HD/SD 1 M/E Video Switcher
# HVS-300HS/300RPS
## "1M/E HANABI"

花火
*HANABI*

## HD/SD 1 M/E Video Switcher
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# HVS-300HS: The New Standard in Small HD/SD Switchers!

## Unrivalled Features, Unequalled Cost Performance

The HVS-300HS and the HVS-300RPS is the newest addition to FOR-A's popular Hanabi series and represents one of the most powerful, compact, broadcast level switchers on the market.

Although small, the HVS-300HS 1 Rack Unit main frame (HVS-300RPS is 2 RU) is packed with features including frame synchronizing and re-sizing engine on every channel which allow any Standard Definition equipment to be used in full HD mode.  It also has plenty of wipe patterns including 2D and 3D DVE transitions. The HVS-300 series also has keyer with chroma key, DSK, dual Picture-in-Picture, 16-channel Multi Viewer, Still Stores and much more.

It is perfectly suited for a wide-range of applications including studio, live event, sports, Flypacks, ENG/SNG OB vehicles, House of Worship, news, live staging and corporate productions.

HVS-300HS + HVS-300U

# 4 Control Panels

The HVS-300HS has 4 types (HVS-300RPS has 3 types) of control units. These control units are available to suit any working environment and provide a level of redundancy to support any operator or engineers production needs.

## HVS-30OU: Operation Unit



The HVS-30OU control unit is a traditional type of control panel with large bus buttons, AUX buttons, a fader, and function buttons laid out to maximize ease of operation.
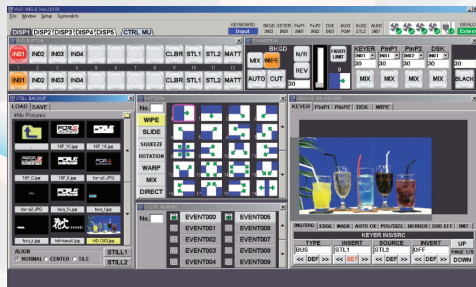
## HVS-30FP: Front Control Panel



The HVS-30FP, is a simple and compact HVS-300HS control unit to fit on the front of the main unit and can be installed into a 1 RU rack space.
(HVS-30FP cannot be installed in HVS-300RPS.)

## HVS-30RU: Remote Control Unit



The HVS-30RU remote control unit can be used for remote switching or as an AUX remote control.

## HVS-30GUI: Remote Control Software



The HVS-300HS and HVS-300RPS also can be controlled via the remote control software graphical user interface the HVS-30GUI. The HVS-30GUI can be installed on any PC and will provide users with full remote switcher control over LAN.

# The HVS-300HS and the HVS-300RPS Main Features

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

## Compact Main Frame

The HVS-300HS incorporates up to 12 inputs and 8 outputs, Frame Synchronizer, Re-sizing Engine, Still Store, Keyer with Chroma Key, DSK, and a wide array of other functions in a compact EIA 1 RU size.



*1U*

## Redundant Power Model: HVS-300RPS

The HVS-300RPS model has in addition a redundant power supply installed in a 2 RU frame. All input, output, system features and additional I/O options are same the HVS-300HS 1 RU model.



*2U*

## Input/Output

4 HD/SD-SDI inputs and outputs are provided in the standard configuration. This includes 2 PGM outputs and 2 AUX outputs. With optional I/O cards we can provide up to a maximum 12 Inputs and 8 Outputs, including analog component, analog composite, DVI, and RGB.

*Supported Formats;*
*1080/60i, 1080/59.94i, 1080/50i, 1080/24PsF, 1080/23.98PsF*
*720/60p, 720/59.94p, 720/50p, 525/60 (NTSC), 625/50 (PAL)*

## Frame Synchronizers

Each input is fitted with its own frame synchronizer which can be turned on or off for minimum delay.
This also allows any sources without genlock capability (such as consumer devices or computers) to be used. When "genlocking" everything, we provide Black Burst or Tri-level sync output. Proc Amp features are also provided for each input.

