PVM-740

Professional Video Monitor

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The PVM-740 is a new type of 7.4-inch* high-resolution (960 x 540 pixel) portable monitor which incorporates an Organic Light-Emitting Diode (OLED) display panel with Sony's unique Super Top Emission™ technology.

Thanks to the nature of the OLED display panel and Sony's Super Top Emission technology, the PVM-740 offers outstanding high-contrast images – for example, the deep black of a night scene can be accurately displayed and the black portion of an image is not raised even in a low-illumination edit suite. As the black color is deep, peak brightness becomes higher and can brilliantly express sparkling town lights and stars in the night sky. On the other hand, the high-contrast, low-reflection capabilities of the PVM-740 achieve monitoring in bright sunlight of delicate, clearer images during outside broadcasting and field production – performance that is difficult to achieve with CRTs and LCDs.

Incorporating a 10-bit panel driver, Sony's Super Top Emission OLED display panel creates lifelike and smoother-than-ever gradation from dark to bright portions of a scene, such as in a sunrise or sunset. Also, an excellent blur-free quick response to fast motion benefits a variety of applications and scenes, e.g., sports broadcasting, monitoring of camera panning, and text scrolling.

In addition to the high-purity deep color reproduction characteristics inherent in Sony's Super Top Emission OLED display panel, two other elements – Sony's 10-bit panel driver and ChromaTRU technologies – work effectively to emulate the colors and gammas of CRT monitors, and to support broadcast standards (SMPTE-C, EBU, and ITU-R BT.709).

Incorporating a compact, lightweight, and robust aluminum die-cast body, the PVM-740 suits many different indoor and outdoor applications. The PVM-740 is equipped with standard interface connectors – a composite video, 3G/HD/SD-SDI, and HDMI – which accept a variety of video signal formats from PAL/NTSC up to 1080/50p and 60p.

The attraction of the PVM-740 goes beyond these qualities to also include much smarter and more convenient features and functions: DC/AC operation, a convenient control panel with luminous and assignable buttons, a camera focus function, a wave form monitor and an 8-channel audio level meter, a variety of marker setting, a native scan, and a flip function.

This PVM-740 is ideal for a wide range of professional monitoring applications including use in an editing studio, outside broadcast, acquisition, field production, and even research and development.

* 188 mm viewable area, measured diagonally.

STE
SUPER TOP EMISSION

Superb Picture Performance with an Optimized Combination of Sony's Technology

The organic light-emitting diode (OLED) is a self light-emitting device. Sony's 7.4-inch high-resolution (960 x 540 pixel) Top Emission OLED display panel is designed to emit light efficiently and offers high-contrast, high-purity deep color reproduction.
Thanks to the nature of the OLED display panel and Sony's Super Top Emission technology, the PVM-740 offers superb picture performance: its deep black, in particular, is outstanding. The characteristics of high-contrast, high-purity deep color reproduction can add impressive reality to an image.
By optimally combining OLED display panel technology with 10-bit panel driver and Sony's unique ChromaTRU technologies, the PVM-740 monitor achieves superb picture quality and offers many user benefits.

Deep Black and High-contrast

A feature of the OLED display panel is that it does not emit light when no electric current is applied or when a black signal is received.
In this way, the deep black of a night scene can be accurately displayed and the black portion of an image is not raised even in a low-illumination edit suite. As the black color is deep, peak brightness becomes higher and can brilliantly express sparkling town lights and stars in the night sky. On the other hand, the high-contrast, low-reflection capabilities achieve monitoring in bright sunlight of delicate, clearer images during outside broadcasting and field production – performance that is difficult to achieve with CRTs and LCDs.
Incorporating a 10-bit panel driver, Sony's Super Top Emission OLED display panel creates lifelike and smoother-than-ever gradation from dark to bright portions of a scene such as in a sunrise or sunset.

Extremely High Peak Brightness

Sony's Super Top Emission structure takes emitted light from the other side of the TFT circuit without limiting the circuit's aperture ratio. This method offers more efficient light emission.
In addition, Sony's Super Top Emission is a micro-cavity structure and incorporates color filters. The micro-cavity structure improves efficiency and increases the brightness of emitted light.
Unlike a LCD, but similar to a CRT, the peak brightness is higher than that of an all-white image, and yet the black is deep. In this way, Sony's OLED display panel achieves extremely high peak brightness and can clearly display brilliant, sparkling images, giving reality to image texture.

