

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

# MV-1200/1210/1220



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

### Three models available

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

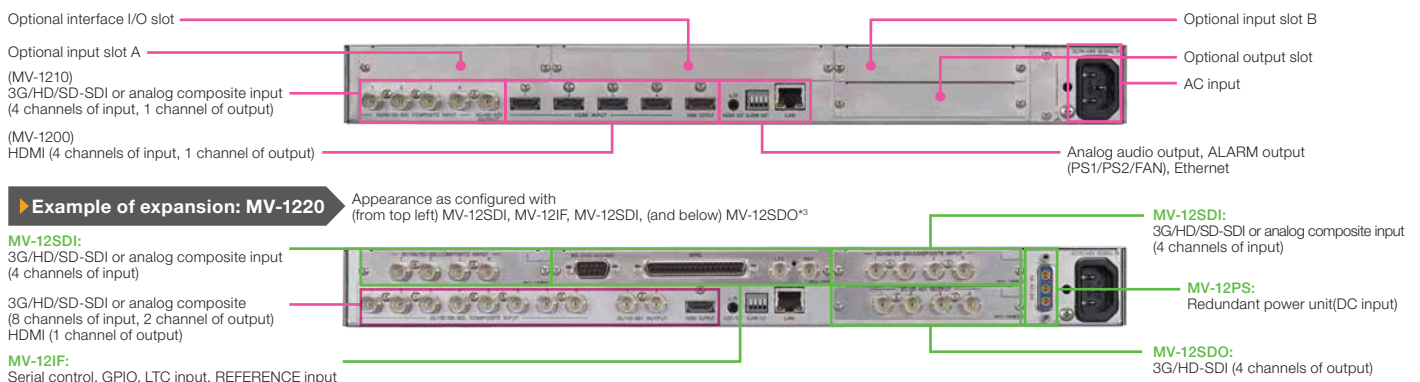
\*1 Use of MV-12EXP option allows both SDI/HDMI input and output.

\*2 Combine up to 2 optional input cards; MV-12SDI (3G/HD/SD-SDI, Composite x 4); MV-12PCI (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



## Accessories

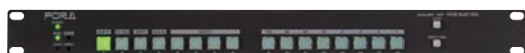
EIA Rack mount brackets, AC cord, rubber feet, HDMI cable lacing bracket, CD-ROM, quick setup guide

## Options

- **MV-12PS** : Redundant power supply (Includes an AC adaptor and AC cord)
  
- **MV-12IF** : Interface card  
Expansion card supports GPIO, RS-232C/422/485 and Genlock input.  
Tally inputs, time correction, and alarm resets using up to 36 contact closure inputs to the GPIO connector on the rear of the unit.
  
- **MV-12SDI** : 4-input SDI card  
4-input card supports 3G-SDI (Level-A/Level-B)/HD-SDI/SD-SDI/analog composite (mixed input) signal formats.
  
- **MV-12PCI\*** : 4-input HDMI card  
4-input card supports DVI-D or HDMI signal formats (mixed input). To input DVI-D signals, prepare DVI-HDMI conversion cables.
  
- **MV-12SDO** : 4-output SDI card  
4-output card supports 3G-SDI (Level-A/Level-B)/HD-SDI signal formats.
  
- **MV-12PCO\*** : 4-output HDMI card  
4-output card supports DVI-D or HDMI signal formats.  
HDMI2.0 Level B mode is available. It allows you to output 4K video using a single HDMI port.
  
- **MV-12EXP\*** : 4-input 1-output expansion software (For MV-1200 and MV-1210 only.)  
When input option cards and MV-12EXP are installed, up to 16 inputs are available.
  
- **MV-12SNMP** : SNMP-compatible software  
Enables the SNMPv2C compatible remote SNMP monitoring system to monitor the MV-1200 Series.  
\*HDMI Cable Lacing Bracket (1 set) included.

