V-800HD

MULTI-FORMAT VIDEO SWITCHER

Roland

3G-SDI	HD-SDI	SD-SDI	DVI-I	DVI-D	DVI-A
HDMI	RGB	COMPONENT	COMPOSITE	STILL IMAGE	HDCP

Monitor not included.

3G bps 1080p

MULTI FORMAT

Picture Quality at the Pinnacle of High Definition.

Eight Multi-Format Channels with Independent Scalers.

A Variety of Output Formats including a Built-in Multiviewer.

Stellar Image Quality at 1080p (3G-SDI)

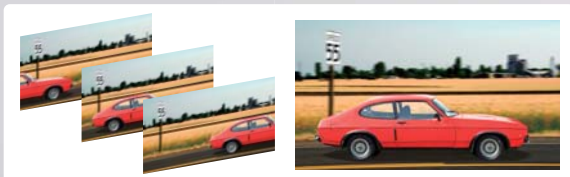Supports 1080p video signals at bit rates as high as 3 Gbps — twice the rate of conventional HD.
Asserts all the vividness of high-realism, high-detail camera and computer sources.

3G bps 1080p

■ **Interlaced (1080i)**

■ **Progressive (1080p)**

True Multi-format Performance

There's no need to convert the input source to match the video output format. The built-in scalers up-convert and down-convert any video source to the optimal resolution.
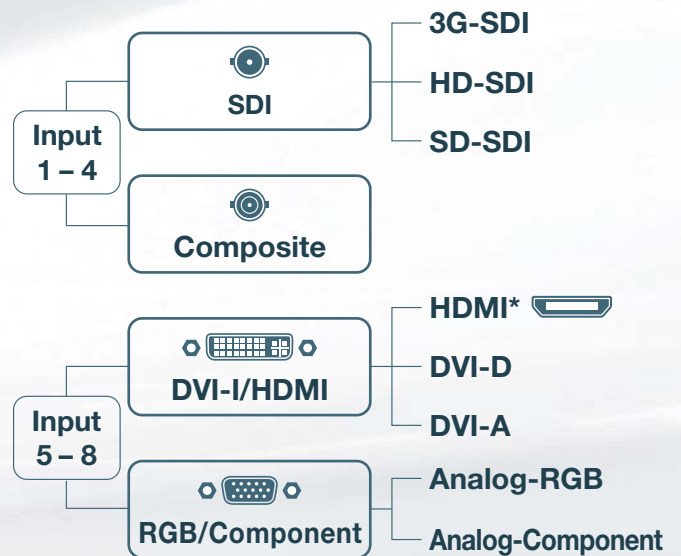
MULTI FORMAT

16:9 ⟷ **4:3**

Freely scale any videos and RGB sources

Freely switch between 1080p video that surpasses even broadcast quality. Full support not just for camera video, but for computer output as well - at a full range of resolutions. A new-generation multi-format switcher featuring high-quality built-in scalers on all inputs.

Full Range of Connectivity

The V-800HD supports a large number of input formats, from analog to digital, with all the necessary connectors. The SDI connectors accommodate 3G, HD, and SD. The DVI-I connectors pull full duty for DVI-D, DVI-A and even HDMI using a simple HDMI/DVI adapter. The Mini D-Sub 15 pin type connector accommodates SD/HD component as well as computer input via RGB.

Input 1 – 4

SDI
- 3G-SDI
- HD-SDI
- SD-SDI

Composite

Input 5 – 8

DVI-I/HDMI
- HDMI*
- DVI-D
- DVI-A

RGB/Component
- Analog-RGB
- Analog-Component

*An HDMI/DVI adapter is required.