High-purity Deep Color Reproduction

Sony's micro-cavity structure using an optical resonance effect reduces unnecessary ingredients and enhances the color purity of each RGB color. And, in this structure, each RGB color filter has further functions to reduce unnecessary color ingredients.
Thanks to the combination of Sony's micro-cavity structure and the RGB color filters of the Super Top Emission OLED panel, color purity is dramatically enhanced and stunning deep color can be reproduced. This combination is also effective in reducing ambient light reflection, and consequently deep color reproduction can be achieved without color degradation, particularly in bright environments.

Quick Response with Blur-free Motion

Because the OLED electroluminescent layer inherently responds to any electrical current input, it emits light immediately. By this mechanism, excellent quick response characteristics can be achieved in fast-motion images.
This efficient blur-free, fast response benefits a variety of applications and scenes, e.g., in sports broadcasting, monitoring of camera panning, and text scrolling.

Agile Motion in Low-temperature Climate

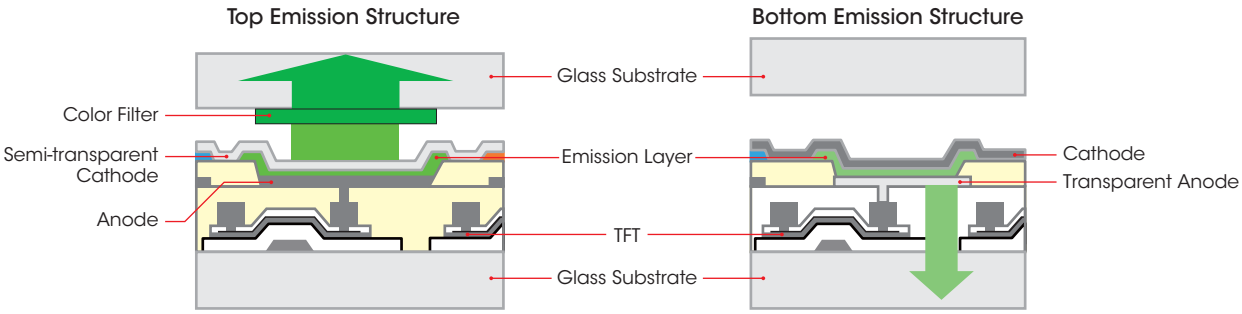
As Sony's OLED electroluminescent layer is a solid type of layer, performance is maintained in any climate, and the speed of response is unaffected by low temperatures*.

*Operating temperature: 0°C to 40°C (32°F to 104°F)
Operating humidity: 30% to 85% (no condensation)

Sony's Super Top Emission (STE) Technology Offers Efficient Light Emission

The typical structure of an OLED display panel is a bottom emission structure. This type of structure employs a metal cathode and a chemical desiccant to protect the OLED layer from air and water. It takes light emission from the TFT layer and, due to the structural limitation of the TFT layer's aperture ratio, the amount of light emission is restricted.
Sony's Super Top Emission takes light-emission from the other side of the TFT layer. This top emission structure offers more efficient light emission than a bottom emission structure, and consequently achieves higher brightness.

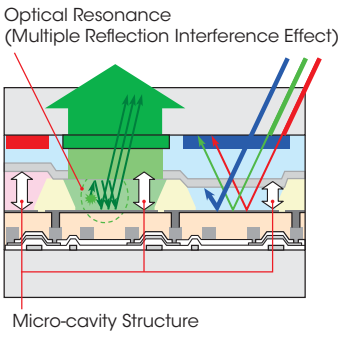
STE
SUPER TOP EMISSION

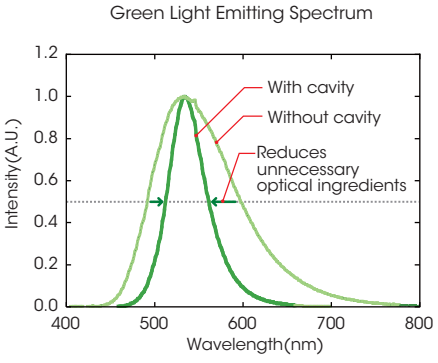


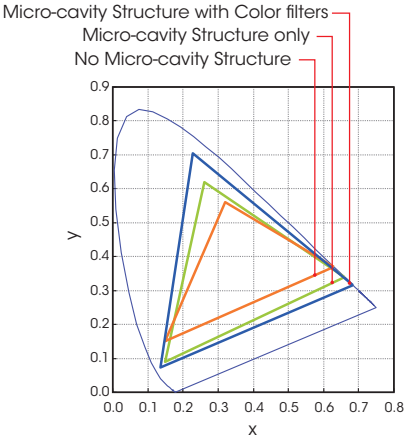
Sony's Micro-cavity Structure Enhances Color Purity

