

## 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	245 VA (235 W) at 100V AC to 120V AC 260 VA (222 W) 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	2160p / 59.94, 50 1080p / 59.94, 50 1080i / 59.94, 50 720p / 59.94, 50	
	ST2022-6	1080p / 59.94, 50 1080i / 59.94, 50 720p / 59.94, 50	
SDI signal	4K	12G-SDI (*8)	2160p / 60, 59.94, 50
		6G-SDI (*8)	2160p / 30, 29.97, 25, 24, 23.98
		3G-SDI	1080p / 60, 59.94, 50 (Level-A/B) Quad Link (Level-A/B) 1080p / 60, 59.94, 50 Dual Link (Level-A, Level-B DS, Level-B DL) 1080p / 30, 29.97, 25, 24, 23.98
	2K	HD-SDI	1080i / 60, 59.94, 50 1080p / 30, 29.97, 25, 24, 23.98 1080PsF / 30, 29.97, 25, 24, 23.98 720p / 60, 59.94, 50, 24, 23.98 1035i / 60, 59.94
			SD
Video input	Supports IP and SDI inputs. (mixed and asynchronous inputs possible)		
IP input	SFP port A/B, C/D (SFP28): 25GBASE-SR Path redundant (ST2022-7) (*9) ST2110-20: 2160p 4 streams or 1080p 16 streams or 1080i 16 streams or 720p 16 streams ST2022-6: 1080p 14 streams or 1080i 16 streams or 720p 16 streams		

SDI input (MV-1640SDI option and MV-1640SDI-12G option required)	HD-BNC x 16 (3G/HD/SD-SDI x 16 or 3G/HD/SD-SDI x 8, 12G/6G-SDI x 8 (*8)) 12G-SDI: 12.0 Gbps (L-4.5CHD: Up to 50 m) 6G-SDI: 6.0 Gbps (L-4.5CHD: Up to 50 m) 3G-SDI: 3.0 Gbps (5C-FB: Up to 70 m) HD-SDI: 1.5 Gbps (5C-FB: Up to 100 m) SD-SDI: 270 Mbps (5C-2V: Up to 200 m) 10-bit YCbCr 4:2:2
Audio input	
IP	ST-2022-6 or ST2110-30 Level B (16ch Video synchronous) Max 16 channels for each video: 48kHz / 24-bit
SDI embedded	48 kHz / 16-bit to 24-bit (Video synchronous) Max 16 channels for each SDI input (group x 4) (*1)
LTC input (MV-1640IF option)	BNC x1 SMPTE-compliant timecode: 1.0 Vp-p within ±6 dB
Video output	
HDMI	HDMI (Type-A): 1 output (4K in HDMI2.0 Level B mode) Frame rate: 59.94fps, 50fps 10-bit YCbCr 4:4:4, 8-bit YCbCr 4:2:0 or 8-bit RGB 4:4:4 Limited range Recommended cable length: 5m or less
12G/3G/HD-SDI	Up to 3840 x 2160 (12G-SDI or 3G/HD-SDI) BNC x 1 1080p, 1080i, 1035i or 720p (3G/HD-SDI) HD-BNC x 3 10-bit YCbCr 4: 2: 2
IP	SFP port A/B (SFP28): 25GBASE-SR Path redundancy (ST2022-7) (*9) ST2110-20: 1080p 4 streams or 1080i 4 streams or 720p 4streams ST2022: 1080p 4 streams or 1080i 4 streams or 720p 4streams
Audio output	
SDI embedded	Max 16 channels for each video (group x 4) 48kHz / 24-bit
HDMI embedded	Max 8 channels for each video (stereo pair x 4) 48kHz / 24-bit
IP	ST-2022-6 or ST2110-30 (Video synchronous) Max 8 channels for each video 48kHz / 24-bit
Genlock input	-REF IN (MV-1640IF option) BB: 0.429 Vp-p (NTSC), 0.45 Vp-p (PAL) or Tri-level sync.: 0.6 Vp-p 75Ω BNC -INPUT LOCK (SDI IN1 on MV-1640SDI option) 1080/59.94p, 1080/50p(Level-A/B), 1080/59.94i, 1080/50i, 720/59.94p, 720/50p, 525/60, 625/50 -PTP LOCK (SFP port A/B)
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: 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: 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>-Title length: 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>
Control interface	<p>LAN1: 100BASE-TX/1000BASE-T, RJ-45 x 1 LAN2: Same as above</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) MV-1640-12G option required
- (\*9) The frequencies of IP input and MV output are different, the input signals are not properly processed.

#### Options

MV-1640PS	Redundant power supply
MV-1640IF	Interface option
MV-1640SDI	SDI16 input card
MV-1640SDI-12G	Software for supporting 12G/6G-SDI input (for MV-1640SDI)

**SFP transceivers** (SFP28, up to 4) used for IP video transmission should be **prepared by users**.

Recommended SFP transceiver module: nVIDIA (Mellanox) MMA2P00-AS

#### Other Option

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

(\*) Connectable max. 4 units

#### Accessories

AC Cord, EIA Rack Mount Brackets, Rubber Feet, HDMI Cable Lacing Bracket, USB flash drive

**2. External Dimensions**

(All dimensions in mm.)

