3G/HD/SD Video Switcher
HVS-490 "HANABI"
Our production switcher leverages the creative power of the HANABI series.

The HVS-490 switcher offers flexible expansion, opening the door to even more affordable 4K production. Exclusive MELite™ technology extends the switcher’s 2 M/E s to offer 6 M/E performance.*1 Expand your switching capabilities even more by assigning FLEXaKEY™ or feature rich 2.5D DVE, for compositing with up to 12 keyers. Take advantage of this truly broad range of switching in live production.

*1 Using an optional HVS-49I0 card. In 4K mode, 1 M/E + 1 MELite is available.
Highlights

1. MELite™
MELite expands the capabilities of AUX transitions. With an AUX bus, users can preview transitions before executing them, and enjoy the same control over AUX output as for PGM or PST. Two MELites are provided, and an optional HVS-49IO card brings the total to four. Assigning FLEXaKEY to a MELite expands the system, adding the equivalent of two M/E buses to the standard two Full M/E’s and bringing the total available to four. 4-6 M/E performance is possible in this 2 M/E switcher.
- Preview output from an AUX bus when applying transitions (cut, mix, or wipe) or keying. This ground-breaking technology makes sure your production is ready for virtually any request.
- For greater impact and more sophisticated switching, MELite can be assigned before M/E buses.
- Any M/E can be assigned to multiple on stage monitors for independent background transitions and graphics transitions all from the same control panel.

2. FLEXaKEY™
Special FLEXaKEY keyers are designed for flexible reassignment. The four FLEXaKEYs provided operate separately from standard keyers of the full M/E buses. Easy keying of four different FLEXaKEYs in any AUX bus is another feature that enables impressive performances beyond the reach of conventional switchers.
- Quad FLEXaKEY system can be freely assigned to M/E or AUX buses. Combine up to eight keyers for an M/E bus (4 keyers + 4 FLEXaKEYs).
- P-in-P display is possible using an AUX bus, and assigning FLEXaKEY to an MELite enables use as an upstream key.
- FLEXaKEY can also be applied to create a multi-monitor video wall with a single HVS-490.

Sophisticated performances using MELite and FLEXaKEY:

-2 By adding HVS-49IO
-3 In 4K mode, 1 M/E + 1 MELite

3. DVEs
Choose from cut, mix, or wipe transitions. In addition to 100 wipe patterns, the switcher offers 16 useful 2.5D DVE wipes such as rotate, perspective and reposition. Other rich effects include mosaic, posterization, pseudo color and defocus are also provided.

4. Extensive input/output
16 video inputs are provided, expandable to 40, along with 9 video outputs (including 1 HDMI port) that are expandable to 22 (including 2 HDMI ports). For 4K*, 8 to 10 inputs and 6 to 7 (including 2 HDMI ports) outputs (expandable to 7) are provided. See “Options” for details on expansion cards.

*4 HVS-49IO and HVS-49EXP4K are required for supporting 4K.
5 Standard multi viewer output
The HVS-490 provides three displays (two displays in SD mode) of multi viewer output, each supporting up to 16-split display in 4K 2SI mode and up to 4-split display in 4K SQD mode. More than 10 screen layouts each are available. This provides an optimal monitoring environment for both the main operator and other users. 4K output is supported via HDMI 2.0 Level B. Monitor four images on one screen via HDMI outputs.

6 AES digital audio I/O (optional*)
Offers ability to demultiplex AES audio from video/clip input and multiplex AES audio into video output. Use an internal sampling rate converter to sync audio input to the system.
* With HVS-49AES expansion card

7 2SI/SQD 4K mode (optional*)
The switcher processes 4K video from the quad 3G-SDI output of 4K cameras in 2SI (2-sample interleave) or SQD (square division) format.
* With HVS-49EXP4K software and HVS-49IO card. Please see Page14 and Page15 for 4K mode specification.

Example of 4K system configuration
The HVS-490 was designed with future 4K upgrading in mind. By adding optional expansion cards, it provides up to 10 4K inputs and 6 outputs or 8 4K inputs and 7 outputs.
What’s more, unique use of AUX buses enables a 4K switcher to have the equivalent of 1-1.5 M/E features.
Applications

Live staging
The HVS-490 has an incredibly powerful feature set that makes it ideal for live staging and event applications where systems must be set up quickly and temporarily. Event memory and macro functions make it easier to prepare for performances. MELite eliminates the need to have several switchers ready for multi-monitor staging, greatly reducing the equipment required. It’s essential to keep production simple and easy to prevent mistakes and help operators focus on staging.