Sony's Super Top Emission technology is a micro-cavity structure and incorporates color filters. Each RGB color has a different wavelength. Sony's micro-cavity structure provides different emission layer thicknesses corresponding to the wavelength of each RGB color. The micro-cavity structure uses an optical resonance effect to enhance color purity and improve light-emission efficiency. In addition, the color filter of each RGB also enhances the color purity of emitted light, and reduces ambient light reflection.

STE
SUPER TOP EMISSION







Blur-free Quick Response to Fast Motion

Another distinguishing characteristic of Sony's Super Top Emission OLED panel is a blur-free quick response to fast motion. Because the OLED electroluminescent layer is a solid type of layer, it inherently responds to any electrical current input and emits light immediately. This characteristic does not change in low-temperature climates.

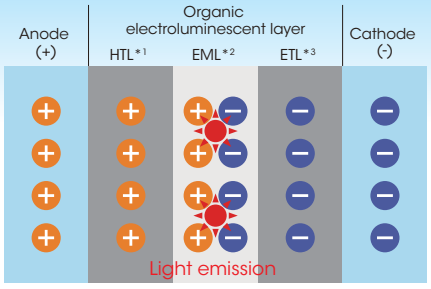
Solid Sealing Structure

Sony's Super Top Emission OLED panel is completely sealed by glass substrates, and the electroluminescent layer is wholly isolated from outside air and water.

Mechanism of OLED Light Emitting

The OLED organic electroluminescent layer consists of a hole transport layer (HTL), emissive layer (EML), and electron transport layer (ETL). These layers are sandwiched between an anode and cathode.

When an electric current is applied to the anode and cathode, holes and electrons are sent into the organic electroluminescent layer. These holes and electrons recombine in the emissive layer (EML), and emissive molecules are stimulated and emit lights.



*1 HTL: Hole transport layer *2 EML: Emissive layer
*3 ETL: Electron transport layer

Accurate Color Reproduction and Consistency

Every PVM-740 monitor is precisely color-calibrated at the factory, providing ChromaTRU characteristics consistent with those of CRT monitors so that the R, G, B color coordinates are virtually the same as those of a CRT monitor. As Sony's Super Top Emission OLED display panel itself reproduces high-purity colors and in combination with the 10-bit panel driver and Sony's ChromaTRU technology, the PVM-740 monitor can emulate the colors and gammas of CRT monitors, and achieves broadcast standards (SMPTE-C, EBU, and ITU-R BT.709).

The 10-bit panel drive technology enhances the high picture performance achieved by Sony's Super Top Emission OLED display panel: high-contrast, high-purity deep color reproduction with smoother-than-ever gradation from dark to bright portions.

The PVM-740 monitor is also equipped with Sony's unique feedback circuit system. This system works to constantly monitor emitted light, to feed back monitor results, and to adjust white balance. This ensures color and gamma consistency, and reduces user maintenance tasks.

8-bit (256-levels) image

10-bit (1024-levels) image

Robust, Light-weight, and Compact Body

Incorporating a light-weight and compact aluminum die-cast body with a detachable AR-coated protection panel, this model is flexible enough to change style according to user requirements: with or without stand (which is easily detachable), tilted on a stand (15-degree slant), rack-mounted, or set on a camera pedestal.

PVM-740 without stand

PVM-740 with supplied stand

PVM-740 with supplied stand tilt (15°)

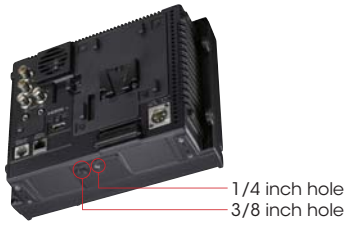
Mounting Flexibility

The PVM-740 is 3.8U high and half-rack wide. Using the optional MB-531 mounting bracket with a 10-degree-forward and 10-degree-backward nonstop-tilt capability, two units can be installed side by side in a 19-inch EIA standard rack.

