

HD/SD 1 M/E - 2 M/E Video Switcher

**HVS-390HS** "HANABI"

**FOR.A**<sup>®</sup>  
INNOVATIONS IN VIDEO  
and AUDIO TECHNOLOGY

花火  
HANABI

HD/SD 1 M/E - 2 M/E VIDEO SWITCHER  
**HVS-390HS**

HANABI



# The New HANABI Unveiled

The 1 M/E HVS-300HS revolutionized the world of compact video switchers in 2008.

In 2010, the 1.5 M/E HVS-350HS switcher continued that trend, with its enhanced functionality and increased performance.

The advancement of the HANABI series continues to this day.

In 2012, we continue the evolution of the switcher.

The new HVS-390HS video switcher will come in 1 M/E or 2 M/E configuration.

This switcher is more powerful and easier to use, while maintaining all of the highly acclaimed functionality of the HVS-300 series.

The evolution of the HANABI series continues.



## 5 Operation Styles

- Comes in 1 M/E and 2 M/E versions
- Maintains the operating style of the highly acclaimed HANABI series
- Includes a USB interface to store/recall data or up/download still images
- Connects to the main unit using BNC cables via ARCNET (max. 100m)
- Supports redundant power supply configurations (optional)
- Can be connected to up to three control panels at once for simultaneous control
- Compatible with control panels from our HVS-300HS switcher (HVS-300U and HVS-30RU)



**HVS-392OU:**  
2 M/E Control Panel



**HVS-392ROU:**  
2 M/E Rack-size Control Panel



**HVS-391OU:**  
1 M/E Control Panel



Model Name	M/E	Bus-buttons	Type
HVS-391OU	1 M/E	20	1 M/E model
HVS-392OU	2 M/E	20	2 M/E model
HVS-392ROU	2 M/E	12	Rack mountable 2 M/E model
HVS-300U	1 M/E	12	For sub-panel use
HVS-30RU	1 M/E	12	For remote panel use



**HVS-300U:**  
1 M/E Control Panel

**HVS-30RU:**  
Remote Control Panel

# HVS-390HS Main Features

Whether you work in HD, SD or a combination of both, there are enough inputs and outputs to suit your needs.

## Main Unit

- Main unit size: 3U
- Enlarged fan and efficient exhaust process guarantees silent operation
- Supports a redundant power supply configuration (optional)

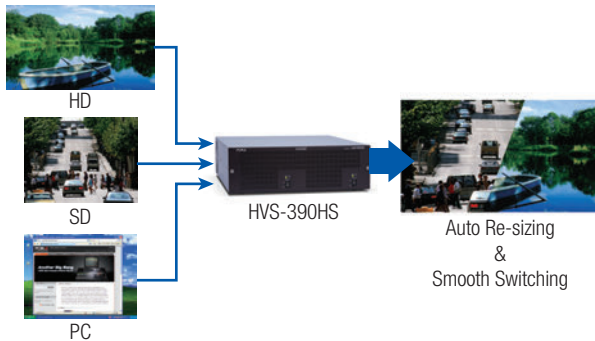


## Frame Synchronizer on All Inputs

- Individual frame synchronizers are standard for all inputs to support the switching of asynchronous signals
- Includes Proc Amp control to adjust video and chroma levels

## HD, SD Mixed Input/Resize Engine

- Mixing of HD and SD inputs is possible
- Of the standard 16 inputs, 4 inputs\* and the optional input board HVS-30HSDI can resize SD signals to HD
- \*Inputs 13–16 can be used for resizing.
- Supports resizing of computer signals when using optional computer input board HVS-30PCIN



## Keyers with DVE

- 4 keyers per M/E come standard (1 M/E: 4, 2 M/E: 8)
- All keyers support bus and luminance keys
- High-level chroma keyer on Key 1 & Key 2 for each M/E
- All keyers have an independent 2.5D DVEs
- Key 3 & Key 4 can be assigned to Aux outputs for multi-screen display

## DVE/Transition/Wipe Pattern/Effect

### DVE

- All keyers have an independent 2.5D DVE channel
- Two 3D DVEs per M/E are available for background and keyer

### Transitions

- M/E bus: CUT, MIX, WIPE

### Wipe Patterns

- 100 2D wipe patterns
- 68 DVE wipe including page turn

### Effects

- Mosaic, defocusing, etc.

