V-1200HD Multi-format Video Switcher

Video	
Processing	4: 4: 4 (Y/Pb/Pr / RGB), 10-bit / 4: 2: 2 (Y/Pb/Pr), 10-bit
Input Connectors	3G/HD/SD-SDI: BNC type x 10 * Conforms to SMPTE 424M (SMPTE 425M-AB), 292M, 259M-C HDMI: type A x 2 (HDMI INPUT 1-2) * HDCP Not supported HDMI: type A x 2 (HDMI INPUT 3-4) * HDCP Supported., Multi-format Supported.
Output Connectors	3G/HD/SD-SDI: BNC type x 6 * Conforms to SMPTE 424M (SMPTE 425M-AB), 292M, 259M-C HDMI: type A x 2 (HDMI OUTPUT 1-2) * HDCP Supported HDMI: type A x 2 (HDMI OUTPUT MULTI-VIEW 1 * HDCP Not required, 1080/59.94p) (HDMI OUTPUT MULTI-VIEW 2 * HDCP Required, 1080/59.94p)
Formats	SDI: 480/59.94i(*1), 576/50i(*1), 720/59.94p(*1), 720/50p(*1), 1080/59.94i, 1080/50i, 1080/59.94p, 1080/50p * Conforms to SMPTE 274M, SMPTE 296M, ITU-R BT.601-5 HDMI: 480/59.94i, 576/50i, 480/59.94p, 576/50p, 720/59.94p, 720/50p, 1080/59.94i, 1080/50i, 1080/59.94p, 1080/50p,1024x768/60(*2), 1280x720/60(*2), 1280x800/60(*2), 1366x768/60(*2), 1280x1024/60(*2), 1400x1050/60(*2),1600x1200/60, 1920x1080/60, 1920x1200/60 * Conforms to CEA-861-E, VESA DMT Version 1.0 Revision 11 * The output format of HDMI1,2 and SDI is always the same. * Frame rate is 59.94(NTSC) or 50(PAL) * MULTI-VIEW 1,2 output is 1080/60p always. (*1)Accommodation through upgrades is planned. (*2)Output refresh rate is 75 Hz when frame rate is set to 50Hz.
Effects (4:2:2 Processing)	M/E: 1 M/E, 1.5 M/E, 2 M/E (9 patterns) Transition: Mix, NAM(*3), FAM(*3), Cut, Wipe Composition (Keyer): 4 (PinP, Luminace Key, Chroma Key, External Key supported) AUX: 2 Others: Output Fade, Output Freeze, Output Capture, Composition Edit, SDI Output Patchbay *These effects depend on M/E type. (*3)PGM/PST only
Effects (4:4:4 Processing)	M/E: 1 M/E, Matrix, Scaler Input: 4 (4:2:2 Processing outputs x 2, HDMI INPUT 3, HDMI INPUT 4) Transition: Mix, Cut Composition(Keyer):1(PinP, Luminace Key) Others: HDCP Supported, Output Fade, Output Cropping, Signal Generator These effects depends on M/E type.
Still Image	Still Image Inputs: 2, Internal Memory: 16, Maximum 1920x1080 pixels Format: Windows Bitmap File (.bmp) 24 bit per pixel, uncompressed, Portable Network Graphic File (.png) * Alpha channel Supported.