PVM-740 installed in the optional MB-531 19" mounting bracket with MB-532 mounting panel.

Screw Holes for Camera Pedestal

With 3/8-inch and 1/4-inch screw holes on its base, the PVM-740 can be installed in a camera system. For example, it can be mounted on a camera pedestal.



PVM-740 rear and bottom

ENG Kit VF-510

The PVM-740 is a strategic choice for use in ENG and EFP field operations. Its picture contrast, compared to that of a CRT display, is less affected by ambient light, allowing clear images to be viewed even in strong sunlight. For further protection, the optional VF-510 ENG Kit provides a viewing hood, carrying handle, and connector protector.

PVM-740 with VF-510 ENG kit

Detachable AR (anti-reflection) -coated Protection Panel

AR-coated protection panel keeps the LCD panel surface from scratch. Added to this, the AR coating has two unique characteristics: it provides a high transmission rate of the internal light source to keep the picture as bright as possible, and it keeps reflection from ambient light to a minimum. As a result, when used in bright lighting conditions, high contrast is still maintained even in dark areas of the picture.

Detachable AR-coated protection panel

AC/DC Operations

The PVM-740 can be operated with two-way power supplies: DC 12 V and AC via the attached dedicated AC adaptor.

Operational Convenience

Camera Focus Function

The PVM-740 can control and increase the aperture level of a video signal, and display images on the screen with sharpened edges to help camera focus operation. This camera focus function can even be enhanced when combined with native scan mode.

Advanced Marker Settings

The PVM-740 can display a center marker and aspect markers. The brightness of these markers can be selected from two different levels: gray and dark gray.
Users can also select a gray matte to fill the outer area of the aspect markers. These flexible marker controls, together with the choice of many different aspect markers, make the PVM-740 an extremely convenient display device for a variety of shooting scenarios – from standard video acquisition to digital cinematography.

4:3 aspect marker image

16:9 aspect marker image

Waveform Monitor and Audio Level Meter Display*

An input signal's waveform with a 2-channel audio level meter can be displayed on screen. When an SDI interface is connected, the embedded audio level can be displayed on screen with an 8-channel audio level meter.

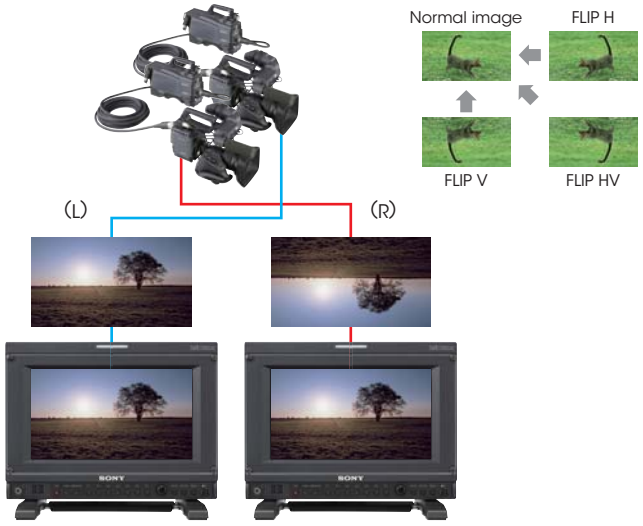
*The PVM-740 supports the on-screen audio level meter when it receives an SDI-embedded audio signal.

Waveform monitor

Audio level meter

Flip Function

The PVM-740 monitor has a feature to flip a picture without frame delay, horizontally, vertically, or horizontally and vertically. This feature is useful and beneficial - for example, when using a 3D image acquisition system with a 3D rig camera and a pair of 2D monitors, the monitors can be hooked up to the camera systems directly with no need for an external signal convertor. This allows for much simpler system integration and greater cost efficiency.



Color Temperature

Color temperatures of D93, D65, or a user preset value can be selected.

