

V-160HD

STREAMING VIDEO SWITCHER



The new standard in hybrid event switching

- Portable hybrid event switcher with comprehensive features and connectivity
- Seven selectable output modes: Program, Sub-Program, Aux, Preview, and three multi-view options
- Eight-layer video effects engine
- Powerful live production automation with sequencing, macros, and preset memories
- Extensive device control with Bluetooth, USB, RS-232, and LAN
- Wireless and wired camera tally support
- Eight 3G SDI inputs with frame rate converters
- Eight 1080p HDMI inputs with frame rate converters, including four with real-time scalers
- Seven total outputs across SDI, HDMI, and USB-C streaming
- 40-channel digital audio mixer with effects and processing
- 16-slot still store function supports screen capture or uploaded BMP, JPEG, and PNG images via alpha channel in the internal non-volatile memory
- PTZ control with support for multiple brands and mixed protocols running at once
- Remote control software for iPad, macOS, and Windows



Hybrid to the max

The V-160HD combines the robust hardware needed to flawlessly execute live productions with the livestreaming capabilities found in computer-based systems. While software workflows are fine for online-only events, the V-160HD delivers the pro essentials you need for both the in-person and streaming components of a live hybrid event, complete with the ability to tailor the content for each audience.

On-demand signal processing means you never have to worry about issues like computer CPU overhead, latency, and output delay on live audience screens. Integrated connectivity standards like SDI, HDMI, XLR, and USB-C eliminate the need to build out costly infrastructure and conversion processes. The comprehensive interface provides hands-on controls that can be learned quickly by a single operator.

Presets, macros, and advanced sequencing features let you set up and automate complex switching tasks with one touch.

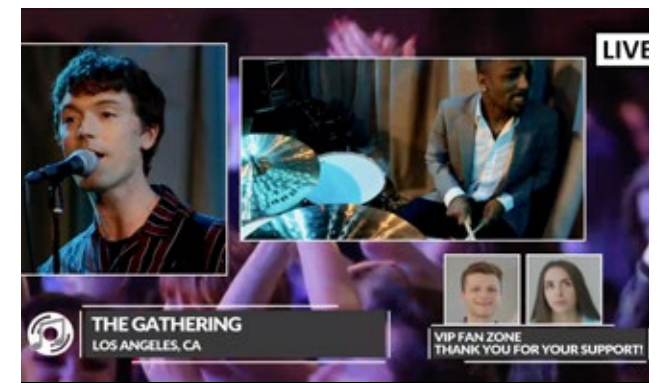


Stream live

The V-160HD uses the same connection technology as webcams,* allowing you to stream events at 30/60 FPS in Full HD** and reach a worldwide audience. Simply connect the USB-C output to a computer and start streaming with Zoom, Microsoft Teams, YouTube, Facebook Live, or any platform that can use a webcam as its source. Everything is plug and play, with no driver installation needed.

*USB video class (UVC) and USB audio class (UAC) compliant.