Multiviewer	MULTI-VIEW 1 (4:2:2 Processing): 16/10 screens, Label, Tally * HDCP Not required MULTI-VIEW 2 (4:4:4 Processing): 4 screens, Label, Tally, OSD Setup Menu * HDCP Required
Proc. Amp.	Equipped with all inputs
Audio	
Processing	Sampling Rate : 24 bits/48 kHz
Input Connectors	3G/HD/SD-SDI: BNC type x 4 (Ch7-10), HDMI x 4, AUDIO IN (XLR) L (1/2),R (3/4) * Analog Audio or AES/EBU
Output Connectors	3G/HD/SD-SDI: BNC type x 4 (Ch1-4), HDMI x 2, AUDIO OUT (XLR) L (1/2),R (3/4) * Analog Audio or AES/EBU
Input Level and Impedance	AUDIO IN: +4dBu (Maximum: +22dBu, 15k ohms)
Output Level and Impedance	AUDIO OUT: +4dBu (Maximum: +22dBu, 600 ohms)
Formats	SDI: Linear PCM, 24bits, 48kHz, 16ch * Conforms to SMPTE 299M, SMPTE272M-C HDMI: Linear PCM, 24bits, 48kHz, 2ch AES/EBU: Linear PCM, 24bits, 48kHz, 4ch
Effects	Patchbay: 92 inputs x 92 outputs Delay: 16ch Mixer: 16ch, channel Effects: 3-Band EQ, Delay Master Effects: Mastering, 3-Band EQ, Reverb
Others	
Expansion Slot	Slot:2 *Functionality for using the expansion slots is planned to be accommodated through upgrades.
Reference	Input: BNC type×1 *Black Burst(Sync to frames), Bi-level, Tri-level Output/Through: BNC type×1 *Black Burst(Sync to frames)
External Connectors	RS-232: D-Sub 9 pin type x 1 * for Remote Control * 9600/38400bps, Data 8bit, Stop 1bit, Parity None, Flow XON/XOFF, ASCII Code Set RS-422: D-Sub 9 pin type x 1 * for VISCA Control TALLY/GPIO: D-sub 25 pin type x 1 (Input: 8, Output: 16) LAN: RJ45 100Base-TX (Connect to V-1200HDR or Computer (V-1200HDRCS)), Maximum: V-1200HD x 4, V-1200HDR or V-1200HDRCS x 4 USB: A type x 2 USB Mrmory / Use for future expansion
Memory	8 * Last Memory Function
User Function Button	32 * 16 buttons x 2 banks
Remote Camera Control	RS-422: D-Sub 9 pin type x 1 Protocol: VISCA
Remore Controler	V-1200HDR Control Surface * Option V-1200HD RCS
Power Supply	AC 117V, AC 220V, AC 230V, AC240V(50/60Hz) DC 24V(XLR-4-32 type) *Redundant Power Supply
Operation Temperature	+0 to +40 degrees Celsius +32 to +104 degrees Fahrenheit
Dimensions	482(W)×357(D)×133(H)mm 19(W)×14-1/16(D)×5-1/4(H)inches *EIA-3U rack mount size
Weight	9.0 kg 19 lbs 14 oz
Accessories	Power Cord, Rubber Feet(4), Owner's Manual

