12G/3G/HD/SD/Analog/HDMI/DVI/RGBHV Mixed High Resolution Multi Viewer
(Upto 68 Inputs, 8-Monitor Outputs)

MV-4000 series

12G/3G/HD/SD/Analog/HDMI/DVI/RGBHV Mixed High Resolution Multi Viewer
MV-4000 SERIES
Up to 68 inputs, with 8-monitor/114-window outputs. Simplifies 4K workflows by accepting mixed input, including 12G-SDI. Layouts for each output can be freely customized.

### Available Units

#### MV-4200 series

**MV-4200**
- Displays up to 114 windows.
- Includes 4 outputs each for 3G-SDI and HDMI. Add up to 10 inputs for 12G-SDI.

**MV-4210**
- Displays up to 114 windows.
- Includes 8 outputs for 3G-SDI. Add up to 10 inputs for 12G-SDI.

**MV-4220**
- Displays up to 110 windows.
- Choose from 2 inputs + 2 outputs for 12G-SDI or 8 inputs + 4 outputs for 3G/HD-SDI + 4 outputs for HDMI. Add up to 12 inputs for 12G-SDI.

#### MV-4300 series

**MV-4300**
- Provides up to 68 inputs and 8-monitor/114-window outputs in a 2U enclosure. Add up to 3 optional cards.

**MV-4310**
- Provides up to 68 inputs and 8-monitor outputs in a 3U enclosure. Add up to 3 optional input cards and 1 interface expansion card. Also accepts a hot-swappable power supply.

**MV-4320**
- Displays up to 110 windows.
- Choose from 2 inputs + 2 outputs for 12G-SDI or 8 inputs + 4 outputs for 3G/HD-SDI + 4 outputs for HDMI. Add up to 17 inputs for 12G-SDI.

### Up to 68 input channels with optional cards

- Combine optional input cards, MV-4200SDI (3G/HD/SD-SDI, Composite x 20), MV-4200PCI (DVI-I/HDMI/RGBHV x 8), MV-4220SDI (12G x 5 or 3G/HD-SDI x 20), or the optional MV-4200IF interface card (GPIO, serial control, input of analog audio, AES audio, genlock) as needed.

### Customized layouts in HD on up to 8 monitors

- Up to 114 windows over 8 output displays
- Up to 8 clocks per 8 output displays
- Up to 8 logos and 1 background per 8 output displays

### 4K I/O via 12G-SDI or 3G-SDI

- Layout Manager enables easy layout of 4K video in a seamless display.

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*Optional features may vary depending on the model and configuration.*

*1 Optional features may vary depending on the model and configuration.*

*2 Up to three optional MV-4200SDI or MV-4220SDI cards.*

*3 12G-SDI output requires MV-4220 or MV-4320.*
HDMI 2.0 Level B output

- 4K (UHD) output (3840 x 2160, YUV 4:2:0) over a single HDMI cable

Crosspoint control for 4K playback

- Four input signals assigned to crosspoints 1 to 4 can be controlled together.

With HDMI 2.0 Level B, choose from two layouts

- 4K output (1 channel) + 4K output x 4 (1 channel)
- HD color bar output x 4 + 4K output x 4 (2 channels, 2 outputs per channel)

Layouts for 12G-SDI output*3

- 4K output x 2 (1 channel) + 4K output x 4 (1 channel)
- 4K output x 1/downconverted 4K → 2K HDMI output x 2 + 4K output x 1/downconverted 4K → 2K HDMI output x 2

HD to 4K up-resizing

2K or 4K SDI/HDMI output in customizable layouts

- Mixed 2K/4K output also supported.

*3 12G-SDI output requires MV-4220 or MV-4320.
**HDR/SDR Conversion**

In mixed HDR (HLG format**) and SDR environments, the convenient HDR/SDR conversion features enable easy monitoring of video near the original luminance and saturation, regardless of the type of monitor used.

- **Conversion from HDR to SDR**
  View HDR material on SDR monitors at near-original brightness and saturation**, instead of the dull, flat display that SDR monitors normally produce.

- **Conversion from SDR to HDR**
  View SDR material on HDR monitors at near-original brightness and saturation**, without any excessive brightness or saturation.

- **Convenient conversion of multi viewer graphics**
  SDR-based graphics created in multi viewer such as titles, tallies, clocks, and level meters are converted for display on HDR monitors. This prevents overemphasized multi viewer graphics on HDR material.

**Layout Manager**

Windows®-based screen layout creation and management software. Customize layouts using the software to adjust image size, position, title display and other settings. Store up to 68 layout patterns on the multi viewer. Saved layouts can be recalled directly from the front panel control.

**Preview video and customize settings**

- Enter the viewer’s IP address in a browser to access the control screen
- Check viewer information and video output
- Can also be viewed on a tablet, thanks to responsive design
- Understand crosspoints at a glance
- Customizable layout
- Easy access and display in browsers
- Remote control settings

*4 HDR support is restricted to Hybrid Log-Gamma format.
*5 Basic conversion for convenient viewing. Brightness and saturation differ from the original material.
Video Streaming
In addition to computer-based layout management, video can be streamed from the multi viewer over Ethernet. Streamed video can be viewed locally via Ethernet using a computer display as a secondary monitor. Remote monitoring is also supported.

