SONY

Professional Video Monitors

Monitor Line up

- 4K Master Monitor : BVM-HX310
- Master Monitor : BVM-E251/E171
- Picture Monitor : PVM-X3200/X2400/X1800, LMD-A240/A220/A170

Professional Monitor Lineup

Master Monitor

LCD

BVM-HX310

OLED

BVM-E251

BVM-E171

Picture Monitor

LCD

PVM-X3200

LCD

PVM-X2400

PVM-X1800

LCD

LMD-A240

LMD-A220

LMD-A170

Where do we use the Sony professional video monitors in our workflows?

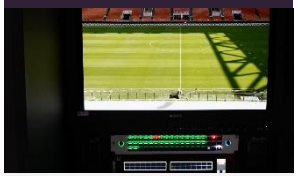
Live Production

Camera shading /Lighting

RACK MOUNT

- BVM-E171
- PVM-X1800
- LMD-A170

Engineering



- BVM-HX310
- BVM-E Series
- PVM-X3200
- PVM-X2400

Slow motion /Play-out

- PVM-X2400
- LMD-A Series

Sound control

SOURCE CONTROL

- PVM-X Series
- LMD-A Series

Production control room

PGM/PVW

- BVM-HX310
- PVM-X3200
- PVM-X2400
- LMD-A series

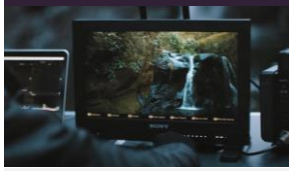
Quad-View Display Function

4K | HD

Colour matching and accuracy all through production chain

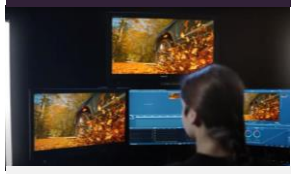
Dramas, Movies and Commercials Production

Shooting/DIT



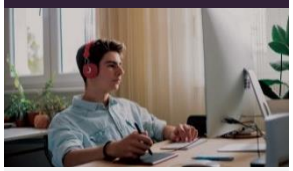
- PVM-X Series
- LMD-A Series

Editing



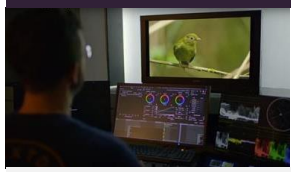
- BVM-HX310
- PVM-X3200
- PVM-X2400
- BVM-E251
- LMD-A240

VFX/Compositing



- PVM-X3200
- PVM-X2400
- LMD-A240

Colour Grading



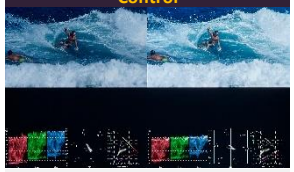
GRADING

- BVM-HX310
- BVM-E251

Client Monitoring

- PVM-X3200

Mastering & Quality Control



- BVM-HX310
- BVM-E251
- PVM-X3200
- PVM-X2400

Quad-View Display Function

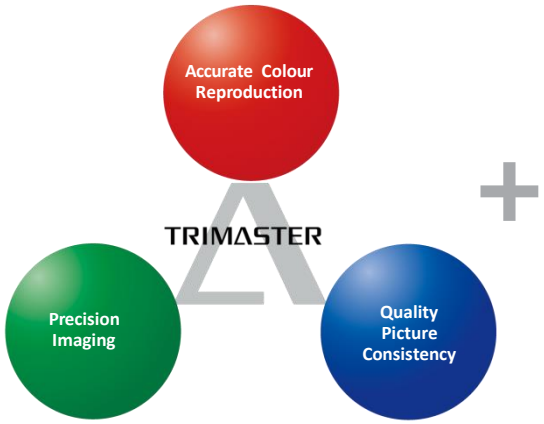
4K | HD

Colour matching and accuracy all through production chain

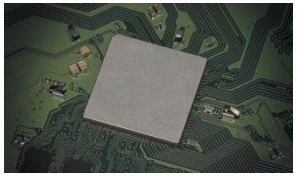
TRIMASTER HX

Sony introduces a new technology brand, TRIMASTER HX. H=HDR X=Liquid Crystal Display

TRIMASTER HX enables a new Sony professional LCD monitor, achieving accuracy and consistency of colour reproduction and image quality that professionals can trust.



Sony-specified Million Contrast LCD



Sony's unique technology for this new LCD

★ Optimized algorithm for new LCD control
★ Unique correction for temperature stability
★ Accurate colour reproduction in low light

ACCURATE COLOUR

Richer colours in dark areas

By accurately reproducing colours in the low-luminance range, Sony's solution allows you to increase image quality by fine-tuning colours in dark areas.

HIGH DYNAMIC RANGE

Exceptional dynamic range

Thanks to its high dynamic range, Sony's solution faithfully reproduces a camera's dynamic range for smooth, beautifully detailed gradations

BLACK REPRODUCTION

Deeper, truer blacks

Sony's solution produces truer blacks, assuring you of a highly precise black level even when viewing under low ambient light.

BVM-HX310

4K LCD Master Monitor

31-inch 4K TRIMASTER HX™ Professional Master Monitor

Main Features

- 31” Full 4K(4096x2160) “Sony exclusive new tech LCD” panel
- Consistent picture quality with BVM-X300 by TRIMASTER HX
- No limitation for 1,000nits in full screen
- Support High Dynamic Range
  (S-Log3, S-Log3 Live HDR, ITU-R BT.2100, SMPTE ST 2084)
- Support ITU-R BT.2020*2 and DCI-P3*2 colour gamut
- 12G/6G/3G/HD-SDI and HDMI support
- User LUT function
- Automatic HDR setting by VPID (Video Payload ID)
- Quad View Display with individual settings for each quadrant
- HD/2K signals support including Dual link HD(1.5G)-SDI
- Interlace mode
- XYZ signal supported
- Safe & Area marker and Flexible maker supported
- Relative Contrast functions(RC1/2, RC1/3, RC1/4)
- SDI2 4K and SDI2 2K are assignable to F keys and directly selectable*.

* Supported with version 1.2 .

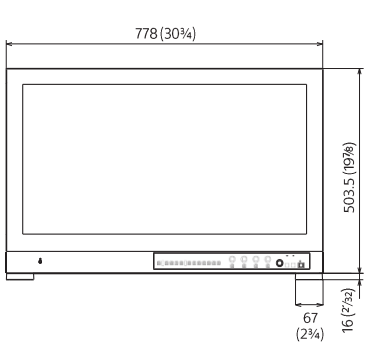
Picture Performance	
Panel	α-Si TFT Active Matrix LCD
Picture size (diagonal)	789.1 mm (31.1 inches)
Effective Picture size (H x V)	698.0 x 368.1 mm (27 1/2 x 14 1/2 inches)
Resolution (H x V)	4096 x 2160 pixels
Aspect	17 : 9 (1.89 : 1)
Pixel efficiency	99.99%
Panel drive	10-bit
Panel frame rate	48 Hz / 50 Hz / 60 Hz (48 Hz and 60 Hz are also compatible with 1/1.001 frame rates)
Viewing angle (panel specification)	89°/89°/89°/89° (typical) (up/down/left/right contrast > 10:1)
colour temperature	D55, D61, D65, D93, DCI*1, and user 1-5 (5,000 K to 10,000 K adjustable), DCI XYZ
Luminance (Panel Specification)	1000 cd/m^2,Typical at D65(0.313, 0.329)
Colour space (colour gamut)	ITU-R BT.2020*2, ITU-R BT.709, EBU, SMPTE-C, DCI-P3*2, Native*3, S-GAMUT3*2, S-GAMUT3.cine*2
Transmission Matrix	ITU-R BT.2020 (Non-constant luminance is supported), ITU-R BT.709
EOTF	2.2, 2.4, 2.6, CRT, 2.4 (HDR), S-Log3 (HDR), S-Log3 (Live HDR), S-Log2 (HDR), SMPTE ST 2084(HDR), ITU-BT.2100(HLG)
Input	
SDI1	(3G/HD) BNC (x4), Input impedance: 75 Ω unbalanced
SDI2	(12G/6G/3G/HD) BNC (x2) , (3G/HD) BNC (x2), Input impedance: 75 Ω unbalanced
HDMI	HDMI (HDCP2.3/1.4) (x1)
Serial remote (LAN)	Ethernet (10BASE-T/100BASE-TX), RJ-45 (x1)
Output	
SDI 1	(3G/HD) BNC (x4) <SDI1/SDI2 Switched output>, Output impedance: 75 Ω unbalanced
SDI 2	(12G/6G/3G/HD) BNC (x2) , (3G/HD) BNC (x2) <SDI2 active loop-through output>, Output impedance: 75 Ω unbalanced
Audio monitor	Stereo mini jack (x1)
Headphones	Stereo mini jack (x1)
General	
Power requirement	AC 100 V to 240 V, 5.1 A to 2.1 A, 50/60 Hz
Power consumption	Approx. 450 W (max.)
Operating temperature	0°C to 35°C (32°F to 95°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)	778 x 519.5 x 230 mm (30 3/4 x 20 1/2 x 9 1/8 inches)
Mass	29 kg (63 lb 15 oz)
Supplied accessories	AC power cord (1), AC plug holder (1), Before Using This Unit (1)

*1 DCI: x=0.314, y=0.351
*2 The BVM-HX310 does not cover selected colour space in full.
*3 The BVM-HX310 individual chromaticity points. The widest colour space setting of the signal is reproduced by the BVM-HX310.
*4 SDI1 MONITOR output is a switched-output between SDI1 and SDI2 when signals are a 3G/HD-SDI signal.

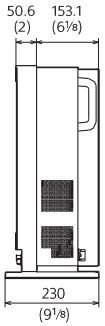
Rear connector panel

Dimensions

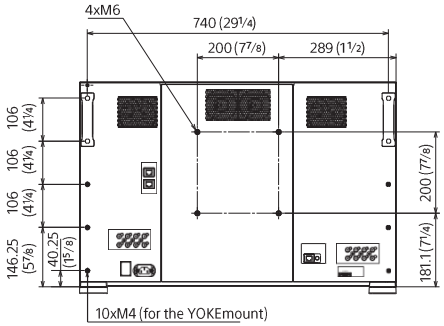
Front



Side



Rear



To install on avehicle, fix the unit using screw holes for the YOKE mount.

Unit: mm(inches)

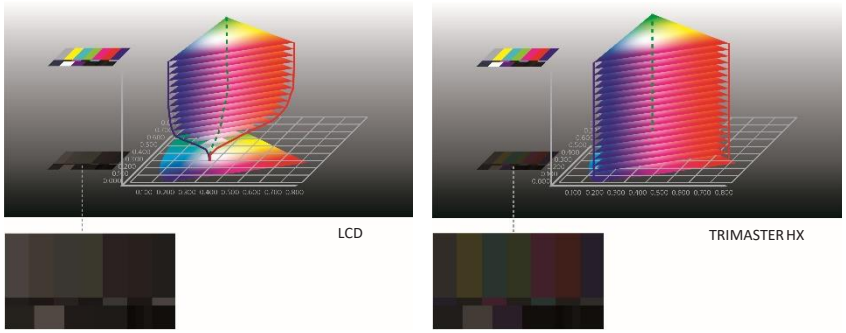
BVM-HX310

4K LCD Master Monitor

Accurate Colour Reproduction

The wide colour gamut generated by this technology assures faithful and consistent colour reproduction over the entire luminance range.

- Adjusts tone and colour during the colour grading process
- Reproduces accurate and deep colour when working with CG for animation and games
- Reproduces the wide colour gamut of digital cinema



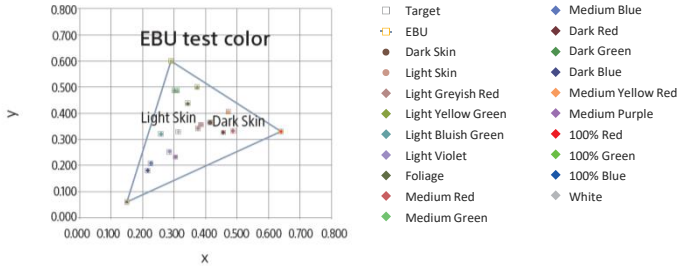
LCD TRIMASTER HX

* Colour gamut images based on Sony's test results.

Sony's TRIMASTER HX technology not only offers a wide colour gamut with accuracy for each of the three primary colours, but also maintains this wide colour gamut throughout the entire luminance range.

The BVM-HX310 can reproduce precise colours as a master monitor.

EBU test colour (ITU-R BT.709)



TRIMASTER HX technology offers smooth gradation throughout the entire luminance range without banding to provide the level of performance required for critical imaging.

Example conventional processing

TRIMASTER HX

* Simulated image

The BVM-HX310 can display video content accurately even from a single pixel; for example, a small star in the night sky. It is designed to achieve reference monitor quality, which necessitates correct indication of the image even in very small areas such as just one pixel. The BVM-HX310 offers superb uniformity throughout the entire luminance range.

* image

BVM-HX310

4K LCD Master Monitor

High Dynamic Range Mode

In addition to the intrinsic high-contrast performance of the TRIMASTER HX panel, this monitor offers high dynamic range (HDR) mode. This provides extremely high levels of picture quality and image reproduction. The black areas are black, and peak brightness can be reproduced more realistically with rich colours. These high levels of highlight and colour are typically saturated and limited in the conventional standard dynamic range.

Conventional standard dynamic range

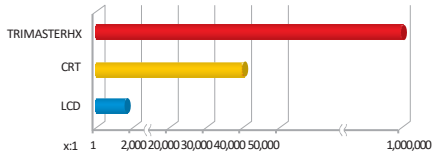
Highlight is clipped; less shadow detail

High Dynamic Range mode

Render shadow detail to highlight

*Simulated images

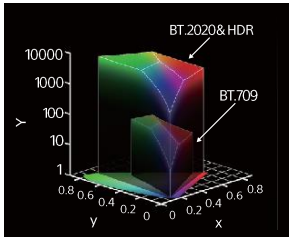
Contrast ratio



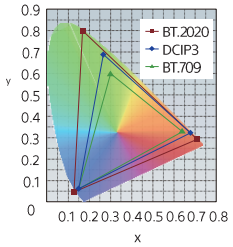
The wide colour gamut works together with the HDR function, as higher resolution typically requires a wider colour gamut. The ITU-R BT.2020 prescribes a much wider colour gamut than the ITU-R BT.709 in support of higher resolution images.

The colour volume increases dramatically in an HDR system compared to an SDR system. As seen in the image below, the colour gamut increases in the horizontal plane and the luminance level increases in the vertical axis. This has a synergistic effect – combining the high-resolution HDR and WCG gives a much more realistic and three-dimensional effect in image reproduction. And this in turn produces high-level, high-quality natural images.

Colour Volume



Wider Colour Gamut



The BVM-HX310 achieved 1,000 nits*1 of brightness in full screen with a 1,000,000:1 contrast ratio which is especially suitable for HDR content. Accurate signals are always presented on display without worrying about the total brightness restriction of full-screen power consumption.

*1 Typical at D65

ABL

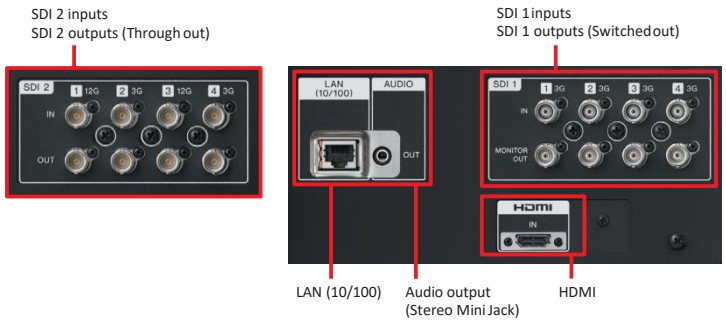
No automatic brightness limiter

*Simulated images

12G/6G/3G/HD-SDI and HDMI

This master monitor supports 12G/6G/3G/HD-SDI and HDMI enabling simple 4k transmission with a single cable.

Rear connector panel



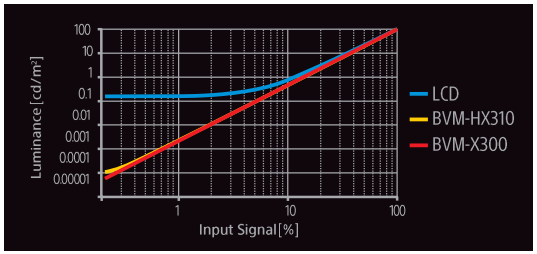
BVM-HX310

4K LCD Master Monitor

Satisfaction of Seeing Truer Blacks

This TRIMASTER HX monitor superbly reproduces deep, truer blacks, allowing you to pick out subtle details and delicate highlights in surrounding areas. TRIMASTER HX technology accurately and clearly expresses colour difference in extremely low luminance areas, which guarantees accurate image reproduction.

- TRIMASTER HX technology accurately displays noise and details in dark areas, allowing aperture and exposure to be finely adjusted, which avoids unwanted image artifacts.
- Video engineers can concentrate on grading tone and colour more precisely and it is easier to adjust the black signal level, as shown in the pictures below.



BVM-HX310

BVM-X300

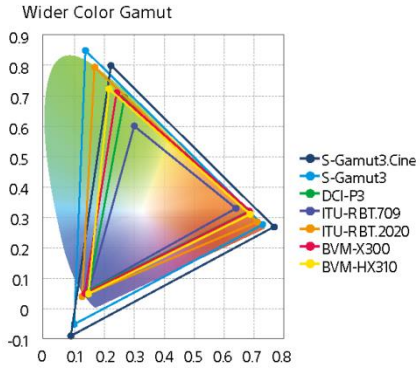
4K 4096 x 2160 Pixel Resolution LCD Panel

The BVM-HX310 incorporates a 31.1-inch true 4K panel at 4096 x 2160 pixel resolution.
The aspect ratio is 1.89:1 (17:9) so images are mapped with no scaling processes.

Supports DCI-P3 and ITU-R BT.2020 Wide Colour Spaces

The BVM-HX310 offers industry-leading wide colour gamut. It complies with the DCI-P3*1 colour gamut and supports the ITU-R BT.2020*1 colour space. S-GAMUT3. cine*1 and S-GAMUT3*1 colour gamut are also supported to achieve coherent cinematography production workflow with Sony's 4K cinematography cameras.

*1 The BVM HX310 does not fully cover the DCI-P3 ITU-R BT.2020, S-Gamut/S-Gamut3 and S-Gamut3.cine colour space.



* Simulated image

Gamut Marker

When ITU-R BT.2020 colours which are outside the ITU-R BT.709 or DCI-P3 colour gamut are detected, the master monitor indicates this with a zebra pattern over the relevant area of the picture. Gamut marker is a convenient feature that instantly tells viewers of the occurrence of such colours in the picture.

Sony S-Log Gamma, Hybrid Log-Gamma and SMPTE ST 2084 Support

The BVM-HX310 supports conventional 2.2, 2.4, 2.6, and CRT gamma. In addition, it supports standardized EOTF for HDR (High Dynamic Range) such as SMPTE ST 2084 and ITU-R BT.2100(HLG). Both standards are used to cover various demands in the broadcast and cinematography industries. EOTF tables for live and post-production environments such as 2.4(HDR), S-Log2(HDR), S-Log3(HDR) and S-Log3(Live HDR) are also included. The latter is especially important as it offers easier camera control for high dynamic range live production (SR Live).

S-Log gammas are OETF curves used in Sony's digital cinematography cameras that allow you to capture the full latitude of the camera imager to be maintained throughout the production chain. Unlike conventional systems, in which highlight contrast is compressed, S-Log gamma logarithmically converts the video signal using characteristics similar to film negatives. This keeps the camera imager's dynamic range intact, even in extreme highlight areas.

