

**3G/HD/SD/ANALOG/HDMI/DVI MIXED  
HIGH RESOLUTION MULTI VIEWER**

**MV-1200**  
**MV-1210**



**Compact (1U) multi viewer for monitoring, featuring up to 16 inputs and 6 outputs. Build a versatile, flexible 4K (UHD) editing environment.**

**Two models available**

- MV-1200: HDMI 4 inputs/1 output
- MV-1210: SDI 4 inputs/1 output

Use of MV-12EXP option allows both SDI/HDMI input and output.

**Up to 16 input channels with optional cards (SDI and HDMI inputs total)**

- Combine optional input cards, MV-12SDI (3G/HD/SD-SDI, Composite x 4), MV-12PCI (DVI/HDMI x 4), or the MV-12IF interface card (GPIO, serial control, LTC input, genlock), as needed.

**HDMI 2.0b output, using MV-12PCO**

- 3840 x 2160, YUV 4:2:0

**HD to 4K up-resizing, using MV-12PCO and MV-12SDO**

**Logo display in title areas**

- Import a bitmap from the logo registration screen, or generate and register a logo using a web browser.

**Layout Manager**

- Customize layouts, using the software in Windows to adjust image size, position, title display, and other settings.
- Store layouts on the viewer.
- Recall saved layouts directly from the front panel control.

**Video can be streamed from the multi viewer over Ethernet.**

**Capture specified frames of streamed video.**

**Audio Level Display for up to 16 channels**

**Audio Monitoring Output**

**Versatile Mixed-Source Environment**

- Supports mixed signals including: 3G-SDI (Level-A/B), HD-SDI, SD-SDI, Composite, HDMI, or DVI 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)

**Flashing borders or error icons/messages to identify screens with errors**

**Tally, Title, and Timecode**

**Time of day, Timer, and Information Display**

**View error logs or user text in the Information Display.**

**Input Lock enables genlock without using reference signals.**

**Can display time based on a 30-hour clock.**

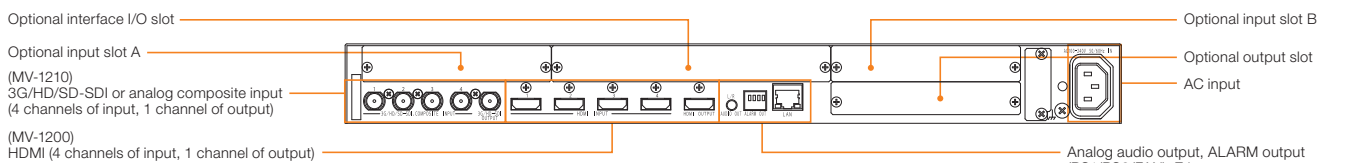
**Register up to 24 schedule timers per day for 1 week.**

**Cropping**

- Specify areas to crop in pixels or by percent.
- Background image is shown outside cropped areas.
- Aspect ratio also maintained after partial cropping (of one side, for example).

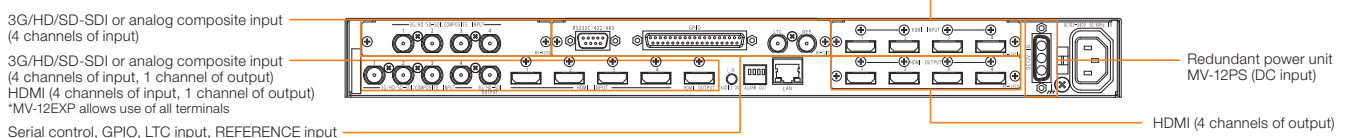
**Detects frozen frames. (Y/C and Y only)**

**A variety of optional cards to expand your network connectivity**



**Example of expansion**

Appearance as configured with (from top left) MV-12SDI, MV-12IF, MV-12PCI, (and below) MV-12EXP, MV-12PCO\*1



\*1 MV-12SDO (4-output SDI card) can also be installed in the lower slot.