Mobile OB and Up-Link production trucks
With its robust feature set, the HVS-490 is perfect for small mobile video production or Up-Link where space is limited. The HVS-490 switcher offers a rich feature set perfect for live or recorded production. With integrated frame synchronizers and multi viewers, the HVS-490 can reduce the amount of equipment required in the truck. Using multiple FOR-A control panels, the system can also provide an environment for several operators each in charge of separate tasks - for example one for the main event and a second for a web cut of the same event.

Full-featured control

■ Frame Synchronizer
Every input in the HVS-490 is outfitted with frame synchronizers that enable switching of synchronous and asynchronous video signals. Installation of optional expansion cards supports asynchronous input signals from PCs, etc. Each input is also equipped with a process amplifier capable of adjusting the video level, chroma level, and hue of the input signal.

■ Re-sizing Engine
Up re-sizing feature is provided on 4 of the standard inputs. This achieves a fully mixed SD/HD environment with the HVS-490. This is ideally suited for re-sizing not only SD signals but also PC video.*7

*7 With HVS-100PCI PC input card

■ Audio playback support
Available during Graphic-Wipe transitions is the ability to play back audio with video in the internal media players and integrate sound effects.

■ External Interfaces
Plentiful interfaces include GPI IN (19 inputs), GPI IN/TALLY OUT (22 outputs), Alarm output (cooling fan, power), RS-422 (for editing or other interfaces), and Ethernet (for control from a computer). GPI ports on the operation unit also support up to 6 inputs and 6 outputs.

■ Macro Function
A macro function enables you to store and register a series of operations and then perform complicated operations with one push of a button.
Keyer

For HD input, 2.5D DVEs can be assigned to all four keyers of each M/E and all four FLEXaKEYs.* The four chroma keys provided can also be assigned to each keyer or FLEXaKEY. Edge effects (configurable up to 8h) are also available for each keyer as a standard feature.

*8 With 1080/59.94p or 1080/50p input, assigning 2.5D DVEs to all keyers at the same time requires an optional HVS-49DVE. Share up to 8 DVEs among keyers, FLEXaKEYs, and transitions in a standard configuration.

Event Memory/User Button

Up to 100 registers of control panel configurations can be stored as events. Event memories can be recalled easily from the user buttons on the control panels and remote control panels. Operators can freely set the transition durations and effects. By storing events in advance, operators can use event memories to make performances more exciting and expressive, simply by pressing buttons during the event. And because a variety of HVS-490 functions can be freely assigned to user buttons, operators can customize control panels as they wish.

GUI Control Function

Thanks to a built-in Web server, the HVS-490 can be controlled from a computer connected via Ethernet. Settings can also be adjusted from mobile devices connected via Wi-Fi to a local access point.

Color Corrector Function

4 color correctors are available per M/E.

Sequence Function

Up to 30 patterns can be registered.

4 Still/Clip Stores

Load video input signals or PGM output signals as stills,*9 or import data (either stills or clips with up to 440 frames) created on a computer for use as wipes. Stills and clips are loaded from a control panel and computer. Using the backup feature, you can also save stills or clips to an optional SSD in the switcher to load the data when the HVS-490 is restarted.

*8 JPEG, TGA, and BMP supported

Convenient Control Panels

Choose from HVS-491OU, HVS-492ROU, HVS-492OU or HVS-492WOU panels to suit your applications. Advantages include enhanced usability and accurate control through customizable RGB button lights assigned to specific video material or button functions, an OLED display for material, a 7-inch touch panel, source and macro name display, and more. Direct input via a three-axis (XYZ) joystick, menu control knobs, and a keypad. A range of functions can also be assigned to user buttons in convenient locations on the control panel. Use an SD card to load or save configuration files and stills. Remote setup, control, and previews are possible via the switcher’s internal Web server.

*9 JPEG, TGA, and BMP supported
Options

Software

**HVS-49EXP4K**
4K Expansion Software
Adds support for 4K (3840 x 2160/59.94p, 50p, 2SI/SQD) input and output.*10

*10 HVS-49IO is required.