## Dual Multi Viewer

- Equipped with two multi-view channels, each capable of displaying a maximum of 16 split windows
- 4, 10, and 16 window split patterns
- Different display patterns and channels can be set for each of the multiviewers
- All sources, including internal sources, inputs and outputs can be monitored on the multi-viewers
- Each multi-viewer window is equipped with title, tally and audio meter display



## Event Memory with Loading Duration

- Equipped with an event memory in the main unit. Up to 100 events can be stored
- Direct recall function: Recalls events with a single click
- Event load with duration: Users can freely set the transition time and effect for loading events
- Because seamless transition to the recorded state is possible, it is suitable for live applications

## Still Stores

- 4 still stores are available in standard configuration
- Allows capturing of video input and PGM output as still images
- Still images generated on a PC or other source can be loaded to the main unit over Ethernet
- Supports loading images via USB connection when connected to control panels
- Saves data to the main unit using the backup function
- Supports JPEG, BMP, and TGA file formats
- FS memory on IN-1 to IN-16 can be used as still image memory

## Video Memory

- Equipped with output video recording and playback functions
- Simultaneous recording of fill and key perfect for CG Wipes
- Saves consecutive still images transferred from PC as video (clips)
- Four memory channels can be used to record up to 60 frames per each as standard
- Up to 120 frames of recording is possible with an optional HVS-39MEM
- \*(The number of frames that can be saved does not change, even when simultaneously recording Fill + Key)

## Web Control

- Many controls are accessible from an external computer via the unit's built-in web server
- Control from notebook computers or tablets are also possible, via a wireless LAN router

## Flexible Input/Output

- 16 HD/SD-SDI inputs, 8 outputs and an HDMI output come as standard
- Using input/output option boards, the system can be expanded to 24 inputs and 13 outputs
- HD, SD mixed input is supported as standard (same frame rate only)
- Standard output breakdown: PGM x 2, AUX x 6, HDMI (AUX) x 1
- Input/output, such as analog component, analog composite, DVI, and RGB, can also be added (optional)
- AUX outputs allow previews and multi-viewer assignments

### Support Formats;

1080/59.94i, 1080/50i, 1080/29.97PsF, 1080/25PsF, 1080/24PsF, 1080/23.98PsF, 720/59.94p, 720/50p, 525/60 (NTSC), 625/50 (PAL)

### Input Configurations

Expansion Slot 1	Expansion Slot 2	Support signal details
---	---	HD/SD-SDI x 16 (Standard)
HVS-30HSAI	---	HD/SD-SDI x 16, Analog x 2
HVS-30HSAI	HVS-30HSAI	HD/SD-SDI x 16, Analog x 4
HVS-30PCIN	---	HD/SD-SDI x 16, PC x 2
HVS-30PCIN	HVS-30PCIN	HD/SD-SDI x 16, PC x 4
HVS-30PCIN	HVS-30HSAI	HD/SD-SDI x 16, Analog x 2, PC x 2
HVS-30HSDI/30HSDI-A	---	HD/SD-SDI x 20
HVS-30HSDI/30HSDI-A	HVS-30HSAI	HD/SD-SDI x 20, Analog x 2
HVS-30HSDI/30HSDI-A	HVS-30PCIN	HD/SD-SDI x 20, PC x 2
HVS-30HSDI/30HSDI-A	HVS-30HSDI/30HSDI-A	HD/SD-SDI x 24

### Output Configurations

Expansion Slot 1	Expansion Slot 2	Support signal details
---	---	HD/SD-SDI x 8, HDMI x 1 (standard)
HVS-30HSAO	---	HD/SD-SDI x 8, HDMI x 1, Analog x 2
HVS-30HSAO	HVS-30HSAO	HD/SD-SDI x 8, HDMI x 1, Analog x 4
HVS-30HSAO	HVS-30PCO	HD/SD-SDI x 8, HDMI x 1, Analog x 2, PC x 2
HVS-30PCO	---	HD/SD-SDI x 8, HDMI x 1, PC x 2
HVS-30PCO	HVS-30PCO	HD/SD-SDI x 8, HDMI x 1, PC x 4
HVS-30HSDO	---	HD/SD-SDI x 10 (+SD-SDI x 1), HDMI x 1
HVS-30HSDO	HVS-30HSAO	HD/SD-SDI x 10 (+SD-SDI x 1), HDMI x 1, Analog x 2
HVS-30HSDO	HVS-30PCO	HD/SD-SDI x 10 (+SD-SDI x 1), HDMI x 1, PC x 2
HVS-30HSDO	HVS-30HSDO	HD/SD-SDI x 12 (+SD-SDI x 2), HDMI x 1