Scan Setting and Native Scan Display

Scan size can be selected between Normal scan, 5% over scan, and Native scan modes.These aspect ratio can be switched between 16:9 and 4:3 according to the input signal. The Native Scan function is a unique display mode that reproduces images without changing the input signal's pixel count – mapping the pixel of the input signal on the panel pixel-to-pixel. For example, when an SD signal is input, PVM-740 reproduces the image at picture sizes of 646 x 487 pixels in 480i and 480p, and 768 x 540 pixels in 575i and 576p. When an HD signal is input, PVM-740 displays a center portion of the HD image.

Native Scan image
646 x 487 pixel (480i, 480p)

Native Scan image
768 x 540 pixel (575i, 576p)

Three-color Tally

The PVM-740 is equipped with a tally lamp that can be lit via a parallel remote connector. The status of the signal displayed on the monitor can be identified by the tally color – red, green, or amber.

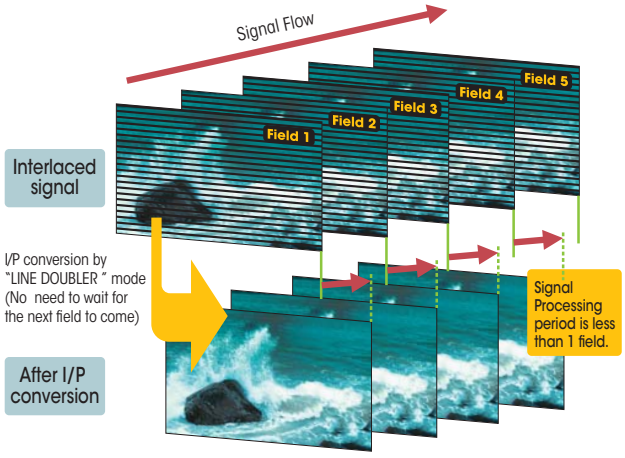
Sophisticated I/P Conversion

PVM-740 uses a motion-adaptive I/P-conversion process to achieve conversion results that are optimized to the picture content – whether the image is static or dynamic. Highly accurate I/P conversion of both HD and SD inputs is provided regardless of signal resolution.

I/P Mode Selection

PVM-740 provides three I/P modes so that users can select the most suitable mode for each purpose:

- INTER-FIELD: This mode interpolates images between fields. This is used for picture quality precedence (e.g., to reduce jagged effect on moving pictures).
- FIELD MERGE: This mode combines lines alternately in odd and even fields, regardless of picture movements. This is used for PsF (Progressive Segmented Frames) processing and still image monitoring.
- LINE DOUBLER: This mode interpolates by repeating each line. This is used for editing and monitoring fast-moving images, and checking line flicker. The minimum processing time is less than one field (0.5 frames).



External Remote Control Function

PVM-740 monitor has an external remote control capability for input/output signal selection and adjustment of various items via Ethernet (10BASE-T/100BASE-TX) connection. Up to 32 monitors and up to four control units can be connected via Ethernet connection and controlled remotely on the network. Users can control individual monitors or monitor groups simply by entering the monitor ID or group ID number. They can also execute the same operation on all connected monitors, or put all connected monitors into the same setup and adjustment state.

Power-saving Mode

When no input signal is received for over a minute, the monitor goes into power-saving mode and consumes minimal power. This function prevents unnecessary electrical consumption.

Silent Mode

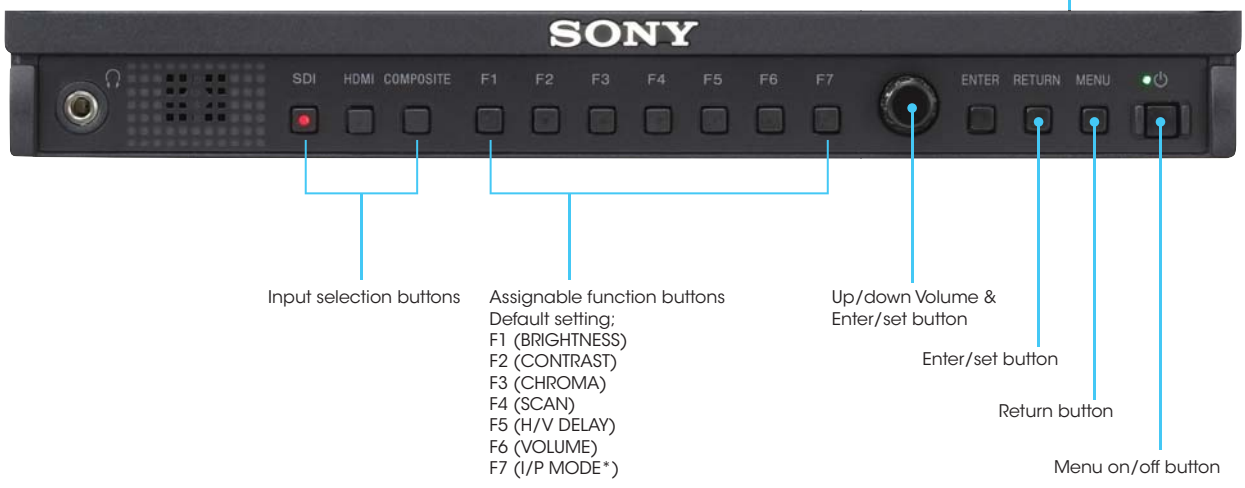
This convenient function enables users to stop the built-in cooling fan achieving monitor operation without any fan rotation noise. Silent mode is ideal when noise must be avoided.

