FOR.A®
**INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY**

3G/HD/SD/Analog/PC Mixed High Resolution Multi Viewer (Max. 32-Channel, 4 Outputs)

MV-3200

Up to 32 Inputs with 4-Screen Outputs

The MV-3200 series is a multi viewer offering a multi-monitor display environment suited to your system by selecting and installing the required input and output cards on a 2U frame. Up to 4 input and 2 output cards can be installed on the frame, for a multi viewer with a maximum of 32 inputs and 4 outputs. Supports mixed input of HD-SDI, SD-SDI, analog composite and DVI (analog and digital) signals.
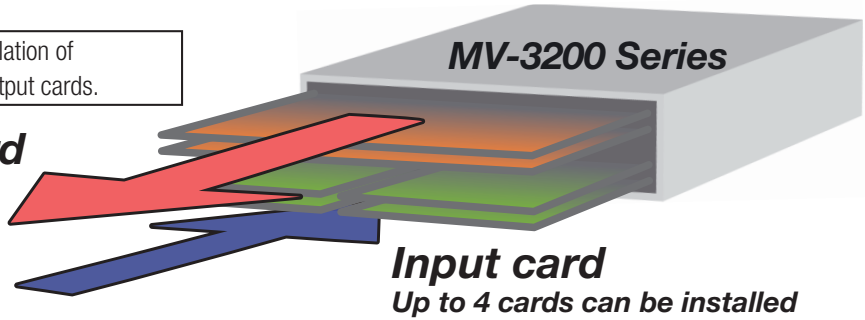
Input/Output Image

Frame

MV-3200MF	2U size frame allowing installation of up to 4 input cards and 2 output cards.

MV-3200 Series

Output card
Up to 2 cards can be installed

Input card
Up to 4 cards can be installed

Input card

MV-32HSDI	3G-SDI (LEVEL-A), HD-SDI or SD-SDI: 8 inputs
MV-32AI	Analog composite: 8 inputs
MV-32AIL	Analog composite: 4 inputs *Allows loopthrough for each input
MV-32PCI	DVI-I: 3 inputs *Digital or analog can be selected.
MV-32AAI	Enables analog audio 16 channel input. D-sub 25 pin (female) x 2 8 stereo channels, balanced and unbalanced
MV-32DAI	Enables AES audio 16 channel input. BNC x 8 8 stereo channels, unbalanced

Output card

MV-32PCDO	DVI-I output 2 channels
	Can display maximum of 32 video windows and 4 clock windows with 2 channels together for DVI-I output

Options

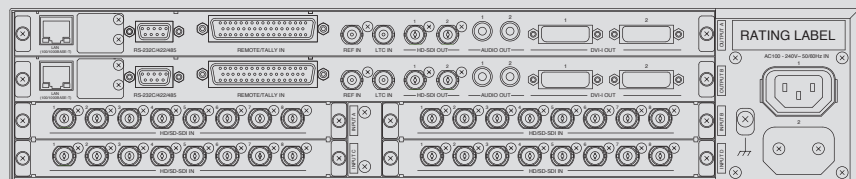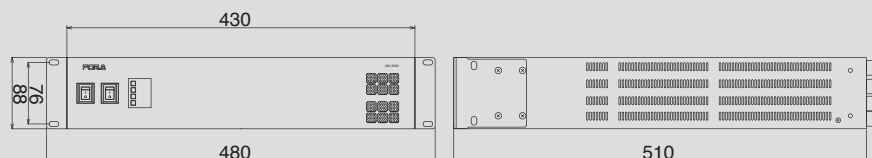| MV-32PS	Redundant Power supply unit
MV-32FP	Front control panel
MV-32RT	90 degree rotated output
MV-32HDO	3G-SDI (LEVEL-A), HD-SDI output *SD-SDI is not supported)
MV-32SNMP	SNMP support

MV-32FP: Front control panel

MV-32RT: Rotated output image

Rear Panel (w/ I/O cards)

RATING LABEL
AC100 - 240V~ 50/60Hz IN

External Dimensions

430

88
76

480

510

Supports Mixed Input of Various Signals

Supports mixed input of analog composite, SD-SDI, HD-SDI and DVI signal by combining input cards (asynchronous input allowed).
The lineup includes multiple cards to support your types and number of input signals (see table on the left). You can select a single optimal unit to suit your system size and input signal type.