#### Input Card Options

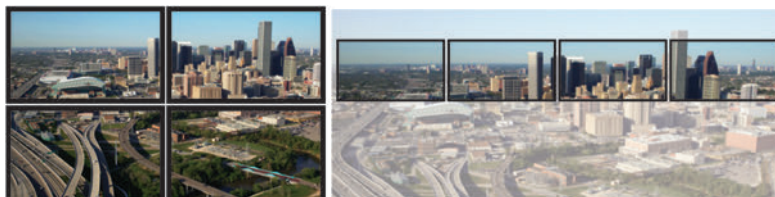
HVS-30HSDI: HD/SD-SDI Input Card
HVS-30HSDI-A: HD/SD-SDI Input Card (No resize function)
HVS-30HSAI: HD/SD Analog Input Card
HVS-30PCIN: PC (DVI/VGA) Input Card

#### Output Card Options

HVS-30HSDO: HD/SD-SDI Output Card
HVS-30HSAO: HD/SD Analog Output Card
HVS-30PCO: PC (DVI/VGA) Output Card

## Multi-screen Function (Video Wall)

- Supports multi-monitor display by assigning keyers to AUX outputs
- It is also possible to output separately from the main line, making it ideal for large screen display



Multi-screen image (2 x 2)

Multi-screen image (1 x 4)

## Sequence Function

- Up to 10 sequences can be stored
- Registers each parameter setting as a key frame
- Sequence functions can be assigned to any user buttons

## AUX Transitions

- AUX bus signal switching with an effect and transition time
- Expanded range of AUX utilization perfect for applications that require multiple outputs

## Keyer Free Assign

- Keyer can be assigned to M/E and AUX
- Keyer can use composite results of M/E as an input source.  
(+0.5 M/E extended feature)

## External Interfaces

- EDITOR: For connection to editing equipment
- GPI/GPO (Tally): 10 inputs/20 outputs
- RS-422: 6 ports
- ARCNET: for connection to OU and AUX remote panel
- Ethernet: for connection to a PC

## Upgradable from 1 M/E to 2 or 2.5 M/E

- Add an HVS-39EXTME expansion card to upgrade the 1 M/E model to a 2 or 2.5 M/E one
- This enables enhanced switcher functions without the need to purchase another main unit

## Also enables operation as a 2.5 M/E digital video switcher

- When the HVS-39EXTME is installed, this digital video switcher can be used as a 2.5 M/E digital video switcher.
- \* AUX7 and AUX8 are not available in 2.5 M/E mode.
- \* P/P line operation can be enabled either by procuring an additional control panel or using the GUI software.
- \* Enables Key 3 and Key 4 of M/E1 and M/E2 to be assigned to the P/P line keyers for use.

## Other

- Color correction function (2 channels for each M/E)
- Macro function
- Direct patterns: Up to 20
- Safety area display
- Built-in color bar display
- Equipped with many useful functions, including a built-in mat function

# Options

## HVS-30HSDI HVS-30HSDI-A HD/SD-SDI Input Card



4 channels of HD/SD-SDI input card. 2 types of card available; HVS-30HSDI has a frame synchronizer function and re-size (expansion) function provided for all inputs, and SD images can be processed internally as HD images. HVS-30HSDI-A has a frame synchronizer function (no resize) provided for all inputs. It is an expansion card with excellent cost-performance.

## HVS-30HSAI Analog Video Input Card



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

## HVS-30PCIN PC (DVI/VGA) Input Card



For computer-based applications we have an input card with one DVI-D and one VGA connector with resolutions ranging from VGA to WUXGA.

Input Resolutions:

HD mode	
1080i	1024 x 768 (XGA), 1280 x 1024 (SXGA), 1600 x 1200 (UXGA), 1280 x 768 (WXGA), 1680 x 1050 (WSXGA), 1920 x 1200 (WUXGA)
720p	1024 x 768 (XGA), 1280 x 1024 (SXGA), 1280 x 768 (WXGA)
SD mode	640 x 480 (VGA), 800 x 600 (SVGA), 1024 x 768 (XGA)

HDCP incompatible; DVI-D and VGA input not supported in 1080PsF format.