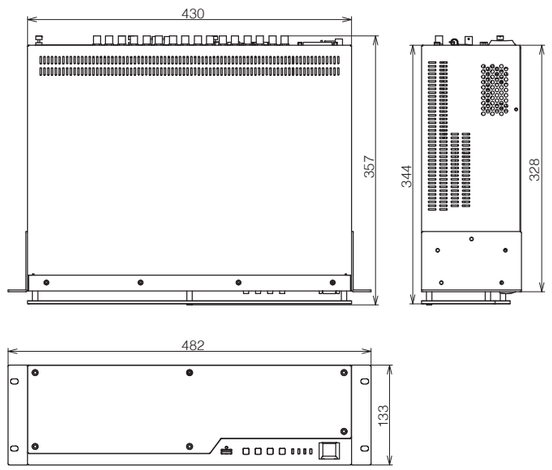
*0dBu=0.775Vrms
*This product is a Class A digital device under FCC part 15.
*In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.

V-1200HDR Control Surface

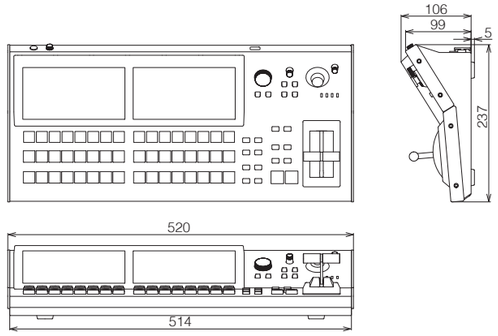
Display	7 inch Graphic color LCD (touch screen) x 2
Video input	HDMI (type A) x 2 * HDCP Supported
Video output	HDMI (type A) x 1 * Use for future expansion
Others	USB: Type A x 1 * USB Memory, USB: Type B x 1 * Use for future expansion LAN: RJ45 100Base-TX (Connect to V-1200HD) PHONES jack: Stereo 1/4-inch phone type×1(80mW+80mW, 32ohms) Internal stereo speakers
Power Supply	AC Adaptor, DC 9V to 16V(XLR-4-32 type) *Can not be used at the same time.
Operation Temperature	+0 to +40 degrees Celsius +32 to +104 degrees Fahrenheit
Dimensions	520(W)×237(D)×111(H)mm 20-1/2(W)×9-3/8(D)×4-3/8(H)inches *Protruding parts not included
Weight	4.3 kg 9 lbs 8 oz
Accessories	AC Adaptor, Power Cord, Owner's Manual

Dimensions

V-1200HD



V-1200HDR



Unit : mm

Roland proav.roland.com

Printed in Japan. Jan. 2016 RAM-20057 BLY-PD

Roland

MULTI-FORMAT VIDEO SWITCHER
V-1200HD

Hybrid Engine 2 M/E Switcher and Processor for Broadcast and Live Event

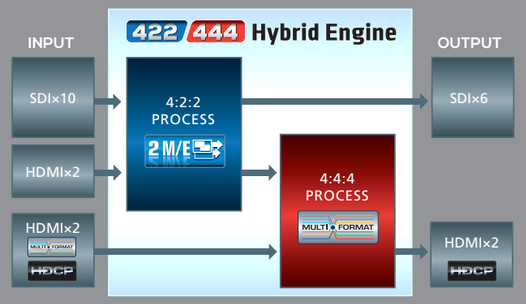
A comprehensive and flexible multi-format video switcher giving you complete control of video sources, key layers and mixing engine configurations. The V-1200HD introduces a unique flexible hybrid engine with 4:2:2 broadcast switcher and 4:4:4 live event switcher. In addition to powerful video capabilities, the V-1200HD also has a built-in 16-channel audio mixer.

- 10 SDI and 4 HDMI inputs, and 6 SDI and 2 HDMI outputs
- 4:2:2/4:4:4 hybrid engine
- The 4:2:2 process functions as a 2 M/E switcher that is able to switch 2 M/E, 1.5 M/E, and 1 M/E.
- The 4:4:4 process functions as a multi-format processor that supports live presentation, split-screen, and matrix output.
- 4K switching mode*1
- Up to 92 Inputs/Outputs 16-channel audio mixer
- Control of up to 7 remote cameras
- Optional control surface with a T-fader and dual displays
- All switcher functions can be operated from a computer using remote control software, V-1200HD RCS
- Input/output expandable via expansion slots*1

MULTI-FORMAT VIDEO SWITCHER
V-1200HD
CONTROL SURFACE
V-1200HDR

Innovative hybrid processing from Roland

In addition to a 4:2:2 video process widely used for video signals, 4:4:4 signals that are the standard output for computers are handled by a separate processing engine 4:2:2 signals can be upsampled to 4:4:4 signals.



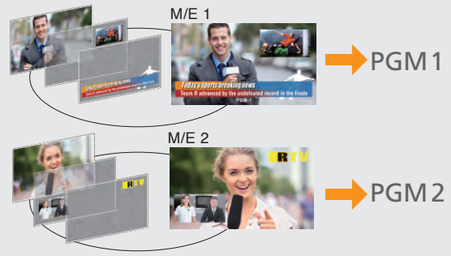
*1 Features to be added by planned firmware update.

Flexible M/E

The 4:2:2 engine's variety of M/E modes allows for more creative freedom.

☐ 2 M/E Mode

This provides a standard two M/E operation style. Two keyers can be used with each M/E. Keyer priority can also be assigned and changed. Not only is re-entry of the video source from M/E 1 to M/E 2 possible, but so is reverse re-entry from M/E 2 to M/E 1. This means you can switch the two M/Es and output them from a single PGM output. The two M/Es can also be output independently allowing for applications such as simultaneous transmission of captions in two different languages.