- **8 Input** (4 SDI/Composite + 4 DVI-I/HDMI/RGB/Component)
  6 Output (2 SDI + 2 DVI-D/HDMI + RGB/Component + Composite)
- **4:4:4/10-bit Internal Processing**
- **1 M/E (Key, PinP) + DSK**
- **Built-in frame synchronizers and scalers on all inputs**
- **SDI support: 3G, HD, and SD**
- **DVI-D / RGB / HDMI support**
- **Input status LEDs**
- **HDCP support**
- **Live access to two still-image sources**
- **10 assignable cross-points**
- **Multiviewer monitor output**

V-800HD
MULTI-FORMAT VIDEO SWITCHER

3G-SDI	HD-SDI	SD-SDI	DVI-I	DVI-D	DVI-A
HDMI	RGB	COMPONENT	COMPOSITE	STILL IMAGE	HDCP

A New Design Ideal for Live Performances and Events

Advanced internal processing achieves the highest quality output.
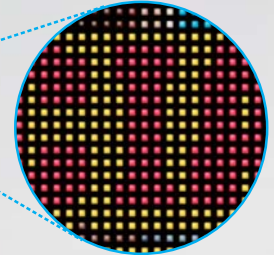
4:4:4/10-bit Internal Processing

The V-800HD uses 4:4:4/10-bit internal signal processing. This lets you achieve compositing and output with no reduction in high-detail RGB signals driven from a computer. The result is a sharp, unblurred display of video and text, even on large screens and LED displays. The V-800HD delivers high image quality for all uses, from live broadcasts to event displays.

■ **Crisp output per pixel**

LED Display

Newly Developed Key-compositing Engine

Along with the upgraded internal signal processing, a newly developed keyer is included. Chroma Key lets you adjust phase range, amount of chroma, and other parameters based on HSV color space that is closely related to human chromatic sensation. This allows you to achieve high quality and tight chroma key compositing even when using 1080p video sources. What's more, the V-800HD can accept an External Key. This attractively composites colorful CG titles and gradation/transparency clips, enabling you to achieve visual effects that are even more impressive.

■ **Chroma Key**

Hue (H)

Saturation (S)

■ **External Key**

Background Picture

Key Source

Key Fill
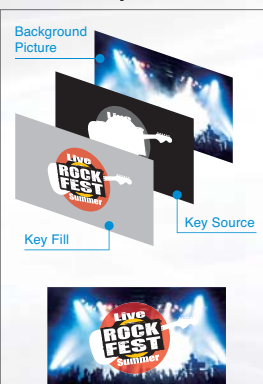
* DSK cannot be used during External Key operations.

## Multiviewer Output for Source Monitoring

The multiviewer output allows you to monitor the status of all input sources plus the Program and Preview outputs. The convenient HDMI connector enables the use of a readily available and affordable monitor.

* Use an HDMI monitor that supports HDCP and 60p signals.
* SDI and composite inputs are displayed at the original source frame rate. DVI-I/HDMI and RGB/Component inputs are displayed using a reduced frame rate.
* Changing the channel cross-point assignments changes the order of displayed sources.
* Still images imported from USB memory are not displayed on the source monitor.

■ **Multiviewer**

HDMI OUT

MULTI-VIEW

HDMI Output

PVW   PGM
CH.1 CH.2 CH.3 CH.4
CH.5 CH.6 CH.7 CH.8
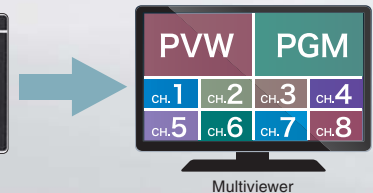
Multiviewer

