

## IP HIGH RESOLUTION MULTI VIEWER

# MV-1640IP



Multi-viewer that accepts up to 16 IP inputs for HD (3G/1.5G); or 4 IP inputs for 4K\*1 in redundant SMPTE ST 2110 and SMPTE ST 2022-6 environments\*2\*3 for output via 12G-SDI or HDMI to 4K monitors.

An optimal choice for supporting an IP system that also maintains the features and usability of existing baseband systems.

### Supports IP/SDI\*4 input, SDI/HDMI output and ideal for to check IP materials

- Video inputs: Total of 32 inputs are supported.  
Up to 16 inputs for HD or up to 4 inputs for 4K\*1.  
16 inputs for 3G/HD/SD-SDI can be supported as an option\*4.  
With an additional option, 8 of 16 inputs are supported for 12G/6G-SDI\*5.
- Video outputs: 3G/HD-SDI 4 or 12G-SDI 1 outputs HDMI 1 output  
HDMI 2.0 Level-B output, 3840 x 2160, YUV 4:2:0.
- Up to 5 monitor outputs, 25 windows\*6.

### Features

- Compatible with SFP28 modules and making the unit ready for either 10 or 25 GbE environments.
- Uses NMOS IS-05 for stream switching.
- Realizes minimum delay of one field (16.6ms) from IP to baseband output.
- Cascading input is supported\*4.  
Combines multiple Multi viewers and displays into more than 16 IP split screens - with low delay.
- Layout Manager.
  - Customizes layouts, using the software in Windows® to adjust image size, position, title display, and other settings.
  - Stores layouts on the viewer.
  - Recalls saved layouts directly from the front panel control.
- HD to 4K up-resizing and 4K to 2K down-resizing.
- Captures specified frames of streamed video.
- Cropping.
  - Specifies 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).
- Logo display in title areas.
- Stores and displays 4 logo images.
- Tally, Title, and Timecode Display.
- Time of day, Timer, and Information Display.
- Can display time based on a 30-hour clock.
- Registers up to 24 schedule timers per day for 1 week.
- Supports external interfaces, and control protocols (including monitoring). SNMP function.
- Detects frozen frames. (Y/C and Y only).
- Views error logs or user text in the Information Display.
- Flashing borders or error icons/messages to identify screens with errors.
- Audio Level Display.
- Audio Monitoring Output.

\*1 Uncompressed video input only, to be supported. \*2 SMPTE ST 2110-10/20/30/40 (time code). \*3 SMPTE ST 2022-7. \*4 With MV-1640SDI installed.

\*5 With MV-1640SDI-12G installed. MV-1640SDI is required, to be supported. \*6 Number of windows are planned to be increased when output mode is added.

## Options

### Expansion cards

#### ■ MV-1640SDI: 16 input card

Enables to 16 inputs for 6G/HD/SD-SDI. Also, MV-1640SDI allows the MV-1640IP to support cascading input.

### Software

#### ■ MV-1640SDI-12G<sup>\*1</sup>: 12G-SDI 8 inputs option

Enables to 8 inputs for 12G/6G/3G/HD/SD-SDI and 8 inputs for 3G/HD/SD-SDI.

### Remote control units

#### ■ HVS-AUX16A/16B/16C/16D/32A/64A<sup>\*2</sup>: Auxiliary unit



HVS-AUX16A  
(16-buttons)



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



HVS-AUX16C  
(16-buttons with OLED displays)



HVS-AUX16D  
(16-buttons with OLED display, table-top model)



HVS-AUX32A  
(32-buttons)



HVS-AUX64A  
(64-buttons)

### Option

#### ■ MV-1640IF: Interface option

MV-1640IF allows the MV-1640IP to control screen outputs, tally inputs, time correction, and alarm resets using up to 45 contact closure inputs to the GPI-IO connector on the rear of the unit.

#### ■ MV-1640PS: Redundant power supply

<sup>\*1</sup> MV-1640SDI is required, to be supported. <sup>\*2</sup> Connectable max. 4 units.