Control Panel Design

The PVM-740 incorporates a new control panel design. By assigning monitor functions to each of its seven function buttons, users can customize the PVM-740 for a specific application or usage such as field or studio use. Seven functions can be allocated to the assignable buttons.* Button lights are dimmable and indicator lights are on/off switchable. This function allows users to easily operate a monitoring in a dark environment without interference of these lights.

*Factory default settings: brightness, contrast, chroma, scan, H/V delay, volume, and I/P mode.

PVM-740



PVM-740 Control Panel

Input Versatility

Multi-format Signal Support – up to 3G-SDI Input

PVM-740 accepts almost any SD or HD video format, both analog and digital. To provide mobility, the PVM-740 incorporates various video interfaces as standard, including composite, SDI interface for SD-SDI, HD-SDI, 3G-SDI, and HDMI interface. With the 3G-SDI interface, PVM-740 accepts 1080/50p and 1080/60p formats, which is compliant with the SMPTE 425 standard, transmitting up to 4:2:2/10-bit 1080/60p and 1080/50p video data using one SDI cable. When an upgrade to these 1080/p systems is required, this single-link 3G-SDI system is ideal, future-proof solution.

HDMI connectivity can expand user's convenience and applications. For example, the PVM-740 monitor can connect with professional video system such as XDCAM, XDCAM-EX, NXCAM, and HDV. Furthermore, consumer video products like a blu-ray and a digital camera are also connectable. These articles are ideal for blu-ray video authoring and digital photo image previews.

Signal Formats

System	Total lines	Active lines	Frame rates*3	Scanning	Aspect ratio	Signal standard		
						Analog	SDI (3G/HD/SD)	HDMI
575/50i (PAL)	625	575	25	2:1 interlace	16:9 & 4:3	ITU-R BT.470	SMPTE 259M	CEA-861
480/60i (NTSC)*3	525	483	30	2:1 interlace	16:9 & 4:3	SMPTE 170M	SMPTE 259M	CEA-861
576/50p	625	576	50	Progressive	16:9 & 4:3	-	-	CEA-861
480/60p*3	525	483	60	Progressive	16:9 & 4:3	-	-	CEA-861
640 x 480/60p*3	525	480	60	Progressive	4:3	-	-	CEA-861
1080/24PsF*1*3	1125	1080	24	Progressive (sF)	16:9	-	SMPTE RP211	-
1080/25PsF*2	1125	1080	25	Progressive (sF)	16:9	-	SMPTE RP211	-
1080/24p*3	1125	1080	24	Progressive	16:9	-	SMPTE 274M	CEA-861
1080/25p	1125	1080	25	Progressive	16:9	-	SMPTE 274M	CEA-861
1080/30p*3	1125	1080	30	Progressive	16:9	-	SMPTE 274M	CEA-861
1080/50i	1125	1080	25	2:1 interlace	16:9	-	SMPTE 274M	CEA-861
1080/60i*3	1125	1080	30	2:1 interlace	16:9	-	SMPTE 274M	CEA-861
720/50p	750	720	50	Progressive	16:9	-	SMPTE 296M	CEA-861
720/60p*3	750	720	60	Progressive	16:9	-	SMPTE 296M	CEA-861
1080/50p*4	1125	1080	50	Progressive	16:9	-	SMPTE 274M	CEA-861
1080/60p*3*4	1125	1080	60	Progressive	16:9	-	SMPTE 274M	CEA-861