Built-in HDCP Mode

When playing back a Blu-ray disc that contains commercial content or digital broadcast programming, the digital output is encoded using HDCP (High-bandwidth Digital Content Protection), which is one means of copyright protection. This means that switchers that are not HDCP-compatible will not display or pass-through such video content, even in cases where permission for use in a live event was obtained from the copyright holder. To resolve this problem, the V-800HD features a dedicated mode that officially supports HDCP. A panel indicator lets you check the operating state when the unit is in the HDCP mode.
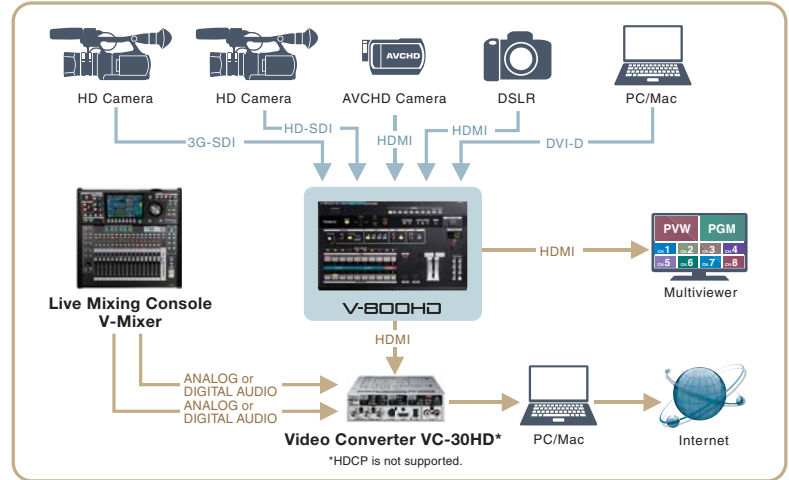
* In HDCP mode, no video signals are output from the analog or SDI connectors.
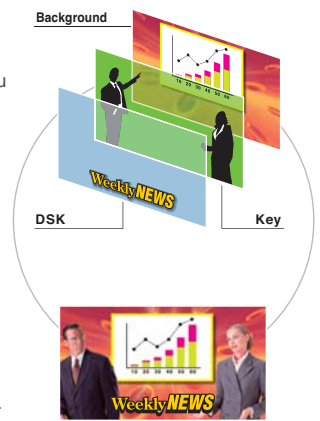* The display or projector connected to a digital output must be HDCP-compatible as well.

Corporate Production and Web Streaming

V-800HD with Live Mixing Console and Video Converter

HD Camera   HD Camera   AVCHD Camera   DSLR   PC/Mac

3G-SDI   HD-SDI   HDMI   HDMI   DVI-D

Live Mixing Console
V-Mixer

V-800HD

HDMI → PVW | PGM Multiviewer

HDMI

ANALOG or DIGITAL AUDIO
ANALOG or DIGITAL AUDIO

Video Converter VC-30HD*   PC/Mac   Internet

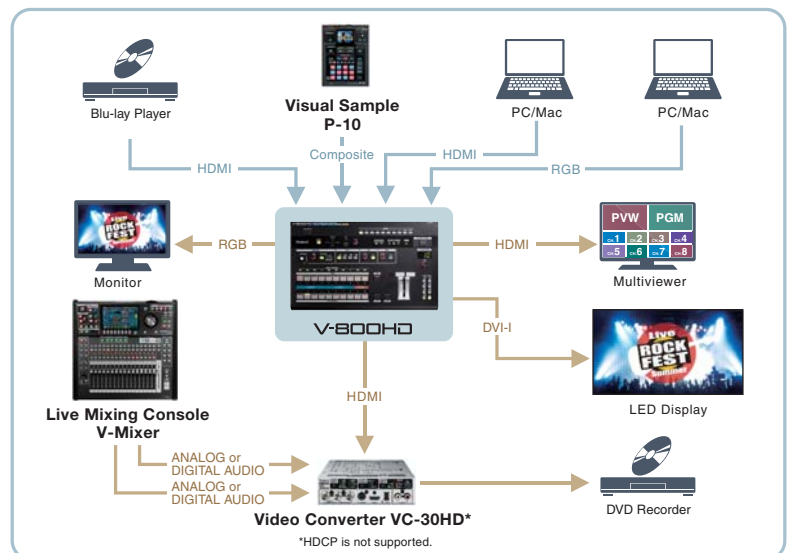*HDCP is not supported.

