Three models available

- **MV-1200**: HDMI 4 inputs/1 output (standard).
  - Up to 16 inputs/6-monitor outputs (SDI/HDMI mixed, optional*)
- **MV-1210**: SDI 4 inputs/1 output (standard).
  - Up to 16 inputs/6-monitor outputs (SDI/HDMI mixed, optional*)
- **MV-1220**: SDI 8 inputs/2 outputs + HDMI 1 output (standard).
  - Up to 16 inputs/7-monitor outputs (optional*)

*1 Use of MV-12EXP option allows both SDI/HDMI input and output.
*2 Combine up to 2 optional input cards; MV-12SDI (3G/HD/SD-SDI, Composite x 4); MV-12PCO (DVI/HDMI x 4); or the MV-12IF interface card (GPIO, serial control; LTC input, genlock input), as needed.

Features

- **HDMI 2.0 LEVEL B output, using MV-12PCO**
  - 3840 x 2160, YUV 4:2:0
- **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)
- **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
  - 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

- Optional interface I/O slot
- Optional input slot A
  - 3G/HD/SD-SDI or analog composite input (4 channels of input, 1 channel of output)
  - HDMI (4 channels of input, 1 channel of output)
- Optional input slot B
- Optional output slot
- Analog audio output, ALARM output (PS1/PS2/FAN), Ethernet
- MV-12SDI:
  - 3G/HD/SD-SDI or analog composite input (4 channels of input)
- MV-12SDO:
  - 3G/HD-SDI (4 channels of output)

*3 MV-12PCO (4-output HDMI card) can also be installed in the lower slot.

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

EIA Rack mount brackets, AC cord, rubber feet, HDMI cable lacing bracket, CD-ROM (installation disc/layout manager, live viewer including operation manuals (PDF)), quick setup guide
# MV-1200/1210/1220

## Specifications

### Video format

<table>
<thead>
<tr>
<th>Format</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3G-SDI</strong></td>
<td>1080/60p, 1080/59.94p, 1080/50p (Level-A/B)</td>
</tr>
<tr>
<td><strong>HD-SDI</strong></td>
<td>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</td>
</tr>
<tr>
<td><strong>SD-SDI</strong></td>
<td>525/60 (NTSC), 625/50 (PAL)</td>
</tr>
</tbody>
</table>

*Note that PsF signals are treated as interlaced, therefore flickering may occur in some cases.*

### Video input

<table>
<thead>
<tr>
<th>Format</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3G/HD/SD-SDI</strong></td>
<td>3G-SDI: 3.0 Gbps (5C-FB (Belden 1694A): 70 m max.)</td>
</tr>
<tr>
<td><strong>(MV-1210, MV-1220, MV-12SDI)</strong></td>
<td>HD-SDI: 1.5 Gbps (5C-FB (Belden 1694A): 100 m max.)</td>
</tr>
<tr>
<td></td>
<td>SD-SDI: 270 Mbps (5C-2V (Belden 8281): 200 m max.)</td>
</tr>
<tr>
<td>- Quantization: Y: 10-bit, C: 10-bit</td>
<td></td>
</tr>
<tr>
<td>- Number of inputs:</td>
<td></td>
</tr>
<tr>
<td>MV-1210 - 4 inputs, MV-1220 - 8 inputs, MV-12SDI - 4 inputs</td>
<td></td>
</tr>
</tbody>
</table>

### Analog composite

<table>
<thead>
<tr>
<th>Format</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(MV-1210, MV-1220, MV-12SDI)</strong></td>
<td>Analog composite: 1.0 Vp-p</td>
</tr>
<tr>
<td>- Quantization: Y: 10-bit, C: 10-bit</td>
<td></td>
</tr>
<tr>
<td>- Number of inputs:</td>
<td></td>
</tr>
<tr>
<td>MV-1210 - 4 inputs, MV-1220 - 8 inputs, MV-12SDI - 4 inputs</td>
<td></td>
</tr>
</tbody>
</table>

### HDMI

<table>
<thead>
<tr>
<th>Format</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(MV-1200, MV-12PCI)</strong></td>
<td>- Quantization (**1): R: 8-bit, G: 8-bit, B: 8-bit, or Y: 10-bit, C: 10-bit (4:4:4)</td>
</tr>
<tr>
<td>- Resolution: PC: 640 x 480, 800 x 600, 1024 x 768, 1280 x 1024, 1360 x 768, 1366 x 768, 1440 x 900, 1680 x 1050, 1600 x 1200, 1920 x 1200</td>
<td></td>
</tr>
<tr>
<td>Refresh rate: 50/60 Hz</td>
<td></td>
</tr>
<tr>
<td>VIDEO (SMPTE-compliant): 1920 x 1080i/p, 1280 x 720p, 525/60i (**2), 625/50i (**2)</td>
<td></td>
</tr>
<tr>
<td>Refresh rate: 60 Hz</td>
<td></td>
</tr>
<tr>
<td>- HDCP-compliant</td>
<td></td>
</tr>
<tr>
<td>- Number of inputs: 4 included, 4 per MV-12PCI</td>
<td></td>
</tr>
</tbody>
</table>