**YUV2 (uncompressed) and Motion JPEG (compressed) formats supported.



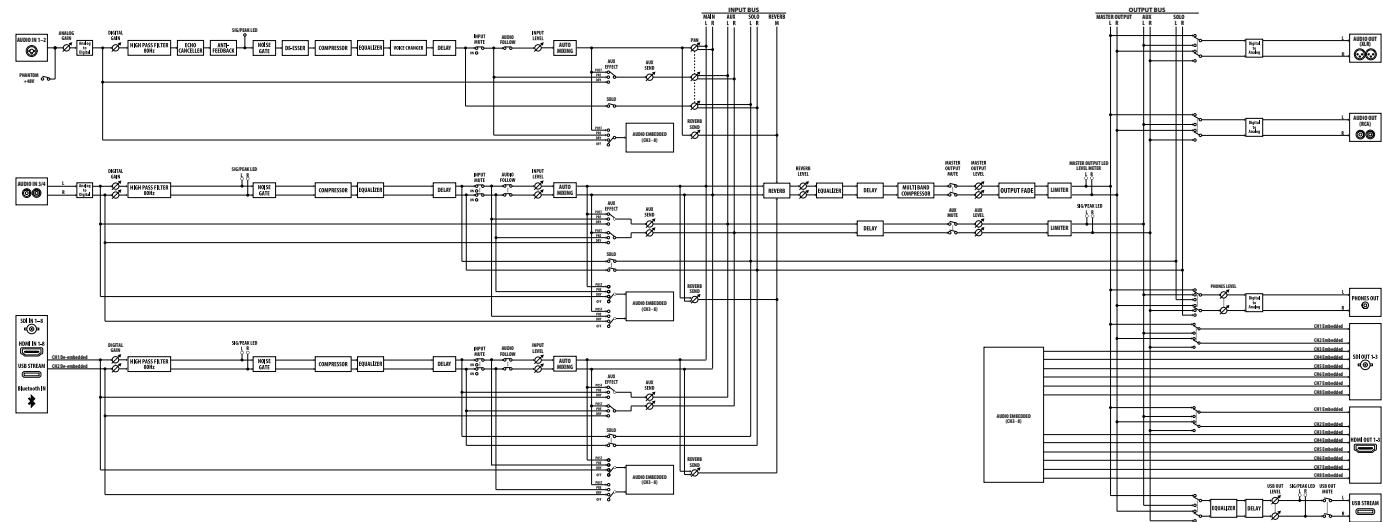
One-touch automation

The V-160HD's newly developed sequencer makes presets and macros even more powerful, allowing a single operator to execute perfectly timed cues with ease. Up to 1000 steps can be recorded in the sequencer, and each step can include both presets and macros. Simply set up your cues ahead of time in the sequence list and trigger them in order using the Next button on the panel. With the power of the V-160HD's sequencer, you can tackle the most complex events without ever breaking a sweat.

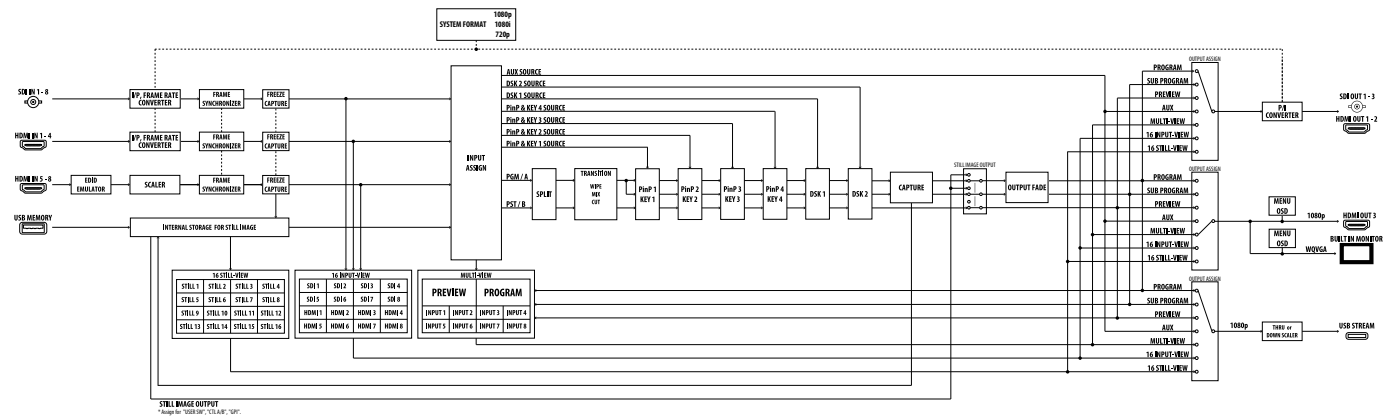


HDMI and SDI connectivity

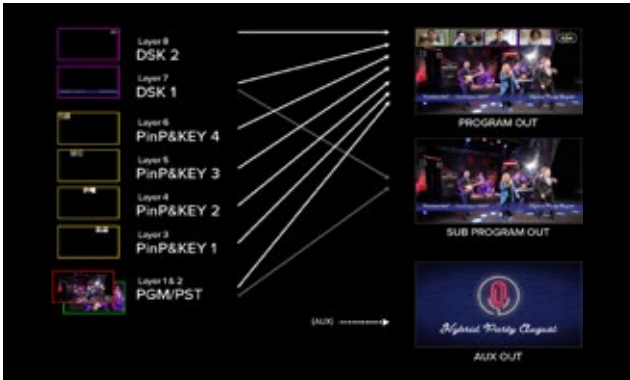
The V-160HD supports HDMI for common A/V devices plus SDI for long cable runs and high-end cameras. Seamlessly mix eight HDMI sources and eight SDI sources in Full HD, even with mismatched frame rates and color spaces. And with built-in scalars on four of the HDMI inputs, you can easily interface with client-provided sources like computers, tablets, smartphones, gaming consoles, and legacy 4:3 devices.