## Specifications (Provisional)

Video format	3G: 1080/60p, 1080/59.94p, 1080/50p (Level-A/B) HD: 1080/60i, 1080/59.94i, 1080/50i, 720/60p, 720/59.94p, 720/50p, 1080/30p, 1080/29.97p, 1080/25p, 1080/24p, 1080/23.98p, 720/24p, 720/23.98p, 1080/30PsF, 1080/29.97PsF, 1080/25PsF, 1080/24PsF, 1080/23.98PsF, 1035/60i, 1035/59.94i SD: 525/60 (NTSC), 625/50 (PAL) *Note that PsF signals are treated as interlaced, therefore flickering may occur in some cases.	Video input/output delay <sup>4</sup>	HDMI/SDI output Standard: 0.5 to 1 frames (in Field mode) 1 to 2 frames (in Frame mode) Optional output: Main output delay + 0.5 frames (Line Delay Mode OFF) Main output delay + dozens lines (Line Delay Mode ON)
Video input	SDI/analog composite switching (Mixed input, asynchronous acceptable)	Count up/down timer <sup>5</sup> , Schedule timer	Can be displayed in information window. (Internal clock or LTC is selectable for schedule timer.)
3G/HD/SD-SDI (MV-1210, MV-12SDI)	3G-SDI: 3.0 Gbps (5C-FB (Belden 1694A): 70 m max.) HD-SDI: 1.5 Gbps (5C-FB (Belden 1694A): 100 m max.) SD-SDI: 270 Mbps (5C-2V (Belden 8281): 200 m max.) - Quantization: Y: 10-bit, C: 10-bit - Number of inputs: 4 included, 4 per MV-12SDI	Background display	Store and display background images - Max. size: 1920 x 1080 (2K mode), 3840 x 2160 (4K mode)
Analog composite (MV-1210, MV-12SDI)	Analog composite: 1.0 Vp-p - Quantization: Y: 10-bit, C: 10-bit - Number of inputs: 4 included, 4 per MV-12SDI	Logo display	Store and display logo images - Max. size: 1024 x 512
HDMI (MV-1200, MV-12PCI)	- Quantization <sup>1</sup> : R: 8-bit, G: 8-bit, B: 8-bit, or Y: 10-bit, C: 10-bit (4:4:4) - Resolution PC: 640 x 480, 800 x 600, 1024 x 768, 1280 x 1024, 1366 x 768, 1366 x 768, 1440 x 900, 1680 x 1050, 1600 x 1200, 1920 x 1200, Refresh rate: 50/60 Hz VIDEO (SMPTE-compliant): 1920 x 1080i/p, 1280 x 720p, 525/60i <sup>2</sup> , 625/50i <sup>2</sup>  Refresh rate: 60 Hz - HDCP-compliant - Number of inputs: 4 included, 4 per MV-12PCI	Screen layout	User customized layout - Layouts for each output can be saved on the viewer
Audio input		Title display	Character limit: Max. 16 characters x 2 lines for each input channel Supported characters: - Letters, numbers, symbols, Korean characters and Japanese kana/kanji (JIS 1 and 2)
Embedded	- Sampling frequency: 48 kHz (sync to input video signals) - Quantization: 16-bit to 24-bit - 16 channels for each SDI <sup>3</sup> input (4 groups, 8 stereo pairs)	Tally display	Indicated as a frame (red/green/amber) or marker (red/green/amber) on each input window.
HDMI	- Sampling frequency: 48 kHz - Quantization: 16-bit to 24-bit - 8 channels per HDMI input signal	Audio level display	Up to 16 audio channels of audio level metering per input
LTC input (MV-12IF)	BNC x 1 SMPTE-compliant timecode: within 1.0 Vp-p ±6 dBm	Time code display	- Display for 3G/HD/SD-SDI ancillary timecode (ATC) <sup>6</sup> - Reader mode <sup>7</sup>
Video output		Video monitoring	Detects video loss, frozen frames, incorrect luminance/black level, and CRC/HDCP error.
HDMI (MV-1200)	HDMI (TYPE A): 1 output - Quantization: Y: 10-bit, C: 10-bit (4:4:4), or R: 8-bit, G: 8-bit, B: 8-bit (4:4:4) - Resolution: 1920 x 1080, 1280 x 720 - Frequency: 59.94 Hz, 50 Hz - Range: limited	Audio monitoring	Detects audio loss, silence, and excessive audio levels.