Background
DSK   Key
Weekly NEWS

- Simultaneously use a wide range of cameras, from broadcast-grade equipment equipped with HD-SDI output to HDMI-output consumer equipment and even digital single-lens reflex (DSLR) cameras. This lets you configure a highly effective system using your existing equipment, at a lower cost, and without the need for external converters.
- Up to 16 still images can be stored in the unit. This makes for instant reading of images for telops, flip cards, as well as logos and other graphics.
- Monitor all input sources using a single computer display.
- Video played back from a computer can be adjusted by the internal scalers to the final output resolution, regardless of the original resolution.
- The V-800HD can switch up to four 1080p 3G-SDI sources and four DVI. This makes it possible to create a fully progressive system delivering high image quality.
- Feed house audio from the mixing console along with an HDMI video feed to the VC-30HD for live streaming.

Event Performances

V-800HD with Video Players and Live Mixing Console

Blu-lay Player   Visual Sample P-10   PC/Mac   PC/Mac

HDMI   Composite   HDMI   RGB

Monitor ← RGB

V-800HD → HDMI → PVW | PGM Multiviewer

DVI-I → LED Display

Live Mixing Console
V-Mixer

HDMI

ANALOG or DIGITAL AUDIO
ANALOG or DIGITAL AUDIO

Video Converter VC-30HD* → DVD Recorder

*HDCP is not supported.

- Simultaneously use sources with a diverse range of formats, from analog to digital.
- Video can be output in a variety of formats via analog RGB or component outputs. This lets you transmit video to stage wings or green room without having to use splitters or converters.
- A downscaled composite output is constantly available making recording/archiving the event, simple and easy.
- Four DVI-I and four Mini D-Sub 15 pin type connectors allows up to eight PC/Mac feeds ideal at academic conferences and other events that involve a large number of computer sources. Use Memory banks to switch between configurations using the same numbered DVI and RGB connectors.
- Using the HDCP mode makes it possible to utilize third-party HD sources in performances.*
  * Commercial use of third-party content requires the permission of the copyright-holder.

High-end Performance for Every Situation

A superior, easy-to-use interface that achieves a rich array of video effects

SCALING

Scalers You Can Use Any Way You Like

The V-800HD features scalers that let you make settings independently for every input source. With these, you can take input sources of different resolutions and adjust to any sizing and resolution including odd-sized LED walls. You can freely scale digital, analog RGB, and component sources.
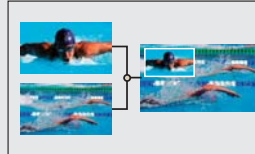
■Scaling Sample

4:3 source → **16:9 HD monitor** → **Free aspect ratio large LED display**

PinP/KEY/DSK (Down Stream Keyer)

A Full Range of Keyers

In addition to the newly designed Picture-in-Picture (PinP), Luminance Key, Chroma Key, and DSK for 4:4:4/10-bit input, you can also use an External Key.

* DSK cannot be used during External Key operations.

■PinP (Picture in Picture)

■DSK (Downstream Keyer)

USB MEMORY

USB Port for Importing Still Images

The V-800HD can store up to 16 still images imported from a USB memory device.

MEMORY

Memory Banks Supporting Worry-free Configuration Recall

You can save eight sets of panel settings in each of eight banks, for a total of 64 sets. Pre-saving complex settings in this way lets you call them up instantly when they're needed.

INPUT

Assignable Cross-points For the Layout You Want

You can assign video sources to cross-points in any order you like instead of having to use the numerical order of the connectors on the rear panel. This lets you reorder and shift video feeds when sudden changes in camera lines or differences in format create blanks between cross-points.

* Removable magnetic label template displaying the factory-default state is included.

VIDEO FADER

Large, Easy-to-use T-bar

The V-800HD uses a large T-bar that is ideal when you're mixing video manually. Its firm feel gives you confident control when performing slow transitions.

TRANSITION

Carefully Selected Transition Patterns

The simple design makes selecting a transition pattern as easy as pressing an icon-marked button. You can also set the length of transition times precisely, using either seconds or frames.