## HVS-30HSDO HD/SD-SDI Output Card



2 channels of HD/SD-SDI output card. Dedicated down-convert output also provided for 2 output terminals. This realizes simultaneous output of HD and SD.

## HVS-30HSAO Analog Video Output Card



2 channels of analog video output card. Output terminal 2 is a dedicated connector (conversion connector supplied). The user can select between analog composite or analog component (HD or SD) output for each output terminal.

## HVS-30PCO PC (DVI/VGA) Output Card



For computer-based applications we have an output card with one DVI-D and one VGA connector with resolutions ranging from SVGA to WUXGA.

Output Resolutions:

HD mode	
1080i	1280 x 1024 (SXGA), 1600 x 1200 (UXGA), 1680 x 1050 (WSXGA), 1920 x 1080 (HDTV), 1920 x 1200 (WUXGA)
720p	1280 x 1024 (SXGA), 1280 x 768 (WXGA)
SD mode	800 x 600 (SVGA)

HDCP incompatible; DVI-D and VGA output not supported in 1080PsF format.

## HVS-AUX8/16/32 AUX Remote Panel



An 8-button or 16/32-button type AUX remote control panel is provided. The 8-button unit is half-rack size and 16/32-button unit is 1U rack size; ARCNET allows cascading connection of as many as 5 units. With the panel extension kit, each panel can be used with a longer button interface.

- HVS-AUX8/16/32: AUX remote panel (8/16/32 buttons)
- Extensions kit: HVS-AUX8RK (for HVS-AUX8), HVS-AUXRK (for HVS-AUX16/32)

## HVS-39ED Editor Interface Software

This is a software for supporting editing machine protocol. It supports BVS/DVS and GVG protocol.

## HVS-39VR Virtual Studio Link Software

Linkage to FOR-A virtual studio "digiStorm" or "VRCAM2" software

## HVS-39PSM/39PSO Redundant Power Supply Unit

Redundant power supply unit for HVS-390HS main unit or Control panels

- HVS-39PSM: Redundant power supply unit for main unit
- HVS-39PSO: Redundant power supply unit for HVS-3910U/3920U/3920RU

## HVS-TALOC20/32 HVS-TALR20/32 Tally Interface Unit



Open collector-type HVS-TALOC20/32 or relay-type HVS-TALR20/32 can be connected. They are both half-rack size, and as many as 4 units can be connected to 1 HVS-390HS.

- HVS-TALOC20/32: Open Collector system with 20/32 terminals
- HVS-TALR20/32: Relay system with 20/32 terminals

## HVS-30TALR Tally Interface Card

Tally relay interface card (18 terminals). Up to 2 cards can be installed (the slot is shared with I/O cards).

## HVS-39EXTME M/E Expansion Card

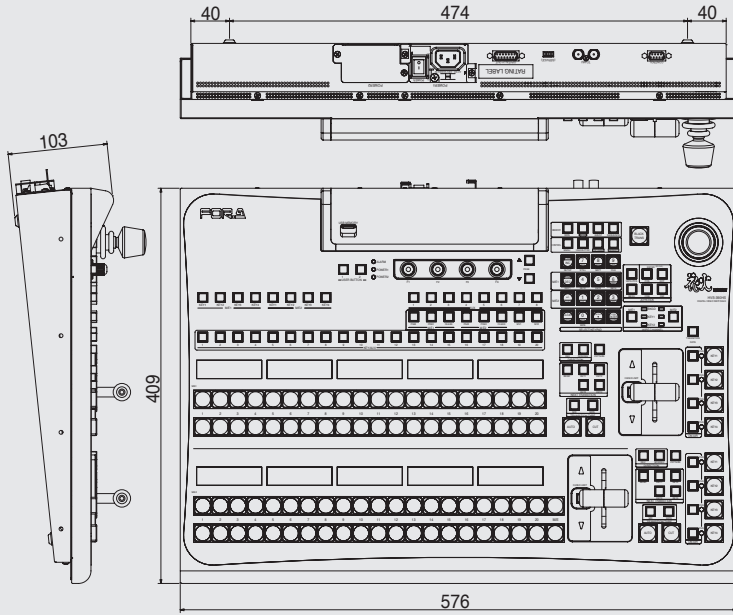
Upgradable the 1 M/E model to 2 or 2.5 M/E one