### Audio input

<table>
<thead>
<tr>
<th>Format</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Embedded</strong></td>
<td>- Sampling frequency: 48 kHz (sync to input video signals)</td>
</tr>
<tr>
<td>- Quantization: 16-bit to 24-bit</td>
<td></td>
</tr>
<tr>
<td>- 16 channels for each SDI (**3) input (4 groups, 8 stereo pairs)</td>
<td></td>
</tr>
<tr>
<td><strong>HDMI</strong></td>
<td>- Sampling frequency: 48 kHz</td>
</tr>
<tr>
<td>- Quantization: 16-bit to 24-bit</td>
<td></td>
</tr>
<tr>
<td>- 8 channels per HDMI input signal</td>
<td></td>
</tr>
</tbody>
</table>

### LTC input (MV-12IF)

<table>
<thead>
<tr>
<th>Format</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNC x1</td>
<td>SMPT-compliant timecode: within 1.0 Vp-p ±6 dBm</td>
</tr>
</tbody>
</table>

### Video output

<table>
<thead>
<tr>
<th>Format</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HDMI (TYPE A): 1 output (MV-1220 does not support HDCP)</strong></td>
<td>- Quantization: Y: 10-bit, C: 10-bit (4:4:4), or R: 8-bit, G: 8-bit, B: 8-bit (4:4:4)</td>
</tr>
<tr>
<td>- Resolution: 1920 x 1080, 1280 x 720</td>
<td></td>
</tr>
<tr>
<td>- Frequency: 59.94 Hz, 50 Hz</td>
<td></td>
</tr>
<tr>
<td>- Range: limited</td>
<td></td>
</tr>
<tr>
<td>- Resolution: 3840 x 2160, 1920 x 1080, 1980 x 720</td>
<td></td>
</tr>
<tr>
<td>- Frequency: 59.94 Hz, 50 Hz</td>
<td></td>
</tr>
<tr>
<td>- Range: limited</td>
<td></td>
</tr>
<tr>
<td>- HDMI2.0 Level B output mode (Enables 4K output with one HDMI cable)</td>
<td></td>
</tr>
<tr>
<td><strong>3G/HD-SDI</strong></td>
<td>75Ω BNC x 1 (MV-1210)</td>
</tr>
<tr>
<td>(MV-1220, 1210)</td>
<td>75Ω BNC x 2 (MV-1220)</td>
</tr>
<tr>
<td>- 3G-SDI: 3 Gbps 1080/59.94p, 1080/50p (Level-A)</td>
<td></td>
</tr>
<tr>
<td>- HD-SDI: 1.5 Gbps 1080/59.94i, 1080/50i, 720/59.94p, 720/50p</td>
<td></td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>3G/HD-SDI (MV-12SDO)</strong></td>
<td>75Ω BNC x 4 (4K output supported in quad display of 3840 x 2160 signals)</td>
</tr>
<tr>
<td>Quantization</td>
<td>- 3G-SDI: 3 Gbps 1080/59.94p, 1080/50p (Level-A)</td>
</tr>
<tr>
<td></td>
<td>- HD-SDI: 1.5 Gbps 1080/59.94i, 1080/50i, 720/59.94p, 720/50p</td>
</tr>
<tr>
<td><strong>Audio output</strong></td>
<td>Stereo mini jack x 1 (stereo x 2), unbalanced</td>
</tr>
<tr>
<td></td>
<td>- Output impedance: 100Ω or less</td>
</tr>
<tr>
<td></td>
<td>- Maximum output level: +5 dBV</td>
</tr>
<tr>
<td></td>
<td>- Sampling frequency: 48 kHz</td>
</tr>
<tr>
<td></td>
<td>- Quantization: 24-bit</td>
</tr>
<tr>
<td><strong>Alarm output (relay)</strong></td>
<td>3 types of alarm output: Power 1, Power 2, Fan</td>
</tr>
<tr>
<td><strong>Genlock input</strong></td>
<td>REF IN (MV-12IF)</td>
</tr>
<tr>
<td></td>
<td>BB: NTSC: 0.429 Vp-p/PAL: 0.45 Vp-p, Tri-level sync: 0.6 Vp-p 75Ω BNC</td>
</tr>
<tr>
<td><strong>Video input/output delay</strong> (<em>4)</em>*</td>
<td>HDMI/SDI output</td>
</tr>
<tr>
<td></td>
<td>&lt; Main SDI1-2/HDMI Out &gt;</td>
</tr>
<tr>
<td></td>
<td>0.5-1 frame (in Field mode)</td>
</tr>
<tr>
<td></td>
<td>1-2 frames (in Frame mode)</td>
</tr>
<tr>
<td></td>
<td>&lt; Option Out1-4 (in 2K layout mode)&gt;</td>
</tr>
<tr>
<td></td>
<td>Main SDI1-2/HDMI Out delay + 0.5 frames (Line Delay Mode OFF)</td>
</tr>
<tr>
<td></td>
<td>Main SDI1-2/HDMI Out delay + dozens lines (Line Delay Mode ON)</td>
</tr>
<tr>
<td></td>
<td>&lt;Option Out1-4 (in 4K layout mode)&gt;</td>
</tr>
<tr>
<td></td>
<td>Main SDI1-2/HDMI Out + 0.5 frames</td>
</tr>
<tr>
<td>**Count up/down timer (<strong>5), Schedule timer</strong></td>
<td>Can be displayed in information window. (Internal clock or LTC is selectable for schedule timer.)</td>
</tr>
<tr>
<td><strong>Background display</strong></td>
<td>Store and display background images</td>
</tr>
<tr>
<td></td>
<td>- Max. size: 1920 x 1080 (2K layout mode), 3840 x 2160 (4K layout mode)</td>
</tr>
<tr>
<td><strong>Logo display</strong></td>
<td>Store and display logo images</td>
</tr>
<tr>
<td></td>
<td>- Max. size: 1024 x 512</td>
</tr>
<tr>
<td><strong>Screen layout</strong></td>
<td>User customized layout</td>
</tr>
<tr>
<td></td>
<td>- Layouts for each output can be saved on the viewer</td>
</tr>
<tr>
<td><strong>Title display</strong></td>
<td>Character limit: Max. 16 characters x 2 lines for each input channel</td>
</tr>
<tr>
<td></td>
<td>Supported characters:</td>
</tr>
<tr>
<td></td>
<td>- Letters, numbers, symbols, Korean characters and Japanese kana/kanji (JIS 1 and 2)</td>
</tr>
<tr>
<td><strong>Tally display</strong></td>
<td>Indicated as a frame (red/green/amber) or marker (red/green/amber) on each input window</td>
</tr>
<tr>
<td>**Audio level display (<strong>9)</strong></td>
<td>Up to 16 audio channels of audio level metering per input</td>
</tr>
<tr>
<td><strong>Time code display</strong></td>
<td>Display for 3G/HD/SD-SDI ancillary timecode (ATC) (*6)</td>
</tr>
<tr>
<td></td>
<td>- Reader mode (*7)</td>
</tr>
<tr>
<td><strong>Video monitoring</strong></td>
<td>Detects video loss, frozen frames, incorrect luminance/black level, and CRC/HDCP error.</td>
</tr>
<tr>
<td><strong>Audio monitoring</strong></td>
<td>Detects audio loss, silence, and excessive audio levels.</td>
</tr>
<tr>
<td><strong>Interface (standard)</strong></td>
<td>LAN: 100BASE-TX/1000BASE-T, RJ-45 x 1 (CAT 5e-compliant)</td>
</tr>
</tbody>
</table>
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