HDMI (MV-12PCO)	HDMI (TYPE A): 4 outputs - Quantization: Y: 10-bit, C: 10-bit (4:4:4), Y: 8-bit, C: 8-bit (4:2:0), or R: 8-bit, G: 8-bit, B: 8-bit (4:4:4) - Resolution: 3840 x 2160, 1920 x 1080, 1980 x 720 - Frequency: 59.94 Hz, 50 Hz - Range: limited - HDMI 2.0b output mode (Enables 4K output with one HDMI cable)	Interface (standard)	LAN: 100BASE-TX/1000BASE-T, RJ-45 x 1 (CAT 5e-compliant)
3G/HD-SDI (MV-1210)	75Ω BNC x 1 - 3G-SDI: 3 Gbps 1080/59.94p, 1080/50p (Level-A) - HD-SDI: 1.5 Gbps 1080/59.94i, 1080/50i, 720/59.94p, 720/50p	Interface (optional)	Installing MV-12IF adds the following  RS-232C/RS-422/ RS-485 9-pin D-sub (male) x 1 - Baud rate: 9600/19200/38400/57600/115200 bps - Data length: 8-bit - Stop bit: 1-bit - Parity: none/odd/even
3G/HD-SDI (MV-12SDO)	75Ω BNC x 4 (4K output supported in quad display of 3840 x 2160 signals) Quantization: Y: 10-bit, C: 10-bit (4:2:2) - 3G-SDI: 3 Gbps 1080/59.94p, 1080/50p (Level-A) - HD-SDI: 1.5 Gbps 1080/59.94i, 1080/50i, 720/59.94p, 720/50p	GPIO	37-pin D-sub (female) x 1 - Up to 36-pin for input/18-pin for output (selectable, and can be used for input and output)
Audio output		Layout Manager	Windows <sup>®</sup> software for customizing window sizes and positions, switching windows, and registering backgrounds and logos (Windows <sup>®</sup> software)
Analog	Stereo mini jack x 1 (monaural x 2), unbalanced - Output impedance: 100Ω or less - Output level: -10 dBV - Maximum output level: +5 dBV - Sampling frequency: 48 kHz - Quantization: 24-bit	Live Viewer	Software for video streaming (Windows <sup>®</sup> software)
Embedded (SDI)	- Number of outputs: 4 groups (8 stereo pairs) per output - Sampling frequency: 48 kHz - Quantization: 24-bit	Data backup	Stores settings internally to the memory (rewrite capacity: approx. 100,000 times) <sup>8</sup>
Embedded (HDMI)	- Number of outputs: 4 stereo pairs per output - Sampling frequency: 48 kHz - Quantization: 24-bit	Backup battery	Internal lithium battery (to maintain time)
Alarm output (relay)	3 types of alarm output: Power 1, Power 2, Fan	Temperature/humidity	0°C to 40°C / 30% to 90% (no condensation)
Genlock input	- REF IN (MV-12IF) BB: NTSC: 0.429 Vp-p/PAL: 0.45 Vp-p, Tri-level sync: 0.6 Vp-p 75Ω BNC - INPUT LOCK (MAIN SDI CH1)	Power	100 V AC to 240 V AC ±10%, 50/60 Hz
		Consumption	130 VA (130 W) at 100 V AC to 120 V AC 145 VA (123 W) at 200 V AC to 240 V AC
		Dimensions/weight	430 (W) x 44 (H) x 425 (D) mm, EIA 1RU / 6.3 kg
		Accessories	Quick Setup Guide, Power cable (with outlet tether), Rack mount brackets, CD-ROM (Layout Manager, Live Viewer, Operation manuals)
		Consumables	Cooling fan: Replace every 5 years Backup battery CR2032: Replace every 5 years Battery: Replace every 5 years
		Options	MV-12PS: Redundant power supply MV-12PCI: 4-input HDMI card MV-12PCO: 4-output HDMI card MV-12SDI: 4-input SDI card MV-12SDO: 4-output SDI card MV-12IF: Interface options MV-12SNMP: SNMP-compatible software MV-12EXP: 4-input 1-output expansion software

\*1 Internally converted from 4:4:4 to 4:2:2

\*2 HDMI only

\*3 For 3G-SDI Level-B, only Link-A audio is supported, not Link-B.

\*4 Using interlaced input

\*5 Stopwatch/timer uses an internal crystal oscillator: ±50 ppm within operating temperature. (0°C to 40°C)

\*6 Ancillary time code (ATC) is not passed through.

\*7 Time code from LTC input is not displayed.

\*8 Frequent setting changes may impair data retention.

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