*1 Displayed as 1080/48i on the screen *2 Displayed as 1080/50i on the screen *3 Compatible with 1/1.001.
*4 Compatible with 4:2:2 Y/Cb/Cr 10-bit of 3G-SDI

Other features

- Auto chroma/phase function
- Blue only mode
- H/V delay mode
- On-screen menu
- Select language display
- Key inhibit function
- Monaural speaker

Specifications

Picture Performance	
Type	OLED panel
Resolution	960 x 540 pixels (QHD)
Effective Picture Size(H x W) (Diagonal)	164 x 92 mm (6 1/2 x 3 5/8 inches) 188 mm (7 1/2 inches)
Aspect	16:9
Panel drive	RGB 10-bit
Viewing Angle	85°/85°/85°/85° (typical) (up/down/left/right contrast>10:1)
Input	
Composite	BNC (x1), 1.0 Vp-p ±3 dB sync negative
SDI	BNC (x1)
HDMI	HDMI (x1)
Audio	Stereo mini jack (x1) -5 dBu 47 kilohms or higher
Parallel remote	Modular connector 8-pin (x1) (pin-assignable)
Seiral remote	RJ-45 modular connector (Ethernet) (x1) (10BASE-T/100BASE-TX)
DC in	DC 12 V (output impedance 0.05 ohms or less)
Output	
Composite	BNC (x1), loop-through, with 75 ohms automatic termination
SDI	BNC (x1), output signal amplitude: 800 mVp-p ±10%, output impedance: 75 ohms unbalanced
Audio monitor out	Stereo mini jack (x1)
Speaker (Built-in)	0.5 W (mono)
Headphone output	Stereo mini jack (x1)
General	
Power Requirement	AC 100 V to 240 V, 50/60 Hz, 0.5 A to 0.3 A, DC 12 V 1.9 A
Power Consumption	Maximum approx. 27 W
Operating Temperature	0°C to 40°C (32°F to 104°F) Recommended: 20°C to 30°C (68°F to 86°F)
Operating Humidity	30% to 85% (no condensation)
Storage / Transport Temperature	-20°C to +60°C (-4°F to +140°F)
Storage / Transport Humidity	0% to 90%
Operating / Storage / Transport Pressure	700 hPa to 1060 hPa
Dimensions (W x H x D) (with stand)	222.4 x 183.5 x 161.8 mm (8 7/8 x 7 1/4 x 6 3/8 inches) (when AC adaptor is attached)
Dimensions (W x H x D) (without stand)	222.4 x 166 x 70 mm (8 7/8 x 6 5/8 x 2 7/8 inches) (when AC adaptor is detached)
Mass	2.0 kg (4 lb 6 oz) 2.6 kg (5 lb 12 oz) (When AC adaptor is installed)
Supplied accessories	AC power cord (1), AC plug holder (1), AC power adaptor (1), Operating Instructions (1), CD-ROM (1), Using the CD-ROM manual (1), Warranty book (1)

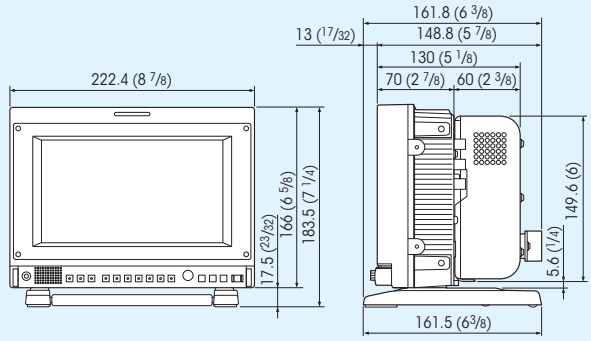
Optional Accessories

MB-531
Mounting Bracket

MB-532
Mounting Panel

VF-510
ENG Kit (Viewing Hood, Carrying Handle and Connector Protector)

Dimensions



Unit: mm (inches)

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The PVM-740 is produced at Sony EMCS Corporation Inazawa Tec, which has received ISO14001 the Environmental Management system certification.

ISO 14001 BUREAU VERITAS Certification