The BVM-HX310 exhibits EOTFs which allow the reproduction of images with an inverse function of the camera's S-Log gamma signals.

Two display modes are offered: S-Log2 and S-Log3. Both of them enable easy workflows close to that of film, and deliver a 4K wide dynamic range. These log functions include the entire latitude range captured by the camera. When the BVM-HX310 is set to S-Log mode, it will display this range without the need for any signal correction or user LUTs.

Accurate Upscale Conversion with Dot by Dot

By copying one dot four times, the HD signal is mapped to the 4K panel without pixel interpolation.
This makes it possible to recognize pixel omissions. And by combining this with interlace display mode, ODD / EVEN mistakes, etc., can be easily found.

Quad-View Display Function

The BVM-HX310 has a quad-view display function*1 which – across four distinct views – allows customized individual display settings including:

- Electro-optical transfer function (EOTF)
- Colour space, transfer matrix, and colour temperature
- Contrast, brightness, and chroma
- Interface (3G-SDI, HD-SDI including Single Link/Dual Link and HDMI)
- Signal structure (RGB and YCbCr)

An example application for quad-view display in production would be viewing the original footage on screen A, EOTF-converted image on screen B, another EOTF-converted image on screen C, and EOTF/colour space-converted image on screen D.

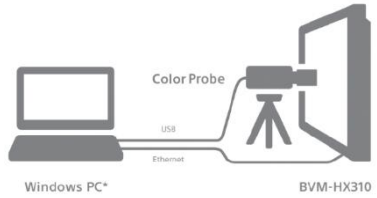
*1 Inputs must be HD signals. The BVM-HX310 doesn't support down conversion from 4K.
Any four HD signals can be displayed by selecting from SDI1 and HDMI, or SDI2 and HDMI.

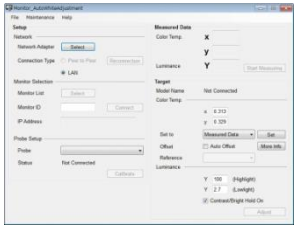
* Simulatedimage

Auto White Adjustment*1

BVM-HX310 monitor employs a software-based colour temperature (white balance) calibration function, which is called Monitor_AutoWhiteAdjustment. Combined with a PC and commercially available calibration tools*2, this function enables simple adjustment of the monitor's white balance.

*1 Supported with Version 1.6 or later and BVM-HX310 monitor should be Version 1.1 or later
*2 Refer to a download page of Monitor Auto White adjustment for more details.





"Monitor_AutoWhiteAdjustment" GUI images*2

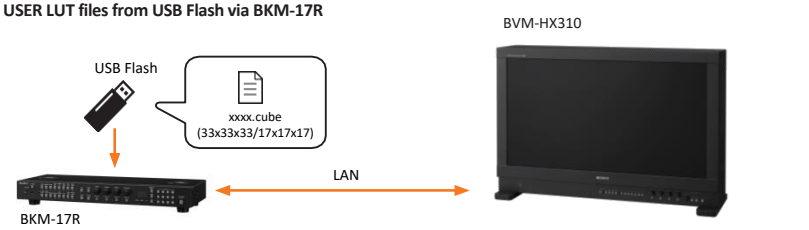
BVM-HX310

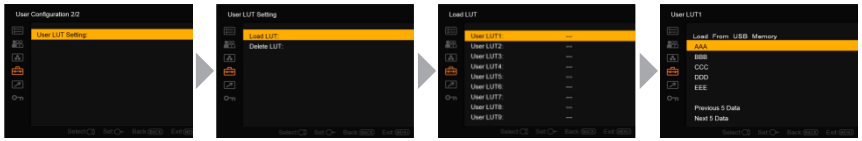
4K LCD Master Monitor

USER LUT (Look-Up Table)

During on-set operation or in post-production, there is always a need to check the image during a pre-grading process or with a different EOTF. The BVM-HX310 has a user LUT function on the side of the monitor which allows you to display customized LUTs. Together with the quad-view mode, multiple user LUTs can be displayed on the same screen for side-by-side comparison.

1.Load USER LUT files from USB Flash via BKM-17R





2.Select and apply USER LUT

Users can change LUTs from function button by selecting Input Setting.

Automatic Setting by VPID (Video Payload ID)

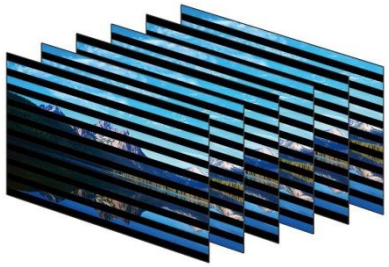
Compared with HD SDR, 4K HDR production has various and complex combinations of EOTF, colour space, and RGB range. VPID automatically identifies source information embedded in the SDI signal and performs the correct monitor setting, minimizing human error.

Low Process Delay

For a master monitor, a less process delay capability is very important especially in live production or broadcasting systems. Process delay in the BVM-HX310 is less than one frame and it ensures real-time video monitoring.

Interlace Mode

The BVM-HX310 monitor offers an Interlace Display feature. This enables input to be presented as a true interlace display. As with the Native Scan function, Interlace Display mode offers faithful reproduction of the input signal, and the displayed interlace fields are free from the picture degradation that can occur as a result of typical I/P conversion processes.



* Simulated image

BVM-HX310

4K LCD Master Monitor

Faster access to the status menu page

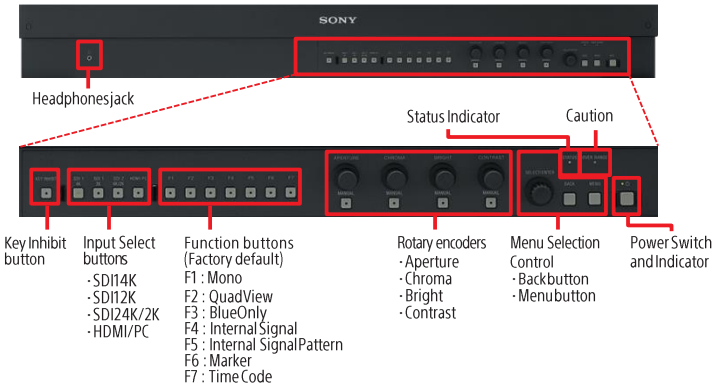
BVM-HX310 can retain the settings last used in the status menu, such as colour space, EOTF, User Preset and more. Once you check them from the status menu and close the menu, you can quickly see them when you open the menu again.

User-friendly Built-in Control Panel

The BVM HX310 incorporates a built-in control panel in front, which offers common operability with BVM-X300:

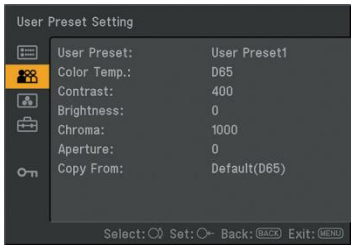
- Seven user assignable function buttons
- Manual controls for aperture, chroma, brightness, and contrast
- Separate 4K and 2K settings, enabling users straightforward operation
- Dimmable button lights and on/off switchable indicator lights
- SDI2 4K and SDI2 2K can directly be selected by assigned F keys. (with Ver. 1.2)

Front control panel



User Presets

When multiple users share the same monitor, each user can memorize his/her settings and retrieve this data whenever required. This frees the user from time-consuming and repetitive setting tasks. Up to five User Presets can be memorized.



Password Lock for User Preset

When multiple users share the same monitor, each user can register his/her own password for colour temperature and user preset data. This ensures the user correctly recalls their preset data, and keeps preset information safe from unauthorized use.

Power-on Setting

This function allows users to select setting data when the monitor starts up; this includes last memory, user preset, and factory preset settings. Users can set the monitor accurately and quickly. This function is very useful for rental equipment.

Key Inhibit

The KEY INHIBIT button located on the front panel protects each user's settings. When a user wants to change these values, the lock can be released.

Flexible Area Marker

Two flexible area markers can be freely set anywhere on the screen. This is a useful feature during shooting operation, for instance on shopping channels. These require a unique screen layout to instantly differentiate between a product and its commercial data.


Marker Preset Image 1


Marker Preset Image 2


Marker Preset Image 3

Example : Shopping channels

Guide for a proper framing

Zoom out to show a commercial product

Area Settings and Aspect Ratio Markers

The BVM-HX310 monitor can display various markers, including an aspect marker, safe area marker, and center marker. In addition to this flexible selection of marker types, the monitor offers detailed display settings for each marker. For example, the colour, brightness, horizontal/vertical position, and width of aspect markers can all be controlled, while the height and width of safe area markers can be adjusted.

Marker Variation

	Safe Area Marker		Aspect Marker*
	%	Dot (Pixel)	
Selectable Markers	80%, 88%, 90%, 93%, or variable	Flexible	16:9, 15:9, 14:9, 13:9, 4:3, 2.39:1, 2.35:1, 1.896:1, 1.85:1, or 1.66:1
Line colours	White, Red, Green, Blue, Yellow, Cyan, or Magenta		
Line Width	1 to 5 dots (factory preset at 2 dots)		
Line Luminance Intensity	High (bright) or Low (dark)		
Blanking	—		Off: Blanking is released Black: Blanking Half: Half blanking

Marker Examples


Aspect Mode: 2.35:1, Safe Area: Shape A, Area Size: 80%


Aspect Mode: 14:9, Safe Area: Shape B, Area Size: 80%


Aspect Mode: 4:3, Safe Area: ShapeC, Area Size: 80%

Time Code

LTC and VITC time code can be displayed at the top or bottom of the picture.

Formats

Signal System	Signal Format			
2K/HD (HD-SDI)				
1920 × 1080/60i*1, 50i, 30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1	4 : 2 : 2 YCbCr	10 bit		
1280 × 720/60p*1, 50p, 30p*1, 25p, 24p*1				
2048 × 1080/30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1				
2K/HD (HD-SDI Dual link)				
1920 × 1080/60p*1, 50p	4 : 2 : 2 YCbCr	10 bit		
1920 × 1080/60i*1, 50i, 30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1	4 : 4 : 4 RGB	10 bit / 12 bit		
	4 : 4 : 4 YCbCr			
2048 × 1080/60p*1, 50p, 48p*1	4 : 2 : 2 YCbCr	10 bit		
2048 × 1080/30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1	4 : 4 : 4 RGB	10 bit / 12 bit		
	4 : 4 : 4 YCbCr			
2048 × 1080/30p, 30PsF, 25p, 25PsF, 24p, 24PsF	4 : 4 : 4 XYZ	12 bit		
2K/HD (3G-SDI)				
1920 × 1080/60p*1, 50p	4 : 2 : 2 YCbCr	10 bit	Level A / Level B-DL	
1920 × 1080/60i*1, 50i, 30PsF*1, 25PsF, 24PsF*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	
	4 : 4 : 4 YCbCr			
1920 × 1080/30p*1, 25p, 24p*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	
	4 : 4 : 4 YCbCr			
1280 × 720/60p*1, 50p, 30p*1, 25p, 24p*1	4 : 4 : 4 RGB	10 bit	Level A	
	4 : 4 : 4 YCbCr			
2048 × 1080/60p*1, 50p, 48p*1	4 : 2 : 2 YCbCr	10 bit	Level A / Level B-DL	
2048 × 1080/30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	
	4 : 4 : 4 YCbCr			
2048 × 1080/30p, 30PsF, 25p, 25PsF, 24p, 24PsF	4 : 4 : 4 XYZ	12 bit	Level A / Level B-DL	
2K/HD (3G-SDI Dual Link)				
1920 × 1080/60p*1, 50p	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	
	4 : 4 : 4 YCbCr			
2048 × 1080/60p*1, 50p, 48p*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	
	4 : 4 : 4 YCbCr			
4K/UHD (3G-SDI Dual Link)				
3840 × 2160/30p*1, 25p, 24p*1	4 : 2 : 2 YCbCr	10 bit	Level B-DS	2-sample interleave division / Square division*2
3840 × 2160/30PsF*1, 25PsF, 24PsF*1	4 : 2 : 2 YCbCr	10 bit	Level B-DS	Square division
4096 × 2160/30p*1, 25p, 24p*1	4 : 2 : 2 YCbCr	10 bit	Level B-DS	2-sample interleave division / Square division*2
4096 × 2160/30PsF*1, 25PsF, 24PsF*1	4 : 2 : 2 YCbCr	10 bit	Level B-DS	Square division
4K/UHD (HD-SDI Quad Link)				
3840 × 2160/30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1	4 : 2 : 2 YCbCr	10 bit		Square division
4096 × 2160/30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1	4 : 2 : 2 YCbCr	10 bit		Square division
4K/UHD (3G-SDI Quad Link)				
3840 × 2160/60p*1, 50p	4 : 2 : 2 YCbCr	10 bit	Level A / Level B-DL	2-sample interleave division / Square division
3840 × 2160/30p*1, 25p, 24p*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	2-sample interleave division / Square division
	4 : 4 : 4 YCbCr			
3840 × 2160/30PsF*1, 25PsF, 24PsF*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	Square division
	4 : 4 : 4 YCbCr			
4096 × 2160/60p*1, 50p, 48p*1	4 : 2 : 2 YCbCr	10 bit	Level A / Level B-DL	2-sample interleave division / Square division
4096 × 2160/30p*1, 25p, 24p*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	2-sample interleave division / Square division
	4 : 4 : 4 YCbCr			
4096 × 2160/30PsF*1, 25PsF, 24PsF*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	Square division
	4 : 4 : 4 YCbCr			
4096 × 2160/30p, 25p, 24p	4 : 4 : 4 XYZ	12 bit	Level A / Level B-DL	2-sample interleave division / Square division
4096 × 2160/30PsF, 25PsF, 24PsF	4 : 4 : 4 XYZ	12 bit	Level A / Level B-DL	Square division

*1 Also compatible with 1/1.001.

*2 When Square is selected (physically same when 2SI is selected).

Formats

Signal System	Signal Format			
4K/UHD (12G-SDI Single Link)				
3840 × 2160/60p*1, 50p	4 : 2 : 2 YCbCr	10 bit	Mode 1	2-sample interleave division / Square division
3840 × 2160/30p*1, 25p, 24p*1	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	10 bit / 12 bit	Mode 1	2-sample interleave division / Square division
4096 × 2160/60p*1, 50p, 48p*1	4 : 2 : 2 YCbCr	10 bit	Mode 1	2-sample interleave division / Square division
4096 × 2160/30p*1, 25p, 24p*1	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	10 bit / 12 bit	Mode 1	2-sample interleave division / Square division
4096 × 2160/30p, 25p, 24p	4 : 4 : 4 XYZ	12 bit	Mode 1	2-sample interleave division / Square division
4K/UHD (6G-SDI Single Link)				
3840 × 2160/30p*1, 25p, 24p*1	4 : 2 : 2 YCbCr	10 bit	Mode 1	2-sample interleave division / Square division
4096 × 2160/30p*1, 25p, 24p*1	4 : 2 : 2 YCbCr	10 bit	Mode 1	2-sample interleave division / Square division

*1 Also compatible with 1/1.001.

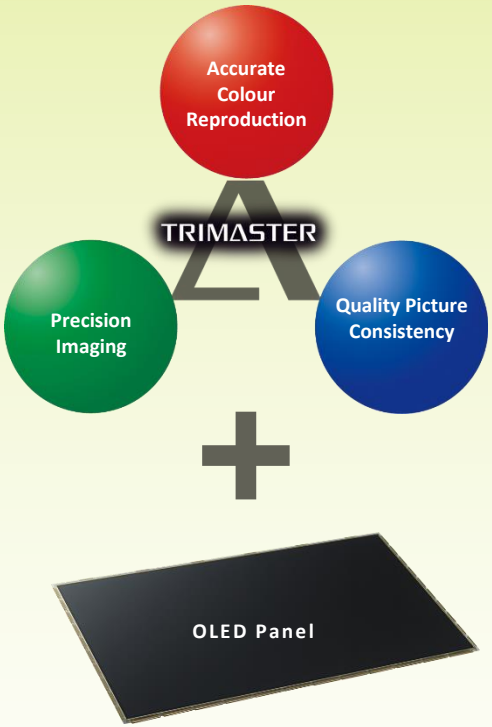
HDMI

Signal System	Signal Format		Standard
640 × 480/60p*2	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	12 bit / 10 bit / 8 bit	CTA-861-D
	4 : 2 : 2 YCbCr	12 bit	
720 × 480/60p*2	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	12 bit / 10 bit / 8 bit	CTA-861-D
	4 : 2 : 2 YCbCr	12 bit	
720 × 576/50p	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	12 bit / 10 bit / 8 bit	CTA-861-D
	4 : 2 : 2 YCbCr	12 bit	
1280 × 720/60p*2, 50p	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	12 bit / 10 bit / 8 bit	CTA-861-D
	4 : 2 : 2 YCbCr	12 bit	
1920 × 1080/60i*2, 50i	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	12 bit / 10 bit / 8 bit	CTA-861-D
	4 : 2 : 2 YCbCr	12 bit	
1920 × 1080/60p*2, 50p, 30p*2, 25p, 24p*2	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	12 bit / 10 bit / 8 bit	CTA-861-D
	4 : 2 : 2 YCbCr	12 bit	
2048 × 1080/60p*2, 50p, 48p, 30p*2*7, 25p*7, 24p*2	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	12 bit / 10 bit / 8 bit	No Standard
	4 : 2 : 2 YCbCr	12 bit	
3840 × 2160/60p*2*3, 50p*3	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	8 bit*4	CTA-861-G
	4 : 2 : 2 YCbCr	12 bit*4	
	4 : 2 : 0 YCbCr	8 bit	
3840 × 2160/30p*2*3, 25p*3, 24p*2*3	4 : 4 : 4 RGB	12 bit / 10 bit / 8 bit*4*6	CTA-861-G
	4 : 4 : 4 YCbCr	12 bit / 10 bit / 8 bit*4*5	
	4 : 2 : 2 YCbCr	12 bit	

Signal System	Signal Format		Standard
4096 × 2160/60p*2*3, 50p*3	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	8 bit *4	CTA-861-G
	4 : 2 :2 YCbCr	12 bit*4	
	4 : 2 :0 YCbCr	8 bit	
4096 × 2160/30p*2*3, 25p*3, 24p*2*3	4 : 4 : 4 RGB	12 bit / 10 bit / 8 bit*4*6	CTA-861-G
	4 : 4 :4 YCbCr	12 bit / 10 bit / 8 bit*4*5	
	4 : 2 :2 YCbCr	12 bit	
800 × 600/60p	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	12 bit / 10 bit / 8 bit	VESA and Industry Standards and Guidelines for Computer Display Monitor Timing(DMT)
	4 : 2 :2 YCbCr	12 bit	
1024 × 768/60p	4 : 4 : 4 RGB 4 : 4 : 4 YCbCr	12 bit / 10 bit / 8 bit	VESA and Industry Standards and Guidelines for Computer Display Monitor Timing(DMT)
	4 : 2 :2 YCbCr	12 bit	

*2 Also compatible with the frame rate 1/1.001.
*3 This signal is described as "equivalent to the 4K signal" in this manual.
*4 [Enhanced Format] must be selected in the [HDMI Signal Format] menu. Also, when using this input signal, use the Premium High-Speed HDMI cable. (30p, 25Pp 24p signals are only for the 4:4:4 RGB/YCbCr 10/12bit signal.)
*5 The 4:4:4(YCbCr)12/10bit signal is displayed after converting to the 4:2:2(YCbCr)12/10bit signal.
*6 The 4:4:4(RGB)12/10bit signal is displayed after converting to the 4:2:2(YCbCr)12/10bit signal or is displayed as a 4:4:4(RGB)8bit signal.
*7 This signal system is not described in EDID (Extended Display Identification Data).