## MV-1640IP 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	225VA (213W) at 100V AC to 120V AC 238VA (204W) at 200V AC to 240V AC
Dimensions	430 (W) x 44 (H) x 500 (D) mm EIA 1RU 480 (W) (Including rack mount brackets)
Weight	9.55 kg
Consumables (at 24-hour operation)	Cooling fan: Replace every 5 years Power Supply: Replace every 5 years

#### Technical specifications

Video format		
IP signal	ST2110-20 HD: 1080/59.94i	
	ST2022-6 HD: 1080/59.94i	
SDI signal	12G-SDI (*8)	2160/60p, 2160/50p
	6G-SDI (*8)	2160/30p, 2160/29.97p, 2160/25p, 2160/24p, 2160/23.98p
	3G-SDI	1080/60p, 1080/59.94p, 1080/50p (Level-A/B)
	HD-SDI	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-SDI	525/59.94i, 625/50i
	* PsF signals are internally processed as interlaced. Flicker may be noticeable in some images.	
Video input	Supports IP inputs and SDI inputs. (mixed inputs and asynchronous inputs are possible)	
IP input	ST2110-20, ST2022-6	
SDI input (MV-1640SDI option required)	HD-BNC x 16 3G-SDI: 3.0 Gbps (Up to 5C-FB 70 m) HD-SDI: 1.5 Gbps (Up to 5C-FB 100 m) SD-SDI: 270 Mbps (Up to 5C-2V 200 m) •Quantization: Y: 10-bit, C: 10-bit •Number of inputs: MV-1640SDI 16 inputs	

Audio input	
IP signal Audio packet	<ul style="list-style-type: none"> <li>•ST2110-30 Level C 16ch</li> <li>•Sampling frequency: 48 kHz (Synchronized to input video)</li> <li>•Quantization: 24-bit</li> </ul>
SDI signal Embedded	<ul style="list-style-type: none"> <li>•Sampling frequency: 48 kHz (Synchronized to input video)</li> <li>•Quantization: 16-bit to 24-bit</li> <li>• 16 channels for each SDI (*1) input (4 groups, 8 stereo pairs)</li> </ul>
LTC input (MV-1640IF option)	BNC x1 SMPTE-compliant timecode: within 1.0 Vp-p $\pm$ 6 dBm
Video output	
HDMI	HDMI (TYPE A): 1 output <ul style="list-style-type: none"> <li>•Quantization: Y: 10-bit, C: 10-bit (4: 4: 4) or 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</li> <li>•Frequency: 50 Hz, 59.94 Hz</li> <li>•Range: Limited</li> <li>•HDMI2.0 Level B output mode (Enables 4K output with one HDMI cable)</li> </ul>
12G/3G/HD-SDI	75 $\Omega$ BNC (4K output supported in SQD or 2SI display of 3840 x 2160 signals) Quantization: Y: 10-bit, C: 10-bit (4: 2: 2) <ul style="list-style-type: none"> <li>•BNC x 1 (12G-SDI or 3G/HD-SDI)</li> <li>•HD-BNC x 3 (3G/HD-SDI)</li> <li>-12G-SDI: 12 Gbps 2160/59.94p, 2160/50p</li> <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	
Embedded (SDI)	<ul style="list-style-type: none"> <li>- Number of outputs: 16 channels, 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: 8 channels, 4 stereo pairs per output</li> <li>- Sampling frequency: 48 kHz</li> <li>- Quantization: 24-bit</li> </ul>
Genlock input	<ul style="list-style-type: none"> <li>•REF IN (MV-1640IF option) BB: 0.429 V (p-p) (NTSC), 0.45 V (p-p) (PAL) Tri-level sync.: 0.6 V (p-p) 75<math>\Omega</math> BNC</li> <li>•INPUT LOCK (MV-1640SDI installed MV-1640IP or MV-3240 SDI input 1 only.) 1080/59.94p, 1080/50p(Level-A/B), 1080/59.94i, 1080/50i, 720/59.94p, 720/50p, 525/60, 625/50</li> <li>•PTP LOCK * Supported by SFP Port A/B *MV-1640IP only 1080/59.94i</li> </ul>
Video input/output delay (*2)	HDMI/SDI output <SDI1-4/HDMI Out> 0.5 frame (Field mode) Minimum value 1 frame (Frame mode) Minimum value