## Up-converter/Re-sizing Engine

Up-converter/ re-sizing engine is provided on every input. Should you need to use Standard Definition equipment in HD mode, just plug in. This is ideal for users making the transition to HD production.



HD

SD

PC

HVS-300HS
or
HVS-300RPS

Auto Re-sizing
and
Smooth Switching
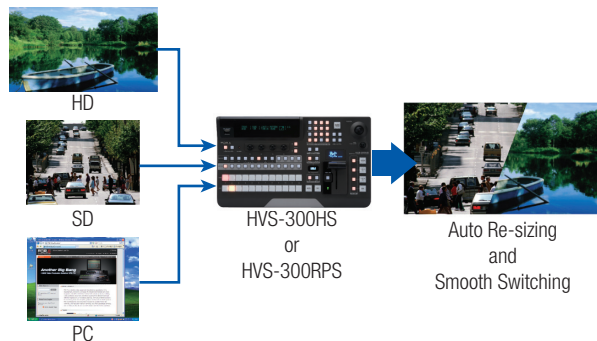
## Interfaces

The HVS-300HS and the HVS-300RPS also supports many types of interfacing, such as RS-422, Editor, ARCNET, Ethernet, GPI and Tally.

## Keyer/DSK

One Keyer and one DSK are as standard features for the HVS-300HS and the HVS-300RPS. The Keyer provides an easy to use broadcast level Chroma Key. Both Keyer and DSK are equipped with a 2D DVE for positioning graphics or over the shoulder shots.

## Transitions/DVEs

For transitions the switcher offer CUT, MIX and over 100 wipe patterns, plus 56 2D/3D-DVE Wipe patterns. It also has separate transitions for the keyers and picture in picture functions. And these effects are can be modified from standard patterns.

## 2 Still Stores

The switcher also comes with 2 dedicated still stores, which can upload or download images (JPEG and TARGA) via the USB port.
The USB port also makes up&down-loading user settings quick and easily.

## 4/10/16 Split Multi Viewer

One of the most popular new features of our switcher is its built in 16-channel multi viewer, a standard feature of the HVS-300HS and the HVS-300RPS. You can freely assign any input or output (program or preview) to the multi viewer, using either its 4, 10 or 16 channel display. The multi viewer also features tally and titling functions so that users always know which signals are going to each output.