## Other Option

- **HVS-AUX16A/16B/32A/64A\*** : Auxiliary unit (Ethernet LAN Connection)



HVS-AUX16A (16-buttons)



HVS-AUX16B (16buttons, tablet-top model)



HVS-AUX32A (32-buttons)



HVS-AUX64A (64-buttons)

\*Up to 6 units can be connected

## MV-1200/1210/1220 Datasheet

### 1. Specifications

#### Basic specifications

Temperature	0°C to 40°C
Humidity	30% to 90% (no condensation)
Power	100 V AC to 240 V AC $\pm$ 10%, 50/60 Hz
Consumption	<p>&lt;MV-1200/1210&gt; (*10)            130 VA (130 W) at AC100V to 120V            145 VA (123 W) at AC200V to 240V</p> <p>&lt;MV-1220&gt; (*11)            117 VA (115 W) at AC100V to 120V            125 VA (109W) at AC200V to 240V</p>
Dimensions	430 (W) x 44 (H) x 425 (D) mm EIA 1RU 480 (W) (Including rack mount brackets)
Weight	6.3 kg
Consumables (at 24-hour operation)	Cooling fan: Replace every 5 years Backup battery CR2032: Replace every 5 years Battery: Replace every 5 years

#### Technical specifications

Video format	<p><b>3G-SDI:</b> 1080/60p, 1080/59.94p, 1080/50p (Level-A/B)  <b>HD-SDI:</b> 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  <b>SD-SDI:</b> 525/60 (NTSC), 625/50 (PAL)</p> <p>* Note that PsF signals are treated as interlaced, therefore flickering may occur in some cases.</p>
Video input	SDI/analog composite switching (Mixed input, asynchronous acceptable)
3G/HD/SD-SDI (MV-1210, MV-1220, MV-12SDI)	<p>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.)</p> <p>- Quantization: Y: 10-bit, C: 10-bit            - Number of inputs:            MV-1210 - 4 inputs, MV-1220 - 8 inputs, MV-12SDI - 4 inputs</p>
Analog composite (MV-1210, MV-1220, MV-12SDI)	<p>Analog composite: 1.0 Vp-p            - Quantization: Y: 10-bit, C: 10-bit            - Number of inputs:            MV-1210 - 4 inputs, MV-1220 - 8 inputs, MV-12SDI - 4 inputs</p>
HDMI (MV-1200, MV-12PCI)	<p>- Quantization (*1): 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, 1360 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 (*2), 625/50i (*2)            Refresh rate: 60 Hz            - HDCP-compliant            - Number of inputs: 4 included, 4 per MV-12PCI</p>