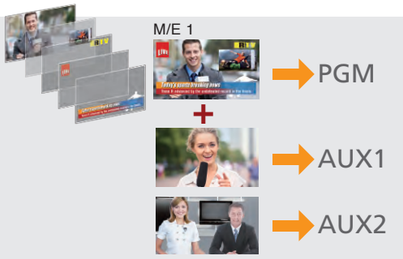


☐ 1.5 M/E Mode

This is the highest-performance operation style, capable of using PGM/PST rows as the final stage in addition to M/E 1. All four keyers can be used in M/E 1. You can freely change the priority of each keyer, and even copy keyers. This mode enables complex mixing operations such as switching a video source with four compositions to another single video source.

☐ 1 M/E Mode

This is a simple operation style using one M/E with four keyers. In addition to using PGM/PST rows on the main line, you can use two AUX buses. In this mode, the V-1200HD can be used as a video distributor or routing switcher making it the ideal primary switcher for a number of broadcast and live performance applications. In cases when you want to use three or more AUXes, using the composition buses lets you achieve up to six additional outputs.



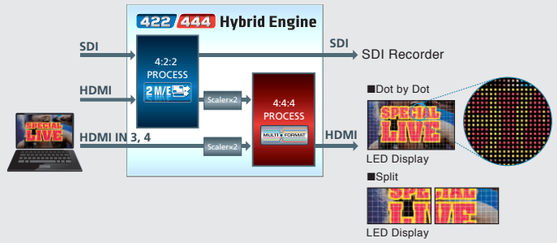
☐ 4K Switching Mode*1

This functions as a 4K/60p routing switcher by combining four SDI inputs or outputs to achieve a single 4K source.

* 4K HDMI input/output is not supported.
* M/Es and keyers cannot be used.

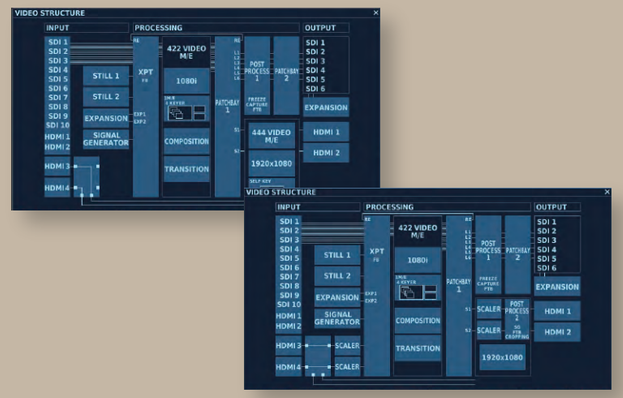
☐ 4:4:4 Multi-Format Processor

There are two scalers between the 4:2:2 engine and the 4:4:4 engine, and two scalers between HDMI IN 3 and 4 and the 4:4:4 engine. These enable switching, self key composition, and matrix output. Signals input from HDMI IN 3 and 4 can be sent to both 4:2:2 process and 4:4:4 process, which means if you choose the latter, you will get clearer computer images. With the scalers you can also display a single picture across two screens.



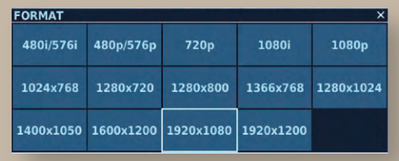
An innovative and flexible system designed to easily realize your full creative potential.

Video Structure

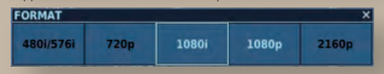


At this screen, you can make video-related settings such as selecting the M/E mode for the 4:2:2 process or changing the connection destinations for HDMI IN 3 and 4. If you want to output HDMI signals with crystal image on large-sized LED and projector displays, you can specify the 4:4:4 process as the connection destination for HDMI IN 3 and 4 here.