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)

Layout Manager
Windows® software for customizing window sizes and positions, switching windows, and registering backgrounds and logos

Live Viewer
Software for video streaming (Windows® software)

Data backup
Stores settings internally to the memory (rewrite capacity: approx. 100,000 times) (*8)

Backup battery
Internal lithium battery (to maintain time)

Temperature/humidity
0°C to 40°C / 30% to 90% (no condensation)

Power/consumption
100 V AC to 240 V AC ±10%, 50/60 Hz
MV-1200/1210 (*10)
130 VA (130 W) at AC100V to 120V
145 VA (123 W) at AC200V to 240V

MV-1220 (*11)
117 VA (115 W) at AC100V to 120V
125 VA (109W) at AC200V to 240V

Dimensions/weight
430 (W) x 44 (H) x 425 (D) mm EIA 1RU / 6.3 kg
480 (W) (Including rack mount brackets)

Accessories
Quick Setup Guide, AC Cord (AC cord clamp included), 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

Other Options
HVS-AUX16A/16B/32A/64A: Auxiliary unit (Connectable max. 6 units)

(*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.
(*9) When input audio frequency is under 60Hz, audio level may not be displayed correctly.
(*10) When the following listed modules are installed to MV-1200/1210 (with MV-12PS)
MV-12SDI x 2, MV-12SDO, MV-12IF x 1
(*11) When the following listed modules are installed to MV-1220 (with MV-12PS)
MV-12SDI x 2, MV-12PCO, MV-12IF x 1
External Dimensions

(All dimensions in mm.)

[MENU] [SDI OUT] [AUTO] [FULL] [MUTE] [ENTER] [LOCK] [TEST]

[MULTI] [VIDEO] [AUDIO] [ALL OUT] [OP OUT4] [OP OUT3] [OP OUT2] [OP OUT1] [USER4] [USER3] [USER2] [USER1]