Quad-Split

10-Split

16-Split
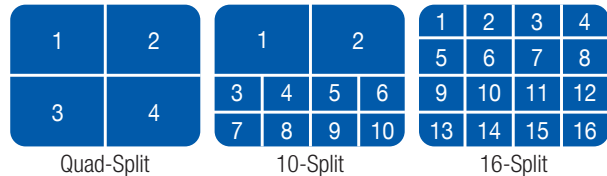
## 2 Picture-in-Picture

For box shots, over the shoulder shots and graphic display, there are two dedicated Picture-in-Picture channels that can display a compressed image of any input from 1% to 25%. These are in addition to the keyer DVEs. Users can also Expand, Squeeze, Crop and add Borders with the dual Picture-in-Picture mode.
These effects can be assigned to user buttons so that fade-ins, fade-outs, slide-ins and slide-outs for Picture-in-Picture transitions can be operated by single button operations.
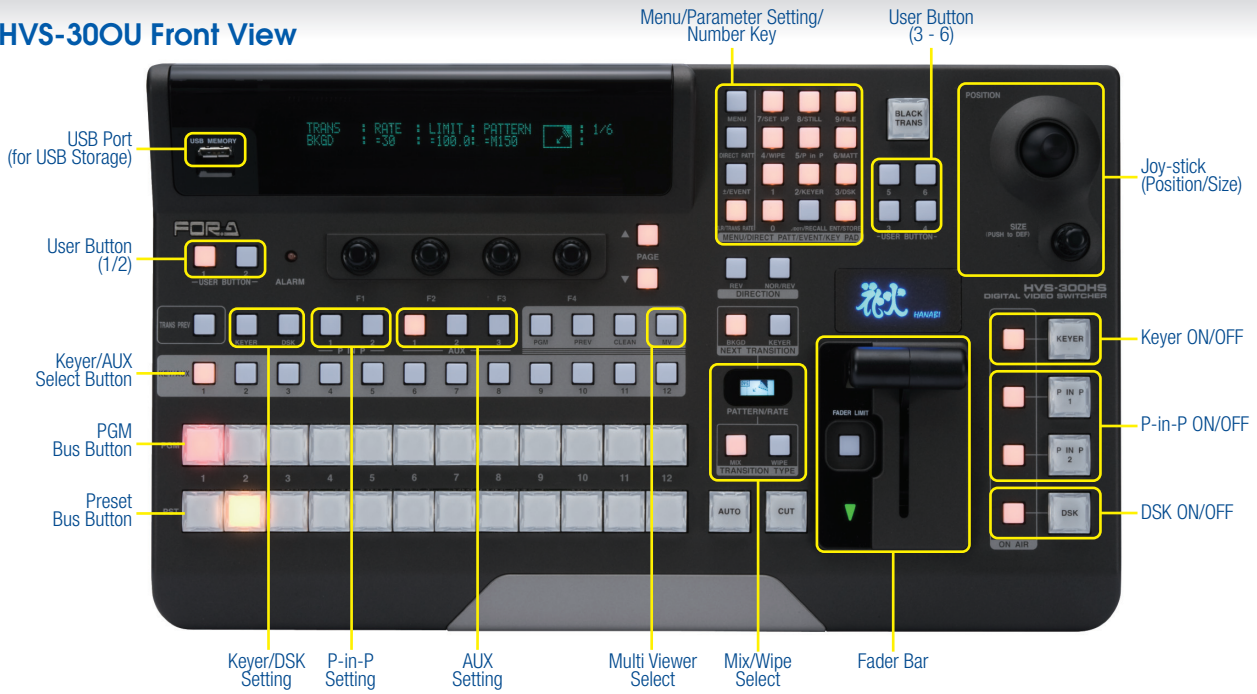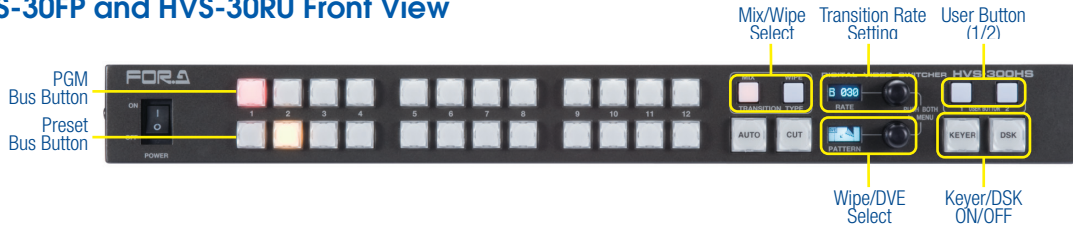