TRIMASTER EL



TRIMASTER™ Technology is a design architecture used to elicit the full performance capabilities of Professional flat-panel displays. It comprises the core technologies that enable the highest level of colour accuracy, precision imaging, and picture-quality consistency. EL (Electro-Luminescence) is an ideal self-emission display device with a wide dynamic range and high picture quality. By refining TRIMASTER technology with the new EL device, Sony effectively boosts the performance expectations of the professional industry.

Unique OLED Technology

OLED panel

- Accurate Black Reproduction
- Accurate Colour Reproduction
- Wide Dynamic Range
- Fast Response Time

Original OLED processor

- Designed specifically for OLED panel
- Designed specifically to optimise OLED performance
- Accurate gamma control of extreme black details

Unrivalled Black Reproduction

The satisfaction of seeing truer blacks

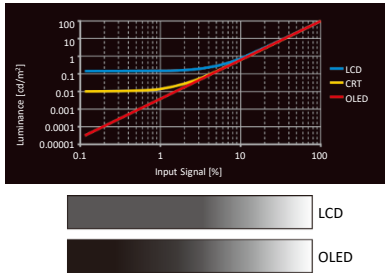
TRIMASTER EL superbly reproduces deep, truer blacks, allowing you to pick out subtle details and delicate highlights in surrounding areas. This amazing ability to express accurately and clearly tonal differences in extreme low-luminance areas even exceeds older reference CRTs. TRIMASTER EL technology is your assurance of precise image reproduction.

- Because TRIMASTER EL technology accurately displays noise and details in dark areas, aperture and exposure can be finely adjusted, helping to avoid unwanted image artifacts.
- Video engineers can concentrate on adjusting tone and colour because it is easier to check the black signal level.

Shooting night scenes is now far easier and delicate differences in dark areas can be faithfully expressed.

Comparison with conventional technology

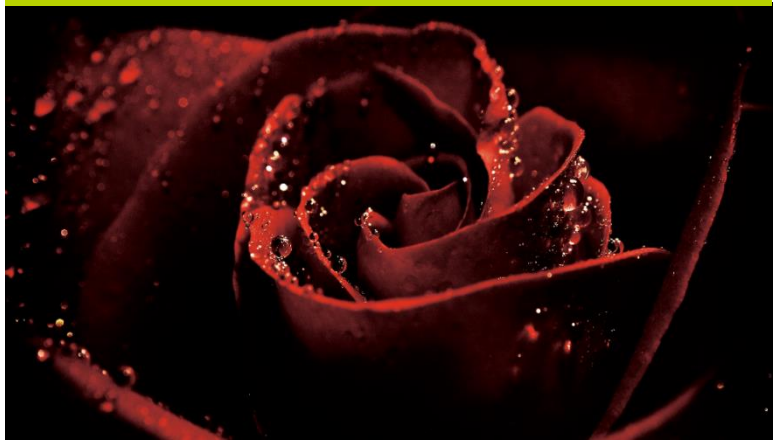
A key advantage of TRIMASTER EL technology is the fact that because of its self-emitting properties, each pixel can be turned completely off. No other display technology is able to offer this. Solution is capable of reproducing accurate black with each individual pixel, enabling users to evaluate each picture image faithfully.



Grey scale images corresponding to the input signal

* Grey scales are simulated images.

Accurate colour Reproduction



The right colour regardless of brightness

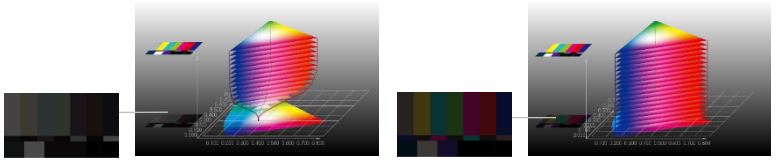
Reproducing the delicate shades of dark colours is a challenge for any monitor, but which TRIMASTER EL performs with ease. The wide colour gamut generated by this technology assures faithful and consistent reproduction of colours over the entire luminance range — an impossible feat in the past for non-OLED monitors. This is critical when:

- Adjusting tone and colour during the colour grading process.
- Reproducing accurate and deep colour when working with CG for animation and games.
- Reproducing the wide colour gamut of digital cinema.

Because colours in dark areas can be precisely viewed, TRIMASTER EL is the ideal choice for producing high-quality images.

Comparison with conventional technology

Technology not only offers a wide colour gamut with its accuracy for each of the three primary colours, but also maintains this wide colour gamut throughout the entire luminance range.



LCD* OLED*

* Colour gamut images based on Sony's test results.

Wide Dynamic Range

The breathtaking drama of wide dynamic range images

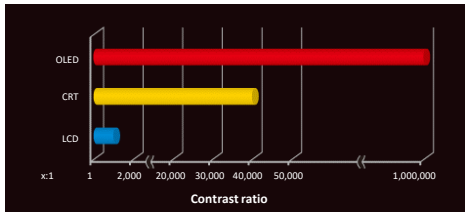
Thanks to the wide dynamic range capability of TRIMASTER EL, you can see every detail that the latest cameras capture. The results are nothing short of stunning, with colours smoothly displayed over the entire tonal range and details clearly reproduced in deep shadows and bright highlights.

- Scenes with challenging lighting conditions can be easily and faithfully reproduced, including delicate metal textures and backlit subjects.
- Because details in dark shadows can be accurately checked, retakes can be reduced.
- Black and peak white colours can be checked more efficiently. In addition, clearer display of subjects reduces eye fatigue.

TRIMASTER EL increases production efficiency, and allows users to create superb high-contrast images and video content for future proofing.

Comparison with conventional technology

OLED technology has the ability to control each individual pixel from an absolute black to peak white. Each pixel can display the entire dynamic range of the image with no interference to the adjacent pixels.



Fast Response Time

The overwhelming advantage of virtually blur-free motion

During fast-moving sporting events, balls and players move quickly and often unpredictably — action that can cause blurring with other display technologies. TRIMASTER EL avoids this thanks to a lighting-quick grey-to-grey switching speed
that allows faithful monitoring without afterimage. This results in easy tracking and clearly displayed player numbers.

- Fast switching speeds provide clearer panning.
- View moving text clearly with virtually no motion blur.
- Adjust focus on a larger monitor rather than on the camera's viewfinder.

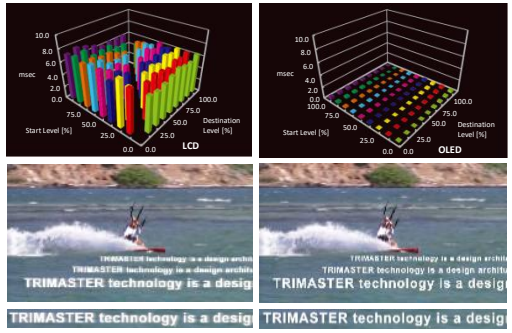
The high image quality of fast-moving subjects increases flexibility when broadcasting sports, allowing production staff to capture the real action of the event and greatly reduce eye fatigue.

Comparison with conventional technology

Because the OLED emitting layer inherently responds to any electrical current input, it emits light immediately. OLED grey-to-grey switching speed (measured in microseconds, µs) is much faster than that of LCDs (measured in milliseconds,ms).*

* Sony test results

Grey-to-grey pixel response
Taller bars represent slower switching times, while smaller bars indicate faster switching speeds, resulting in less motion blur.



LCD* OLED*

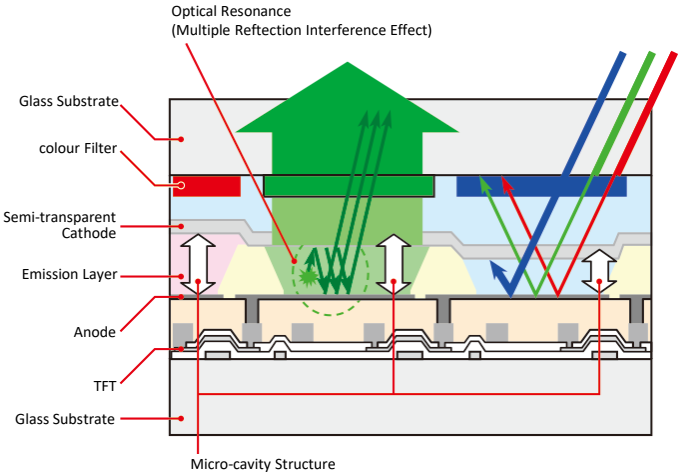
* Simulated images

TRIMASTER EL

Unique Super Top Emission technology Deep black with wide dynamic range Quick response with virtually no motion blur Wide colour gamut and accurate colour reproduction

TRIMASTER EL – Self-emitting Display Device

TRIMASTER EL creates light by recombining an electron and a hole within certain organic materials. The process of emitting light is extremely efficient when compared to other technologies currently used for display.
Its organic materials react to the control of the electrical current immediately, and do not emit light in the absence of an electrical current. In this way, the OLED display panel features superb black performance and quick response to fast-motion pictures. In addition, OLED display panel delivers a wider colour gamut.

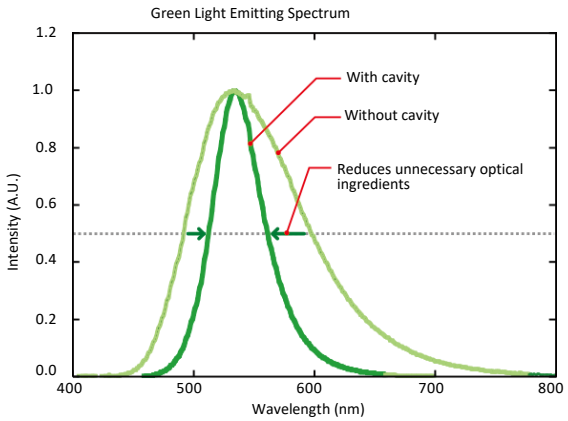


Super Top Emission Technology

Super Top Emission OLED panel is designed to deliver light emission with the TFT layer on the rear side of the panel. Therefore, the top emission structure offers more efficient light emission than is typical with bottom emission structures where TFT layers are placed on the front side of the panel, limiting the light-emission aperture.

This Super Top Emission technology has a micro-cavity structure which incorporates colour filters. This cavity structure uses an optical resonance effect to enhance colour purity and improve light-emission efficiency. In addition, the colour filter of each RGB also enhances the colour purity of emitted light, and reduces ambient light reflection.

Super Top Emission OLED panel is completely sealed by a glass substrate, and the electroluminescent layer is fully isolated from outside air and moisture. This contributes to stability and reliability.



TRIMASTER EL

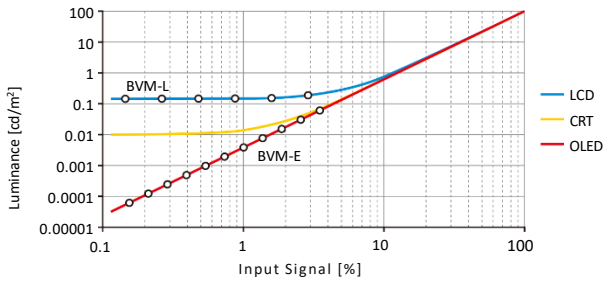
Accurate signal processing across all signal levels
Accurate gamma control
Superb uniformity control

Dedicated TRIMASTER EL Processor

The BVM-E Series of OLED monitors incorporate OLED-dedicated signal processors to elicit and maximize OLED panel performance. This technology allows these TRIMASTER EL monitors to provide the level of performance required for critical imaging. These processors accurately control gamma and uniformity, and deliver precision stability control.

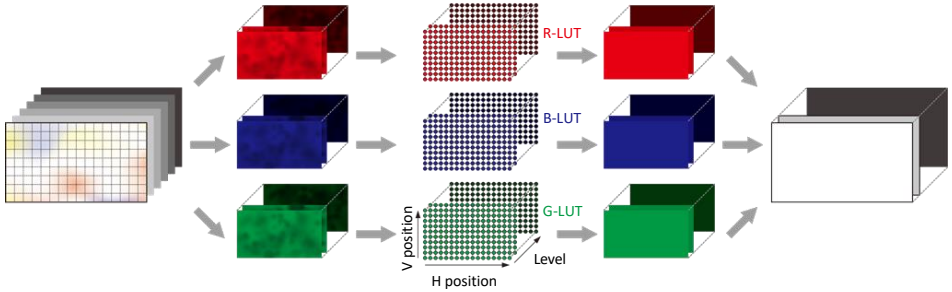
Accurate gamma control

Since TRIMASTER EL panel can display a deeper black than any other display device, the TRIMASTER EL processor controls gamma accuracy (black reproduction) by increased signal processing bit depth.



Superb uniformity control

TRIMASTER EL processor offers superb uniformity across all signal levels at every point of the screen. At the factory, OLED-panel uniformity is precisely measured and corrected using a proprietary RGB LUT (look-up table) adjustment system.



TRIMASTER EL

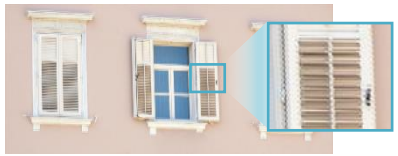
Precision Imaging without Artifact

TRIMASTER EL monitors*1 incorporate the motion adaptive I/P conversion method, which detects information from multiple present and past fields. This is superior to conventional technology, which generally uses motion detection in fewer fields.

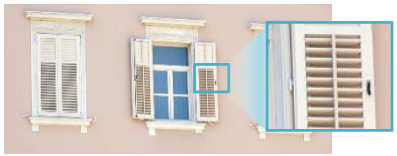
With this technology, TRIMASTER EL monitors reproduce video signals accurately without artifacts. You'll appreciate the difference immediately – for example, when there's zero tolerance for failure in shooting, you can be confident of fine patterns or delicate commercial logos.

*1 BVM-E only.

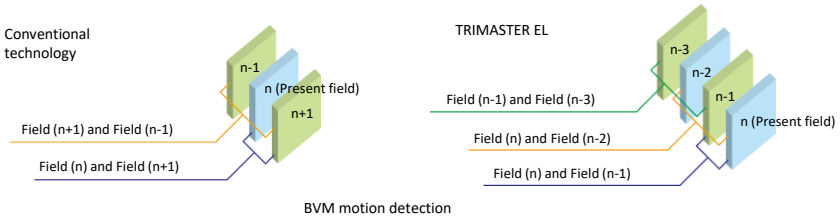
Conventional technology



TRIMASTER EL



* Simulated images



BVM motion detection

Consistency/Repeatability

The performance of every TRIMASTER EL monitor is precisely adjusted and inspected on gamma, white balance, uniformity, etc., by a highly-robotized system and by professionally trained human eye at the final stage of manufacture prior to shipping. This quality control process provides substantial consistency and uniformity among TRIMASTER EL monitors.

In addition, colour reproduction of BVM monitor can easily and accurately be duplicated to other BVM monitors using the Memory Stick™ copy function. colour reproduction of every monitor is matched to the extreme, regardless of their location.

Conventional technology

TRIMASTER EL

* Simulated images

Stability

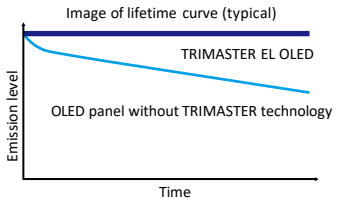
TRIMASTER EL monitors are designed to control pixel-by-pixel light emission of the OLED panel. This system ensures emission stability over a long duration. You can use TRIMASTER monitors continuously over time with confidence.

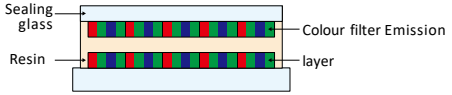
In addition, Super Top Emission OLED panel is completely sealed by a glass substrate, and the electroluminescent layer is fully isolated from outside air and moisture. This also contributes to stability and reliability. TRIMASTER EL monitors can offer higher performance in terms of luminance and white balance than typical reference monitors.

Conventional technology

TRIMASTER EL

* Simulated image





Pure Solid Structure

Monitors adjustment / inspection

BVM-E251/E171

OLED Master Monitors

BVM-E251 BVM-E171

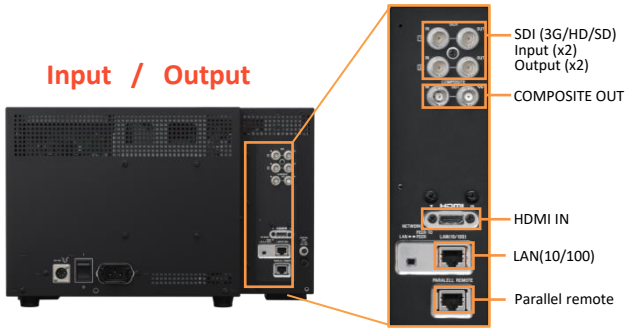
25"/17" FHD OLED Reference Monitors for Colour Critical, Quality Control Operation of Versatile video productions

Main Features

- BVM 2nd Generation Grade OLED Panel
- Superb picture performance
- Super Top Emission™ technology
- Ultimate Sony display engine
- Multi-format signal support
- Versatile video inputs
- HDR*1 *2
- Flicker free mode
- ITU-R BT.2020 / DCI-P3/ ITU-R BT.709 support
- Accepts computer signals via HDMI with RGB/YCC full range support*1
- Auto White Balance
- Gamut error display
- S-Log3(SDR), S-Log2(SDR)
- 2K picture resolution
- High quality I/P conversion technology
- Low video delay
- Panel calibration
- Interlaced display mode
- Picture & Picture mode (Wipe, Butterfly, Blending the E series only)
- Pixel zoom mode
- Scan Switch
- Native Scan (pixel-to-pixel display)
- HD Frame Capture mode
- Separate control unit with USB
- Centralized monitor-wall control
- DC operation with DC low power indicator*1
- Character Off button
- Copy function for monitor setup and adjustment data
- +12dB Chroma UP function
- Marker settings
- Aspect switch
- Wide variety of functions
- Status display

*1 Requires v1.1 update.

*2 BVM-E171 only and requires optional HDR Monitoring License BVML-HE171..