**HVS-49ED**
Editor Interface Software
Adds support for protocols used for editing on other video systems (BVS/DVS, GVG).

**HVS-49SD**
SD Expansion Software
Adds support for SD (625/50i, 525/60i) signals.

Expansion cards

Add the number of interfaces or the extended features you need by installing expansion cards in the three slots.

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**HVS-49IO**
3G/HD-SDI Input/Output, HDMI Output Card
16 3G/HD-SDI inputs, 8 outputs, and 1 HDMI output are possible with a single card. A frame synchronizer function for all inputs and re-sizing (expansion) function for 4 inputs are provided. SD images can be processed internally as HD images. Compatible with both Level-A and B signal input when 3G-SDI signals are supplied. (Level-B signals are automatically converted to Level-A.)

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**HVS-100DI-A**
3G/HD/SD**11**-SDI Input Card
4 channels of 3G/HD/SD-SDI input are possible with a single card. A frame synchronizer function for all inputs and re-sizing (expansion) function for 2 inputs are provided. Compatible with both Level-A and B signal input when 3G-SDI signals are supplied. (Level-B signals are automatically converted to Level-A.)

*11 HVS-49SD is required.

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**HVS-100DO**
3G/HD-SDI Output Card
2 channels of 3G/HD/SD-SDI**11** output are possible with a single card. As down-converters are provided for all outputs, HD and SD images can simultaneously be output.

*11 HVS-49SD is required.

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**HVS-49AES**
Digital Audio I/O Card
Supports 4 lines (8 channels) of balanced or unbalanced audio input and output.

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**HVS-49DVE**
2.5D DVE Expansion Card
Supports 8 channels of DVE output as standard at 1080/59.94p, 50p. With a single card, DVEs are available for all keyers and FLEXaKEYs when 1080/59.94p, 50p and 4K formats are used.
### HVS-100PCI  
available for slot A or B  
**PC (HDMI/VGA) Input Card**

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

### HVS-100PCO  
available for slot A or B  
**PC (HDMI/VGA) Output Card**

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

#### Resolutions supported by input cards

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<th>HD mode&lt;sup&gt;<strong>ii</strong>&lt;/sup&gt;</th>
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<th>720/50p</th>
<th>SD mode&lt;sup&gt;<strong>i</strong>&lt;/sup&gt;</th>
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<td>1920 x 1080/29.97p (HDTV)</td>
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<td>720/59.94p</td>
<td>1024 x 768/60Hz (XGA), 1280 x 1024/60Hz (SXGA), 1280 x 768/60Hz (WXGA), 1600 x 1200/60Hz (UXGA), 1920 x 1200/60Hz (WUXGA), 1920 x 1080/59.94p (HDTV)</td>
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<td>1920 x 1080/25PsF (HDTV)</td>
<td>1280 x 1024/50Hz (SXGA), 1600 x 1200/50Hz (UXGA), 1680 x 1050/50Hz (WXGA), 1920 x 1200/50Hz (WUXGA), 1920 x 1080/50i (HDTV)</td>
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*<sup>12</sup> HDCP-incompatible

*<sup>13</sup> Distortion occurs with 25 or 50 fps source video at a refresh rate of 60 Hz.
Other options

HVS-AUX16A/AUX16C/AUX32A/AUX64A
AUX Remote Control Panel
16- and 32-button models are 1RU size, and 64-button models are 2RU. Up to 10 AUX units can be connected via Ethernet. Greatly expand switcher versatility by assigning AUX source previews or a variety of functions to each button.

HVS-49PSM/49PSO
Redundant Power Supply Unit
HVS-49PSM provides a redundant power supply for HVS-490. HVS-49PSO is available for HVS-491OU, HVS-492ROU, HVS-492OU or HVS-492WOU.

HVS-TALR20/32
Tally Interface Unit
Connect up to three of the following half-rack tally units to a single HVS-490.
- HVS-TALOC32: Open-collector, 32 contacts
- HVS-TALR32: Relay, 32 contacts

HVS-49SSD240G
SSD Expansion Option
SSD for storing stills and clips or any other data.

HVS-AUX16B/AUX16D
Tabletop AUX Remote Control Panel
16-button tabletop AUX remote control panel.

Accessories

AC Cord, EIA Rack Mount Brackets, CD-ROM(OU user manuals(PDF file)), Quick Setup Guide

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