## HVS-39MEM Video Memory Expansion Card

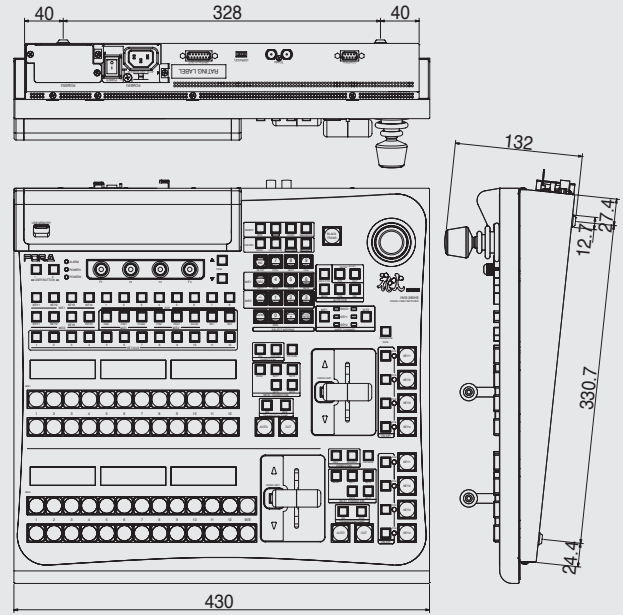
Expandable recording capacity to 120 frames of video