Specifications

	BVM-E251	BVM-E171
Picture Performance		
Panel	OLED panel	
Picture size (diagonal)	623.4 mm (24 5/8 inches)	419.7 mm (16 5/8 inches)
Effective picture size (H x V)	543.4 x 305.6 mm (21 1/2 x 12 1/8 inches)	365.8 x 205.7 mm (14 1/2 x 8 1/8 inches)
Resolution (H x V)	1920 x 1080 pixels (Full HD)	
Aspect	16:9	
Pixel efficiency	99.99%	
Panel drive	10-bit	
Panel frame rate	48 Hz / 50 Hz / 60 Hz (48 Hz, 60 Hz are also compatible with 1/1.001 frame rates)	
Viewing angle (panel specification)	89°/89°/89°/89° (typical) (up/down/left/right contrast > 10:1)	
Standard luminance	100 cd/m2 (preset1 to preset5 at EOTF 2.4) 48 cd/m2 (preset (DCI)) (1.0 Vp-preference signal, 100% white signal input)	
Colour temperature	D55, D61, D65, D93, DCI*3, DCI XYZ and User1-5 (5,000K to 10,000K adjustable)	
Colour space (colour gamut)	ITU-R BT.2020*4, ITU-R BT.709, EBU, SMPTE-C, DCI-P3*4, BVM-E251 Native*5, S-GAMUT/S-GAMUT3*4, S-GAMUT3.cine*4	ITU-R BT.2020*4, ITU-R BT.709, EBU, SMPTE-C, DCI-P3*4, BVM-E171 Native*6, S-GAMUT/S-GAMUT3*4, S-GAMUT3.cine*4
Transmission Matrix	ITU-R BT.2020(Non-constant luminance), ITU-R BT.709, ITU-R BT.601, SMPTE240M	ITU-R BT.2020 (Non-constant luminance is supported), ITU-R BT.709
EOTF	2.2, 2.4, 2.6, CRT, S-Log3(SDR), S-Log2(SDR)	2.2, 2.4, 2.6, CRT, S-Log3(SDR), S-Log2(SDR) 2.2, 2.4, 2.6, CRT, S-Log3(HDR), S-Log3(Live HDR), S-Log2(HDR), ITU-R BT.2100(HLG), SMPTE ST2084, 2.4(HDR) when BVML-HE171 activates the HDR monitoring features.
Input		
SDI	BNC (x2)	
HDMI	HDMI (x1) (HDCP 1.4 correspondence, Deep colour correspondence)	
Composite Video	BNC (x1)	
Parallel remote	RJ-45 modular connector 8-pin (x1), (Pin-assignable)	
Serial remote (LAN)	Ethernet (10BASE-T/100BASE-TX), RJ-45 (x1)	
DC In	XLR (x1)	
Output		
SDI	BNC (x2)	
Composite Video	BNC (x1)	
DC out	Circle 4-pin (female) (x1)	
General		
Power requirement	AC 100 V to 240 V, 1.2 A to 0.6 A, 50/60 Hz, DC 24 V to 28 V, 4.5 A to 3.9 A	AC 100 V to 240 V, 0.9 A to 0.5 A, 50/60 Hz, DC 24 V to 28 V, 3.3 A to 2.9 A
Power consumption	Approx. 117 W (AC power supply)(max.) Approx. 107 W (DC power supply)(max.) Approx. 55W (AC power supply) Approx. 51W (DC power supply) (average power consumption in the default status)	Approx. 88 W (AC power supply) (max.) Approx. 78 W (DC power supply) (max.) Approx. 53 W (AC power supply) Approx. 49 W (DC power supply) (average power consumption in the default status)
Operating temperature	0°C to 35°C (32°F to 95°F) Recommended: 20°C to 30°C (68°F to 86°F)	
Operating humidity	30% to 85% (no condensation)	
Storage and transport temperature	-20°C to +60°C (-4°F to +140°F)	
Storage and transport humidity	0% to 90%	
Operating, storage, and transport pressure	700 hPa to 1060 hPa	
Dimensions (W x H x D)	576.0 x 424.0(408.0)* x 148.0 mm (22 3/4 x 16 3/4(16 1/16)* x 5 7/8 inches) *Height without legs	436.0 x 282.4 (266.4)* x 156.5 mm (17 1/4 x 11 1/4 (10 1/2)* x 6 1/4 inches) *Height without legs
Mass	10.3 kg (22 lb 11 oz)	6.5 kg (14 lb 5 oz)
Supplied accessories	AC power cord (1), AC plug holder (1), Before using this unit (Japanese, English, each 1), HDMI cable holder(1), European Representative (1)	AC power cord (1), AC plug holder (1), Before using this unit (Japanese, English, each 1), HDMI cable holder(1), Handle(1), Rack mount bracket(2), Rack mount bracket attachment screws(4), European Representative (1)

*3 DCI: x=0.314 y=0.351

*4 The BVM-E251 and BVM-E171 does not support the ITU-R BT.2020, DCI-P3, S-Gamut/S-Gamut3 and S-Gamut3.cine colour space in full.

*5 The BVM-E251 individual chromaticity points. The widest colour space setting of the signal is reproduced by the BVM-E251.

*6 The BVM-E171 individual chromaticity points. The widest colour space setting of the signal is reproduced by the BVM-E171.

BVM-E251/E171

OLED Master Monitors

Signal Formats / Input Adaptors

	Signal System	Signal Structure		Quantization
Composite	720*[2] X 487 / 59.94 / I	NTSC 0/7.5		Limited
	720*[2] X 487 / 59.94 / I	PAL-M		Limited
	720*[2] X 576 / 59.94 / I	PAL		Limited
SD-SDI	720 X 487 / 59.94 / I	4 : 2 : 2 (YCbCr)	10 bit	Limited
	720 X 576 / 59.94 / I	4 : 2 : 2 (YCbCr)	10 bit	Limited
HD-SDI Single Link	1920 × 1080 / 50 / I	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1920 × 1080 / 60*[1] / I	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1280 × 720 / 50 / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1280 × 720 / 60*[1] / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1920 × 1080 / 24*[1] / PsF	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1920 × 1080 / 24*[1] / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1920 × 1080 / 25 / PsF	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1920 × 1080 / 25 / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1920 × 1080 / 30*[1] / PsF	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1920 × 1080 / 30*[1] / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1280 × 720 / 24*[1] / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1280 × 720 / 25 / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1280 × 720 / 30*[1] / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
HD-SDI Dual Link	1920 × 1080 / 50 / I	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 50 / I	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 50 / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1920 × 1080 / 60*[1] / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1920 × 1080 / 24*[1] / PsF	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 24*[1] / P	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 25 / PsF	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 25 / P	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 30*[1] / PsF	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 30*[1] / P	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full

	Signal System	Signal Structure		Quantization
3G-SDI	1920 × 1080 / 50 / I	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 50 / I	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1280 × 720 / 50 / P	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
	1280 × 720 / 60*[1] / P	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
	1920 × 1080 / 50 / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1920 × 1080 / 60*[1] / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	1920 × 1080 / 24*[1] / PsF	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 24*[1] / P	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 25 / PsF	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 25 / P	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 30*[1] / PsF	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 30*[1] / P	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (YCbCr)	12 bit	Limited
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1280 × 720 / 24*[1] / P	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
	1280 × 720 / 25 / P	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
	1280 × 720 / 30*[1] / P	4 : 4 : 4 (YCbCr)	10 bit	Limited
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
HD-SDI Single Link (2K)	2048 × 1080/24*[1] / PsF	4 : 2 : 2 (YCbCr)	10 bit	Limited
	2048 × 1080/24*[1] / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	2048 × 1080 / 25 / PsF	4 : 2 : 2 (YCbCr)	10 bit	Limited
	2048 × 1080 / 25 / P	4 : 2 : 2 (YCbCr)	10 bit	Limited
	2048 × 1080 / 30*[1] / PsF	4 : 2 : 2 (YCbCr)	10 bit	Limited
	2048 × 1080 / 30*[1] / P	4 : 2 : 2 (YCbCr)	10 bit	Limited

*1 Also compatible with the frame rate 1/1.001

*2 Displayed as masked when blanking SMPTE ST170 (480/59.94i) and ITU-R BT.470 (576/50i) horizontally.

Signal Formats / Input Adaptors

	Signal System	Signal Structure		Quantization
HD-SDI Dual Link (2K)	1920 × 1080 / 24*1 / PsF	4 : 4 : 4 (XYZ)	12 bit	Full
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 24*1 / P	4 : 4 : 4 (XYZ)	12 bit	Full
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 25 / PsF	4 : 4 : 4 (XYZ)	12 bit	Full
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 25 / P	4 : 4 : 4 (XYZ)	12 bit	Full
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 30*1 / PsF	4 : 4 : 4 (XYZ)	12 bit	Full
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 30*1 / P	4 : 4 : 4 (XYZ)	12 bit	Full
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
3G-SDI Single Link (2K)	1920 × 1080 / 24*1 / PsF	4 : 4 : 4 (XYZ)	12 bit	Full
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 24*1 / P	4 : 4 : 4 (XYZ)	12 bit	Full
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 25 / PsF	4 : 4 : 4 (XYZ)	12 bit	Full
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 25 / P	4 : 4 : 4 (XYZ)	12 bit	Full
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 30*1 / PsF	4 : 4 : 4 (XYZ)	12 bit	Full
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (RGB)	12 bit	Limited / Full
	1920 × 1080 / 30*1 / P	4 : 4 : 4 (XYZ)	12 bit	Full
		4 : 4 : 4 (RGB)	10 bit	Limited / Full
		4 : 4 : 4 (RGB)	12 bit	Limited / Full

HDMI and DisplayPort Input Signal Formats

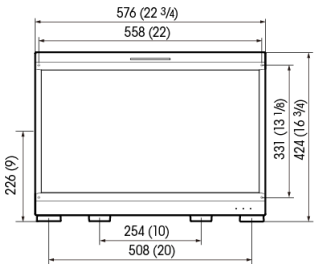
Signal System	Interface sampling frequency [MHz]	Aspect ratio	Standard	Quantization
Video Signals				
640 x 480 / 60*1 / P	25.200*1	4:3	CEA-861	Full
720 x 480 / 60*1 / P	27.027*1	4:3/16:9		Limited
1280 x 720 / 60*1 / P	74.250*1	16:9		Limited
1920 x 1080 / 60*1 / I	74.250*1	16:9	CEA-861	Limited
		2.39:1		
720 x 480 / 60*1 / I	27.027*1	4:3/16:9	CEA-861	Limited
720 x 576 / 50 / P	27.000	4:3/16:9		Limited
1280 x 720 / 50 / P	74.250	16:9		Limited
1920 x 1080 / 50 / I	74.250	16:9	CEA-861	Limited
		2.39:1		
720 x 576 / 50 / I	27.000	4:3/16:9	CEA-861	Limited
1920 x 1080 / 60*1 / P	148.500*1	16:9	CEA-861	Limited
		2.39:1		
1920 x 1080 / 50 / P	148.500	16:9	CEA-861	Limited
		2.39:1		
1920 x 1080 / 24*1 / P	74.250*1	16:9	CEA-861	Limited
		2.39:1		
1920 x 1080 / 25 / P	74.250	16:9	CEA-861	Limited
		2.39:1		
1920 x 1080 / 30*1 / P	74.250*1	16:9	CEA-861	Limited
		2.39:1		
2048 x 1080 / 24*1 / P	74.250*1	1.896:1		Limited
		2.39:1		
2048 x 1080 / 25 / P	74.250	1.896:1		Limited
		2.39:1		
2048 x 1080 / 30*1 / P	74.250*1	1.896:1		Limited
		2.39:1		
2048 x 1080 / 60*1 / P	148.500*1	1.896:1		Limited
		2.39:1		
2048 x 1080 / 50 / P	148.500	1.896:1		Limited
		2.39:1		
2048 x 1080 / 48 / P	148.500*1	1.896:1		Limited
		2.39:1		
Computer Signals				
800 x 600 / 60 / P	40.000	4:3	Wall	Limited
1024 x 768 / 60 / P	65.000	4:3		Limited
1280 x 960 / 60 / P	108.000	4:3		Limited
1280 x 1024 / 60 / P	108.000	5:4		Full
1400 x 1050 / 60 / P	121.750	4:3		Full

*1 Also compatible with the frame rate 1/1.001

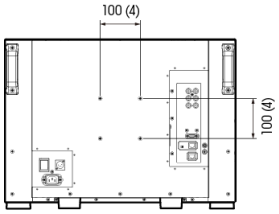
Dimensions

BVM-E251

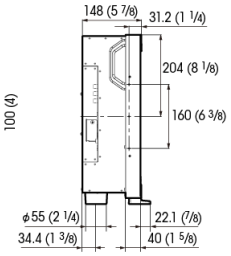
Front



Rear

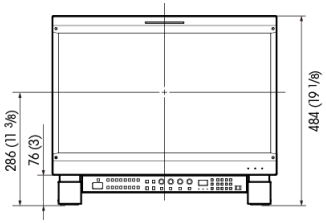


Side

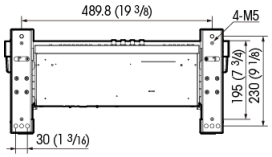


BVM-E251 with the optional BKM-17R and BKM-37H with a tilt

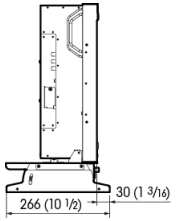
Front



Bottom

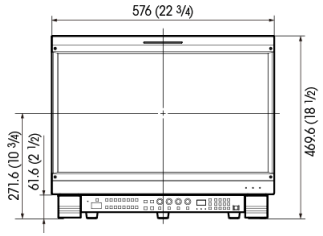


Side

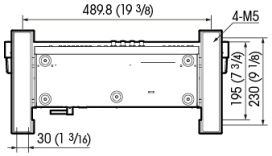


BVM-E251 with the optional BKM-17R and BKM-38H

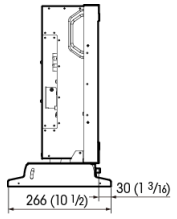
Front



Bottom

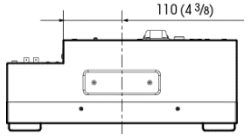


Side

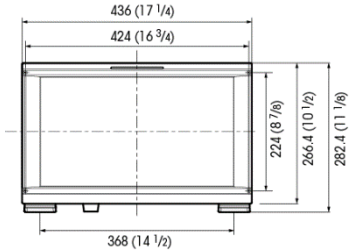


BVM-E171

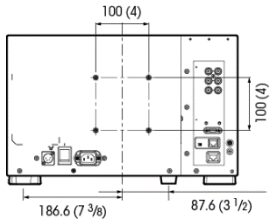
Top



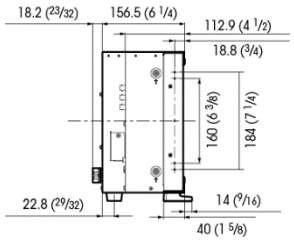
Front



Rear

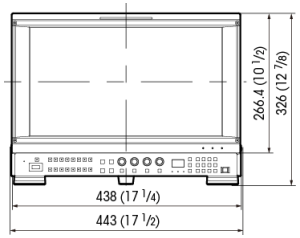


Side

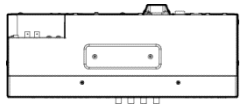


BVM-E171 with the optional BKM-17R and BKM-39H

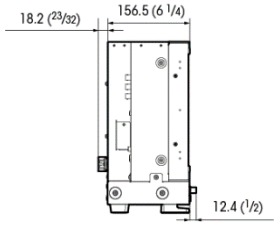
Front



Top

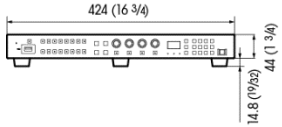


Side

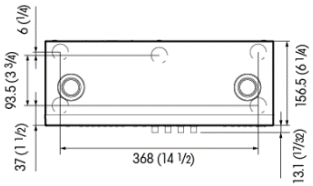


BKM-17R

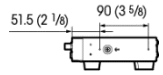
Front



Top



Side



Unit: mm (inches)

Options

BKM-17R
Monitor Control Unit

The BVM-E 251/E171 monitors and the BKM-17R Monitor Control Unit are equipped with an Ethernet port, allowing remote control of display parameters across a standard Ethernet connection. One BKM-17R Monitor Control Unit can control up to thirty-two (32) BVM*1 monitors.

*1 Includes BVM-HX310, PVM-Xxx00 Series, BVM-X300, PVM-X550, BVM-L , PVM-L, and BVM-E/-F Series monitors.

Front panel

Rear panel

BKM-17R Specifications

INPUT/OUTPUT	
LAN	10BASE-T/100BASE-TX connector: RJ-45 (x1)
DC 12 V IN	Circle pin (x1)
USB (USB2.0) connector	USB Standard A (x1)
GENERAL	
Power requirements	DC IN: 12 V, 0.5 A (supplied with the connected monitor or the connected AC adapter) AC adapter (AC-UES1230 or ACUES1230M) AC adaptor: AC IN: 100 V to 240 V, 50/60 Hz, DC OUT: 12 V, 3 A
Current consumption	12 V DC, 0.5 A
Power consumption	Approx. 6 W
Operating temperature	0°C to 35°C (32°F to 95°F), Recommended: 20°C to 30°C (68°F to 86°F)
Operating humidity	0% to 90% (no condensation)
Operating pressure	700 hPa to 1060 hPa
Storage / transport temperature	-10°C to +40°C (14°F to 104°F)
Storage/transport humidity	0% to 90%
Operating / storage / transport pressure	700 hPa to 1060 hPa
Dimensions(W x H x D)	424 x 58.8 x 169.6 mm (16 3/4 x 2 3/8 x 6 3/4 inches)
Mass	2.1 kg (4 lb 10 oz)
Supplied accessories	AC adapter (AC-UES1230 or ACUES1230M)(1), AC power cord (1), Rack mount brackets (2), Rack mount bracket attachment screws(4), Function labels (2), DC-cord secure connection attachment (1), DC-cord secure connection screw (1), Before Using This Unit (1), European Representative (1)

BVML-HE171
HDR Monitoring License

SR Live for HDR HDR

A permanent license allows the BVM-E171 TRIMASTER EL™ OLED Critical Reference Monitor*2 to support excellent HDR images. Called the BVML-HE171 HDR Monitoring License, it supports EOTF, S-Log3 (HDR), S-Log3 (Live HDR), S-Log2 (HDR), ITU-R BT.2100 (HLG), and SMPTE ST2084, 2.4 (HDR).

*2 The BVM-E171 must first be updated to V1.1. HDR features are activated via the BKM-17R Monitor Control Unit.

Fantastic HDR Performance

The fantastic HDR images enabled on the BVM-E171 Version 1.1 by the BVML-HE171 HDR Monitoring License include wide colour gamut and OLED black pictures with pixel dimming and great off-axis performance.

Activate With The BKM-17R Monitor Control Unit

To activate these HDR features, you need a BKM-17R Monitor Control Unit and an installation key Your Sony sales representative can provide a purchase key. Your next step is to visit the Sony eCSite to input the unique device ID is shown on an OSD of your BVM-E171 V1.1 and your purchase key. You then receive your install key, which you should download and save to USB memory. Whenever required, you can now insert the USB memory in the BKM-17R to activate the HDR features of your BVM-E171 V1.1.

BKM-37H*3
Controller Attachment Stand with tilt (Between 5° forward and 10° backward.)
(For BVM-E251)

BKM-38H*3
Controller Attachment Stand
(For BVM-E251)

BKM-39H*3
Controller Attachment Stand
(For BVM-E171)

SMF-17R20
Monitor Interface Cable

*3 Requires the latest version of the BKM-37H, BKM-38H, and BKM-39H with a product code suffix /3 or later.

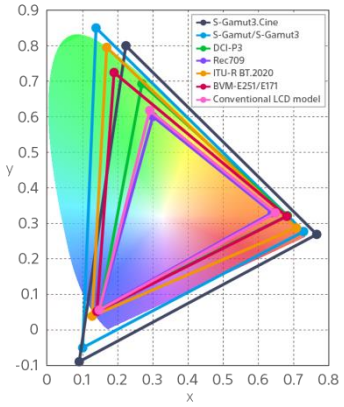
BVM-E251/E171

OLED Master Monitors

ITU-R BT.2020 support enabled OLED's wide colour gamut

The BVM-E251 and BVM-E171 are surely an HD monitor that conforms to ITU-R BT.709 colour space. Responding to an increase of the demand of using an HD monitor in a 4K production, BVM-E251 newly supports ITU-R BT.2020 colour space and transfer matrix. The OLED's wide colour gamut enables DCI-P3 emulation for digital intermediate work.*1

*1 The BVM-E251 and BVM-E171 does not support the ITU-R BT.2020, S-Gamut,/S-Gamut3, S-Gamut3.cine and DCI-P3 colour space in full.