Audio input	
Embedded	<ul style="list-style-type: none"> <li>- Sampling frequency: 48 kHz (sync to input video signals)</li> <li>- Quantization: 16-bit to 24-bit</li> <li>- 16 channels for each SDI (*3) input (4 groups, 8 stereo pairs)</li> </ul>
HDMI	<ul style="list-style-type: none"> <li>- Sampling frequency: 48 kHz</li> <li>- Quantization: 16-bit to 24-bit</li> <li>- 8 channels per HDMI input signal</li> </ul>
LTC input (MV-12IF)	<p>BNC x1</p> <p>SMPTE-compliant timecode: within 1.0 Vp-p <math>\pm</math>6 dBm</p>
Video output	
HDMI (MV-1200, MV-1220)	<p>HDMI (TYPE A): 1 output (MV-1220 does not support HDCP)</p> <ul style="list-style-type: none"> <li>- Quantization: Y: 10-bit, C: 10-bit (4:4:4), or R: 8-bit, G: 8-bit, B: 8-bit (4:4:4)</li> <li>- Resolution: 1920 x 1080, 1280 x 720</li> <li>- Frequency: 59.94 Hz, 50 Hz</li> <li>- Range: limited</li> </ul>
HDMI (MV-12PCO)	<p>HDMI (TYPE A): 4 outputs</p> <ul style="list-style-type: none"> <li>- 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)</li> <li>- Resolution: 3840 x 2160, 1920 x 1080, 1980 x 720</li> <li>- Frequency: 59.94 Hz, 50 Hz</li> <li>- Range: limited</li> <li>- HDMI2.0 Level B output mode (Enables 4K output with one HDMI cable)</li> </ul>
3G/HD-SDI (MV-1220, 1210)	<p>75<math>\Omega</math> BNC x 1 (MV-1210)</p> <p>75<math>\Omega</math> BNC x 2 (MV-1220)</p> <ul style="list-style-type: none"> <li>- 3G-SDI: 3 Gbps 1080/59.94p, 1080/50p (Level-A)</li> <li>- HD-SDI: 1.5 Gbps 1080/59.94i, 1080/50i, 720/59.94p, 720/50p</li> </ul>
3G/HD-SDI (MV-12SDO)	<p>75<math>\Omega</math> BNC x 4</p> <p>(4K outputs in SQD or 2SI format supported for quad display of 3840 x 2160 signals)</p> <p>Quantization: Y: 10-bit, C: 10-bit (4:2:2)</p> <ul style="list-style-type: none"> <li>- 3G-SDI: 3 Gbps 1080/59.94p, 1080/50p (Level-A)</li> <li>- HD-SDI: 1.5 Gbps 1080/59.94i, 1080/50i, 720/59.94p, 720/50p</li> </ul>
Audio output	
Analog	<p>Stereo mini jack x 1 (monaural x 2), unbalanced</p> <ul style="list-style-type: none"> <li>- Output impedance: 100<math>\Omega</math> or less</li> <li>- Output level: -10 dBV</li> <li>- Maximum output level: +5 dBV</li> <li>- Sampling frequency: 48 kHz</li> <li>- Quantization: 24-bit</li> </ul>
Embedded (SDI)	<ul style="list-style-type: none"> <li>- Number of outputs: 4 groups (8 stereo pairs) per output</li> <li>- Sampling frequency: 48 kHz</li> <li>- Quantization: 24-bit</li> </ul>
Embedded (HDMI)	<ul style="list-style-type: none"> <li>- Number of outputs: 4 stereo pairs per output</li> <li>- Sampling frequency: 48 kHz</li> <li>- Quantization: 24-bit</li> </ul>
Alarm output (relay)	<p>3 types of alarm output: Power 1, Power 2, Fan</p>
Genlock input	<ul style="list-style-type: none"> <li>- REF IN (MV-12IF)</li> <li>BB: NTSC: 0.429 Vp-p/PAL: 0.45 Vp-p,</li> <li>Tri-level sync: 0.6 Vp-p 75<math>\Omega</math> BNC</li> <li>- INPUT LOCK (Main SDI IN1)</li> </ul>

Video input/output delay (*4)	HDMI/SDI output < Main SDI1-2/HDMI Out > 0.5-1 frame (in Field mode) 1-2 frames (in Frame mode) < Option Out1-4 (in 2K layout mode)> Main SDI1-2/HDMI Out delay + 0.5 frames (Line Delay Mode OFF) Main SDI1-2/HDMI Out delay + dozens lines (Line Delay Mode ON) <Option Out1-4 (in 4K layout mode)> Main SDI1-2/HDMI Out + 0.5 frames
Count up/down timer (*5), Schedule timer	Can be displayed in information window. (Internal clock or LTC is selectable for schedule timer.)
Background display	Store and display background images - Max. size: 1920 x 1080 (2K layout mode), 3840 x 2160 (4K layout mode)
Logo display	Store and display logo images - Max. size: 1024 x 512
Screen layout	User customized layout - Layouts for each output can be saved on the viewer
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)
Tally display	Indicated as a frame (red/green/amber) or marker (red/green/amber) on each input window.
Audio level display (*9)	Up to 16 audio channels of audio level metering per input
Time code display	- Display for 3G/HD/SD-SDI ancillary timecode (ATC) (*6) - Reader mode (*7)
Video monitoring	Detects video loss, frozen frames, incorrect luminance/black level, and CRC/HDCP error.
Audio monitoring	Detects audio loss, silence, and excessive audio levels.
Interface (standard)	LAN: 100BASE-TX/1000BASE-T, RJ-45 x 1 (CAT 5e-compliant)
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 (Windows software)
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)

- (\*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:  $\pm 50$  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

### Options

MV-12PS	Redundant power supply (Includes an AC adaptor and AC cord)
MV-12IF	Interface card
MV-12SDI	4-input SDI card
MV-12PCI *	4-input HDMI card
MV-12SDO	4-output SDI card
MV-12PCO *	4-output HDMI card
MV-12EXP *	4-input 1-output expansion software (For MV-1200 and MV-1210 only.)
MV-12SNMP	SNMP-compatible software

\* HDMI Cable Lacing Bracket (1 set) included.