# Dimensions

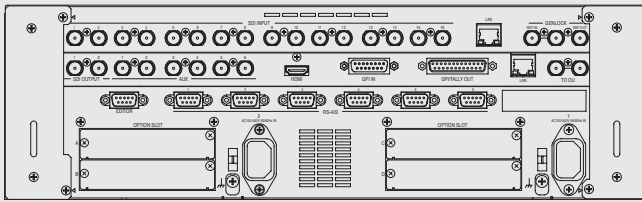
HVS-392OU External Dimensions



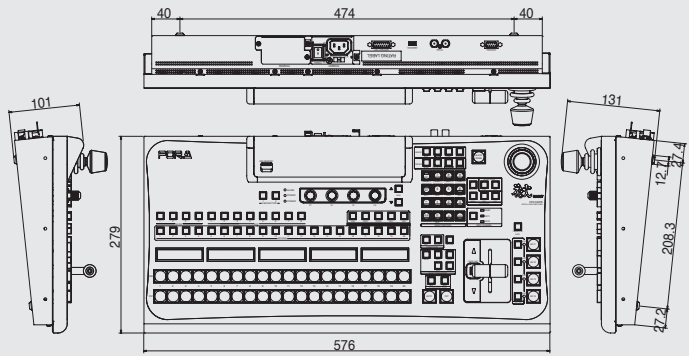
HVS-392ROU External Dimensions



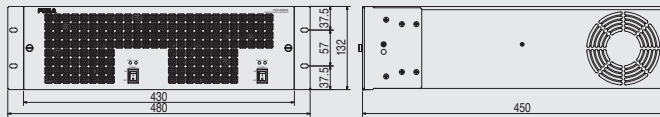
HVS-390HS Rear View



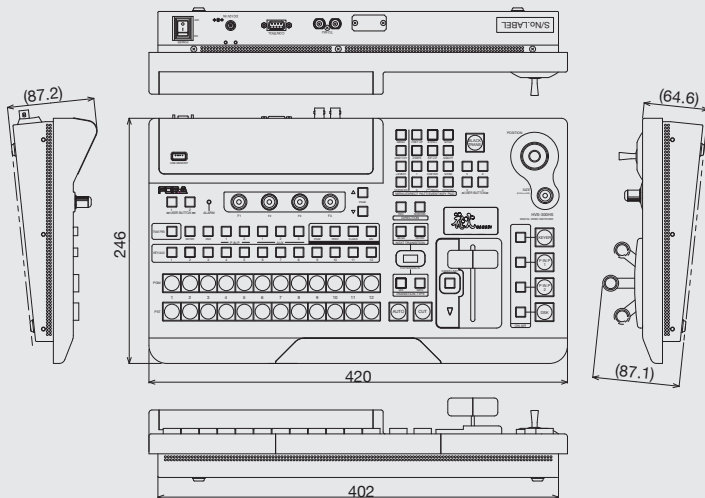
HVS-391OU External Dimensions



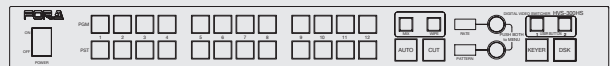
HVS-390HS External Dimensions



HVS-300U External Dimensions



HVS-30RU Front View



## Specifications

Number of M/Es	1 M/E or 2 M/E	
Control Panel	5 types	
	HVS-3910U: 1 M/E 20-button model / HVS-3920U: 2 M/E 20-button model / HVS-3920RU: 2 M/E 12-button rack size model HVS-300U: 1 M/E 12-button model / HVS-30RU: Remote panel	
Video Formats	1080/59.94i, 1080/50i, 1080/29.97PsF, 1080/25PsF, 1080/24PsF, 1080/23.98PsF, 720/59.94p, 720/50p, 525/60 (NTSC), 625/50 (PAL)	
Video Input	HD-SDI: 1.5 Gbps or SD-SDI: 270 Mbps 75Ω BNC x 16 * Frame synchronizer on each input	
Video Input (optional)	HVS-30HSDI/HSDI-A: HD-SDI: 1.5 Gbps or SD-SDI: 270 Mbps 75Ω BNC x 4	
	HVS-30HSAI: HD analog component, SD analog component, Analog composite	
	HVS-30PCIN: DVI-D: XGA to WUXGA (1080i), XGA to WXGA (720p), VGA to XGA (SD) (HDCP incompatible) RGB: XGA to WUXGA (1080i), XGA to WXGA (720p), VGA to XGA (SD)	
Number of Inputs	Standard: 16 (SDI), Max.: 24 (with HSDI x 2 or HSDI-A x 2)	
Video Output	HD-SDI: 1.5 Gbps or SD-SDI: 270 Mbps 75Ω BNC x 8 (PGM x 2, AUX x 6), HDMI (AUX) x 1 (HDCP, AUDIO incompatible)	
Video Output (optional)	HVS-30HSDO: HD-SDI: 1.5 Gbps or SD-SDI: 270 Mbps 75Ω BNC x 3	
	HVS-30HSAO: HD analog component, SD analog component, Analog composite	
	HVS-30PCO: DVI-D: SXGA to WUXGA/HDTV (1080i), SXGA/WXGA (720p), SVGA (SD) (HDCP incompatible) RGB: SXGA to WUXGA (1080i), SXGA/WXGA (720p), SVGA (SD), YPbPr: HDTV(1080i)	
Number of Outputs	Standard: 9 (SDI x 8, HDMI x 1), Max.: 13 (with 2 output cards)	
AUX Outputs	Standard: 6, Max.: 8 * Crossfade switching available on each AUX output	
Signal Processing	4:2:2 Digital component	
Quantization	HD/SD-SDI: 10-bit	
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 (Terminate with 75Ω terminator, if unused.)	
System Phase Adjust	Horizontal: -1/2H to +1/2H	
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	HD: 1 H, SD: 1.7 H (minimum delay)	
	1 to 2 frames + minimum delay (when FS or up-resize engine used)	
	2 to 3 frames + minimum delay (when FS or up-resize engine plus DVE used)	
	3 to 4 frames + minimum delay (when FS or up-resize engine plus output resize engine and DVE used)	
Interfaces	EDITOR: 9-pin D-sub (female) x 1 (inch screw)	
	RS-422: 9-pin D-sub (female) x 6 (inch screw)	
	GPI IN: 15-pin D-sub (female) x 1 (inch screw) 10 inputs	
	GPI/TALLY OUT: 25-pin D-sub (female) x 1 (inch screw) 20 outputs	
	ARCNET: 75Ω BNC x 1, loop-through (Terminate with 75Ω terminator, if unused.)	
	Ethernet: 100BASE-TX/1000BASE-T RJ-45 x 1	
Temperature / Humidity	0°C to 40°C / 30% to 90% (no condensation)	
Power	100 V AC to 240 V AC ±10%, 50/60 Hz	
Consumption	HVS-390HS: Max. 510 W	
	HVS-3910U: Max. 32 W	
	HVS-3920U: Max. 43 W	
	HVS-3920RU: Max. 28 W	
Dimensions/Weight	HVS-390HS: 430 (W) x 450 (D) x 132 (H) mm / Approx. 15 kg (standard), Approx. 19.2 kg (full option)	
	HVS-3910U: 576 (W) x 279 (D) x 131 (H) mm / Approx. 5.5 kg	
	HVS-3920U: 576 (W) x 409 (D) x 132 (H) mm / Approx. 7.7 kg	
	HVS-3920RU: 430 (W) x 409 (D) x 132 (H) mm / Approx. 6 kg	
Accessories	Main unit: Operation manual, AC cord, Rack mount brackets (for main unit)	
	HVS-3910U/3920U/3920RU: Operation manual, AC cord, BNC cable (10 m)	
Consumables (if used 24 hours a day at room temperature)	Cooling fan: Replace every 4 years	
	Power unit: Replace every 5 years	
	Battery: Replace every 5 years	
Options	HVS-39EXTME: M/E expansion card (for 1 M/E model)	HVS-39MEM: Video memory expansion card
	HVS-30HSDI: HD/SD-SDI input card (w/ up-resize engine)	HVS-30HSDI-A: HD/SD-SDI input card (w/o up-resize engine)
	HVS-30HSAI: Analog input card	HVS-30PCIN: PC input card
	HVS-30HSDO: HD/SD-SDI output card	HVS-30HSAO: Analog output card
	HVS-30PCO: PC output card	HVS-AUX8/16/32: AUX remote unit
	HVS-AUX8RK/AUXRK: AUX remote extension kit	HVS-TALR20/32: Tally relay unit (20/32 terminal)
	HVS-TALOC20/32: Tally open collector unit (20/32 terminal)	HVS-30TALR: Tally relay output card
	HVS-39ED: Editor interface software	HVS-39VR: Virtual link software
	HVS-39PSM: Redundant power supply unit for main unit	HVS-39PSO: Redundant power supply unit for HVS-3910U/3920U/3920RU