DVI-I/HDMI Input
Up to WUXGA, 1080p

A slider switch selects either DVI-D or DVI-A. Support for HDMI is also possible through use of a simple HDMI/DVI adapter. Supports HDCP input.

COMPOSITE Input
480i or 576i

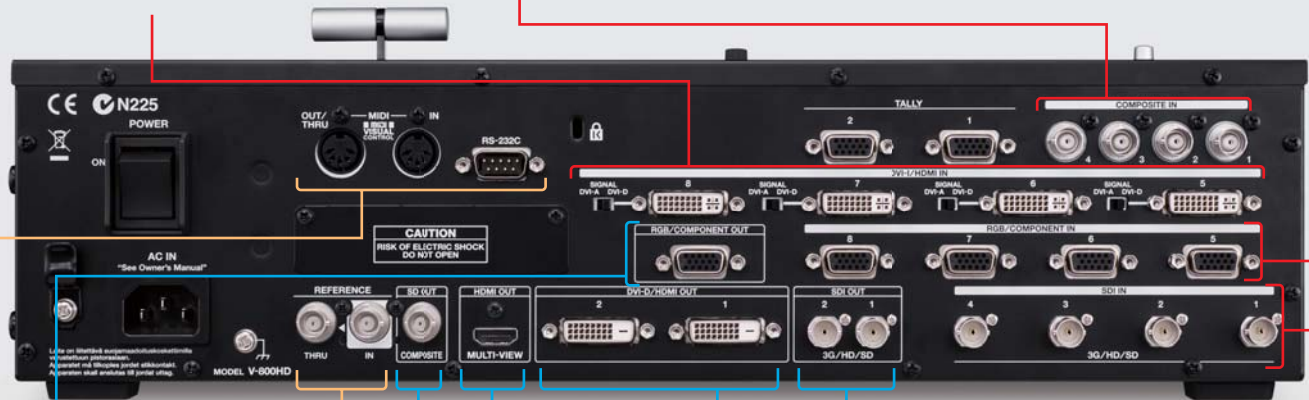The V-800HD lets you use four analog composite inputs.

RGB/COMPONENT Input
Up to WUXGA, 1080p

Using a conversion cable lets you input analog component signals in addition to VGA type output from a computer.

SDI Input
Up to 1080p

The V-800HD supports three formats of digital video signals: 3G, HD, and SD.

RGB/COMPONENT Output
Up to WUXGA, 1080p

The V-800HD can accommodate projectors and other video devices that accept only analog input. What's more, the built-in scalers let you specify resolutions that differ from the main output resolution.

SD Output
480i or 576i

This provides a constant down-scaled composite signal regardless of the main output resolution.

Multiviewer Output
1080/60p with HDCP

Monitor your active input sources along with Program and Preview.

* Use an HDMI monitor that supports HDCP and 60p signals.
* SDI and composite inputs are displayed at the original source frame rate.
* DVI-I/HDMI and RGB/Component inputs are displayed using a reduced frame rate.

DVI-D/HDMI Output
Up to WUXGA, 1080p

The V-800HD is equipped with two DVI-D/HDMI outputs for connecting displays/projectors and is HDCP-compatiable.

SDI Output
Up to 1080p

Two SDI outputs are provided supporting 3G, HD, and SD signals.

MIDI/RS-232C Connectors

Controllable using MIDI and RS-232C

REFERENCE Connectors

The V-800HD features a reference input for external synchronization. This lets you use the V-800HD in combination with existing production-studio system equipment.

■ MIDI CONTROL

MIDI VISUAL CONTROL **V-LINK**

You can use MIDI to interlink the V-800HD with other products including the Roland V-Mixing system and even another V-800HD.