Support for a Wide Range of Resolutions



Supported resolutions for the 4:4:4 process



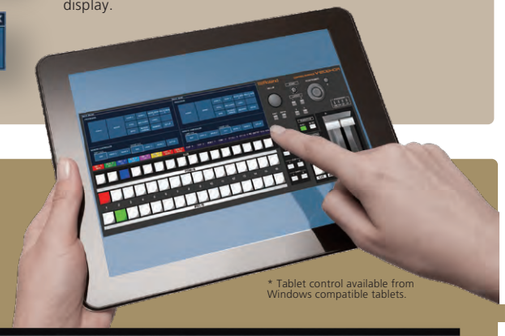
Supported resolutions for the 4:2:2 process
*480/576i, 720p, 2160p will be supported in future updates.

HDMI inputs 3 and 4 and both HDMI outputs are equipped with scalers that support SD through HD, including data resolutions such as 1366x768 and 1920x1200.This makes it possible to input common data resolutions sent from computers without external converters and transmit signals from the V-1200HD that are matched to the native resolution of the destination display.

Audio Structure

Input and output of up to 92 channels of audio embedded in SDI and HDMI signals is possible. Full 16-channel support is provided for SDI audio. A 16-channel audio mixer equipped with EQ, reverb, and delay is also built-in. Powerful patchbay functionality lets you select 16 sources to be assigned to the audio mixer and also accomplish central control of source feeds as a hub not just for video, but for audio as well.

Root Menu



* Tablet control available from Windows compatible tablets.

All functions and setting changes are accessible from the root menu. This instantly calls up the required operation screen from among the large number of parameters. These operations can be performed not only via the dedicated V-1200HDR Control Surface, but also by using the free remote control software, V-1200HD RCS, on a connected computer. You can use the software for off-line system configurations and training operators.

M/E and AUX

Three M/E modes, 1 M/E, 1.5 M/E and 2 M/E, for the 4:2:2 process are provided to meet the needs of your video production. Each M/E mode has multiple patterns of composition and AUX combinations. Usable composition effects include Self Key (Luminance Key and Chroma Key), External Key and PinP. In cases when you need extra AUXes, you can make settings at the PATCHBAY 1 screen to use unassigned composition buses as AUXes.

* Two keyers are used when External Key is selected.

Still Memory

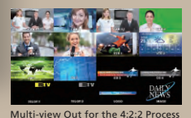
Up to 16 still-images in BMP or PNG format can be stored in the internal memory. The unit supports resolutions up to 1920x1080, and also supports alpha channel for images in PNG format.

Keyers

Features for changing priority and for copying and pasting settings are built into the four channels of composition (keyers). You can instantly access preset settings through store and recall operations using four memory banks. The number of keyers available in each M/E differs according to the format selected as the 4:2:2 process format.

Multi-view

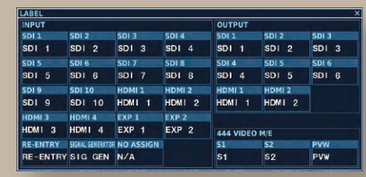
Multi-view Out for the 4:4:4 Process



Multi-view Out for the 4:2:2 Process

Multi-view is indispensable for single-point monitoring of multiple video feeds. The V-1200HD provides two multi-view outputs, MULTI-VIEW 1 for the 4:2:2 process and MULTI-VIEW 2 for the 4:4:4 process. You can assign video sources for the multi-view screen. Three layout patterns are available for the 4:2:2 process.

Assignable Cross-points



Primary inputs are freely assignable to any cross-point location. Quick input changes can be accommodated easily because the source labels follow simultaneously.

A dedicated V-1200HDR controller provides fast and accurate operation. Dual touch monitors provide quick and easy operation.

All the functionality required for operation of a high-end switcher, in an efficient compact size.

CONTROL SURFACE
V-1200HDR

Dual Touch Monitors

These dual touch monitors let you display different GUIs on the left and right. Incoming video signals from the HDMI connectors on the rear panel can also be displayed.