Video Window display	<p>4K mode: 25 windows  Breakdown: 2K widow x 9, 1K window x 12  Video/Clock shared 2K window x 2  Video/Clock shared 1K window x 2</p> <p>2K mode (*8): 40 windows  Breakdown: 2K window x 8, 1K window x 23, 1K mirror window x 5  Video/Clock shared 2K window x 2  Video/Clock shared 1K window x 2</p>
Clock/ Count up timer/ Count down timer (*3), Schedule timer	<p>Can be displayed in information window. (Internal clock or LTC is selectable for schedule timer.)  Max. number: 4</p>
Background display	<p>Store and display background images  - [3840 x 2160] x 1 (4K layout mode)  - [1920 x 1080] x 4 (2K layout mode)</p>
Logo display	<p>Store and display logo images  - Max. size: 1024 x 512 (Max. 8 logos can be registered. Max. 4 logos can be displayed.)</p>
Screen layout	<p>User customized layout  - Layouts for each output can be saved on the viewer up to 16 layouts.</p>
Title display	<p>Character limit: Max. 16 characters x 2 lines for each input channel  Supported characters:  - Letters, numbers, symbols and Japanese kana/kanji (JIS 1 and 2)</p>
Tally display	<p>Indicated as a frame (red/green/amber) or marker (red/green/amber) on each input window.</p>
Audio level display (*7)	<p>Up to 16 audio channels of audio level metering per input</p>
Time code display	<p>- Display for 12G/6G(*8)/3G/HD/SD-SDI ancillary timecode (ATC) (*4)  - Reader mode (*5)</p>
Video monitoring	<p>Detects video loss, frozen frames, incorrect luminance/black level, and CRC error.</p>
Audio monitoring	<p>Detects audio loss, silence, and excessive audio levels.</p>
Metadata monitoring	<p>Detects timecode loss error.</p>
Interface	<p>LAN1: 100BASE-TX/1000BASE-T, RJ-45 x 1 (CAT 5-compliant)  LAN2: Same as above  SFP+(A-D): 25GBASE-SR SFP+ x 4</p>
GPI-IO (MV-1640IF option)	<p>50 pin D-sub (female) x1  · up to 45-pin for input/ 23-pin for output (selectable, and can be used for input and output)</p>
Layout Manager	<p>Software for customizing window sizes and positions, switching windows , and registering backgrounds and logos (Windows® software)</p>
Live Viewer	<p>Software for video streaming and pre-alarm recording to a PC. (Windows® software)</p>
Data backup	<p>Stores settings internally to the memory (rewrite capacity: approx. 100,000 times) (*6)  Time information is held by a super capacitor.</p>
Daytime accuracy	<p>Monthly difference within ±15 seconds  Accuracy duration when power is off: 60 hours</p>

(\*1) For 3G-SDI Level-B, only Link-A audio is supported, not Link-B.

(\*2) Using interlaced input

(\*3) Count up/down timer uses an internal crystal oscillator: ±50 ppm within operating temperature. (0°C to 40°C)

- (\*4) Ancillary time code (ATC) is not passed through.
- (\*5) Time code from LTC input is not displayed.
- (\*6) Frequent setting changes may impair data retention.
- (\*7) When input audio frequency is under 60Hz, audio level may not be displayed correctly.
- (\*8) To be supported in the future.