## OSD (On-screen Display)



OSD image

OSD is provided for access to controls from every control panels to allow switcher settings to be displayed on a preview output so that configurations can easily be modified and status verified at a glance.
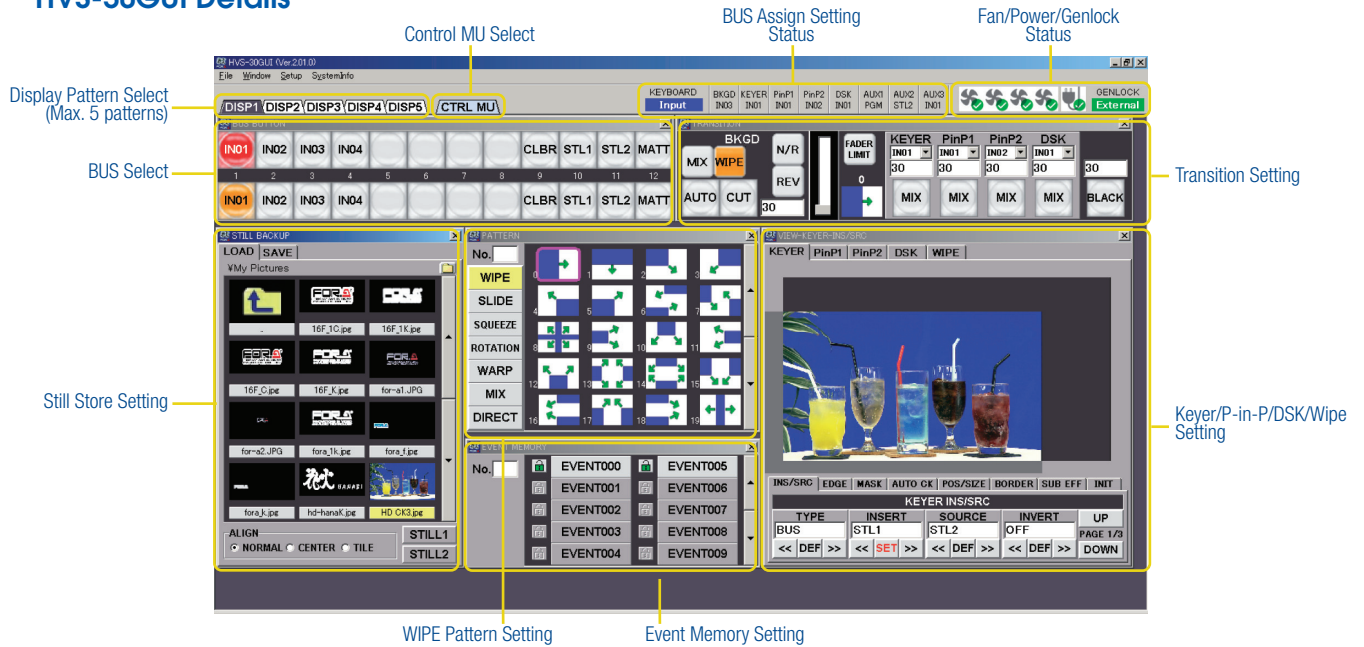
## HVS-30OU Front View

- USB Port (for USB Storage)
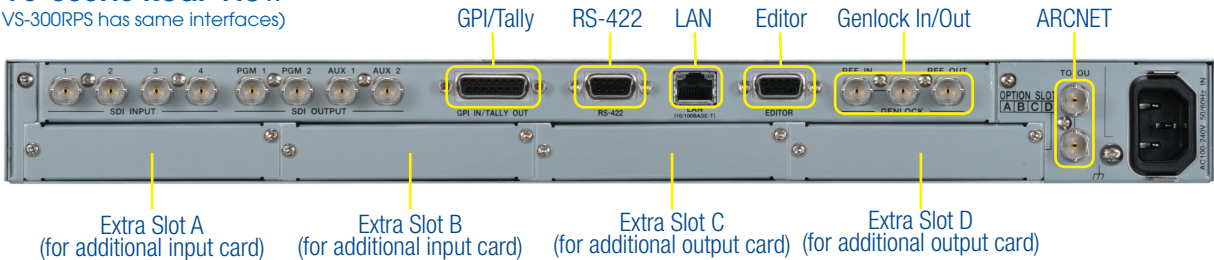- User Button (1/2)
- Keyer/AUX Select Button
- PGM Bus Button
- Preset Bus Button

- Menu/Parameter Setting/Number Key
- User Button (3 - 6)
- Joy-stick (Position/Size)
- Keyer ON/OFF
- P-in-P ON/OFF
- DSK ON/OFF

TRANS : RATE : LIMIT : PATTERN : 1/6
BKGD : =30 : =100.0: =M150

- Keyer/DSK Setting
- P-in-P Setting
- AUX Setting
- Multi Viewer Select
- Mix/Wipe Select
- Fader Bar

