

**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)

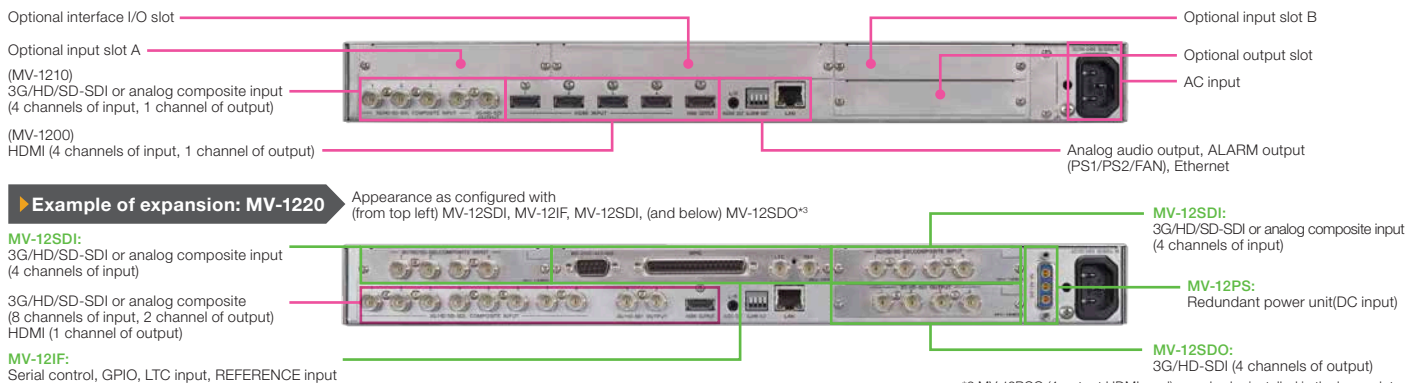
*1 Use of MV-12EXP option allows both SDI/HDMI input and output.

*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



Specifications

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	SDI/analog composite switching (Mixed input, asynchronous acceptable) 3G/HD/SD-SDI (MV-1210, MV-1220, 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: MV-1210: 4 inputs, MV-1220: 8 inputs, MV-12SDI: 4 inputs Analog composite (MV-1210, MV-1220, MV-12SDI) 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 HDMI (MV-1200, MV-12PCI) - 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, 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 1080/p, 1280 x 720p, 525/60i ^{*2} , 625/50i ^{*2} Refresh rate: 60 Hz - HDCP-compliant - Number of inputs: MV-1200: 4 inputs, MV-12PCI: 4 inputs
Audio input	
Embedded	- Sampling frequency: 48 kHz (sync to input video signals) - Quantization: 16-bit to 24-bit - 16 channels for each SDI ^{*3} input (4 groups, 8 stereo pairs)
HDMI	- Sampling frequency: 48 kHz - Quantization: 16-bit to 24-bit - 8 channels per HDMI input signal
LTC input (MV-12IF)	BNC x 1 SMPTE-compliant timecode: within 1.0 Vp-p ±6 dBm
Video output	
HDMI (MV-1200, MV-1220*)	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
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)
3G/HD-SDI (MV-1210, MV-1220)	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 - Number of outputs: MV-1210: 1 outputs, MV-1220: 2 outputs
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
Audio output	
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
Embedded (SDI)	- Number of outputs: 4 groups (8 stereo pairs) per output - Sampling frequency: 48 kHz - Quantization: 24-bit
Embedded (HDMI)	- Number of outputs: 4 stereo pairs per output - Sampling frequency: 48 kHz - Quantization: 24-bit
Alarm output (relay)	3 types of alarm output: Power 1, Power 2, Fan
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)

Video input/output delay ^{*5}	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)
Count up/down timer ^{*6} , 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 mode), 3840 x 2160 (4K 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	Up to 16 audio channels of audio level metering per input
Time code display	- Display for 3G/HD/SD-SDI ancillary timecode (ATC) ^{*7} - Reader mode ^{*8}
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) ^{*9}
Backup battery	Internal lithium battery (to maintain time)
Temperature/humidity	0°C to 40°C / 30% to 90% (no condensation)
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 HDCP not compliant. When an MV-12PCO option is installed, HDCP-protected video can be output via 4 HDMI ports.
*5 Using interlaced input
*6 Stopwatch/timer uses an internal crystal oscillator: ±50 ppm within operating temperature. (0°C to 40°C)
*7 Ancillary time code (ATC) is not passed through.
*8 Time code from LTC input is not displayed.
*9 Frequent setting changes may impair data retention.

- Windows is a registered trademark of Microsoft Corporation in the United States and other countries.



Head Office: 3-8-1 Ebisu, Shibuya-ku, Tokyo 150-0013, Japan

ISO 9001 and 14001 certified (Sakura R&D)

www.for-a.com

FOR-A Corporation of America Corporate Office/ Service Center: Tel: +1 714-894-3311
11155 Knott Ave., Suite G, H & I, Cypress, CA 90630, U.S.A.
FOR-A Corporation of America Northeast Office: Tel: +1 973-220-847
1360 Clifton Ave., Clifton, NJ 07012, U.S.A.
FOR-A Corporation of America Southeast Office: Tel: +1 305-773-7608
FOR-A Corporation of America Support Center: Tel: +1 352-371-1505
2400 N.E. Waldo Road, Gainesville, FL 32609, U.S.A.
FOR-A Latin America and the Caribbean Miami Office: Tel: +1 657-600-5759
FOR-A Latin America and the Caribbean Sao Paulo Office: Tel: +55 (0)11-99913-3751
FOR-A Europe S.r.l.: Tel: +39 039-916-4811
Via Volturmo, 37, 20861 Brugherio MB, Italy
FOR-A UK Limited: Tel: +44 (0)20-3044-2935
Trident Court, 1 Oakcroft Road, Chessington, KT9 1BD, UK

FOR-A Italia S.r.l.: Tel: +39 039-881-086/103
Via Volturmo, 37, 20861, Brugherio MB, Italy
FOR-A Corporation of Korea: Tel: +82 (0)2-2637-0761
1007, 57-5, Yangsan-ro, Yeongdeungpo-gu, Seoul 07271, Korea
FOR-A China Limited: Tel: +86 (0)10-8721-6023
1618 Huateng Building, No. 302, 3 District, Jinsong, Chaoyang, Beijing 100021, China
FOR-A Middle East-Africa Office: Tel: +971 (0)4-551-5830
Aurora Tower, Office 1407, Dubai Media City, P.O. Box 502688, Dubai, UAE
FOR-A India Private Limited: Tel: +91 (0)22-2673-3623
2nd Floor, Valecha Chambers, Link Road, Andheri (W), Mumbai 400053, India
FOR-A South East Asia Office: Tel: +852 2110-1352
Studio 09, Rm. A1, 3/F., Phase 1, Hang Fung Ind. Bldg., 2G Hok Yuen St., Hung Hom, Hong Kong