AUDIO BLOCK DIAGRAM



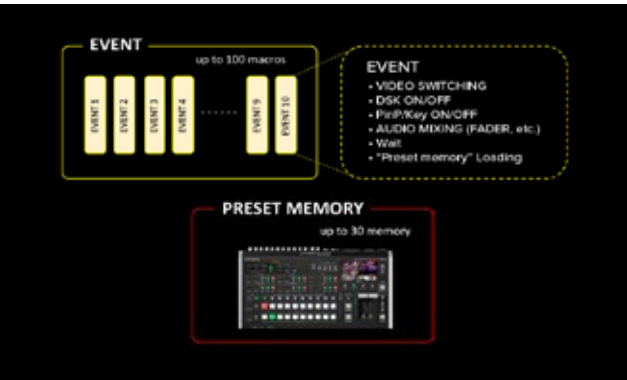
VIDEO BLOCK DIAGRAM



Powerful video effects engine

Video effects and graphics are must-haves to bring polish and excitement to any production. The V-160HD's effects engine features eight composition layers that can be assigned to the Program and Sub-Program outs, so you'll always keep audiences engaged with visually appealing content. With up to four picture-in-picture windows, downstream key layers, 16 still store slots with transparent PNG image support, and more, you can manage the creative needs of any client.

For example:
Layers 1-2: Start with a mixable live background video layer.
Layers 3-6: Place four picture-in-picture layers or chroma/luminance key effects.
Layers 7-8: Add two downstream keyers with support for fill and key inputs.



Instant recall

Storing and recalling custom looks can be accomplished with just a few button presses on the V-160HD. The 30 preset memories and powerful effects engine work together to provide seamless scene changes, including synchronizing the transition of all composition layers at the program output. The 100 macros go even deeper, allowing you to build and fire off complex action lists that include switching, DSK on/off, audio mixing adjustments, PTZ camera movements, and much more. Our free remote control software for macOS, Windows, and iPad further enhances this workflow, providing a large graphical interface for setting up and previewing actions before you take them live.



V-160HD iPad remote control utility

The dedicated V-160HD remote control app turns an iPad into an efficient touch interface for the V-160HD. Run essential switching functions, mix audio with virtual faders, change settings and parameters quickly and create up to 30 custom scenes for fast, efficient setup changes.