● V-1200HD menus shown on the left and right displays

● The V-1200HD's multi-view output shown on the right display

Cross-point Display

Primary video inputs are freely assignable to any cross-point location. The name of the source appears at the bottom of the display, reducing operation errors.

AUX Bus Buttons

These select video sources output to the AUX buses or video channels used for composition. They also access to assigned user presets.

Cross-point Buttons

This broad range of cross-point switches affords a commanding view of 16 sources at one time.
This is also switchable to either PGM/PST or flip/flop according to operator preference.

Redundant Power

In addition to an AC adapter, the unit can be powered by a 12V battery. Connecting both at the same time provides redundant power.

Phones Jack

This monitors the HDMI audio input into the console.

Value Knob

The large value knob and exit/enter buttons allow you to adjust value settings instantly.

Audio Master Volume

This adjusts the volume level of mixed audio.

Positioner

The positioner used for adjusting X, Y and Z parameters provides flexible control of the remote cameras.

Layout Buttons

These save screens displayed on the monitors as presets and recall one when needed.

M/E Transition Selection

Although the control surface is designed in the style of one M/E, you can use these two buttons to switch between the two M/Es.

T-fader

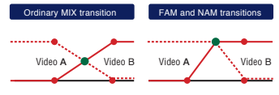
The large T-fader provides precise manual operation for switching.

Transition Block

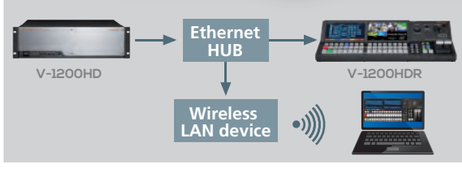
Transition buttons provide accurate, full control of operations for the next take.

● Examples of Wipe Patterns

Along with standard MIX, NAM and FAM transitions are also built in. With NAM, mixing proceeds from the picture's brightest areas, and during the FAM transition, the luminance level of both Bus A and Bus B maintain at a certain level.



■ Setup Example



LAN Port

An Ethernet cable connects the V-1200HDR to the main unit. Using an Ethernet hub lets you connect up to two controllers, V-1200HDR units or computers on which the dedicated remote control sofware V-1200HD RCS is installed, to the V-1200HD.

* Use a Cat 5e or higher cable for connection.

HDMI Input

You can input video to the dual monitors. If you connect the main unit's multi-view outputs to the V-1200HDR's HDMI inputs, the multi-view content will display on the V-1200HDR's built-in screens.

* HDCP supported

HDMI Output

This is for future expansion.

Delegation Block

These change the selection targets for the AUX bus buttons.

Multi-format support for a diverse range of inputs and outputs. Two expansion slots are provided for even more compatibility.

MULTI-FORMAT VIDEO SWITCHER
V-1200HD

USB Port

Along with importing still images for storage in internal memory, this is used for saving and loading settings for the V-1200HD as well as for updating the firmware.

Menu Buttons

LED Status Indicators

These monitor the status of the connection between the main unit and the control surface, the cooling fan and the power supply.

TALLY/GPIO Connector

This connects to a video monitor capable of tally input or a tally light system to illuminate the tally lamps.You can also use it to transmit and receive control signals between the unit and an external device.

SDI Input

The ten SDI inputs support 3G, HD, and SD. All inputs are equipped with color correction.

* SDI IN 7 through 10 each supports 16 channels of embedded audio input.

SDI Output

The six SDI outputs support 3G, HD, and SD. Each output is individually switchable to PGM, FTB, and still image.

* SDI OUT 1 through 4 can each embed 16-channel audio.

4:2:2 HDMI Input

Dedicated HDMI inputs for 4:2:2 process with color space selection and color correction.

* HDCP is not supported.

* HDMI IN 1 and 2 each support the upper two channels of embedded audio input.

LAN Port

An Ethernet cable connects the console and the main-unit processors. Using an Ethernet hub lets you connect up to two controllers, V-1200HDR units or computers on which the dedicated remote control sofware V-1200HD RCS is installed, to the V-1200HD.

XLR Audio Input/Output

Either two analog channels or four AES/EBU channels are selectable for the XLR audio input/output connectors. (Input and output share a common format.)

