 3D DVEs that can be used in 4K video processing (optional)
- Supports 4K input in 2SI format (optional)
- Multi format: HD/SD/HDMI/Analog/VGA (optional)
- 3G/4K Ready (S/W option)
- 4 x Keyers per M/E, and 4 x FLEXaKEYs (assignable to M/E or AUX) Up to 6 keyers to M/E1, up to 8 keyers to M/E2, and up to 4 keyers to AUX are assignable
- 8 x 2.5D DVE plus 4 x 3D DVE (Optional)
- 18 Auxiliary buses (2 HDMI, 12 SDI, 8 AUX transition, 6 MELite function)
- Intuitive GUI software HVS-2000GUI is included which allows HVS-2000 control and settings to be configured
- Control panel with LED, RGB, user-configurable color buttons and 7-inch touch mini menu GUI
- 4 multi viewers (standard: 2, up to 4 MVs, and 64 windows)
- All inputs have FS with Still image store and capture
- 4 Still/Clip media player. 4-channel image store with access to pool of 900 frames/30 seconds of online clip playback, also includes HDD library of images
- All full ME keyers have chroma keys and ability to add 2 optional channels of advanced chroma keys
- Easy operation with Midas Touch™ master set up and configuration GUI
- ONStage™ mode for stage and multiscreen application
- Color corrector input, output, and bus lines (optional)

Five key features for advanced operation

FLEXaKEY

Powerful quad FLEXaKEY allows the operator to place keyers in practical areas of the switcher:

- Add keys to traditional M/E resources to provide more graphic layers
- Add keys to AUX and multiply additional M/E's (MELite)
- Can also expand and multiply AUX bus transitions

The HVS-2000 V6MU engine is the only system that offers this kind of pure power and user flexibility.

MELite

This powerful, distinguishing and core feature allows a traditional AUX bus to transform into a full functional M/E with cuts, mixes, wipes, keys all with preview (MELite). The MELite is the building block to a real full-function 6M/E switcher and can be assigned upstream or downstream from main mix effects. Also, MELite allows operators to configure a 3M/E switcher with a 3 rows control surface that provides independent output with transitions to display sources on back monitors in the studio.

ONStage

Another exclusive feature of the switcher is ONStage, a newly developed technology designed specifically for staging events, such as house of worship or corporate events where multiple image magnification displays are used, each with independent transitions. This is the first switcher mode that allows operators to see mix, wipe, key and DVE changes with full preview control connected directly to the fader controller transition area. With ONStage, operators have more power and creativity in their video switching than ever before.

P-MEM™

P-MEM is capable of saving and recalling full switcher set-up or series of operations on M/E, MELite and AUX. P-MEM can be used with macro functions and operators only need to push one button to perform a complex series of events.

Midas Touch

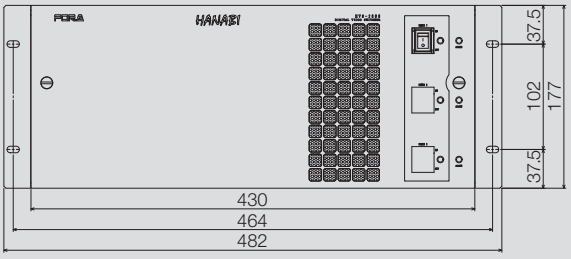
A new menu system that allows operators to easily configure and change system parameters, offering full system control, using both a built-in 7-inch touch panel (MiniMenu™) with thumbnail display and external monitor.