SPECIFICATIONS V-160HD

VIDEO	
Video Processing	4:2:2 (Y/Pb/Pr), 8-bit
Input Connectors	HDMI IN 1--4: HDMI type A x 4, * HDCP Supported HDMI IN 5--8: HDMI type A x 4, * HDCP Supported * Multi-format Supported SDI IN 1--8: BNC type x 8 * Conforms to SMPTE 424M (SMPTE 425M-AB), 292M
Output Connectors	HDMI OUT 1--3: HDMI type A x 3 * HDCP Supported SDI OUT 1--3: BNC type x 3 * Conforms to SMPTE 424M (SMPTE 425M-AB), 292M, USB STREAM: USB Type-C (TM), PREVIEW: HDMI type A
Supported Video Input Formats	HDMI IN 1--4, SDI IN 1--8 720/59.94p *1, *3, 720/50p *1, *4 1080/59.94i, 1080/59.94p, 1080/60p, 1080/29.97p, 1080/30p *2, *3 1080/50i, 1080/50p, 1080/25p *2, *4 1080/23.98p, 1080/24p *2 * The input interlaced video signal is converted to progressive video signal by internal processing. *1 SYSTEM FORMAT = 720p *2 SYSTEM FORMAT = 1080i or 1080p *3 FRAME RATE = 59.94 Hz *4 FRAME RATE = 50 Hz HDMI IN 5--8 480/59.94i, 480/59.94p, 720/59.94p, 1080/59.94i, 1080/59.94p, 1080/60p, 1080/29.97p, 1080/30p *1 576/50i, 576/50p, 720/50p, 1080/50i, 1080/50p, 1080/25p *2 1080/23.98p, 1080/24p VGA (640×480/60Hz), SVGA (800×600/60Hz), XGA (1024×768/60Hz) WXGA (1280×800/60Hz), SXGA+ (1400×1050/60Hz) FWXGA (1366×768/60Hz), SXGA+ (1400×1050/60Hz) UXGA (1600×1200/60Hz), WUXGA (1920×1200/60Hz) * The refresh rate is the maximum value of each resolution. * Conforms to CEA-861-E,VESA DMT Version 1.0 Revision 1f. * 1920 x 1200/60 Hz: Reduced blanking * The input interlaced video signal is converted to progressive video signal by internal processing. *1 FRAME RATE = 59.94 Hz, *2 FRAME RATE = 50 Hz
Still Image	Bitmap File (.bmp) Maximum 1920 x 1080 pixels, 24-bit color, uncompressed. PNG File (.png) Maximum 1920 x 1080 pixels, 24-bit color JPG File (.jpg) Maximum 1920 x 1080 pixels, 24-bit color * It can be stored up to 16 files in the internal memory. * It can be exported to 16 files in the USB flash drive. * PNG alpha channel supported.
Output formats	HDMI OUT 1--2, SDI OUT 1--3: 720/59.94p *1, *4, 720/60p *1, *5 720/50p *1, *6, 1080/59.94i *2, *4, 1080/60i *2, *5, 1080/50i *2, *6 1080/59.94p *3, *4, 1080/60p *3, *5, 1080/50p *3, *6 *1 SYSTEM FORMAT = 720p, *2 SYSTEM FORMAT = 1080i, *3 SYSTEM FORMAT = 1080p, *4 FRAME RATE = 59.94 Hz, *5 FRAME RATE = 60 Hz, *6 FRAME RATE = 50 Hz HDMI OUT 3: 1080/59.94p *1, 1080/60p *2, 1080/50p *3 *1 FRAME RATE = 59.94 Hz, *2 FRAME RATE = 60 Hz, *3 FRAME RATE = 50 Hz USB STREAM: 1080/59.94p, 720/59.94p, 640×480/59.94p *1 1080/29.97p, 720/29.97p, 640×480/29.97p *2, 1080/50p, 720/50p, 640×480/50p *3, 1080/25p, 720/25p 640×480/25p *4 * Uncompressed format (YUV2) and Compressed format (Motion JPEG) supported. *1 FRAME RATE(USB OUT) = 59.94 Hz, *2 FRAME RATE(USB OUT) = 29.97Hz, *3 FRAME RATE(USB OUT) = 50Hz *4 FRAME RATE(USB OUT) = 25Hz
Video Effects	Transition: CUT, MIX (DISSOLVE/FAM/NAM), WIPE (8 types), SPLIT (2 types) Composition: PinP x 4 (SQUARE, CIRCLE, DIAMOND), Keyer x 4 (Luminance Key, Chroma Key), DSK x 2 (Luminance Key, Chroma Key, Alpha Key, External Key) Others: Flip horizontal, Flip vertical, Still Image Capture, Still Image Play-back, Output fade (Audio, Video: WHITE or BLACK), Test pattern output

Extensive PTZ camera support

Robotic PTZ (pan-tilt-zoom) cameras eliminate the need for multiple camera operators, provide great production coverage with studio-grade broadcast quality, and can be placed in discreet locations thanks to their small size. The V-160HD includes built-in support to directly control select Canon, JVC, Panasonic, Sony, PTZOptics, Avonic, and VISCA-compatible PTZ LAN cameras. Mix and match different brands as you like, and operate up to 16 PTZ cameras simultaneously.