### Other Option

HVS-AUX16A/16B/32A/64A (*)	Auxiliary unit (Ethernet LAN Connection)
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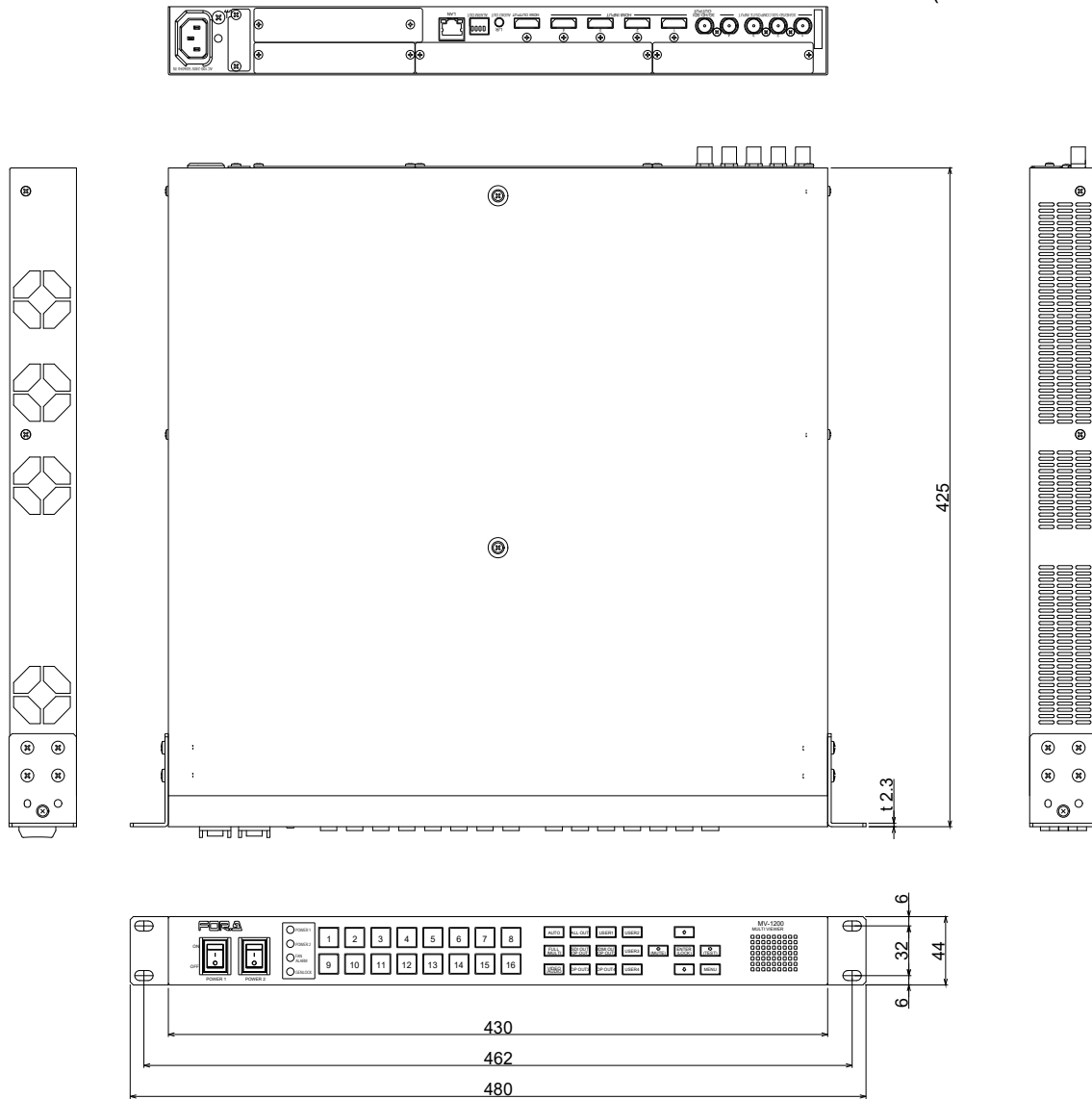
(\*) Up to 6 units can be connected.

### Accessories

EIA Rack Mount Brackets, AC Cord, Rubber Feet, HDMI Cable Lacing Bracket, CD-ROM, Quick Setup Guide

**2. External Dimensions**

(All dimensions in mm.)





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