Cutting-edge I/P conversion with low process delay

Sony's original I/P conversion technology used in the BVM Series minimizes processing artifacts found in typical up conversion processes. This has been improved in the BVM-L Series so that an interlaced image is displayed accurately and faithfully. The process delay times of 1080/60i and 50i are around 0.5 field or less and also the ones of SD/60i and 50i are less than 1 field.

Flicker free mode

The TRIMASTER EL OLED panel's superb quick response and scan-driving performance deliver stunning picture quality with virtually no motion blur. However, there is a possibility that flicker is just visible especially when a lower frequency signal is displayed (24p, 24PsF, and 50i). To remove visible flicker, the BVM-E251 and BVM-E171 are equipped with Flicker-free mode.

High Dynamic Range Mode

In addition to the intrinsic high-contrast performance of the TRIMASTER EL™ OLED panel, this monitor provides High Dynamic Range mode*2. This offers never-before-seen image reproduction – the black is black, and peak brightness can be reproduced more realistically with colours that are typically saturated in a conventional standard dynamic range. This mode can brilliantly express sparkling town lights and stars in the night sky.

*2 Only for BVM-E171 V1.1. BVML-HE171 is required for BVM-E171 V1.1.

Conventional standard dynamic range

Highlight is clipped; less shadow detail

High Dynamic Range mode

Render shadow detail to highlight

* Simulated images

Input Versatility

Multi-format signal support

The BVM-E251 and BVM-E171 can accept almost any SD or HD video format, such as analogue composite video, HDMI and SDI, and various computer signals through HDMI

Standard 3G-SDI inputs

These monitors are equipped with two standard 3G/HD/SD-SDI inputs, an HDMI (HDCP correspondence) and composite input. Two standard inputs also support dual link HD-SDI signals. And also closed caption on SDI is supported.

12-bit output accuracy signal processing

The BVM-E251 and E171 use a 12-bit display engine, which allows images to be reproduced with high precision for display accuracy.

Accepts computer signals via HDMI

The BVM-E251 and BVM-E171 accepts various computer signals input up to 1920 x 1080 through its HDMI connector. It is also equipped with Digital Cinema 2048x1080 signals.

Exclusive BVM-E Series Digital Cinema Features

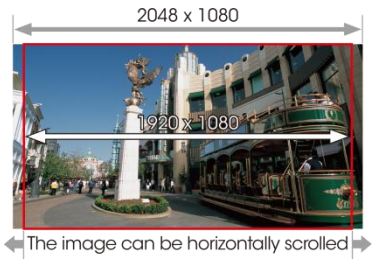
The BVM- E251 and E171 offers digital cinema features which are indispensable and ideal for high-quality creative digital cinema onset and post-production workflow.

2K (2048 x 1080, RGB/XYZ) Input

The BVM-E251 and E171 are capable of 2K (2048 x 1080 resolution, RGB/XYZ) input. The 2K signal is displayed in two ways – as a full 2K image scaled into a full-HD (1920 x 1080) screen, or as a 2K native display with an image-slide function.

2K picture resolution

The 2048 Image-slide function allows 2K resolution (2048 x 1080 pixels) images to be mapped, pixel-to-pixel, on the full-HD (1920 x 1080 pixels) panel without picture degradation. When the user needs to view the left or right edge of the picture frame, they can scroll the image in a horizontal direction.



Gamut Error Display

This function detects irregular signal input. When an irregular signal is detected, these master monitors indicate this with a zebra pattern over the relevant area of the picture.
Gamut Error Display is a convenient feature that instantly alerts viewers to such signals without requiring the use of a waveform monitor

S-Log3(SDR) and S-Log2(SDR) EOTF

S-LOG gamma is a technique used in Sony's digital cinematography cameras that allows the full latitude of the camera imager to be maintained throughout the production chain. Unlike conventional systems, in which highlight contrast is compressed, S-LOG Gamma logarithmically converts the video signal using characteristics similar to film negatives.
This keeps the camera imager dynamic range intact, even in extreme highlight areas. Two display modes are offered:
The BVM-E171 V1.1 activated by BVML-HE171 supports HDR display only.

Signal Analyzing Functions

Picture & Picture

The unique Picture & Picture function of the BVM-E251 and E171 allows simultaneous display of two input signals on the monitor's screen. This function is extremely convenient for making instant adjustments to two input sources, because there is no need to individually adjust the different characteristics of two monitors. This function comes in handy for adjustments between two cameras, special-effects creation, time-lapse shooting, and computer graphics (CG) work.

Side-by-side

The two picture images are downscaled using a digital filter and displayed side-by-side. This feature is convenient when making white balance adjustments or determining shooting angles between two cameras.

WIPE

The area of the two pictures to be displayed is selected using a vertical WIPE pattern, which is controlled from the BKM-17R. This function is useful when picture detail of the two images must be examined on a pixel basis. This is normally used to review still images.

Butterfly

The two inputs are displayed as line-symmetric images on the left and right halves of the screen. By adjusting the H-position controller, the two images can be moved inward to the middle of the screen. An instant comparison of the moving images can then be made easily and accurately, without the user having to move their eyes.

Blending

The two picture images are overlapped for display, and the mix ratio is adjustable. This function is useful to verify whether a foreground signal is accurately keyed into the background signal, or when combining shoots with live action and computer-generated effects.

Pixel Zoom

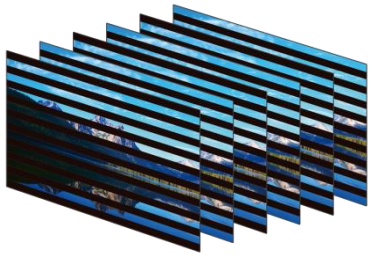
Pixel Zoom*1 is a function for magnifying images. A selected area of the displayed picture can be enlarged on a pixel basis, up to eight times in size both vertically and horizontally. Because this function does not use scaling, the desired picture content is magnified and displayed faithfully to the raw input signal. This function is useful when evaluating precise picture edges, such as for chroma keying.

*1 This function is effective when the input signal is displayed in "Native Scan" mode.

Convenient Features

Interlace Display

BVM-E251 and E171 monitors offer an Interlace Display feature for 1080i and SD inputs. This lets each BVM-E monitor display these inputs as a true interlace display. As with the Native Scan function, Interlace Display mode offers faithful reproduction of the input signal, and the displayed interlace fields are free from the picture degradation that can occur as a result of typical I/P conversion processes.



*Simulated image

Scan Switch

The Scan Switch function allows switching between under scan (-3%), normal scan (0%), and over scan (mask of the 5% over scan portion in the normal scan).

Native Scan (pixel-to-pixel display)

Conventional flat-panel monitors reproduce images using scaling and I/P conversion due to their fixed pixel counts and progressive scanning processes. The Native Scan function is a unique display mode that reproduces images without changing the input signal's pixel count.
For example, when an SD signal is input, the BVM-E251 and E171 monitors will reproduce the image at a picture size of 720 x 487[*1] pixels. For SD inputs the Native Scan function also allows the displayed image size to be doubled to 1440 x 974[*1] by duplicating and doubling each pixel both horizontally and vertically.

[*1] The 525/59.94i signal specified by Rec. ITU-R BT.601.

720 x 487 Native Scan

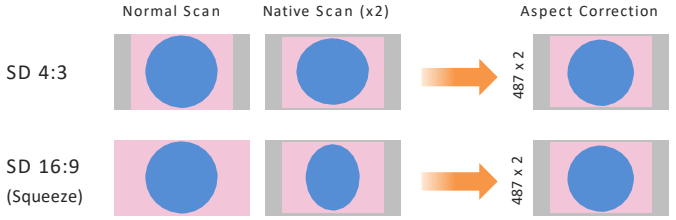
1440 x 974 Native Scan
(720 x 487) x 2

HD Frame Capture

The HD Frame Capture function of the BVM-E251 and E171 allows a picture frame from the 3G-SDI and HD-SDI input to be captured and saved as a picture file on a USB memory media(BKM-17R) . This picture file can be used as a reference for various purposes, for example, for picture-tone adjustments between past images and for camera-framing adjustments.

Aspect Correction Mode

PAL and NTSC video systems are all based on rectangular pixels. Display of these formats on a square pixel panel typically distorts the image. The BVM- E251 and E171 use a unique process called Aspect Correction which, while still offering native pixel performance, continues to display image geometry correctly. This scaling technique used in BVM-E251 and E171 corrects horizontal distortion while keeping the vertical pixel count correctly displayed.



Example of NTSC signal on the 16:9 aspect panel – BVM-E250A

Aspect switch

The aspect ratio can be switched between 4:3, 16:9, 2.39: 1, and 1.896:1 depending on the input signal.

16:9	⇔	4:3
16:9	⇔	2.39:1
1.896:1	⇔	2.39:1

BVM-E251/E171

OLED Master Monitors

Marker settings

BVM-E251 and E171 monitors can display various markers, including an aspect marker, safe area marker, and center marker. In addition to this flexible selection of marker types, detailed display settings of each marker are offered. For example, the colour, brightness, horizontal/vertical position, and width of aspect markers can all be controlled, while the height and width of safe area markers can be adjusted.

Marker Variation

	Safe Area Maker		Aspect Marker*
	%	Dot (Pixel)	
Selectable Markers	80%, 88%, 90%, 93%, or variable	Flexible	16:9, 15:9, 14:9, 13:9, 4:3, 2.39:1, 2.35:1, 1.896:1,1.85:1, or 1.66:1
Line colours	White, Red, Green, Blue, Yellow, Cyan, or Magenta		
Line Width	1 to 5 dots (factory preset at 2 dots)		
Line Luminance	High (bright) or Low (dark)		
Blanking	—		Off: Blanking is released Black: Blanking Half: Half blanking

Marker Examples

Aspect Mode: 2.35:1,
Safe Area: Shape A,
Area Size: 80%

Aspect Mode: 14:9, Safe Area: Shape B, Area Size: 80%

Aspect Mode: 4:3, Safe Area: Shape C, Area Size: 80%

Wide Variety of Functions

The user has a wide variety of over 40 functions to choose from. Each of these can be assigned to any of the 16 function buttons (F1 to F16) on the BKM-17R controller.
Press ENTER to display the F1 to F8 (or F9 to F16) button assignment on screen.

ENTER button

F1 to F16 function buttons

F9 : FLICKER FREE
F10 : NATIVE SCAN
F11 : INTERLACE
F12 : MARKER
F13 : SIDE BY SIDE
F14 : ALM
F15 : TIME CODE
F16 : CAPTURE LOAD

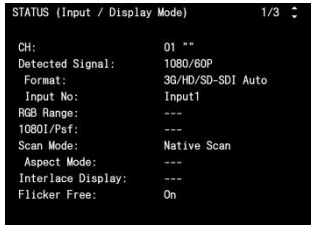
(The next Function display)

*Screen image is simulated

Status Display

Simply assign STATUS to one of the function buttons (F1 to F16) on the BKM-17R controllers. The user can instantly grasp the whole monitor status and configurations without having to search through menus.

F1 to F16 function buttons



*Screen image is simulated

Modular Monitor Control Unit (BKM-17R)

BVM-E251 and BVM-E171 monitors and their control panels are provided as separate units, allowing greater flexibility for system integration. BVM-E251 and E171 incorporate a monitor control unit (the BKM-17R) as an option. The BKM-17R can be attached beneath the monitor using the optional controller attachment stand[*1*2], or connected remotely via an Ethernet cable.

*1 Requires the latest version of the BKM-37H, BKM-38H, and BKM-39H with a product code suffix /3 or later.
*2 The BVM-E251 use the BKM-37H or BKM-38H attachment stand.
The BVM-E171 use the BKM-39H attachment stand.

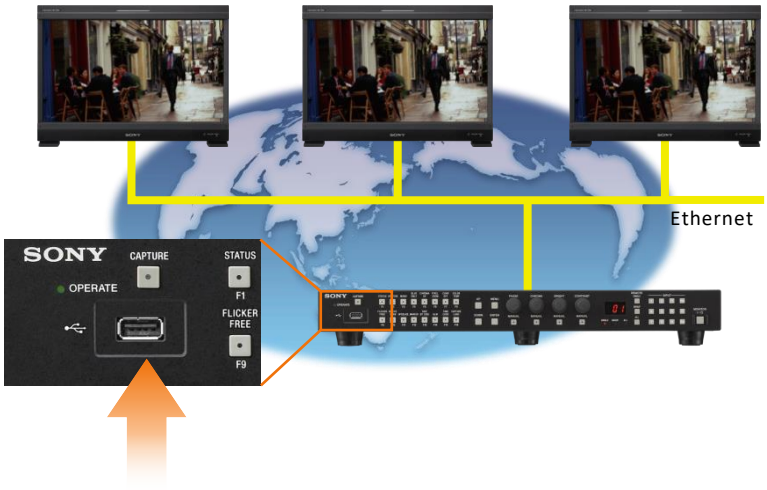
"+12dB Chroma UP" function

A "Chroma UP" button located on the front panel of the BKM-17R allows the Chroma level to be boosted by +12 dB.
This is a convenient feature for adjusting camera white balance with a higher degree of accuracy.

Copy function for monitor setup and adjustment data

Copy function for monitor setup and adjustment data
The optional BKM-17R control unit includes a USB memory slot to save and load monitor configuration and adjustment settings. This is useful for multiple monitor systems, allowing the transfer of one monitor's setup and adjustment data to another[*3]
This data can also be transferred via the BVM's Ethernet connection.

*3 Data can be moved between BVM-E251 and BVM-E171 monitors.



Ethernet-based remote control

The BVM-E251 and BVM-E171 monitors and the BKM-17R Monitor Control Unit are equipped with an Ethernet port, allowing remote control of display parameters across a standard Ethernet connection. One BKM-17R Monitor Control Unit can control up to thirty-two (32) BVM[*4] monitors.

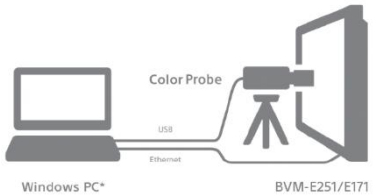
*4 Includes BVM-HX310, PVM-Xxx00 Series, BVM-X300, PVM-X550, BVM-L , PVM-L, and BVM-E/-F Series monitors.

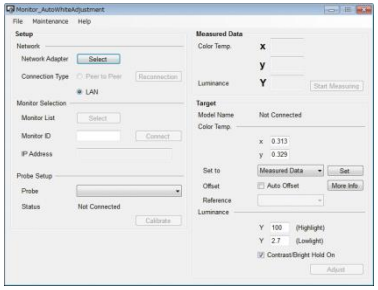
Easy Setup and Adjustment

Auto White Adjustment

The BVM-E251 and E171 employ a software-based colour temperature (white balance) calibration function, which is called “Monitor_AutoWhiteAdjustment”. Combined with a PC and commercially available calibration tools*1, this function enables simple adjustment of the monitor’s white balance.

*1 Refer to a download page of Monitor Auto White adjustment for more details.





“Monitor_AutoWhiteAdjuestment” GUI image

DC Operation With DC Low Power Indicator*3

The BVM-E251 and BVM-E171 can be DC operated and features a DC low power indicator. The BVM-E251 provides more flexibility and mobility to users who want a larger size screen for on-set applications. Due to its lightweight and slim design, the BVM-E171 is ideal for field applications.

*3 Requires V1.1 update.

BVM-E171 rear view

Tilting the monitor

The monitor can tilt between 5° forward and 10° backward when the attachment stand is attached.

“Character Off” button

To facilitate parameter adjustments, the On-Screen Menu indication can be taken off the screen, while in Menu mode. The On-Screen Menu indication can be toggled on or off with a simple press of a button on the BKM-17R’s front panel.

Auto Chroma / Phase adjustment*2

An Auto Chroma / Phase / Matrix setup function is provided on BVM-E251 and E171, which automatically adjusts the monitor’s chroma, phase, and matrix using external colour bars.

*2 Supports analog signal inputs only.

Other features

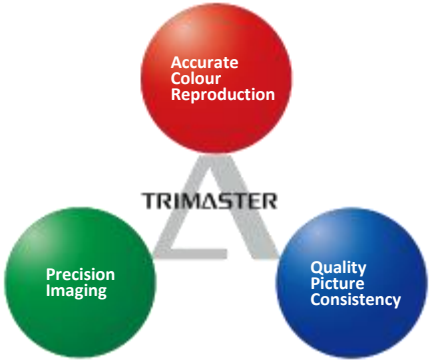
- Wall Mounting (100 x 100 mm pitch)
- EIA 19-inch Standard Rack-mountable（6U High）*4
- Blue Only
- Mono
- H Delay / V Delay*5
- NTSC Setup Level (0%, 7.5%)
- Aperture
- Serial Remote (Ethernet)
- Parallel Remote (D-sub 9-pin)
- Tally Lamp (Amber)

*4 BVM-E171 only. Mounting brackets are supplied.
*5 This function does not work for a composite signal.

TRIMASTER 4K HDR

The 4K HDR-compatible picture monitor that uses the same colour gamut LCD panel as the BVM-HX310 master monitor and realizes all-white 1,000 cd/m2 luminance.

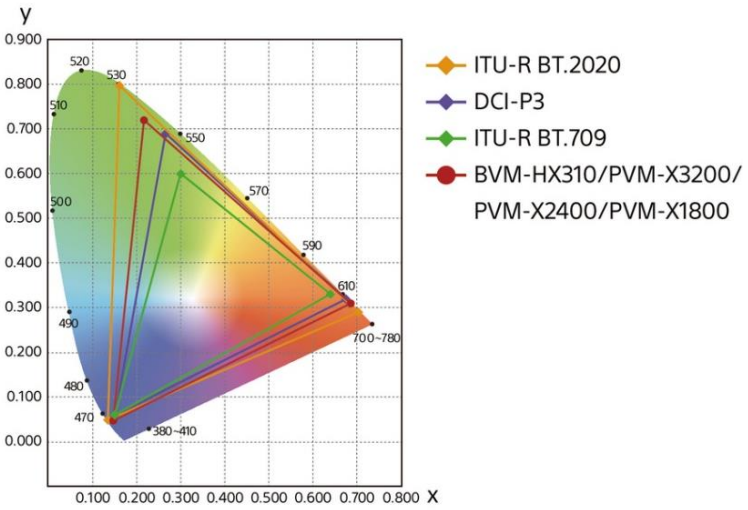
PVM-X3200 PVM-X2400 PVM-X1800



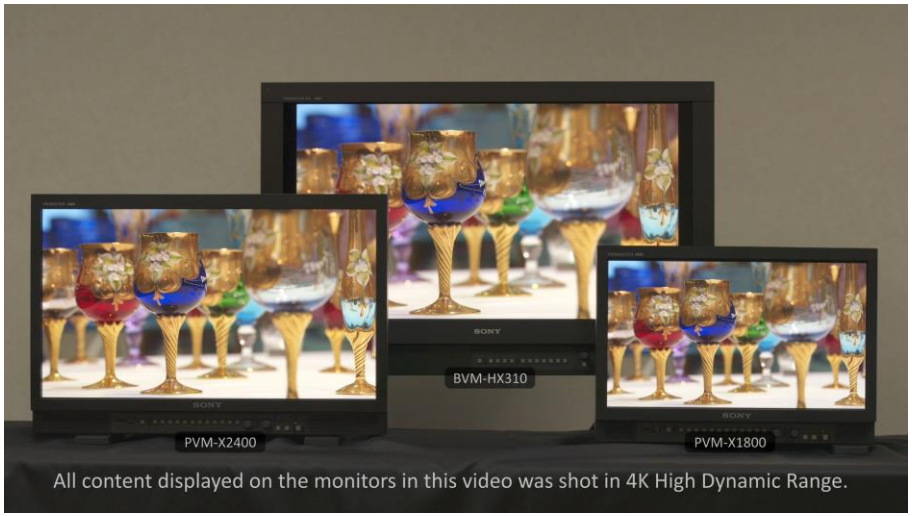
TRIMASTER Technology

TRIMASTER™ Technology is a design architecture used to elicit the full performance capabilities of Professional flat-panel displays. It comprises the core technologies that enable the highest level of colour accuracy, precision imaging, and quality picture consistency.