External view

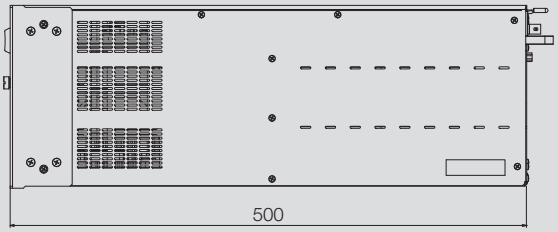
Main unit

Unit: mm

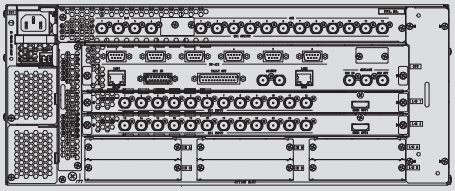
Front



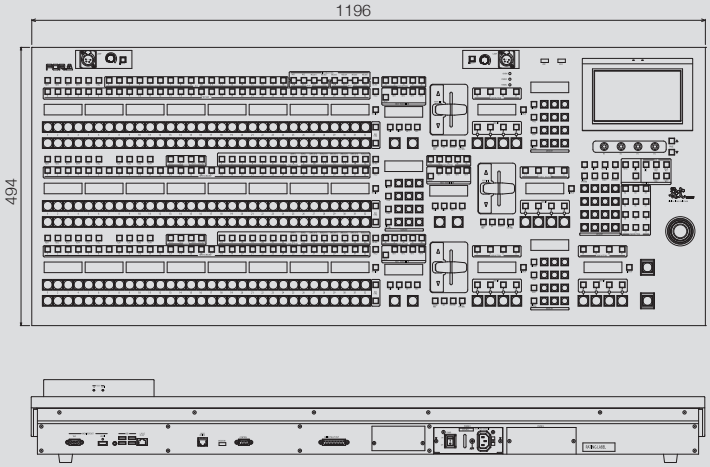
Side

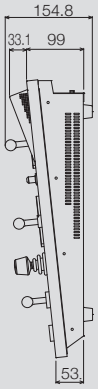


Rear

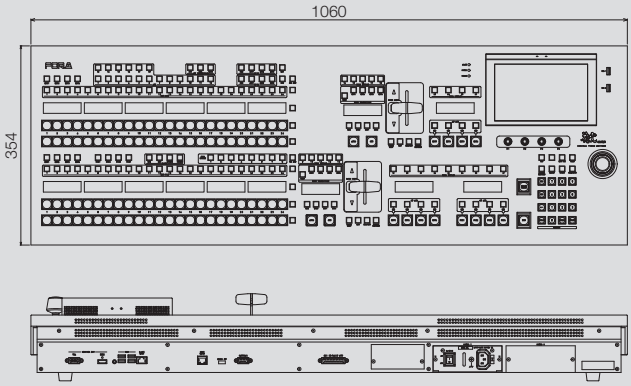


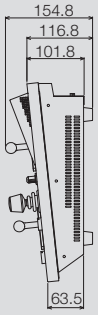
HVS-3320OU control panel



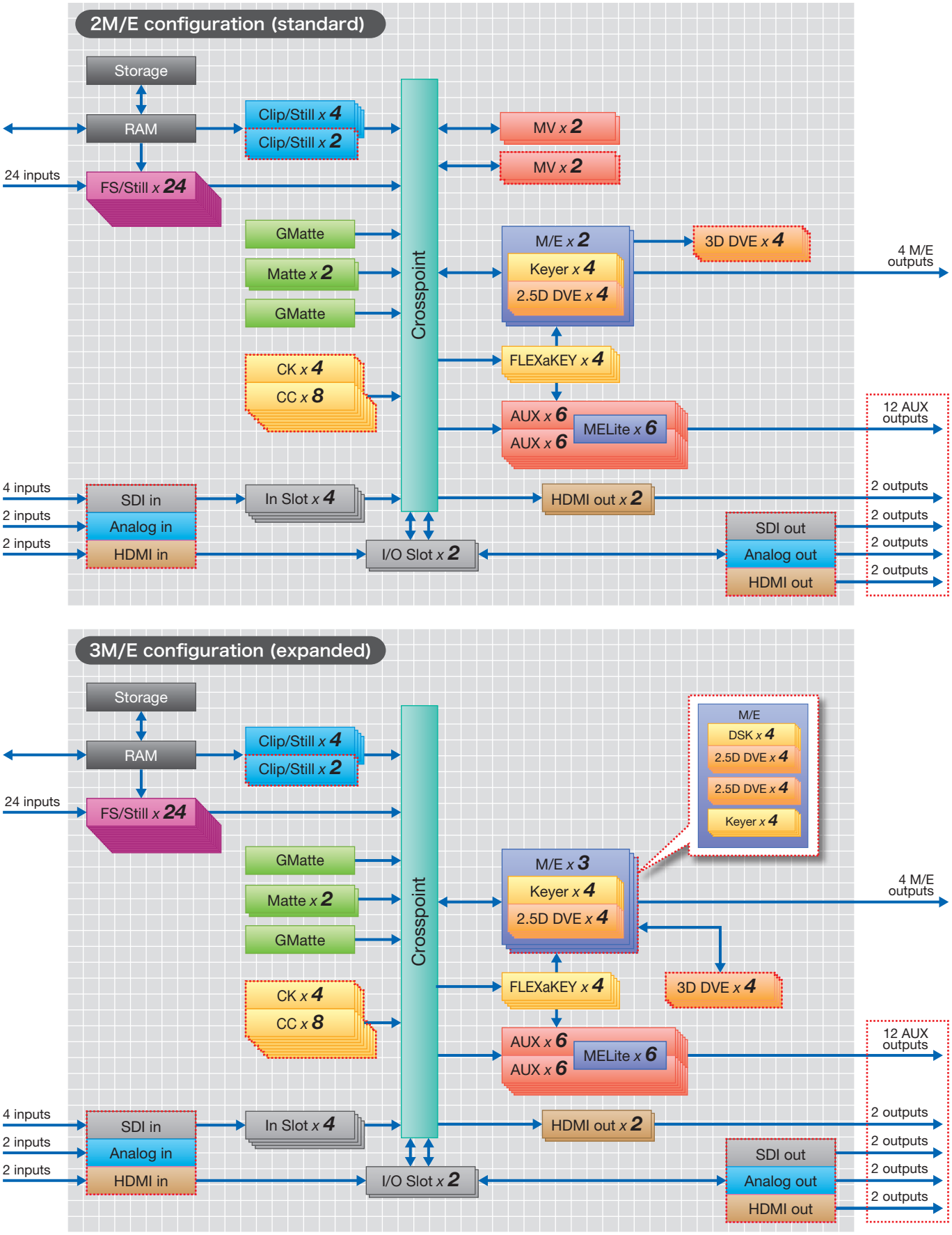


HVS-2240OU control panel





Block diagram



Options

Control panels

- Up to 3 control panels can be connected simultaneously.
  HVS-2000 dedicated control panels:
  HVS-3320OU, HVS-2240OU
  Other control panels*1:
  HVS-391OU/392ROU/392OU/392WOU
  *1 Firmware modification required for use with the HVS-2000
- A single processing main unit can supply a dual operation. Able to share resources between two independent suites
- Link buses and keys in multilingual or a dual-feed production. Have the second language follow the primary language for simultaneous switching of on-screen text prepared for each screen

- Four types of AUX remote control panels available. Allows remote aux control or even a shotbox for user button control or macro recall

HVS-AUX16A (16 buttons)
HVS-AUX16B (16 buttons, tabletop model)
HVS-AUX32A (32 buttons)
HVS-AUX64A (64 buttons)

- Up to 12 AUX remote control panel connections (Planned for future support)

Expansion cards

With the HVS-2000, you can add just the input and output formats and functions you need, in just the amount needed. The six I/O expansion slots enable support for additional HD/SD-SDI, analog component/composite, HDMI, and RGB connectivity. Other cards expand capabilities by adding four channels of 3D DVEs, two channels of multi viewer display, color correction, or advanced chroma keying.

- HVS-100DI-A:
  HD/SD-SDI Input Card

  4 channels of HD/SD-SDI output are possible using a single card. A frame synchronizer function for all inputs and re-size (expansion) function for 2 inputs are provided. SD images can be processed internally as HD images.

- HVS-100AI:
  Analog Video Input Card

  2 channels of analog video signal input are possible using a single card. Input terminal 2 is a dedicated connector (conversion connector supplied). The user can select between analog composite and analog component (HD or SD) input for each input terminal.

- HVS-100PCI:
  PC (HDMI/VGA) Input Card

  HDMI and VGA terminals have been mounted onto a single card. 2 input channels are possible using both.

- HVS-100DO:
  HD/SD-SDI Output Card

  2 channels of HD/SD-SDI output are possible using a single card. As down-converters are provided for all outputs, HD and SD images can be simultaneously output.

Options

- HVS-100AO:
  Analog Video Output Card

2 channels of analog video signal input are possible using a single card. Output terminal 2 is a dedicated connector (conversion connector supplied). Select between analog composite and analog component (HD or SD) output for each output terminal.

- HVS-100PCO:
  PC (HDMI/VGA) Output Card

HDMI and VGA terminals have been mounted onto a single card. 2 output channels are possible using both.

- HVS-2000DVE:
  Four-channel 3D DVE Expansion Card

4 channels of 3D DVE output are possible using a single card. 12 total channels of DVEs are available, including 2.5D DVEs as standard. Includes effects such as page turn, ripple, and wave, as well as cropping with rounded corners.

- HVS-2000DVE-EX:
  3D DVE 4K Expansion Set

Adds 3D DVEs available in 4K video processing. Assign one 3D DVE channel when working with 4K or six channels (two for each M/E) for 3G/HD/SD-SDI formats when using the 3M/E Expansion Card.

- HVS-2000MV:
  Multi viewer 2ch Expansion Card

Replicates the features of the standard multi viewer and adds another 2 channels of multi viewer display.

- HVS-2000EX:
  Color Corrector / Advanced Chroma Keyer Card

Adds 4 channels of chroma keying and 8 channels of color correction. Chroma keying can be applied to FLEXaKEY signals and color correction to source material or to video from AUX output.