● Operation in Tandem with an Audio Mixer

V-800HD → MIDI → **Audio Mixer**

Connect the V-800HD to a V-Mixer console to achieve a true "audio follows video" solution. When you take a video source live, you can have the audio level instantly recalled.
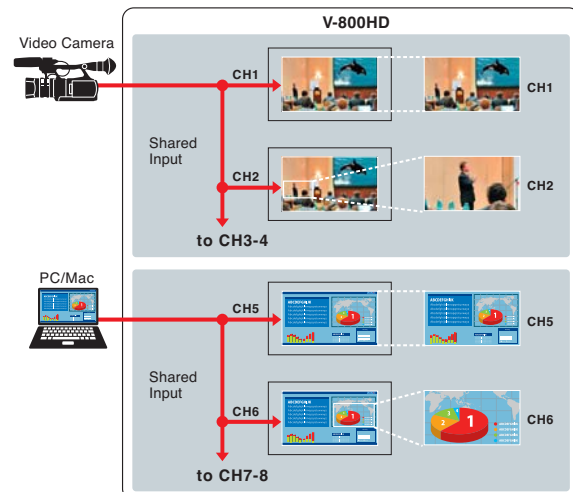
● Achieving Switching for 3D Video

V-800HD → MIDI → **V-800HD**

Operating two V-800HD units in tandem makes it possible to perform switching for 3D video split into two left and right video signals.

■ MULTI-ZOOM

Using the shared input function, you can assign the video on channel 1 to channels 2 through 4 and the video on channel 5 to channels 6 through 8. The scaler for each input can zoom into any position in the video image enabling a virtual multi-camera environment. This gives the appearance that you have additional cameras connected.
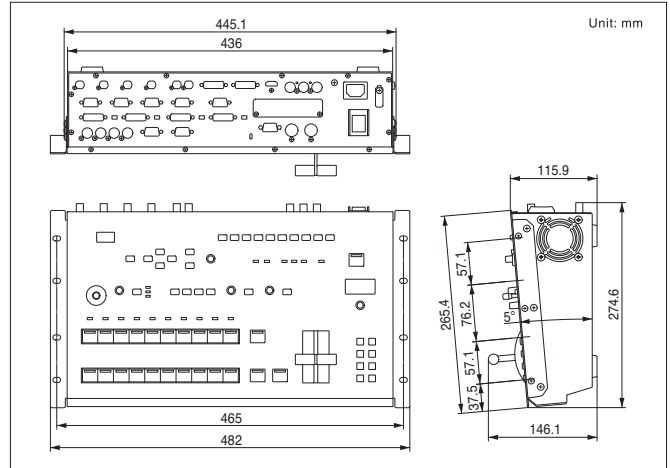
V-800HD

Video Camera

Shared Input — CH1 / CH1, CH2 / CH2
to CH3-4

PC/Mac

Shared Input — CH5 / CH5, CH6 / CH6
to CH7-8

* Only the source of the previous adjacent channel can be shared.

■ Specifications

Video Processing	
Processing	4:4:4 (Y/Pb/Pr, RGB), 10-bit

Supported Formats		
	Video	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 * The SDI input can input the same frame rate as a setup menu setting.
	PC	640x480/60 Hz[*1], 800x600/60 Hz[*1][*3], 1024x768/60 Hz[*1], 1280x768/60 Hz[*1], 1280x1024/60 Hz[*1], 1366x768/60 Hz[*1], 1400x1050/60 Hz[*1], 1600x1200/60 Hz, 1920x1080/60 Hz, 1920x1200/60 Hz[*2] * Conforms to VESA DMT Version 1.0 Revision 10 *1 Output refresh rate is 75 Hz when frame rate is set to 50 Hz *2 Reduced blanking *3 When Reference is set to External, the resolution of 800 x 600 and refresh rate of 60 Hz are no longer compliant with the VESA standard. This means that display on some devices may not be possible in this situation.
	Still Image	Windows® Bitmap File (.bmp) * Maximum 1900 x 1200 pixels, 24-bit per pixel, uncompressed

Input/Output Level and Impedance	
Composite	1.0 Vp-p, 75 ohms
Analog HD/RGB	0.7 Vp-p, 75 ohms (H, V : 5 VTTL)