Record Streamed Video
Take streaming a step further by capturing the video. Frames before and after errors or specified triggers are captured and can be saved to a Windows® computer as still-image sequence files.

Versatile Mixed-Source Environment
Supports mixed signals including: 12G-SDI, 3G-SDI (Level-A/B), HD-SDI, SD-SDI, Composite, HDMI, DVI, or RGBHV sources. Asynchronous input is also supported. The multi viewer accepts an array of formats and frame rates including NTSC, PAL, 1080/59.94i, 1080/50i, and 30/29.97/25/24/23.98p or PsF. (No frame rate conversion)

HD Output of Source Signals
Up to 8 channels of monitoring output, with 4 HDMI and 4 SDI interfaces*4

Audio Level
Monitor up to 16 channels of audio levels in each 12G/3G/HD/SD-SDI or HDMI signal. Use Layout Manager to customize display positions, number of channels, and display groups.

Audio Monitoring Output
Audio from any channel can be monitored via 12G/3G/HD-SDI, HDMI, or analog audio output.

Prominent Error Display
Errors can be displayed using flashing borders, error icon, or error messages identifying the relevant frame:

- **Video loss**, frozen frames, incorrect luminance/black levels, CRC errors, HDCP errors, audio loss, silence, excessive audio levels, 2SI input errors, and closed captioning loss

Frozen Frame Detection
To enable the multi viewer to respond to changes in chroma, depending on the field, due to data compression or expansion, Y/C or Y alone can be detected.

Tally, Title, and Timecode
- Tally: Frame tally and marker tally display
- Titles: Identify each source channel with a title. Supports display of logos, alphanumeric characters, symbols, and Chinese characters (up to 16 letters), which can be displayed within or outside the picture. The multi viewer can convert and save the characters typed on a computer as a logo in bitmap format for later use on the viewer screen.
- Timecode: Ancillary Timecode in 12G/3G/HD/SD-SDI signals can be displayed.

Time of Day, Timer, and Information Display
The multi viewers support clock time synchronization with SNTP servers. Up to 8 clocks can be displayed in analog or digital format. Date display is also available. The Date display feature can be used as a count up/down timer, remaining time counter, schedule timer, or for information display.

Information Display
Information for display includes error logs from each window, user-entered text, and multi viewer information.

Logo/Background
Up to 8 logos can be added. Backgrounds can be added to each of the 8 outputs (2 outputs in 4K operation.)

Input Lock
Input lock for each of the 8 standard inputs enables genlock without using reference signals.

Can display time based on a 30-hour clock
Time display can begin at 6 a.m., with midnight to 5 a.m. as hours 24–29 in a 30-hour period. Settings between 24-hour and 30-hour clocks are made in 1-hour increments.

Schedule Timer
As a trigger to display the remaining time, up to 24 times can be scheduled per day, on each weekday. Import and export schedule timer files as needed.

Cropping
Specify areas to crop from any side of a window in pixels or by percent. Background image is shown outside of cropped areas. Aspect ratio is also maintained after partial cropping (of one side, for example). Sides can be extended after cropping to enlarge the display.
With the MV-4000 series, you can add only the input formats you need, in just the amount needed. There are up to four expansion slots so that other inputs can be installed, including HDMI, DVI-I and RGB in addition to 12G/3G/HD/SD-SDI and analog composite.

**MV-4200SDI**
3G/HD/SD-SDI or analog composite input expansion card
- Expanded 3G/HD/SD-SDI/composite input: 20 channels
- Up to 34 windows supported

**MV-4220SDI**
12G/3G/HD-SDI input expansion card
- Expanded 12G-SDI input (5 channels) or 3G/HD-SDI input (20 channels)
- Up to 20 windows supported
- Add up to 2 cards to the MV-4200 series or 3 to the MV-4300 series

**MV-4200PCI**
PC (DVI-I/HDMI/RGBHV) input expansion card
- Expanded DVI-I/HDMI/RGBHV (HDCP-compliant) input: 8 channels
- Up to 11 windows supported

**MV-4200IF**
Interface expansion card
- Several kinds of expanded input: AES and analog audio (8 channels each), serial control, GPIO (144 pins, for input and output), and reference input

**MV-4200SNMP**
SNMP-compatible software
- SNMP-based control and monitoring

**MV-4200PS/MV-4300PS**
Redundant power supply unit
- Redundant power supply for added operational protection

**AUX Remote Control Panel**
- Four types of AUX remote control panels available
- Up to 8 control panels can be connected simultaneously

- HVS-AUX16A
  - (16 buttons)
- HVS-AUX16B
  - (16 buttons, tabletop model)
- HVS-AUX32A
  - (32 buttons)
- HVS-AUX64A
  - (64 buttons)
A variety of optional cards to expand your network connectivity

**MV-4320**

![Diagram](image)

Example of expansion:
With MV-4200IF, MV-4200PCI, MV-4200SDI, MV-4220SDI and optional cards MV-4300PS (from top to bottom) mounted.

**External view**

- **MV-4200/4210 /4220 front**
- **MV-4200/4210 /4220 side**
- **MV-4300/4310 /4320 front**
- **MV-4300/4310 /4320 side**

*6 Provided with Input Lock function.*