- HVS-2000ME:
  3M/E Expansion Card

Adds M/E3 along with 4 keyers, 4 DSKs and 8 channels of 2.5D DVE using a single card. Offers the performance of up to seven M/Es when MELite buses are added to the three M/E buses.*2

*2 Cannot be used in conjunction with the built-in multi viewers or optional HVS-2000MV.

Software

Optional software introduces 3G-SDI and 4K format support or adds a switcher control interface.

- HVS-2000ED:
  Editor Interface Software

Enables switcher control using control commands that expand the editor interface. Can also be linked to OTC-1000 or GearLink™.

- HVS-2000EXP3G:
  3 Gbps Expansion Software

Introduces 3G-SDI format support, enabling the switcher to be used with 4K systems.

- HVS-2000GUI:
  GUI software

Intuitive GUI software allows HVS-2000 control and settings to be configured.

- HVS-2000-2SI:
  4K-2SI Compatibility Software

Enables direct switching of 2SI video, with less camera output delay than with SQD.

Specifications

Video formats	1080/59.94i, 1080/50i, 1080/29.97PsF, 1080/25PsF, 1080/24PsF, 1080/23.98PsF, 720/59.94p, 720/50p, 525/59.94 (NTSC), 625/50 (PAL)
Video formats (optional)	1080/59.94p, 1080/50p (Level-A)
Video inputs	HD-SDI: 1.5 Gbps or SD-SDI: 270 Mbps, 75Ω, BNC x 24 (FSs on all inputs)
Video inputs (optional)	
HVS-100DI-A	HD-SDI: 1.5 Gbps or SD-SDI: 270 Mbps, 75Ω, BNC x 4 (FSs on all inputs and resize engines on 2 inputs)
HVS-100AI	HD analog component, SD analog component, Analog composite
HVS-100PCI	HDMI*1: XGA to WUXGA/HDTV (1080p, 1080i, 1080PsF), XGA to WXGA/HDTV (720p), VGA to XGA/SDTV (SD) RGB: XGA to WUXGA/HDTV (1080p, 1080i, 1080PsF), XGA to WXGA/HDTV (720p), VGA to XGA/SDTV (SD)
HVS-2000EXP3G	3G-SDI: 3.0 Gbps
Number of video inputs	Standard: SDI x 24 / Max.: SDI x 48 (with 6 HVS-100DI-A cards installed)
Video outputs	HD-SDI: 1.5 Gbps, SD-SDI: 270 Mbps, 75Ω, BNC x 16 (4 M/E outputs, AUX1 to 12), HDMI*1 x 2
Video outputs (optional)	
HVS-100DO	HD-SDI: 1.5 Gbps, SD-SDI: 270 Mbps, 75Ω, BNC x 4 (Downconverters on 2 outputs)
HVS-100AO	HD analog component, SD analog component, Analog composite
HVS-100PCO	HDMI*1: SXGA to WUXGA/HDTV (1080p, 1080i, 1080PsF), SXGA to WXGA (720p), SVGA/SDTV (SD) RGB: SXGA to WUXGA/HDTV (1080p, 1080i, 1080PsF), SXGA to WXGA (720p), SVGA(SD)
HVS-2000EXP3G	3G-SDI: 3.0 Gbps
Number of video outputs	Standard: HD-SDI x 16, HDMI x 2 / Max.: SDI x 20, HDMI x 2 (with 2 optional output cards installed)
Signal processing	4: 2: 2: 4, digital component
Quantization	HD/SD-SDI: 10-bit
Effect	WIPE: 100 patterns (modification capability included) / 2.5D DVE: 30 patterns or more DVE WIPEs (modification capability included)
Transition	Available controller: Fader controller, AUTO or CUT button / Type: MIX or WIPE (DVE included)
Still/clip store	4 channels (with backup feature), Stores can hold up to 4 still pictures and 30 seconds of video, Frame memories in FS provided for all inputs are used for storage
Keyer/FLEXaKEY	12 channels (4 keyers for each M/E, 4 FLEXaKEY) Bus keyer, Luminance keyer, Full keyer, Chroma keyer, Edge effect FLEXaKEY: can be assigned to AUX outputs
Multi-viewer	Standard: 2 channels / Max.: 4 channels (64 windows), 2/4/5/7/9/10/11/13/16-way split views with title, tally, audio level meter, safety area, and border display
Proc. Amp.	Equipped with all inputs/outputs
Color correction	Standard: 4 channels (2 channels per each M/E) / Max.: 12 channels (optional) Correction mode: Balance, Differential, Sepia Clip mode: YPbPr, RGB