Video Window Display of Each Output

Enables up to 32 video windows for each output card. The input video of your choice can be selected for each video window and the same input video can be displayed on multiple windows.

Time Display, Count Up/Down Timer, Remaining Time Counter

A maximum of 4 clocks can be displayed for each output card. Also, if not used as a clock display, it can be used as a count-up/count-down timer and remaining time counter.

Layout Editor

The layout editor, which operates on a PC, comes standard, letting you change various settings such as split patterns and title display freely from a PC. The layout screen can be saved on the main unit memory in up to 32 patterns. By using the dedicated remote control software, layout patterns saved on the main unit can be recalled easily.

Audio Level Display

A function is provided to display the level of the embedded audio signal that is superimposed on HD/SD-SDI. Also, by installing an analog audio or AES/EBU audio card into an input card slot, their levels also can be displayed.

Tally Display/ Title Display

■ Tally display: Can be selected from frame tally or marker tally indicator. Two tally indicators can be set per window.

■ Title display: Up to two strings of text can be displayed for each input. Supports display of alphanumeric characters and symbols (up to 16 letters), which can be displayed within or outside the picture.

Output card Independent Operation

Up to 2 output cards can be installed on a 2U frame, each operating independently. If one card malfunctions, the other one can display 32 inputs.

FOR-A Multi Viewer Line-up

MV-1600HS Series

■ Max. 16 mixed input of HD-SDI, SD-SDI, analog composite, and PC (DVI) signals
■ WUXGA (1920 x 1200 pixels) DVI-I High-resolution output
■ Includes layout editor
■ Network video transfer function
■ 8-channel audio level display
■ Tally display, Title display, and Time display functions
■ Secondary DVI-I output (option)
■ Redundant power supply (option)
■ MV-1611HS : HD/SD-SDI output model also available

MV-410HS

■ 4 mixed input of HD-SDI, SD-SDI, and analog composite signals
■ Supports mixed input of different frame rate signals
■ WUXGA (1920 x 1200 pixels) DVI-I High-resolution output
■ Includes layout editor
■ Network video transfer function
■ 8-channel audio level display
■ Tally display, Title display, and Time display functions
■ Redundant power supply (option)

MV-410RGB

■ 4 mixed input of RGB signals and analog composite signals
■ Total 8 inputs: 4 DVI-I inputs and 4 analog composite inputs (choose any 4 channels)
■ WUXGA (1920 x 1200) DVI-I outputs
■ Including layout editor
■ Title display and analog clock display functions