Input Connectors		
3G/HD/SD-SDI		BNC type x 4 * Conforms to SMPTE 424M (Level-A), 292M, 259M-C
DVI-I/HDMI		DVI-I type x 4 * Select DVI-A or DVI-D/HDMI using switch per channel
Analog Video	HD	Component (Mini D-Sub 15 pin type) x 4 * Combined use with Analog RGB
	SD	Composite (BNC type) x 4 * Select Composite or SDI using menu per channel
Analog RGB		Mini D-Sub 15 pin type x 4 * Combined use with Analog Video (HD) * Select DVI-D/HDMI or Analog RGB using menu per channel

Output Connectors		
3G/HD/SD-SDI		BNC type x 2 * Conforms to SMPTE 424M (Level-A), 292M, 259M-C
DVI-D/HDMI		DVI-D type x 2, HDMI x 1 (for multi-view monitor)
Analog Video	HD	Component (Mini D-Sub 15 pin type) x 1 * Combined use with Analog RGB
	SD	Composite (BNC type) x 1
Analog RGB		Mini D-Sub 15-pin type x 1 * Combined use with Analog Video (HD)

Other Connectors	
Tally	Mini D-Sub 15 pin type x 2 * Input (max): 12V, 200 mA Open collector Type
Reference	BNC type (IN, THRU) * Black Burst (Sync to frames), Bi-Level, Tri-Level
MIDI	5 pin DIN type (IN, OUT/THRU)
RS-232C	D-Sub 9 pin type x 1
USB port (host)	A type x 1 (for USB memory)

Effects	
Transition	Mix, Cut, Wipe (9 patterns)
Composition	PinP, DSK, Chrominance Key, Luminance Key, External Key
Others	Output Fade, Output Freeze

Others	
Power Consumption	75 W
Power Supply	AC 115 V, AC 117 V, AC 220 V, AC 230 V, AC 240 V (50/60 Hz)
Dimensions	482 (W) x 274.6 (D) x 115.9 (H) mm / 19 (W) x 10-13/16 (D) x 4-9/16 (H) inches * When rack mount brackets are attached. * EIA-6U rack mount size.
Weight	5.5 kg / 12 lbs 3 oz
Accessories	Power Cord, Rack Mount Angle (2), Input Template, Owner's Manual

* This product is a Class A digital device under FCC part 15.

■ Dimensions

Unit: mm

■ Block Diagram

*1 These functions can not be used at the same time.
*2 In HDCP mode, no video signals are output from the analog or SDI connectors.

Roland Systems Group

Roland Systems Group, a member of the worldwide group of Roland companies, is dedicated to the support of audio and video professionals demanding excellence in both performance and system design. Through the development and support of video and audio products, we endeavor to improve workflow and maximize creative possibilities.

MIDI VISUAL CONTROL

MIDI Visual Control is an internationally-used recommended practice that was added to the MIDI specification so that visual expression could be linked with musical performance. Video equipment that is compatible with MIDI Visual Control can be connected to electronic musical instruments via MIDI in order to control video equipment in tandem with a performance.

V-LINK

Using V-LINK, musicians can "play" video from their electronic instrument when used with Roland video products. With V-LINK, musicians have a powerful interface for realtime audio and video integration.

Ensuring high quality while protecting the environment: Roland is ISO9001 and ISO14001 certified

At Roland, several group companies have obtained ISO9001 certification. In addition, in January 1999, Roland also received ISO14001 international environmental management system certification. We're actively seeking ways to maintain harmony with the environment. (ISO=International Standardization Organization: an organization for the promotion of standardization of international units and terms. They provide different categories of certification: ISO9001 Series certification is a product quality certification for products that undergo a certain level of quality control from the design stage to the after service stage; ISO14001 Series certification is for environment-related standards. Each member of the Roland Group is striving to obtain certification.)

Roland
WE DESIGN THE FUTURE

www.rolandsystemsgroup.com/v800hd

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