### FOR-A COMPANY LIMITED

Head Office: 3-8-1 Ebisu, Shibuya-ku, Tokyo 150-0013, Japan

FOR-A Corporation of America: 11155 Knott Ave., Suite G&H, Cypress, CA 90630, U.S.A.

FOR-A Corporation of America East Coast Office: 2 Executive Drive, Suite 670, Fort Lee Executive Park, Fort Lee NJ 07024, U.S.A.

FOR-A Corporation of America Distribution & Service Center: 2400 N.E. Waldo Road, Gainesville, FL 32609, U.S.A.

FOR-A Corporation of America Miami Office: 5200 Blue Lagoon Drive, Suite 760, Miami, FL 33126, U.S.A.

FOR-A Corporation of Canada: 346A Queen Street West, Toronto, Ontario M5V 2A2, CANADA

FOR-A UK Limited: Unit C71, Barwell Business Park, Leatherhead Road, Chessington Surrey, KT9 2NY, UK

FOR-A Italia S.r.l.: Via Volturmo, 37, 20047, Brugherio MB, Italy

FOR-A Corporation of Korea: 1007, 57-5, Yangsan-ro, Yeongdeungpo-gu, Seoul 150-103, Korea

FOR-A China Limited: 708B Huateng Building, No. 302, 3 District, Jinsong, Chaoyang, Beijing 100021, China

FOR-A Middle East-Africa Office: Jebel Ali Free Zone, LOB-16, Office 619, P.O. Box 261914, Dubai, U.A.E.

URL: <http://www.for-a.com/>

Tel : +81 (0)3-3446-3936 Fax : +81 (0)3-3446-1470

Tel: +1-714-894-3311 Fax: +1-714-894-5399

Tel: +1-201-944-1120 Fax: +1-201-944-1132

Tel: +1-352-371-1505 Fax: +1-352-378-5320

Tel: +1-305-931-1700 Fax: +1-305-264-7890

Tel: +1-416-977-0343 Fax: +1-416-977-0657

Tel: +44 (0)20-8391-7979 Fax: +44 (0)20-8391-7978

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Tel: +971 4 887 6712 Fax: +971 4 887 6713

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