Specifications

Video Formats	3G: 1080/60p, 1080/59.94p, 1080/50p (LEVEL A)
	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)
Video Inputs	Accepts the following signals (Mix input, asynchronous acceptable):
HD-SDI/SD-SDI Input Card (MV-32HSDI)	3G-SDI: 2.97 Gbps or 2.97/1.001 Gbps, 75Ω BNC
	HD-SDI: 1.485 Gbps or 1.485/1.001 Gbps, 75Ω BNC
	SD-SDI: 270 Mbps, 75Ω BNC
	Quantization: Y: 10-bit, C: 10-bit, Number of inputs: 8 inputs per MV-32HSDI card
Analog Composite Input Card (MV-32AI)	Analog Composite: 1.0 Vp-p, 75Ω BNC
	Quantization: Y: 10-bit, C: 10-bit, Number of inputs: 8 inputs per MV-32AI card
Analog Composite Input Card (MV-32AIL)	Analog composite: 1.0 Vp-p loop-through or 75Ω termination (manually selectable) BNC
	Quantization: Y: 10-bit, C: 10-bit, Number of inputs: 4 inputs per MV-32AIL card
DVI (Digital and Analog RGB) Input Card (MV-32PCI)	<Analog RGB> DVI-I connectors
	Quantization: R: 8-bit, G: 8-bit, B: 8-bit, Input resolution: PC (VESA DMT) 640x480, 1024x768, 1360x768, 1600x1200, 1920x1200, 1440x900, 1680x1050 * 1920x1200 is supported only for Reduced Blanking VIDEO (SMPTE), 1920x1080p, 1280x720p
	Refresh rate: 60 Hz, R/G/B: 0.7 Vp-p, H/V: TTL * Support progressive video only.
	<DVI> DVI-I connectors
	Quantization: R: 8-bit, G: 8-bit, B: 8-bit, Input resolution: PC (VESA DMT) 640x480, 1024x768, 1280x1024, 1360x768, 1600x1200, 1920x1200, 1440x900, 1680x1050 * 1920x1200 is supported only for Reduced Blanking VIDEO (SMPTE), 1920x1080p, 1280x720p
	Refresh rate: 60Hz, HDCP not supported * Support progressive video only.
	* Plug-and-play devices such as computers that are connected to the DVI output connectors are recognized as DVI-D compatible monitors.
	Number of inputs: 3 inputs per MV-32PCI card
Audio Input	
HD-SDI/SD-SDI Input Card (MV-32HSDI)	Embedded audio signal
	Sampling frequency: 48 kHz (sync to input video signals)
	Quantization: 16 to 24-bit
	16 channels per 3G/HD/SD-SDI input signal (4 groups, 8-stereo pairs)
	Number of inputs: 128 channels per MV-32HSDI card
Analog Audio Input Card (MV-32AAI)	Analog Audio signal,Balanced or unbalanced, 25-pin D-sub (female) x 2 (inch screw)
	* The circuit between COLD and SHIELD pins must be shorted outside the unit for an unbalanced input.
	Input impedance: 600Ω or Hi-Z, Input level: -10 dBV/-3 dBu/0 dBu/+4 dBu
	Maximum input level (with +4 dBu input level): +24 dBu (balanced), +18 dBu (unbalanced)
	Rated input power (with 600Ω termination): +24 dBm
	Sampling frequency: 48 kHz, Quantization: 24-bit
	Number of inputs: 16 channels per MV-32AAI card (8-stereo pairs)
AES Audio Input Card (MV-32DAI)	AES Audio signal, Unbalanced, 75Ω BNC x 8
	Sampling frequency: 32/44.1/48 kHz, Quantization: 16 to 24-bit
	Number of inputs: 16 channels per MV-32DAI card (8-stereo pairs)
LTC Input	1 input, SMPTE time code 1.0 Vp-p within ±6 dB
Video Outputs	DVI: (Outputs digital and analog outputs at the same time), DVI-I connector x 2
	- Quantization: R: 8-bit, G: 8-bit, B: 8-bit
	- Resolution: 1920x1200, 1600x1200, 1280x1024, 1360x768, 1440x900, 1680x1050, 1920x1080, 1280x720
	- Refresh Rate: 60 Hz, 59.94 Hz, 50 Hz
	*No input/output frame rate converter. A frame rate difference between input and output may result in a repeat frame or drop frame.
SDI output (when an MV-32HDO option is installed)	75Ω BNC x 2, Output modes of DVI Layout and Routing Switcher are selectable for each output separately.
	Quantization: Y: 10-bit, C: 10-bit (Normal), Y: 8-bit, C: 8-bit (MV-32RT vertical rotation)
	DVI Layout mode:
	3G-SDI: 2.97Gbps or 2.97/1.001Gbps, 1080/59.94p, 1080/50p (Level A)
	HD-SDI: 1.485 Gbps or 1.485/1.001Gbps, 1080/59.94i, 1080/50i, 720/59.94p, 720/50p
	* Blue matte background for other than 1080p or 720p.
	Routing Switcher mode: SD (270 Mbps), HD (1.485 Gbps or 1.485/1.001 Gbps), 3G (2.97 Gbps or 2.97/1.001 Gbps) *The same as inputs.
	* Inputs in the MV-32PCI are recognized as 3G signals (1920x1080/59.94p Level A). 1920x1200 input signals will be resized to 1920x1080. Signals of other resolutions will be displayed in the original size at the center of 1920x1080.
	* In the Routing Switcher mode, input signal changes cause switching noises. Signal switching using switching point is not supported.