## HVS-30FP and HVS-30RU Front View

- PGM Bus Button
- Preset Bus Button

- Mix/Wipe Select
- Transition Rate Setting
- User Button (1/2)

B 030
RATE

- Wipe/DVE Select
- Keyer/DSK ON/OFF

## HVS-30GUI Details

- Control MU Select
- BUS Assign Setting Status
- Fan/Power/Genlock Status
- Display Pattern Select (Max. 5 patterns)
- BUS Select
- Still Store Setting
- Transition Setting
- Keyer/P-in-P/DSK/Wipe Setting

- WIPE Pattern Setting
- Event Memory Setting

## HVS-300HS Rear View

(HVS-300RPS has same interfaces)

- GPI/Tally
- RS-422
- LAN
- Editor
- Genlock In/Out
- ARCNET

- Extra Slot A (for additional input card)
- Extra Slot B (for additional input card)
- Extra Slot C (for additional output card)
- Extra Slot D (for additional output card)

# Options

The HVS-300HS/300RPS can have up to 12 inputs and 8 outputs when optional I/O cards are installed. There are four extra slots available, 2 for inputs and 2 for outputs. These can be used with optional I/O cards for HD/SD-SDI, Analog Component, Analog Composite, DVI and Analog RGB signals.

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

Rear Panel

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

Rear Panel

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

Rear Panel

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-AUX8/16  AUX Remote Panel

HVS-AUX8

HVS-AUX16

An 8-button or 16-button type AUX remote control panel is provided. The 8-button unit is half-rack size and 16-button unit is 1 RU 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: AUX remote panel (8/16 buttons)
 - Extensions kit: HVS-AUX8RK (for HVS-AUX8), HVS-AUXRK (for HVS-AUX16)

## HVS-30S3D  3D Monitoring Software

A stereoscopic 3D option enables simultaneous switching of the two channels left and right. Field sequential output is also possible, making it easy to check video. While not meant for regular viewing, since switching takes place in field units, it is valuable for checking the status of stereoscopic 3D video onsite.

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

HVS-TALOC32

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-350HS.
 - 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).
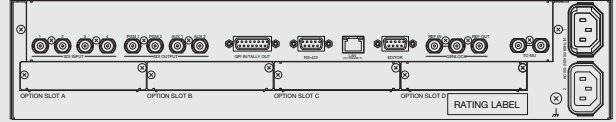
## HVS-30ED  Editor Interface Software

This is a software for supporting editing machine protocol. It supports BVS-300 and GVG-100 protocol.
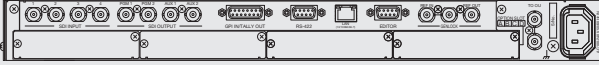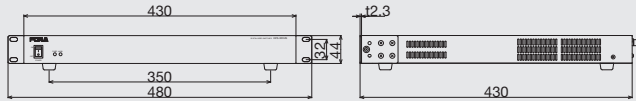
# Dimensions