Sony specified premium LCD panels



Colour matching for better communications from shooting to finishing in a total workflow



PVM-X3200/X2400/X1800

4K LCD Picture Monitor

PVM-X3200 PVM-X2400 PVM-X1800

32"/24"/18.4" 4K TRIMASTER™ High Grade LCD Picture Monitors

Main Features

- 32”/24”/18.4” 4K(3840x2160) Sony exclusive LCD panels
- colour-matching with the BVM-HX310 master monitor
- Accurate colour reproduction, precise imaging and consistent picture quality by TRIMASTER
- No limitation for 1000nits in full screen
- Support High Dynamic Range
- User 3D LUT support
- HDR-SDR Conversion support*1
- Both HDR-SDR conversion and 3D LUT Baked signal output from Enhanced Monitor Output*1
- 4K to HD and Progressive to Interlace converted signal from Enhanced Monitor Output*1
- 12G/6G/3G/HD-SDI/Quad Link 3G/HD-SDI/Dual Link 6G/3G/HD-SDI and HDMI support
- Automatic HDR setting by VPID (Video Payload ID) and SR Live Metadata
- Quad View Display and Side By Side Display
- Dynamic Contrast Drive
- Black Detail High/Mid/Low with Clipped, Zebra Pattern and Roll-off curve display*3
- Wave Form Monitor/ Vector Scope/colour Gamut Scope*3/Audio Level Meter
- EIA standard rack-mount(X2400 and X1800 only), Yoke-mount and Wall-mount capability
- Enhanced user interface and channel select button
- Setting copy function to another unit by USB memory stick*3
- False colour function*3
- Camera focus function*3
- Time code function
- Auto white adjustment*3
- Powerful stereo sound with audio muting
- Network control function/Parallel remote
- On-screen tally
- Detachable handle (X1800 only)
- DC Power Input(X2400 and X1800 only)
- Optional protection kit (PVMK-PX24 and PVMK-PX18) (X2400 and X1800 only)
- Optional HDR-SDR Conversion License PVML-HSX with use of Enhanced Monitor Output*1
- 240 hours limited time trial of PVML-HSX1 – conversion license*2*3

*1 Supported with version 2.0.
*2 Supported with version 3.0.
*3 The trial license will automatically expire after 240 hours of monitor run time. The optional official license PVML-HSX1 is required when continuing to use it.

Rear connector panel

Specifications

	PVM-X3200	PVM-X2400	PVM-X1800
Picture performance			
Panel	α-Si TFT Active Matrix LCD		
Picture size (diagonal)	812.8 mm (32 inches)	609.6 mm (24 inches)	469.2 mm (18.4 inches)
Effective Picture size (H x V)	708.48 x 398.52 mm (28 x 15 5/8 inches)	531.6 x 299.1 mm (21 x 11 7/8 inches)	408.96 x 230.04 mm (16 1/8 x 9 1/8 inches)
Resolution (H x V)	3840 x 2160 pixels		
Aspect	16 : 9		
Display colours	Approx. 1.07 billion colours		
Panel frame rate	48 Hz / 50 Hz / 60 Hz (48 Hz and 60 Hz are also compatible with 1/1.001 frame rates)		
Viewing angle(panel specification) contrast > 10:	89°/89°/89°/89° (up/down/left/right contrast > 10:1)		
Colour temperature	D60, D65, D93, DCI*4, and user 1-10 (5,000 K to 10,000 K adjustable)		
Luminance(panel specification)(typical)	1000 cd/m2		
Colour space (colour gamut)	ITU-R BT.2020*2, ITU-R BT.709, DCI-P3*2, S-GAMUT3*2, S-GAMUT3.Cine*2		
Transmission Matrix	ITU-R BT.2020 (Non-constant luminance is supported), ITU-R BT.709		
EOTF	2.2, 2.4, 2.6, 2.4 (HDR), S-Log3, S-Log3 (Live HDR), SMPTE ST 2084, ITU-R BT.2100(HLG)		
Input			
SDI	(12G/6G/HD-SDI) BNC (x2), (3G/HD-SDI) BNC (x2), Input impedance: 75 Ω unbalanced		
HDMI	HDMI (HDCP2.3/1.4) (x1)		
Parallel Remote	RJ-45 8-pin (x1) (Fixed pin assignment)		
Serial remote (LAN)	Ethernet (10BASE-T/100BASE-TX), RJ-45 (x1)		
DC Input	XLR-type 3-pin (male) (x1), DC 22 V to 32 V (output impedance 0.05 Ω or less)		
Output			
SDI Output	(12G/6G/3G/HD-SDI) BNC (x2) , (3G/HD-SDI) BNC (x2) , Output impedance: 75 Ω unbalanced		
Audio monitor	Stereo mini jack (x1)		
Speaker (Built-in) Output	2.0 W+2.0W (Stereo)		
Headphones	Stereo mini jack (x1)		
General			
Power requirement	AC 100 V to 240 V, 3.2 A to 1.2 A, 50/60 Hz	AC 100 V to 240 V, 2.6 A to 1.0 A, 50/60 Hz DC 22 V to 32 V, 9.9 A to 6.3 A	AC 100 V to 240 V, 2.1 A to 0.8 A, 50/60 Hz DC 22 V to 32 V, 8.2 A to 5.1 A
Power consumption	Approx. 280 W (Maximum at AC operation) 0.3 W in off-mode (When the Power switch is off)	Approx. 225 W (Maximum at AC operation) Approx. 205 W (Maximum at DC operation)	Approx. 180 W (Maximum at AC operation) Approx. 165 W (Maximum at DC operation)
Operating temperature	0°C to 35°C (32°F to 95°F) Recommended: 20°C to 30°C (68°F to 86°F)		
Operating humidity	30% to 85% (no condensation)		
Strage / transport temperature	-20°C to +60°C (-4°F to +140°F)		
Strage / transport humidity	0% to 90%		
Operating / strage /transport pressure	700 hPa to 1060 hPa		
Dimensions (W x H x D)	752 x 494.5 x 155 mm*6 (29 5/8 x 19 1/2 x 6 1/8 inches) (without monitor stand) 752 x 513 x 229.9 mm*6 (29 5/8 x 20 1/4 x 9 1/8 inches) (with monitor stand)	568 x 382 x 158.5 mm*6 (22 3/8 x 15 1/8 x 6 1/4 inches) (without monitor stand) 568 x 403.5 x 178.5 mm*6 (22 3/8 x 16 x 7 1/8 inches) (with monitor stand)	444 x 310 x 148.5 mm*6 (17 3/8 x 12 1/4 x 5 7/8 inches) (without monitor handle and monitor stand)*7 444 x 368.7 x 168.5 mm*6 (17 3/8 x 14 5/8 x 6 3/4 inches) (with monitor handle and monitor stand)
Mass	Approx. 15.5kg (34 lb 2.7 oz)	Approx. 10.5 kg (23 lb 2 oz)	Approx. 8.2 kg (18 lb 1 oz)
Supplied accessories	AC power cord (1), AC plug holder (1), Before Using This Unit (1)		

*4 DCI: x=0.314, y=0.351
*5 The PVM-X2400 and PVM-X1800 does not cover selected colour space in full.
*6 Without projection parts.
*7 Hight without Handle is 331.5mm (13 1/8inches).

PVM-X3200/X2400/X1800

4K LCD Picture Monitor

Formats

Signal System				
2K/HD (HD-SDI)				
1920 × 1080/60i*1, 50i, 30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1	4 : 2 : 2 YCbCr	10 bit		
1280 × 720/60p*1, 50p, 30p*1, 25p, 24p*1				
2048 × 1080/30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1				
2K/HD (HD-SDI Dual link)				
1920 × 1080/60p*1, 50p	4 : 2 : 2 YCbCr	10 bit		
1920 × 1080/60i*1, 50i, 30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1	4 : 4 : 4 RGB	10 bit / 12 bit		
	4 : 4 : 4 YCbCr			
2048 × 1080/60p*1, 50p, 48p*1	4 : 2 : 2 YCbCr	10 bit		
2048 × 1080/30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1	4 : 4 : 4 RGB			
	4 : 4 : 4 YCbCr	10 bit / 12 bit		
2K/HD (3G-SDI)				
1920 × 1080/60p*1, 50p	4 : 2 : 2 YCbCr	10 bit	Level A / Level B-DL	
1920 × 1080/60i*1, 50i, 30PsF*1, 25PsF, 24p*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	
	4 : 4 : 4 YCbCr			
1920 × 1080/30p*1, 25p, 24PsF*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	
	4 : 4 : 4 YCbCr			
1280 × 720/60p*1, 50p, 30p*1, 25p, 24p*1	4 : 4 : 4 RGB	10 bit	Level A	
	4 : 4 : 4 YCbCr			
2048 × 1080/60p*1, 50p, 48p*1	4 : 2 : 2 YCbCr	10 bit	Level A / Level B-DL	
2048 × 1080/30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	
	4 : 4 : 4 YCbCr			
2K/HD (3G-SDI Dual Link)				
1920 × 1080/60p*1, 50p	4 : 4 : 4 RGB	10 bit	Level A / Level B-DL	
	4 : 4 : 4 YCbCr			
2048 × 1080/60p*1, 50p, 48p*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	
	4 : 4 : 4 YCbCr			
4K/UHD (3G-SDI Dual Link)				
3840 × 2160/30p*1, 25p, 24p*1	4 : 2 : 2 YCbCr	10 bit	Level B-DS	2-sample interleave division / Square division*2
3840 × 2160/30PsF*1, 25PsF, 24PsF*1	4 : 2 : 2 YCbCr	10 bit	Level B-DS	Square division
4096 × 2160/30p*1, 25p, 24p*1	4 : 2 : 2 YCbCr	10 bit	Level B-DS	2-sample interleave division / Square division*2
4096 × 2160/30PsF*1, 25PsF, 24PsF*1	4 : 2 : 2 YCbCr	10 bit	Level B-DS	Square division
4K/UHD (HD-SDI Quad Link)				
3840 × 2160/30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1	4 : 2 : 2 YCbCr	10 bit		Square division
4096 × 2160/30p*1, 30PsF*1, 25p, 25PsF, 24p*1, 24PsF*1	4 : 2 : 2 YCbCr	10 bit		Square division
4K/UHD (3G-SDI Quad Link)				
3840 × 2160/60p*1, 50p	4 : 2 : 2 YCbCr	10 bit	Level A / Level B-DL	2-sample interleave division / Square division
3840 × 2160/30p*1, 25p, 24p*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	2-sample interleave division / Square division
	4 : 4 : 4 YCbCr			
3840 × 2160/30PsF*1, 25PsF, 24PsF*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	Square division
	4 : 4 : 4 YCbCr			
4096 × 2160/60p*1, 50p, 48p*1	4 : 2 : 2 YCbCr	10 bit	Level A / Level B-DL	2-sample interleave division / Square division
4096 × 2160/30p*1, 25p, 24p*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	2-sample interleave division / Square division
	4 : 4 : 4 YCbCr			
4096 × 2160/30PsF*1, 25PsF, 24PsF*1	4 : 4 : 4 RGB	10 bit / 12 bit	Level A / Level B-DL	Square division
	4 : 4 : 4 YCbCr			
4K/UHD (12G-SDI Single Link)				
3840 × 2160/60p*1, 50p	4 : 2 : 2 YCbCr	10 bit	Mode 1	2-sample interleave division / Square division
3840 × 2160/30p*1, 25p, 24p*1	4 : 4 : 4 RGB	10 bit / 12 bit	Mode 1	2-sample interleave division / Square division
	4 : 4 : 4 YCbCr			
4096 × 2160/60p*1, 50p, 48p*1	4 : 2 : 2 YCbCr	10 bit	Mode 1	2-sample interleave division / Square division
4096 × 2160/30p*1, 25p, 24p*1	4 : 4 : 4 RGB	10 bit / 12 bit	Mode 1	2-sample interleave division / Square division
	4 : 4 : 4 YCbCr			
4K/UHD (6G-SDI Single Link)				
3840 × 2160/30p*1, 25p, 24p*1	4 : 2 : 2 YCbCr	10 bit	Mode 1	2-sample interleave division / Square division
4096 × 2160/30p*1, 25p, 24p*1	4 : 2 : 2 YCbCr	10 bit	Mode 1	2-sample interleave division / Square division

*1 Also compatible with 1/1.001.
*2 When Square is selected (physically same when 2SI is selected).

HDMI

Signal System	Signal Structure	
640 × 480/60P*1	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
720 × 480/60P*1	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
1280 × 720/60P*1	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
1920 × 1080/60I*1	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
720 × 576/50P	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
1280 × 720/50P	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
1920 × 1080/50I	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
1920 × 1080/60P*1	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
1920 × 1080/50P	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
1920 × 1080/30P*1	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
1920 × 1080/25P	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
1920 × 1080/24P*1	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit

Signal System	Signal Structure	
2048 × 1080/60P*1	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
2048 × 1080/50P	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
2048 × 1080/48P	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
2048 × 1080/30P*1*6	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
2048 × 1080/25P*6	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
2048 × 1080/24P*1	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
3840 × 2160/30P*1*2	4:4:4 (RGB)	12/10/8bit*3*5
	4:4:4 (YCbCr)	12/10/8bit*3*4
	4:2:2 (YCbCr)	12bit
3840 × 2160/25P*2	4:4:4 (RGB)	12/10/8bit*3*5
	4:4:4 (YCbCr)	12/10/8bit*3*4
	4:2:2 (YCbCr)	12bit
3840 × 2160/24P*1*2	4:4:4 (RGB)	12/10/8bit*3*5
	4:4:4 (YCbCr)	12/10/8bit*3*4
	4:2:2 (YCbCr)	12bit
4096 × 2160/30P*1*2	4:4:4 (RGB)	12/10/8bit*3*5
	4:4:4 (YCbCr)	12/10/8bit*3*4
	4:2:2 (YCbCr)	12bit
4096 × 2160/25P*2	4:4:4 (RGB)	12/10/8bit*3*5
	4:4:4 (YCbCr)	12/10/8bit*3*4
	4:2:2 (YCbCr)	12bit
4096 × 2160/24P*1*2	4:4:4 (RGB)	12/10/8bit*3*5
	4:4:4 (YCbCr)	12/10/8bit*3*4
	4:2:2 (YCbCr)	12 bit

Signal System	Signal Structure	
3840 × 2160/60P*1*2	4:4:4 (RGB)	8bit*3
	4:4:4 (YCbCr)	8bit*3
	4:2:2 (YCbCr)	12bit*3
	4:2:0 (YCbCr)	8bit
3840 × 2160/50P*2	4:4:4 (RGB)	8bit*3
	4:4:4 (YCbCr)	8bit*3
	4:2:2 (YCbCr)	12bit*3
	4:2:0 (YCbCr)	8bit
4096 × 2160/60P*1*2	4:4:4 (RGB)	8bit*3
	4:4:4 (YCbCr)	8bit*3
	4:2:2 (YCbCr)	12bit*3
	4:2:0 (YCbCr)	8bit*3
4096 × 2160/50P*2	4:4:4 (RGB)	8bit*3
	4:4:4 (YCbCr)	8bit*3
	4:2:2 (YCbCr)	12bit*3
	4:2:0 (YCbCr)	8bit
800 × 600/60P	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12bit
1024 × 768/60P	4:4:4 (RGB)	12/10/8bit
	4:4:4 (YCbCr)	12/10/8bit
	4:2:2 (YCbCr)	12 bit

*1 Also compatible with the frame rate 1/1.001.
*2 This signal is described as “equivalent to the 4K signal” in this manual.
*3 “Enhanced Format” must be selected in the “HDMI Signal Format” (page 29).Also, when using this input signal, use the PremiumHigh-Speed HDMI cable. (30P, 25P, 24P signals are only for the 4:4:4 RGB/YCbCr 10/12bit signal.)
*4 The 4:4:4(YCbCr)12/10bit signal is displayed after converting to the 4:2:2(YCbCr)12/10bit signal.
*5 The 4:4:4(RGB)12/10bit signal is displayed after converting to the 4:2:2(YCbCr)12/10bit signal or is displayed as a 4:4:4(RGB)8bitsignal.
*6 This signal system is not described in EDID (Extended Display Identification Data).

SDI Input Signals

Match “Input signal No” of the charts of “SDI Output Signals” on the next page.

SDI Interface	Signal Structure			Signal System[*1]		Input signal No
12G-SDI Single-Link	Square/2SI	4:2:2(YCbCr)	10bit	3840 × 2160	50P, 60P[*2]	①
3G-SDI Quad-Link Level A						
3G-SDI Quad-Link Level B						
12G-SDI Single-Link	Square/2SI	4:2:2(YCbCr)	10bit	4096 × 2160	48P[*2], 50P, 60P[*2]	②
3G-SDI Quad-Link Level A						
3G-SDI Quad-Link Level B						
12G-SDI Single-Link	Square/2SI	4:4:4 (RGB) 4:4:4(YCbCr)	10bit, 12bit 10bit, 12bit	3840 × 2160	24P[*2], 25P, 30P[*2]	③
3G-SDI Quad-Link Level A						
3G-SDI Quad-Link Level B						
6G-SDI Single-Link	Square/2SI	4:2:2(YCbCr)	10bit			
3G-SDI Dual-Link Level B-DS						
HD-SDI Quad-Link	Square					
12G-SDI Single-Link	Square/2SI	4:4:4 (RGB) 4:4:4(YCbCr)	10bit, 12bit 10bit, 12bit	4096 × 2160	24P[*2], 25P, 30P[*2]	④
3G-SDI Quad-Link Level A						
3G-SDI Quad-Link Level B						
6G-SDI Single-Link	Square/2SI	4:2:2(YCbCr)	10bit			
3G-SDI Dual-Link Level B-DS						
HD-SDI Quad-Link	Square					
3G-SDI Quad-Link Level A	Square	4:4:4 (RGB) 4:4:4(YCbCr)	10bit, 12bit 10bit, 12bit	3840 × 2160	24PsF[*2], 25PsF, 30PsF[*2]	⑤
3G-SDI Quad-Link Level B						
3G-SDI Dual-Link Level B-DS	Square	4:2:2(YCbCr)	10bit			
HD-SDI Quad-Link						
3G-SDI Quad-Link Level A	Square	4:4:4 (RGB) 4:4:4(YCbCr)	10bit, 12bit 10bit, 12bit	4096 × 2160	24PsF[*2], 25PsF, 30PsF[*2]	⑥
3G-SDI Quad-Link Level B						
3G-SDI Dual-Link Level B-DS	Square	4:2:2(YCbCr)	10bit			
HD-SDI Quad-Link						
3G-SDI Dual-Link Level A		4:4:4 (RGB) 4:4:4(YCbCr)	10bit, 12bit 10bit, 12bit	1920 × 1080	50P, 60P[*2]	⑦
3G-SDI Dual-Link Level B						
3G-SDI Single-Link Level A		4:2:2(YCbCr)	10bit			
3G-SDI Single-Link Level B						
HD-SDI Dual-Link						

SDI Interface	Signal Structure			Signal System[*1]		Input signal No
3G-SDI Dual-Link Level A		4:4:4 (RGB) 4:4:4 (YCbCr)	10bit, 12bit 10bit, 12bit	2048 × 1080	48P[*2], 50P, 60P[*2]	⑧
3G-SDI Dual-Link Level B						
3G-SDI Single-Link Level A		4:2:2 (YCbCr)	10bit			
3G-SDI Single-Link Level B						
HD-SDI Dual-Link						
3G-SDI Single-Link Level A		4:4:4 (RGB) 4:4:4 (YCbCr)	10bit, 12bit 10bit, 12bit	1920 × 1080	50I, 60I[*2]	⑨
3G-SDI Single-Link Level B						
HD-SDI Dual-Link						
HD-SDI Single-Link		4:2:2 (YCbCr)	10bit			
3G-SDI Single-Link Level A		4:4:4 (RGB) 4:4:4 (YCbCr)	10bit, 12bit 10bit, 12bit	1920 × 1080	24P[*2], 25P, 30P[*2]	⑩
3G-SDI Single-Link Level B						
HD-SDI Dual-Link						
HD-SDI Single-Link		4:2:2 (YCbCr)	10bit			
3G-SDI Single-Link Level A		4:4:4 (RGB) 4:4:4 (YCbCr)	10bit, 12bit 10bit, 12bit	2048 × 1080	24P[*2], 25P, 30P[*2]	⑪
3G-SDI Single-Link Level B						
HD-SDI Dual-Link						
HD-SDI Single-Link		4:2:2 (YCbCr)	10bit			
3G-SDI Single-Link Level A		4:4:4 (RGB) 4:4:4 (YCbCr)	10bit, 12bit 10bit, 12bit	1920 × 1080	24PsF[*2], 25PsF, 30PsF[*2]	⑫
3G-SDI Single-Link Level B						
HD-SDI Dual-Link						
HD-SDI Single-Link		4:2:2 (YCbCr)	10bit			
3G-SDI Single-Link Level A		4:4:4 (RGB) 4:4:4 (YCbCr)	10bit, 12bit 10bit, 12bit	2048 × 1080	24PsF[*2], 25PsF, 30PsF[*2]	⑬
3G-SDI Single-Link Level B						
HD-SDI Dual-Link						
HD-SDI Single-Link		4:2:2 (YCbCr)	10bit			
3G-SDI Single-Link Level A		4:4:4 (RGB) 4:4:4 (YCbCr)	10bit, 12bit 10bit, 12bit	1280 × 720	50P, 60P[*2] 24P[*2], 25P, 30P[*2]	⑭
HD-SDI Single-Link		4:2:2 (YCbCr)	10bit			

*1 V frequency is not converted.
*2 Also compatible with 1/1.001 frame rates.