Multi-view Output 2

Video in the 4:4:4 processor can be monitored via MULTI-VIEW 2.

* Using an HDCP-compatible display for monitoring is recommended.

Multi-view Output 1

Video in the 4:2:2 process can be monitored via MULTI-VIEW 1. An ordinary computer display can be used for monitoring.

* HDMI IN 1 and 2 each supports the upper two channels of embedded audio input.

USB Port

This is for future expansion.

Remote Connectors

The RS-422 connector allows you to connect and control VISCA-compatible cameras. The RS-232 connector is used for remote control from an external device.

* "VISCA" is a trademark of Sony Corporation.

Reference

Black burst, 2-value, and 3-value input are supported. In addition to loop-through, installing a generator for output is also supported.

HDMI Output

These output the mixed video by the 4:4:4 process.

4:4:4 HDMI Input

These can be used for both 4:2:2 process and 4:4:4 process. The 4:4:4 process supports HDCP.

* HDMI IN 3 and 4 each supports the upper two channels of embedded audio input.

* 4:2:2 process doesn't support HDCP.

Redundant Power

The V-1200HD accommodates both AC and DC 24V power sources. Connecting both establishes a redundant power supply.

Expansion Slots*1

The unit's functionality can be extended through two expansion slots. These make it possible to add input and output for video and audio.

*1 Features to be added by planned firmware update.

The flexible workflow and functionality supports a wide variety of live production applications.

Broadcast Studios

A wide variety of video effects are ideal for all kinds of broadcast studios.

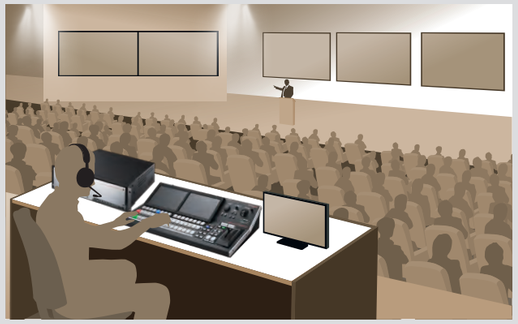
Composition with freely selectable priority can be accomplished using the four scaler-equipped keyers. The system also features high-end Chroma Key, as well as the External Key essential for title compositing. In addition to PGM and PVW output, two AUX buses are usable for output (when in the 1M/E mode).

Live-performance Production

Multiple M/E choices allow for a diverse range of video production applications in one switcher.

The V-1200HD is ideal as a main switcher for concert recording and for a live feed. Through a variety of multi-view functions, even a large number of sources can be checked at a glance. The M/E configuration can be varied as desired to meet the needs of the production. Control up to seven remote cameras ensures creative productions even with limited camera operators.

Events and Conferences



Equipped with HDMI input and output with multi-format support. Freely mix computer and video sources and output to a wide range of displays and devices.

Along with ten 3G/SD/HD-SDI inputs, the V-1200HD features four HDMI inputs. Six 3G/SD/HD-SDI and two HDMI outputs are also provided. Among these, two HDMI inputs and outputs offer multi-format support. Computer sources with varying resolutions and frame rates are supported without a need for video converters. The signal is passed directly to the 4:4:4 process, so it can be output, unchanged, at the same high resolution. What's more, using an XI expansion card with a built-in scaler makes it possible to mix digital and analog inputs and outputs.

Classrooms and Event Halls

Supporting a rich range of control as a video/audio hub.

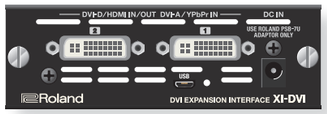
The full-featured routing functionality enables conversion and distribution of a high number of video sources in a variety of formats. The V-1200HD can also achieve remote operation as a video/audio source hub from a variety of control terminals and programs. In addition to just simple video switching, the system also offers functions available only on production switchers, such as distributing PinP video to various locations.

A diverse selection of option cards for video and audio system expansion.