Audio Output	Analog Audio: RCA pin jack x 2 (1 stereo pair, or 2 mono channels), unbalanced
	Output impedance: 100Ω or below, Output level: -10 dBV
	Maximum output level: +5 dBV, Sampling frequency: 48 kHz
	Quantization: 24-bit
	Embedded Audio (when an MV-32HDO option is installed): Group x 4 (8 stereo pairs)
	Sampling frequency: 48 kHz, Quantization: 24-bit
Genlock Input	BB: NTSC 0.429 Vp-p/PAL 0.45 Vp-p, Tri: 0.6 Vp-p
I/O Delay	1 to 1.5 frames (with an interlaced SDI video input)
Video Window	Up to 32 windows per output card. * Up to 32 total windows for 2 outputs.
	*Full: 5/32, 1/4: 15/32, 1/16: 12/32 (Output resolution: Max. Window No.)
Clock Window	Up to 4 windows per output card. * Up to 4 total windows for 2 outputs.
	Internal clock or LTC time code selectable
	*Accuracy within ±10 seconds per month (at 25ºC)
Count up/down timer and remaining time counter display	Displayed in clock window.
	(Internal clock or LTC is selectable for remaining time counter.)
	Count up/down timer uses an internal crystal oscillator:
	Temperature characteristic within ±50PPM (0ºC to 40ºC)
Background Display	1 image per output can be saved and displayed. Max. image size: 1920x1200
Logo Display	2 Images per output can be saved and displayed. Max. image size: 480x480
Screen Layout	User customized layout, Up to 32 layout patterns can be saved.
Title Display	Character limit: Max.16 characters x 2 lines for each input channel
	Character types: Alphanumeric characters and symbols
Tally Indication	Square indicator (red or green) or frame (red, green) for each input
Audio Level Metering	Up to 16 audio channels of embedded audios per input
	(MV-32AAI and MV-32DAI options for other audio level metering support.)
Time Code Display	Time code reader display for embedded 3G (Level A)/ HD/SD-SDI ancillary time code (ATC)
	* Ancillary Time Codes (ATC) are not passed through.
	* Time code input in LTC connector is not displayed.
Video Monitoring	Video loss, Freeze*, Illegal luminance level detection
	* When calculated active picture CRC values are equal.
Audio Monitoring	Audio loss, Silence, Over level detection
Interfaces	RS-232C/RS-422/RS-485: 9-pin D-sub (male) x 1
	Baud rate: 9,600/19,200/38,400/57,600/115,200 bps, data length 8-bit, stop bit 1-bit, parity NONE/ODD/EVEN
	GPIO: 50-pin D-sub (female), 6/50 pins are input/output compatible.
	Up to 48 inputs (up to 96 inputs with 2 output card options)
	Input: Layout patterns 1 - 32
	Input switching of CHs 1 - 32 for windows 1 - 4
	Audio switching of CHs 1 - 32 for audio monitors 1 and 2
	Red/green tally inputs CHs 1 - 32*
	(TTL negative logic level signal or Make contact)*
	Time correction input, Alarm reset input, Count up/down timer start/stop/reset
	Video source switching for SDI OUT 1 and 2
	(TTL negative logic pulse signal or make contact) except *
	Output: Open collector, negative logic
	max. load: 24 V DC 40 mA (equivalent to 74LS06)
	Alarm output: FAN, video signal loss, video freeze, luminance level, black level, audio over level, audio silence level, audio loss
	Status output: Power units 1 and 2, GENLOCK, Timers, Time correction output
	LAN: 100BASE-TX/1000BASE-T, RJ-45 (Category 5) x 1
Layout Editor	Edit size and position of windows in multi-channel screen (Windows software)
Remote Control Software	Switch multi-channel screen layouts (Windows software)
Live Viewer	Software for video transmission (Windows software)
Logo Registry Software	Registers background image and logo data (Windows software)
Data Backup	Stores the setting data to the memory (Rewrite capacity: approx. one hundred thousand times)
	*Frequent changes of display settings may result in being unable to retain data.
Temperature/Humidity	0ºC to 40ºC / 30% to 90% (no condensation)
Backup battery	Internal lithium battery (to maintain time)
Power Consumption	Max. 333 VA (326 W) (at 100 V AC), Max. 328 VA (314 W) (at 200 V AC)
Power	100 V AC to 240 V AC ±10%, 50/60 Hz
Weight	14.5kg (MV-3200MF x 1, MV-32HSDI x 4 , MV-32PCDO x 2 , MV-32PS x 1)
Dimensions	430 (W) x 88 (H) x 510 (D) mm, EIA 2 RU
Accessories	Operation manual, AC cord, Rack mount brackets, CD-ROM (Layout Editor, Remote Control Software, Live Viewer, Logo Registry Software)
Options	MV-32PS: Redundant power supply unit / MV-32FP: Front control panel
	MV-32RT: 90º rotation display / MV-32SNMP: SNMP support
	MV-32HDO: HD-SDI output (SD-SDI is not supported)