SDI Output Signals (Enhanced Monitor Out)

Match “Input signal No” of the charts of “SDI Input Signals” on the previous page.

Input Signal No	Category	Signal System		Signal Structure		SDI Interface	
①	1	3840 × 2160	50P, 60P *1	4:2:2 (YCbCr)	10bit	12G-SDI Single-Link	2SI
	2	1920 × 1080	50P, 60P *1	4:2:2 (YCbCr)	10bit	3G-SDI Single-Link Level A	
	3	1920 × 1080	50I, 60I *1	4:2:2 (YCbCr)	10bit	HD-SDI Single-Link	
②	1	4096 × 2160	48P*1, 50P, 60P*1	4:2:2 (YCbCr)	10bit	12G-SDI Single-Link	2SI
	2	2048 × 1080	48P*1, 50P, 60P*1	4:2:2 (YCbCr)	10bit	3G-SDI Single-Link Level A	
③	1	3840 × 2160	24P*1, 25P, 30P*1	4:2:2 (YCbCr)	10bit	6G-SDI Single-Link	2SI
	2	1920 × 1080	24P*1, 25P, 30P*1	4:2:2 (YCbCr)	10bit	HD-SDI Single-Link	
④	1	4096 × 2160	24P*1, 25P, 30P*1	4:2:2 (YCbCr)	10bit	6G-SDI Single-Link	2SI
	2	2048 × 1080	24P*1, 25P, 30P*1	4:2:2 (YCbCr)	10bit	HD-SDI Single-Link	
⑤	1	3840 × 2160	24P*1, 25P, 30P*1	4:2:2 (YCbCr)	10bit	6G-SDI Single-Link	2SI
	2	1920 × 1080	24P*1, 25P, 30P*1	4:2:2 (YCbCr)	10bit	HD-SDI Single-Link	
⑥	1	4096 × 2160	24P*1, 25P, 30P*1	4:2:2 (YCbCr)	10bit	6G-SDI Single-Link	2SI
	2	2048 × 1080	24P*1, 25P, 30P*1	4:2:2 (YCbCr)	10bit	HD-SDI Single-Link	
⑦	1	1920 × 1080	50P, 60P*1	4:2:2 (YCbCr)	10bit	3G-SDI Single-Link Level A	
	2	1920 × 1080	50I, 60I*1	4:2:2 (YCbCr)	10bit	HD-SDI Single-Link	
⑧	1	2048 × 1080	48P*1, 50P, 60P*1	4:2:2 (YCbCr)	10bit	3G-SDI Single-Link Level A	
⑨	1	1920 × 1080	50I, 60I*1	4:2:2 (YCbCr)	10bit	HD-SDI Single-Link	
⑩	1	1920 × 1080	24P*1, 25P, 30P*1	4:2:2 (YCbCr)	10bit	HD-SDI Single-Link	
⑪	1	2048 × 1080	24P*1, 25P, 30P*1	4:2:2 (YCbCr)	10bit	HD-SDI Single-Link	
⑫	1	1920 × 1080	24PsF*1, 25PsF, 30PsF*1	4:2:2 (YCbCr)	10bit	HD-SDI Single-Link	
⑬	1	2048 × 1080	24PsF*1, 25PsF, 30PsF*1	4:2:2 (YCbCr)	10bit	HD-SDI Single-Link	
⑭	1	1280 × 720	24P*1, 25P, 30P*1, 50P, 60P*1	4:2:2 (YCbCr)	10bit	HD-SDI Single-Link	

1) Also compatible with 1/1.001 frame rates.

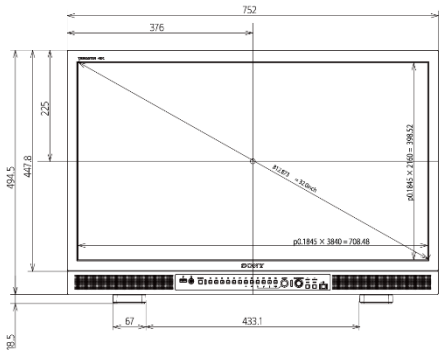
PVM-X3200/X2400/X1800

4K LCD Picture Monitor

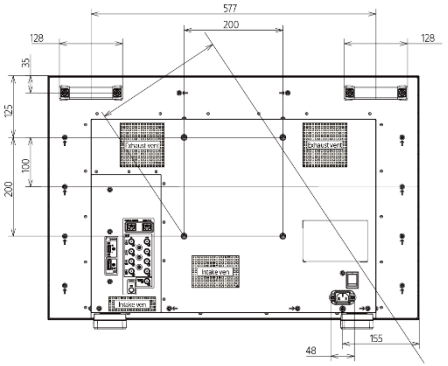
Dimensions

PVM-X3200

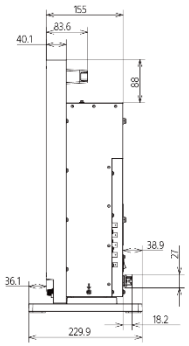
Front



Rear

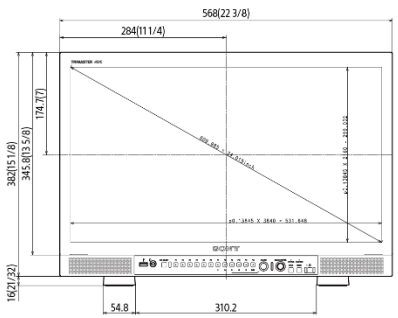


Side

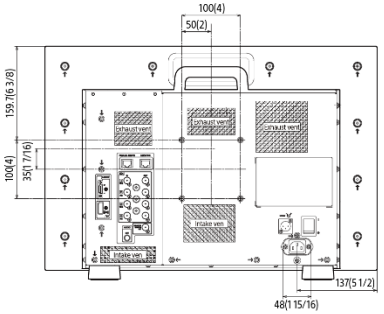


PVM-X2400

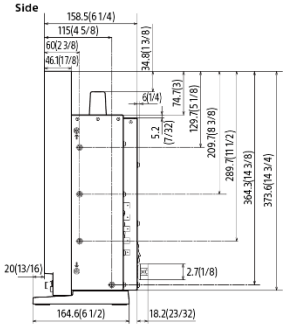
Front



Rear

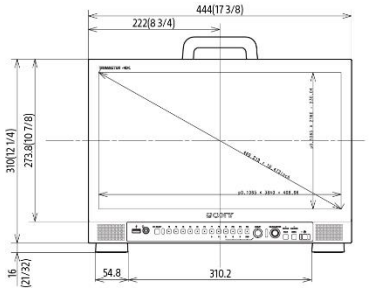


Side

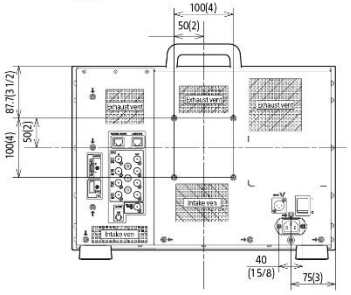


PVM-X1800

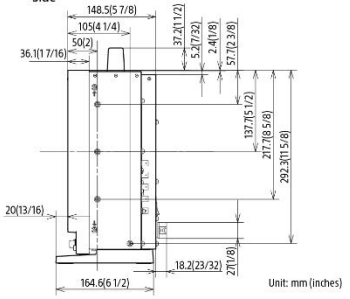
Front



Rear



Side



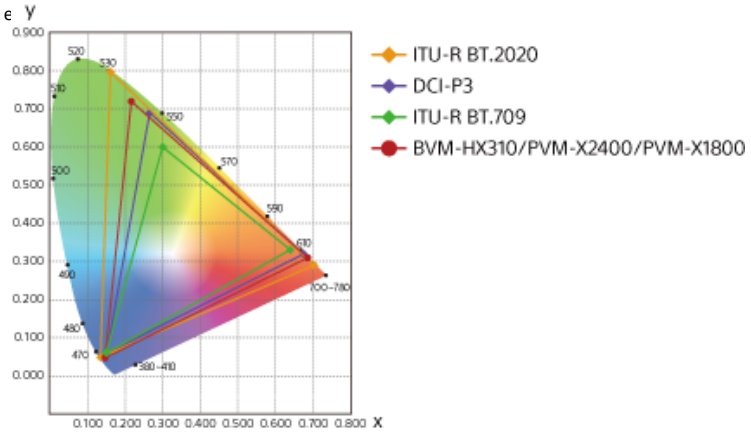
Unit: mm (inches)

PVM-X3200/X2400/X1800

4K LCD Picture Monitor

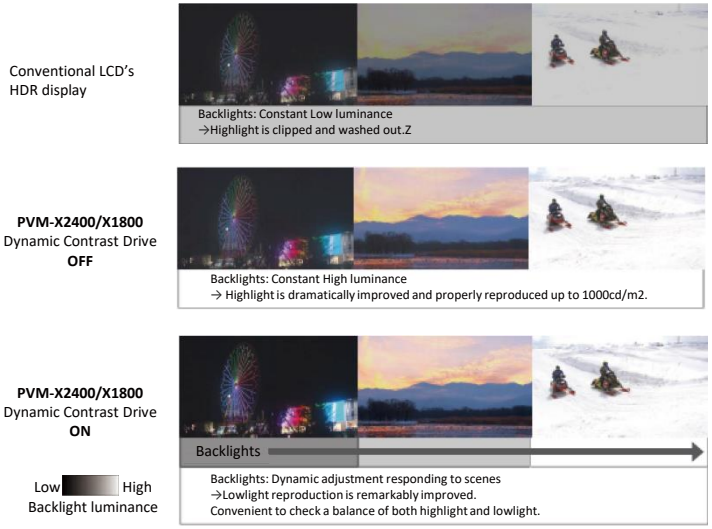
4K Premium LCD Panel for True Colour Matching with the BVM-HX310

The PVM-X Series has a 4K premium LCD panel (3840 x 2160) with a wide colour gamut, high luminance, high contrast, fine grey scale, wide viewing angle and great uniformity. Sony specified the panel to realize 1,000 cd/m2 luminance and 100% colour gamut coverage of the BVM-HX310, which is an industry-leading master monitor. This feature provides a colour matching value across the entire process from camera shooting to finishing in versatile video productions such as live productions, TV programs, documentaries, music programs, movies, drama productions, commercial films, and more. All the professionals in a single project can share a common view and a common understanding of content colour and tone even though they may be working at different times and in different locations. This allows e



Dynamic Contrast Drive

Dynamic Contrast Drive is a new backlight driving system that dynamically changes backlight luminance to adapt for the frame scene. You can conveniently check a total balance of highlights and low lights at a glance. Other advantages of this new system are that the drive does not cause any artificial halo effect and each signal level is displayed at each corresponding display luminance. With this drive, the monitor can dynamically perform with a 1,000,000:1 contrast ratio.



Note: The above three different scenes are a typical example.

TRIMASTER Realizes Accurate Colour Reproduction, Precise Imaging, and Quality Picture Consistency

TRIMASTER is a design architecture for accurate picture reproduction, precise imaging, and quality picture consistency. There are many advantages with the panel control and signal processing system such as fast processing, accurate linearizing of an input signal with an Optical Electrical Transfer Function, accurate colour reproduction, and more.

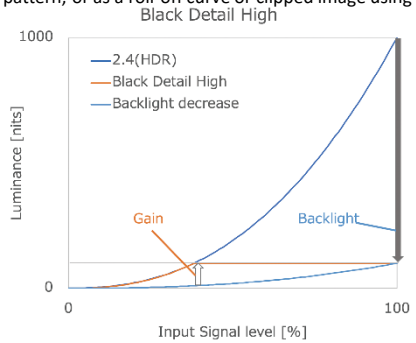
PVM-X3200/X2400/X1800

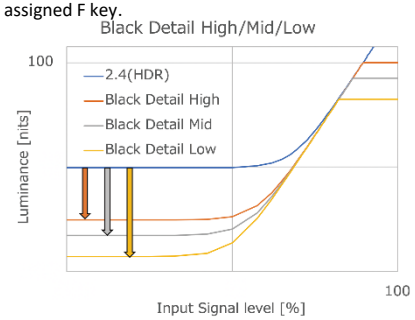
4K LCD Picture Monitor

Features

Black Detail High/Mid/Low

Due to the LCD panel mechanism, backlight leaking from the panel surface is unavoidable.
Black Detail High/Mid/Low provides more accurate monitoring of black detail in dark, low-APL (average picture level) images. The black level is reduced but gamma is maintained for correct colour and grey scale.
The three settings for the Black Dtail modes can be used according to the the scene brightness of in which you are shooting. However, high luminance areas are clipped due to the dynamic range of the monitor. To view highlight areas up to approximately 1000 cd/m^2 in brightness, the Roll-Off setting in Blk. Dtl. Highlight was newly introduced with version 3.00. The highlight areas are compressed and shown in a roll-off curve. The areas to be clipped can be configured to be shown in either a zebra pattern, or as a roll-off curve or clipped image using the assigned F key.





Black Detail Low

Suitable for very dark scenes such as ones in the nighttime, and emphasizes the details in the sky, water and shore.

Black Detail Mid.

Suitable for dark scenes such as at dusk and emphasizing the details of the rocks.

Black Detail High

Suitable for scenes under indoor lighting with dark areas and emphasizing the details of the subject's hair and face.

Clip (Blk. Dtl. Highlight)

Zebra (Blk. Dtl. Highlight)

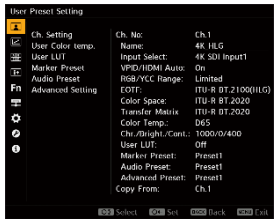
Roll-Off (Blk. Dtl. Highlight)

User Interface

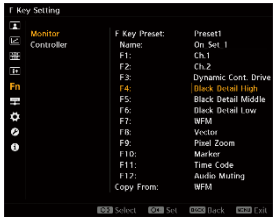
The OSD (On-Screen Display) menu structure has changed significantly from that of existing Sony 4K monitors. It has a shallow layered structure and you can see setting values when the OSD comes up and you can change them quickly. The Status menu has been repositioned from the top to the lower side. 4K/2K settings and Input settings/User presets are integrated in a single Channel. You can create 30 channels and rename each Channel according to your own preferences.
Sony has newly introduced the Channel Select button on the front control panel for operators. You can only select a channel from the list where you see the channel name, colour space, EOTF, input, and more. Also you can simply assign channels to the Function keys.
When multiple users share the same monitor, each user can memorize his/her setting data to a channel and retrieve this data whenever required. This frees you from timeconsuming and repetitive setting tasks. When multiple users share the same monitor, all monitor data can be saved and locked by a password*. Each user can freely change all data values but these cannot be overwritten and saved to monitor memory by anyone unless they know the password.
To speed up F-key configuration, you can take a shortcut to the settings menu screen simply by pressing and holding down the function key. And, to allow for the increase in functions, a new Function Key Preset is now included. You can create some different combinations of function keys and store them, and it is easy and quick to select one of the Function Key Presets. Not only the Channel but also the Function Key Preset, colour Temperature, and Marker name can be named from the OSD keyboard.

*A User 3D LUT data is an exception from the password protection.
It is independently added and deleted with no password protection.

Shallow layered menu

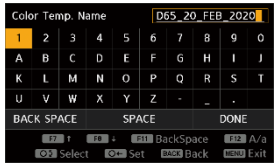


F key short-cut menu

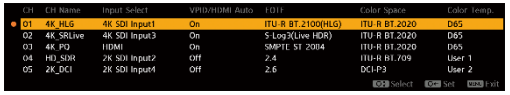


**This menu is an example of a menu available in Ver.1.0.

OSD keyboard for rename function



CH select menu

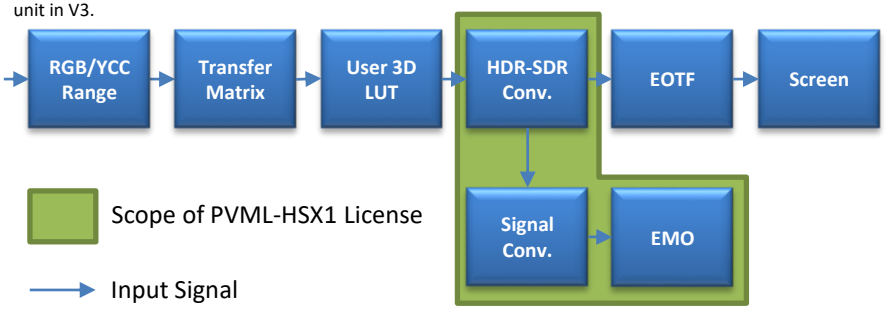


Optional PVML-HSX1 HDR-SDR Conversion License

The optional PVML-HSX1 HDR-SDR conversion license* for the PVM-X series supports the SR Live production concept that allows for HDR-SDR conversion in live production.
In SR Live production, a shader monitors an SDR image and shades it as a part of normal operation for an HD SDR image when you connect an HDR signal to a monitor through this internal conversion process. A quality HDR image in either a 4K or HD format can automatically be produced with Sony's proprietary HDR-SDR conversion. With this conversion, parameters change automatically based on the SR Live metadata embedded in the SDI signal, making it easy for the system to maintain consistent image quality. This has the advantage of allowing for parameters to be changed dynamically and with flexibility according to the scene. At the same time, simple yet effective conversion is also possible through the manual adjustment of just three parameters (HDR Look, HDR SDR Gain and Knee) based on the brightness of the subject. HDR-SDR conversion and SR Live metadata can also be used by experienced shaders familiar with simultaneous HDR and SDR live production to make even more detailed adjustments to conversion parameters.
This also allows for the output of converted signals to other 4K or HD monitors via the Enhanced Monitor Output supporting 12G/6G/3G/HD-SDI, even if an original 4K source is Quad link 3G-SDI.
The HDR license supports the following:
- 4K to HD down-conversion
- Colour space conversion from ITU-R BT.2020 to ITU-R BT.709,
- OETF conversion from HDR OETF S-Log3(HDR), ITU-R BT.2100(HLG), SMPTE ST2084 to SDR EOTF 2.4 and OETF 0.45.
- Progressive to interlace conversion
- Quad-link 3G to single-link 12G/3G/HD-SDI conversion

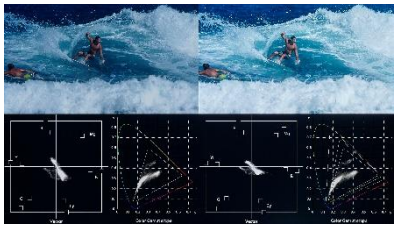
You can monitor both SDR and HDR at the same time in Side by Side mode and monitor them with an internal WFM, Vector and colour gamut scope.
This license is solely for outputting a baked 3D LUT signal from the Enhanced monitor output to an external device. You can apply both HDR-SDR conversion and 3D LUT used for a creative look and output this converted and baked 3D LUT signal to an external device.
This feature allows for local or remote monitoring of converted signals. The license activation is field-upgradeable with a USB memory stick and provides conversion capabilities to PVM-X1800/X2400/X3200 monitors.
This monitor includes a limited-time trial of the PVML- conversion license** which allows a PVM-X user try out this license without charge. The trial license expires after 240 hours of monitor run-time. You will need to purchase the PVML-HSX1 license in order to continue using the conversion and enhanced monitor output features.