**Options**

MV-1640PS	Redundant power supply (Includes an AC adaptor and AC cord)
MV-1640IF	Interface option
MV-1640SDI	SDI16 input card * Only for MV-1640IP

**Other Option**

HVS-AUX16A/16B/16C/16D/32A/64A (*)	Auxiliary unit (Ethernet LAN Connection)
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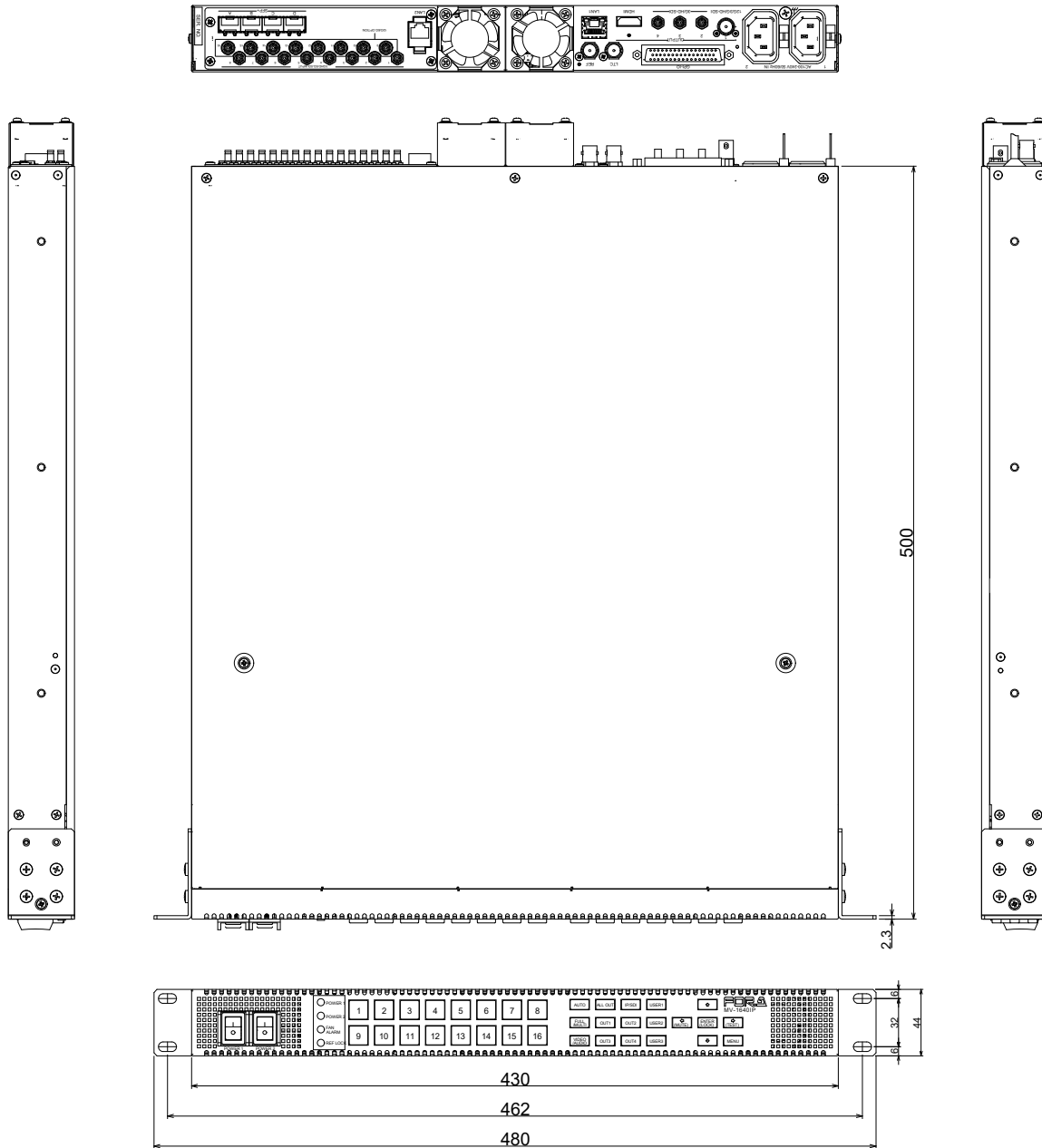
(\*) Connectable max. 4 units

**Accessories**

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

**2. External Dimensions**

(All dimensions in mm.)





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