AUDIO	
Audio Processing	Sample rate: 24 bits/48 kHz
Audio formats	USB STREAM (input/output): Linear PCM, 24 bits/48 kHz, 2ch Bluetooth (input): Linear PCM, 24 bits/48 kHz, 2ch HDMI IN: Linear PCM, 24 bits/48 kHz, 2ch HDMI OUT: Linear PCM, 24 bits/48 kHz, 8ch SDI IN: Linear PCM, 24 bits/48 kHz, 2ch (Conforms to SMPTE 299M) SDI OUT: Linear PCM, 24 bits/48 kHz, 8ch (Conforms to SMPTE 299M)
Input Connectors	Analog: AUDIO IN 1--2: Combo type (XLR, 1/4-inch TRS phone), phantom power DC 48 V (unloaded maximum), 14 mA (maximum load), AUDIO IN 3/L, 4/R: RCA phono type Digital: USB STREAM: USB Type-C (TM) Bluetooth HDMI IN 1--8: HDMI type A x 8, SDI IN 1--8: BNC type x 8
Output Connectors	Analog: AUDIO OUT: XLR type, AUDIO OUT: RCA phono type PHONES: Stereo 1/4-inch phone type Digital: USB STREAM: USB Type-C (TM), HDMI OUT 1--3: HDMI type A x 3, SDI OUT 1--3: BNC type x 3
Input Level	AUDIO IN 1, 2: -60--+4 dBu (Maximum: +24 dBu) AUDIO IN 3/L, 4/R: -10 dBu (Maximum: +10 dBu)
Input Impedance	AUDIO IN 1, 2: 9.4 k ohms (ANALOG GAIN 0<24 dBu), 74.4 k ohms (ANALOG GAIN >24dBu), AUDIO IN 3/L, 4/R: 47 k ohms
Output Level	AUDIO OUT (XLR): +4 dBu (Maximum: +24 dBu), AUDIO OUT (RCA): -10 dBu (Maximum: +10 dBu), PHONES: 92 mW + 92 mW (32 ohms)
Output Impedance	AUDIO OUT (XLR): 600 ohms, AUDIO OUT (RCA): 1 k ohm PHONES: 10 ohms
Audio Effects	Auto Mixing, Delay, Reverb, High pass filter, Echo canceller, Anti-feedback, Noise gate, De-esser, Compressor, Equalizer, Voice changer, Multi-band compressor, Limiter, Test tone output
OTHERS	
Other Connectors	USB MEMORY: USB A type (for USB flash drive) USB STREAM: USB Type-C (TM) (for remote control from PC and iPad) Bluetooth: for remote control from iPad CTL/EXP:1/4-inch TRS phone type (for remote control from foot switch and expression pedal), TALLY/GPIO: DB-25 type (Female)(Tally/GPIO: 16, GPI: 8), RS-232: DB-9 type (Male) (for Remote Control) LAN CONTROL: RJ45 100BASE-TX (for Remote Control), Reference IN/THRU: BNC type * Black Burst (Sync to frames), Bi-Level, Tri-Level
Other Functions	Preset Memory (30 types), Macro Control (100 types), Sequencer Control Panel lock function, EDID Emulator, Auto Switching, Auto Input Detect Smart Tally, Remote Camera Control, Rec Control
Bluetooth	Ver 4.2 Profile Support: A2DP (Audio), GATT (MIDI over Bluetooth Low Energy), Codec: SBC (Support to the content protection of the SCMS-T method)
Display	4.3 inches TFT Color LCD: 480 x 272 dots
Power Supply	AC adaptor
Current Draw	2.5 A
Power Consumption	55 W
Operation Temp.	+0 to +40 degrees Celsius, +32 to +104 degrees Fahrenheit
Dimensions	437 (W) x 253 (D) x 103 (H) mm, 17-1/4 (W) x 10 (D) x 4-1/16 (H) inches 480 (W) x 253 (D) x 103 (H) mm, 18-15/16 (W) x 10 (D) x 4-1/16 (H) inches * When rack mount angles are fitted.
Weight	3.9 kg, 8 lbs 10 oz, excluding AC adaptor
Dimensions	Startup Guide, Leaflet "USING THE UNIT SAFELY", AC adaptor Power cord, Rack-mount angle x 2, Rack-mount angle mounting screw x 6
Options (sold separately)	Footswitch: BOSS FS-5U, FS-6, FS-7, Expression Pedal: EV-5, BOSS FV-500L, FV-500H

* 0 dBu = 0.775 Vrms