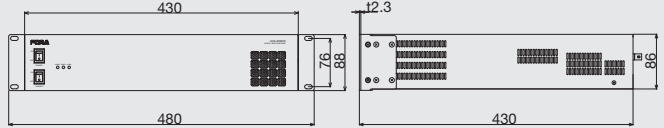### HVS-30FP/30RU Front View

### HVS-300HS Rear View

### HVS-300HS External Dimensions

430
350
480
t2.3
430

### HVS-300RPS Rear View

OPTION SLOT A    OPTION SLOT B    OPTION SLOT C    OPTION SLOT D    RATING LABEL

### HVS-300RPS External Dimensions

430
480
76 88
t2.3
430
86

### HVS-30OU External Dimensions

S/No.LABEL
(87.2)
246
420
(64.6)
(87.1)
402
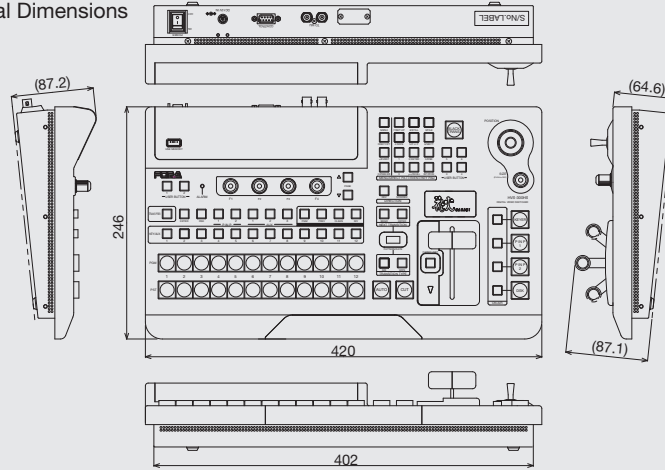
# Block Diagram