Event memory	100 events (cross-fade transition available when loading events)
Macro function	100 macros, No. 00-89: Max. 30 actions, No.90-99: Max. 300 actions
Genlock input	BB: NTSC: 0.429 Vp-p/PAL: 0.45 Vp-p or Tri-level sync: 0.6 Vp-p, 75Ω, BNC x 1, loop-through (to be terminated with 75Ω terminator, if unused)
System phase adjust	Horizontal: -1/2 H to +1/2 H
Genlock output	BB: NTSC: 0.429 Vp-p/PAL: 0.45 Vp-p or Tri-level sync: 0.6 Vp-p, 75Ω, BNC x 1
I/O delay	Minimum delay: HD: 1H, SD: 1.7H
	1 to 2 frames +minimum delay (when FS or re-size engine used)
	2 to 3 frames +minimum delay (when FS or re-size engine plus DVE used)
	3 to 4 frames +minimum delay (when FS or re-size engine plus output resize engine plus DVE used)
External memory port	HVS-2240/3320OU: USB2.0 x 6
Interface	LAN1 (MAIN) / LAN2 (SUB): 100BASA-TX/1000BASE-T, RJ-45 x 2, for OU and other external control unit connection
	GPI IN: 15-pin D-sub (female) for 10 inputs
	GPI IN/TALLY OUT: 25-pin D-sub (female) for 20 outputs
	RS-422*2: 9-pin D-sub (female) x 6 (for tally unit connection)
	ARCNET*3: 75Ω, BNC x 1, loop-through (to be terminated with 75Ω terminator, if unused.)
	HVS-2240/3320OU: RJ-45 x 7, GPI IN/TALLY OUT 25-pin D-sub (female) x 1 for 12 inputs/12 outputs
Temperature/humidity	5°C to 40°C / 30% to 90% (no condensation)
Power/consumption	HVS-2000: 100 V AC to 240 V AC ±10%, 50/60 Hz / 496 W (at 100 V to 120 V), 476 W (at 220 V to 240 V) HVS-2240OU: 100 V AC to 240 V AC ±10%, 50/60 Hz / 46 W (at 100 V to 120 V), 46 W (at 220 V to 240 V) HVS-3320OU: 100 V AC to 240 V AC±10%, 50/60 Hz / 67 W (at 100 V to 120 V), 63 W (at 220 V to 240 V)
Dimensions/weight	HVS-2000: 430 (W) x 177 (H) x 500 (D) mm / 18 kg (incl. optional cards: 30 kg) HVS-2240OU: 1060 (W) x 155 (H) x 354 (D) mm / 12 kg HVS-3320OU: 1196 (W) x 155 (H) x 494 (D) mm / 22 kg (incl. redundant power supply: 23 kg)
Accessories	Operation manual (CD-ROM), AC cords, Rack mount brackets, Control cables
Consumables (approx. time for replacement after an uninterrupted service at room temperature)	HVS-2000: Power unit (5 years), Cooling fan (5 years), 2.5" HDD (3 years) HVS-2240OU: Power unit (5 years), SBC battery (3 years), HVS-3320OU: Power unit (5 years), SBC battery (3 years)
Options	HVS-100DI-A: HD/SD-SDI Input Expansion Card HVS-100AI: Analog Video Input Expansion Card HVS-100PCI: PC (HDMI/VGA) Input Expansion Card HVS-100DO: HD/SD-SDI Output Expansion Card HVS-100AO: Analog Video Output Expansion Card HVS-100PCO: PC (HDMI/VGA) Output Expansion Card HVS-2000PSM: Redundant Power Supply Unit for MU HVS-2000PSO: Redundant Power Supply Unit for OU HVS-2000EXP3G: 3 Gbps Expansion Software
	HVS-2000MV: MultiViewer 2ch Expansion Card HVS-2000ED: Editor Interface Software HVS-2000GUI: Graphical User Interface Software HVS-2000-2SI: 4K-2SI Compatibility Software HVS-2000EX: Color Corrector / Advanced Chroma Keyer Expansion Card HVS-2000DVE: 3D DVE 4ch Expansion Card HVS-2000DVE-EX: 3D DVE 4K Expansion Set HVS-2000ME: 3M/E Expansion Card

*1 HDCP-incompatible
*2 For the tally unit connection or EDITOR port (BVS/DVS or GVG-200 protocols)
*3 For optional control panel connection

– MELite, FLEXaKEY, P-MEM, ONStage, Midas Touch, MiniMenu, and GearLink are trademarks of FOR-A Company Limited.

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