SDI Expansion Interface

XI-SDI

- Equipped with two input and two output SDI connectors.
- Two scalers are built in.
- Connect to 4:2:2 engine



DVI Expansion Interface

XI-DVI

- Equipped with two DVI-I connectors for switchable bidirectional input/output, with support for analog RGB, composite, DVI-D, and HDMI signals.
- Two scalers are built in.
- Connect to 4:2:2 engine

SFP Expansion Interface

XI-SFP

- Base board installable with two SFP modules.
- Connect to 4:2:2 engine

REAC Expansion Interface

XI-REAC

- REAC audio interface.
- Connect 16 input channels and 16 output channels to the internal audio processor.

DANTE Expansion Interface

XI-DANTE

- Dante audio interface.
- Connect 16 input channels and 16 output channels to the internal audio processor.

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MADI Expansion Interface

XI-MADI

- MADI audio interface.
- Connect 16 input channels and 16 output channels to the internal audio processor.

VC-1 Series Video Converters

Converters enabling input/output expansion and format conversion however you like.
These provide support for upgrading systems to achieve low heat generation and lossless conversion.

Scan Converter

VC-1-SC

Conversion of digital signals of SDI and HDMI and analog signals of RGB, component and composite to SDI or HDMI

HDMI to SDI

VC-1-HS

Conversion of video and audio signals from HDMI input to SDI output

FS Delay

VC-1-DL

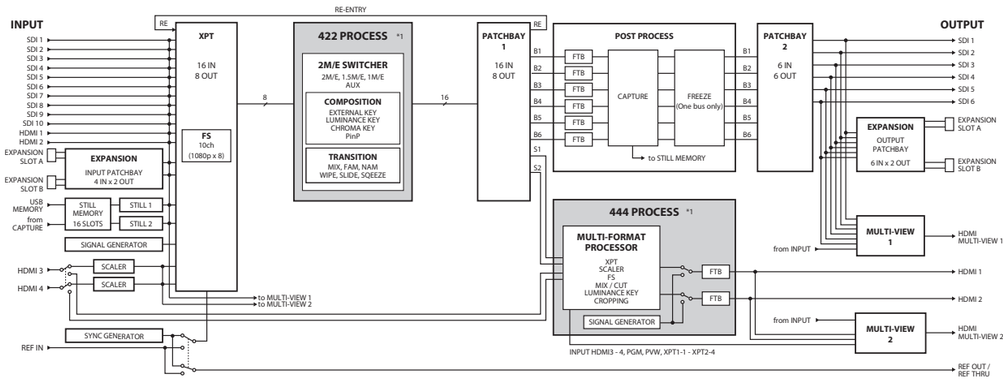
Bi-directional conversion of video and audio signals from HDMI to SDI or SDI to HDMI with Frame Sync and Delay

SDI to HDMI

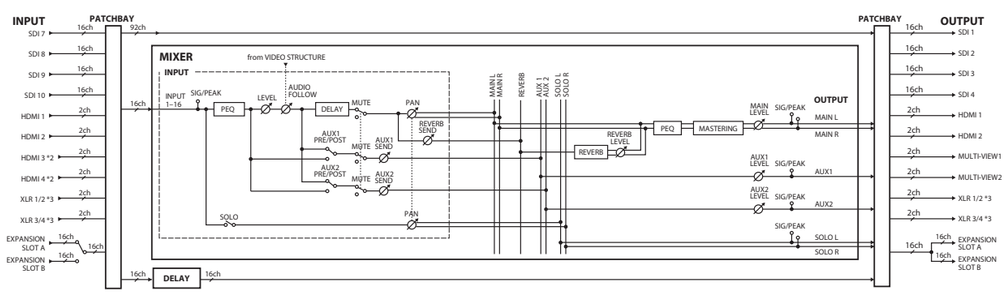
VC-1-SH

Conversion of video and audio signals from SDI input to HDMI output

Video Block Diagram



Audio Block Diagram



*1. When HDCP is on, the input signal can only be output to the XLR analog outputs and the HDMI outputs that are connected to HDCP compliant devices.
*2. When analog is selected, the XLR connectors are mono only.