# Specifications

| | |
|---|---|
| Number of M/Es | 1 M/E |
| Control Panel | 3 types |
| | HVS-300U: 1M/E 12-button model |
| | HVS-30RU: 1M/E 12-button model (OSD menu display) (HVS-30FP: 1 M/E 12-button panel kit) |
| | HVS-30GUI: GUI application (PC required) |
| Video Formats | 1080/59.94i, 1080/60i, 1080/50i, 1080/24PsF, 1080/23.98PsF, 1080/25PsF, 1080/29.97PsF, 1080/30PsF, 720/59.94p, 720/60p, 720/50p |
| | 525/60 (NTSC) , 625/50 (PAL) |
| Video Input | HD-SDI: 1.5 Gbps or SD-SDI: 270 Mbps 75Ω BNC x 4  * 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) (HDCP incompatible), XGA to WXGA (720p) (HDCP incompatible), VGA to XGA (SD) (HDCP incompatible) |
| | RGB: XGA to WUXGA (1080i), XGA to WXGA (720p), VGA to XGA (SD) |
| Number of Inputs | Standard: x 4 (SDI), Max.: x 12 (with HVS-30HSDI x 2 or HVS-30HSDI-A x 2) |
| Video Output | HD-SDI: 1.5 Gbps or SD-SDI: 270 Mbps 75Ω BNC x 4 (PGM x 2, AUX1 and 2) |
| Video Output (optional) | |
| HVS-30HSDO | HD-SDI: 1.5 Gbps or SD-SDI: 270 Mbps 75Ω BNC x 2 |
| HVS-30HSAO | HD analog component, SD analog component, Analog composite |
| HVS-30PCO | DVI-D: SXGA to WUXGA/HDTV (1080i) (HDCP incompatible), SXGA/WXGA (720p) (HDCP incompatible), SVGA (SD) (HDCP incompatible) |
| | RGB: SXGA to WUXGA (1080i), SXGA/WXGA (720p), SVGA (SD) |
| | YPbPr: HDTV(1080i) |
| Number of Outputs | Standard: x 4 (SDI), Max.: x 8 (with 2 output cards) |
| AUX Outputs | Standard: x 2, Max.: x 3  * OSD menu is available on a PREV output screen |
| Signal Processing | 4:2:2 Digital component |
| Quantization | HD/SD-SDI: 10-bit |
| Effect | WIPE: 100 patterns, Border and Softness,  DVE: 56 patterns or more (2D and 3D) |
| Transition | Execution: Fader lever, AUTO or CUT button,  Type: MIX or WIPE (DVE included),  Transition Preview function |
| Still Store | 2 channels (with backup feature) |
| Keyer/DSK | 2 channels (KEYER x 1 + DSK x 1) of Bus, Luminance or  Full key, 2D DVE on each channel,  KEYER: Chroma key and Edge/Shadow effect |
| P in P | 2 channels (up to 1/4 of the full screen size) with Mix, Slide or Scaling effect |
| Multiviewer | 4-, 10- or 16-way split views with title and tally display |
| Process Amp | Process Amp feature on each input |
| Event Memory | 100 events |
| 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: -1/2 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 | 1 H (minimum delay),  1 to 2 frames + 1 H (when FS or Up-resize engine used:) |
| | 2 to 3 frames + 1 H: (when FS or Up-resuze engine plus DVE used),  3 to 4 frames + 1 H: (when FS or Up-resize engine plus Output resize engine and DVE used) |
| Interfaces | Ethernet: 10BASE-T RJ-45 x 1 * For HVS-30GUI connection |
| | GPI IN/TALLY OUT: 15-pin D-sub (female) x 1, 6-input/6-output, TTL negative logic pulse or Make-contact |
| | TALLY OUT (with HVS-30TALR): 37-pin D-sub (female) x 1 (with inch screws), Make-contact (18 outputs added per card, up to 2 cards available) |
| | RS-422: 9-pin D-sub (female) x 1 (with inch screws)  * For HVS-30RU and tally unit connection |
| | EDITOR: 9-pin D-sub (female) x 1 (with inch screws), BVS-3000 or GVG protocol |
| | ARCNET: 75Ω BNC x 1, loop-through (Terminate with 75Ω terminator, if unused.)  * For control panel and AUX remote panel connection |
| Temperature / Humidity | 0ºC to 40ºC / 30% to 90% (no condensation) |
| Power | 100 V AC to 240 V AC ±10%, 50/60 Hz |
| Consumption | HVS-300HS: 191 W (at 100-120 V AC) 211 W (at 220-240 V AC) — HVS-300RPS: 224 W (at 100-120 V AC) 221 W (at 220-240 V AC) |
| | HVS-300U: 23 W (at 100-120 V AC) 25 W (at 220-240 V AC) — HVS-30RU: 26 W (at 100-120 V AC) 29 W  (at 220-240 V AC) |
| Dimensions / Weight | HVS-300HS: 430 (W) x 430 (D) x 44 (H) mm / 8 kg (in Standard), 10 kg (in Full Option) — HVS-300RPS: 430 (W) x 430 (D) x 88 (H) mm / 9 kg (in Standard), 11 kg (in Full Option) |
| | HVS-300U: 420 (W) x 246 (D) x 87.2 (H) mm / 3 kg — HVS-30RU: 430 (W) x 42 (D) x 44 (H) mm / 1 kg |
| Consumables | Power supply unit: Replace every 5 years, Cooling fan: Replace every 6 years |
| Accessories | Manual, AC cord, Rack mount brackets and BNC cable (10 m) |
| Options | HVS-30HSDI: SDI Input card w/ up-resize engine,  HVS-30HSDI-A: SDI Input card w/o up-resize engine,  HVS-30HSAI: Analog Input card,  HVS-30PCIN: PC Input card, |
| | HVS-30HSDO: SDI Output card,  HVS-30HSAO: Analog Output card,  HVS-30PCO: PC Output card,  HVS-30TALR: Tally Relay Output card (18-output), |
| | HVS-30ED: Editor Interface software,  HVS-30VR: Virtual Link software,  HVS-30S3D: 3D Monitoring software,  HVS-AUX8/16/32: AUX Remote Control Unit, |
| | HVS-TALR20/32: Tally Relay Output unit (20/32-output),  HVS-TALOC20/32: Tally Open Collector Output unit (20/32-output) |

# PC Requirements for HVS-30GUI

| | |
|---|---|
| OS | Microsoft® Windows® XP Professional SP2 or higher, Microsoft® Windows® Vista Home Premium or higher |
| CPU | Intel® Pentium 4 Processor  1.2 GHz or higher |
| Memory | 512 MB or more |
| HDD | 20 MB or more free space |
| Graphics | 1280 x 768 pixels or higher resolution, 24-bit color, Graphics card with 64 MB or more  memory (OpenGL 1.0 or 2.0 supported) |
| Interfaces | Ethernet: 10BASE-T/100BASE-TX, 1 port |