*The PVML-HSX1 HDR-SDR conversion license is sold separately. HDR-to-SDR conversion is activated via the USB port on the front control panel on the monitor.
**Supported in Ver.3.0. The trial period starts right after updating a unit to V3 or after you begin using a new unit in V3.



Conversion: On, Side by Side: On, WFM: On

Conversion: On, Side by Side: On, Vector: On, CGS: On



Conversion: On, Side by Side: On, WFM: On, Vector: On, CGS: On

SR Live metadata in the Status menu***

***Supported in Ver.2.0 or later. No PVML-HSX1 HDR-SDR conversion license is required for this status menu.

User 3D LUT (Look Up Table)

During on-set operation, post-production or live production, user 3D LUT is used to apply a creative look to a picture or convert colour from a particular colour gamut/OETF to a standard colour system such as ITU-R BT.709. The PVM-X series has a user 3D LUT function. You can store up to 30.cube files from a USB memory stick on the monitor. Together with the multi-view functions, multiple user LUTs can be displayed on the same screen for side-by-side comparison. You can also use the internal scopes to view baked 3D LUT signals.

Sony's Unique Multi-View Display

The PVM-X Series provides a quad view display with EOTF (SDR/HDR), colour space, transfer matrix, colour temperature, contrast, brightness, user 3D LUT, SDI/HDMI, and RGB/YCBCR settings for each displayed view. You can easily compare different HD input sources and use the views to monitor different sources as a part of an HD wall display system. You can assign scopes to the lower quadrants to check input signals as well.
Side by Side mode is newly introduced for the combination of a 4K/HD SDI signal and a 4K/HD HDMI signal or the optional HDR-SDR conversion for comparing SDR and HDR.

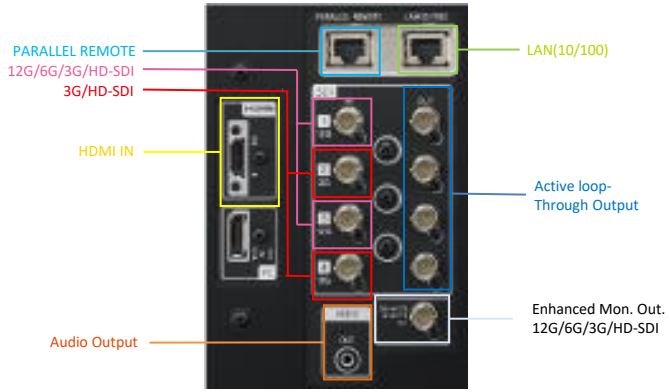
Features

4K Video Input Versatility for both Brand-New and Traditional Devices

The Enhanced Monitor Output* supports 12G/6G/3G/HD-SDI. This function is activated by the optional license PVML-HSX1. You can output a converted signal by the Sony proprietary HDR-SDR conversion, and/or User 3D LUT to an external device. It can also support a signal conversion from 4K to HD and Progressive to Interlace, even if an original source is Quad link 3G-SDI. This feature enables local or remote monitoring of converted signals.

*SDI input source is only supported. An HDMI input signal is not converted and output from this.

- 12G simplifies wiring from the largest, latest system to the simplest field system
- Quad-link 3G-SDI offers truly convenient system configuration with many existing traditional devices
- HDMI is a mandatory interface supporting a rasterizer, multi-viewer, digital camera, set-top box, UHD Blue-ray and computer, and more



Various Signal Settings and Automatic Setting by Video Payload ID

You can manually set various signal settings including ITU-R BT.2020, ITU-R BT.709, DCI-P3, S-Gamut/S-Gamut3, and S-Gamut3.Cine as colour space and ITU-R BT.2100(HLG), SMPTE ST2084, S-Log3, and S-Log3(Live HDR) as EOTF. Support for VPID (video payload ID) identifies EOTF, colour Space, and RGB source information embedded in the SDI signal. Monitor settings are adjusted automatically, cutting the risk of human error in high-pressure live production environments.

4K/HD Scopes with HDR/SDR Scale and Audio Level Meter Display

Both the waveform and vector scope can be displayed with scales for either HDR or SDR. The scales change automatically according to the monitor's selected EOTF setting. You can conveniently check both the input signal level and output luminance with the waveform monitor's HDR scales. There are various modes for adjusting the camera's white balance, including a zoom function with the waveform monitor (with values ranging from either 0 to 20% or 0 to 30%) and a zoom function with the vectorscope (in the black area in the center). The waveform monitor has three different displays: Luminance, RGB/YCBCR Parade and RGB Overlay with the Gamut Error display. The waveform of a specified line can also be display, and you can view the internal baked 3D LUT signal in these scopes. In addition, an audio level meter can display the embedded audio signal from the SDI or HDMI input. This is shown on the screen either in ch1 to ch8 or ch9 to ch16.
With the V3.0* firmware, a colour gamut scope is also available that maps colours on the CIE1931 standard chart with the standard colour space area display. The colour space area display is automatically set and displayed according to the selected colour space setting, which ranges from ITU-R BT.2020, DCI-P3, S-Gamut3 and S-Gamut3.Cine to ITU-R BT.709. It can also be displayed together with the other scopes.

PVM-X Colour setting: Colour Space: ITU-R BT.2020, EOTF: ITU-R BT.2100(HLG)

Colour space setting	Largest triangle line	Reference triangle lines
ITU-R BT.709	ITU-R BT.709	-
DCI-P3	DCI-P3	ITU-R BT.709
ITU-R BT.2020	ITU-R BT.2020	DCI-P3 and ITU-R BT.709
S-Gamut3	S-Gamut3	DCI-P3 and ITU-R BT.709
S-Gamut3.Cine	S-Gamut3.Cine	DCI-P3 and ITU-R BT.709

False Colour Function*1

These monitors can display false colour based on the signal levels on the camera . As the entire image is changed, it is easy to see the levels of over-exposure, under-exposure and appropriate exposure. You can adjust these levels and turn the false colour scale on or off as needed. You can also select one of multiple presets, change it and save it as your own preset. Preset 1 has the same settings as the Sony VENICE camera set to either S-Gamut3, S-Gamut3.Cine or ITU-R BT.2020 and S-Log3.

*1 Supported in V3.0

Original Picture, colour Setting S-Gamut3, EOTF: S-Log3

False colour: On, Preset1, False colour Scale: On

Camera Focus Function*1

PVM-X Series monitors can control the aperture level of a video signal and display images on the screen with sharpened edges to help the camera focus on subjects. These sharpened edges can be displayed in colours (B&W, red, green, blue, and yellow) that can be selected by users, and images can be set to Normal or Mono for a more precise focus.

*1 Supported in V3.0

Mono mode: On, Type: colour, colour: Red, Gain: 100

Mono mode: On, Type: colour, colour: Red, Gain: 0

Mono mode: Off, Type: Normal, Gain: 100

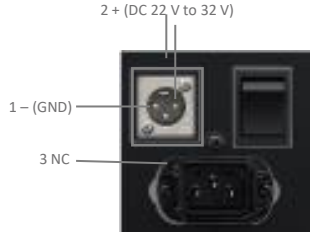
Zoom Function

The PVM-X Series can magnify the center of the screen, allowing you to check the camera focus.

DC Operation

The PVM-X2400 and PVM-X1800*3 can be operated with DC 22 V to DC 32 V. This provides more flexibility and mobility for users who need a larger high brightness screen for on-set applications. It is also ideal for field applications.

*3 Not supported by PVM-X3200.



Yoke-Mount and Wall-Mount Capability

PVM-X series and PVM-X1800 monitors have screw holes on their side bezels for yoke mounting. This type of mounting is convenient when installing a monitor to a camera crane or monitor stand in the field. There are also wall-mount 100-mm pitch holes on each monitor's rear panel.

Yoke-mount

Wall-mount

Features

Flexible and Variable Area Markers, Aspect Marker, and Center Marker

You can set either two Flexible Area Markers or two Variable Area Markers on the screen. As their line colours and thickness can be changed, these two markers are easily identified. This second marker makes it easier to check the center portion's focus. Flexible Area Markers can be used for screen layout guidance in shopping programs.

Marker Variation

	Safe Area Marker		Aspect Marker*
	%	Dot (Pixel)	
Selectable Markers	80%, 88%, 90%, 93%, or variable	Flexible	16:9, 15:9, 14:9, 13:9, 4:3, 2.39:1, 2.35:1, 1.896:1, 1.85:1, or 1.66:1
Line Colours	White, Red, Green, Blue, Yellow, Cyan, or Magenta		
Line Width	1 to 5 dots (factory preset at 2 dots)		
Line Luminance Intensity	High (bright) or Low (dark)		
Blanking	—		Off: Blanking is released Black: Blanking Half: Half blanking

Marker Examples

Aspect Mode: 2.35:1,
Safe Area: Shape A,
Area Size: 80%

Aspect Mode: 14:9,
Safe Area: Shape B,
Area Size: 80%

Aspect Mode: 4:3,
Safe Area: Shape C,
Area Size: 80%

Marker Preset Image 1

Marker Preset Image 2

Marker Preset Image 3

Example : Shopping channels

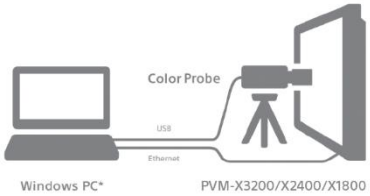
Guide for a proper framing

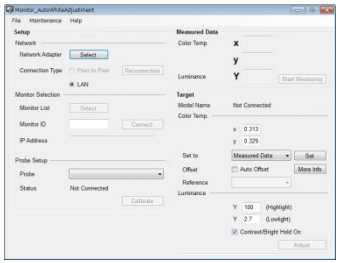
Zoom out to show a commercial product

Auto White Adjustment*1

The PVM-X3200, X2400 and PVM-X1800 monitors employ a software-based colour temperature (white balance) calibration function called Monitor Auto White Adjustment. When combined with a computer and commercially available calibration tools*2, this function allows for simple adjustments to be made to the monitor's white balance.

*1 Supported in Version 1.7 and later. PVM-X monitors software should be Version 3.0. or later.
*2 Refer to the Monitor Auto White Adjustment download page for more details.





"Monitor_AutoWhiteAdjustment" GUI*2

Copy function for monitor setup

PVM-X3200, X2400 and PVM-X1800 can save its configuration data to a USB memory stick and load it from the memory You can easily recover your favorite settings without a hassle by uploading them from a USB memory stick.
Regardless of the screen sizes, they can also share its monitor configuration to multiple other units through USB memory slots. This is useful for large broadcasting system, rental house, on-site copy and so on.

*3 Support with version 3.0 and User 3D LUT data are not transferred and it is necessary that they are separately ingested to the monitors as User LUT data.

USB Memory Stick

PVM-X3200/X2400/X1800

4K LCD Picture Monitor

Features

Highly Reliable Mechanical Design, Optional Protection Panel, and 19-inch EIA Standard Rack-Mount Capability

For long-term reliability, Sony ran multiple thermal simulations to find the most efficient cooling system and mechanical structure. Sony also undertook frequent heat load testing of customer installations over a long period of time, ensuring products passed its own exacting standards.
Optional PVMK-PX24 and PVMK-PX18* protection panels save the premium screen of the PVM-X Series from occasional inadvertent scratches and impacts during transportation and preparation**. One of these panels can be easily and quickly attached and detached without any tools, which is ideal for time-critical on-site application. An optional PVMKRX24 or PVMK-RX18 rack-mount bracket can be used to mount the monitor on a standard 19-inch EIA rack, with or without the protection panel in place.

*Clearance space at the top of the monitor is required to enable attachment and detachment.
** The optional protection panels are not designed to protect the monitor screen from backlight heat during operation.

PVM-X1800

PVM-X2400

PVM-X2400 (Side)

Room Clearance Connector Panel Design

The connector panel on the rear of each monitor is designed to allow sufficient cord clearance. This design protects the connectors, saves space, and enables cabling flexibility with easy identification of the connectors for system integration and maintenance.

4K (4096 x 2160) and 2K (2048 x 1080) Input

The PVM-X Series monitor can display 4K and 2K inputs. The 4K/2K signal is displayed in two ways – as a full 4K/2K image scaled into a QFHD (3840 x 2160) screen or as a 4K/2K native display with side cut.

Power-on Setting

Power-on setting allows you to select the required setting data when the monitor starts up; this includes last memory, user preset, and factory preset settings. This function means you can set the monitor accurately and quickly – this is particularly useful for rental equipment.

Optimized Low-Latency I/P Conversion

With low latency, an I/P conversion system delivers automatically optimized signal processing according to input signals. This helps with editing and monitoring fast-moving images, and with synchronizing audio with lip sync.

Zoom Function

The PVM-X Series can magnify the center of the screen, allowing you to check the camera focus.

Various Basic Functions

The monitor has various basic functions such as Contrast/Brightness/Chroma adjustments, Mono, Blue Only, RGB cut off, Internal Signal, Internal Signal Pattern, and more.

Mono

Red (G and B off)

Green (R and B off)

Blue (R and G off)

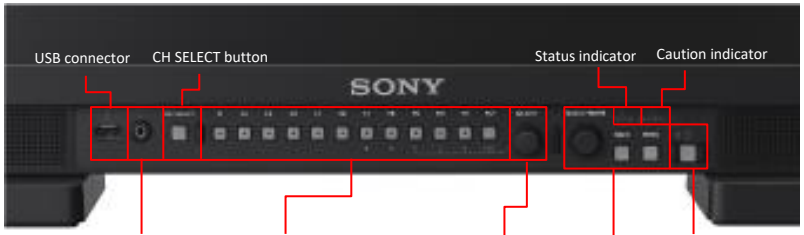
PVM-X3200/X2400/X1800

4K LCD Picture Monitor

Features

New Control Panel

The traditional input keys have integrated Function keys for more flexible configuration of input selections and functions. One of these, the Channel Select key, is newly set up as a dedicated key for input selection. You are required to select each setting from a given set of multiple settings, avoiding any inadvertent change to the setting parameters. This is ideal for busy operators in demanding production environments as they can see the setting details in the on-screen display and, even under pressure, simply select the required input without error. For added convenience, this monitor feels familiar as it has the same tactile response as the BVM-HX310 control panel.



High Sound Pressure Stereo Speakers (2W+2W) with Audio Muting

For Onset monitoring, Machine rooms, and other places with significant environmental noise, you need high sound pressure. 2W+2W front stereo speakers are more powerful than a monaural speaker or a rear speaker system and you can get a good stereophonic effect from them. When you need to put the monitor on mute very quickly, you can simply press the assigned Audio Muting Function key.

Options

PVMK-PX24
Protection panel for PVM-X2400

PVMK-PX18
Protection panel for PVM-X1800

PVMK-RX24
Rack Mounting Bracket for PVM-X2400

PVMK-RX18
Rack Mounting Bracket for PVM-X1800

BKM-17R
Monitor Control Unit

The PVM-X3200/X2400/X1800 monitors and the BKM-17R Monitor Control Unit are equipped with an Ethernet port, allowing remote control of display parameters across a standard Ethernet connection. One BKM-17R Monitor Control Unit can control up to thirty-two (32) monitors*1.

*1 Includes BVM-HX310, BVM-X300, PVM-X(Except PVM-X300) , BVM-L , PVM-L, and BVM- E/-F Series monitors.

INPUT/OUTPUT	
LAN	10BASE-T/100BASE-TX connector: RJ-45 (x1)
DC 12 V IN	Circle pin (x1)
USB (USB2.0) connector	USB Standard A (x1)
GENERAL	
Power requirements	DC IN: 12 V, 0.5 A (supplied with the connected monitor or the connected AC adapter) AC adapter (AC-UES1230 or ACUES1230M) AC adaptor: AC IN: 100 V to 240 V, 50/60 Hz, DC OUT: 12 V, 3 A
Current consumption	12 V DC, 0.5 A
Power consumption	Approx. 6 W
Operating temperature	0°C to 35°C (32°F to 95°F), Recommended: 20°C to 30°C (68°F to 86°F)
Operating humidity	0% to 90% (no condensation)
Operating pressure	700 hPa to 1060 hPa
Storage / transport temperature	-10°C to +40°C (14°F to 104°F)
Storage/transport humidity	0% to 90%
Operating / storage / transport pressure	700 hPa to 1060 hPa
Dimensions(W x H x D)	424 x 58.8 x 169.6 mm (16 3/4 x 2 3/8 x 6 3/4 inches)
Mass	2.1 kg (4 lb 10 oz)
Supplied accessories	AC adapter (AC-UES1230 or ACUES1230M)(1), AC power cord (1), Rack mount brackets (2), Rack mount bracket attachment screws(4), Function labels (2), DC-cord secure connection attachment (1), DC-cord secure connection screw (1), Before Using This Unit (1), CD-ROM (1), European Representative (1)

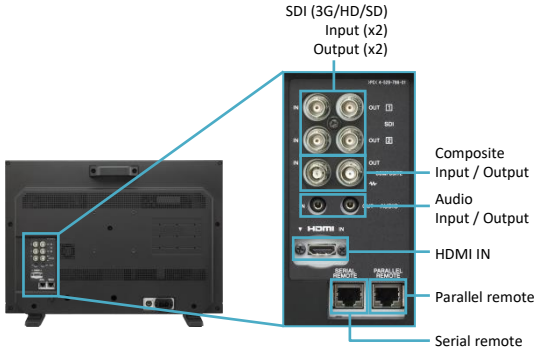
LMD-A240/A220/A170

LCD Picture Monitors

LMD-A240

LMD-A220

LMD-A170



Durable, Slim & Light-weight 24"WUXGA/22"/17" FHD Premium LCD Monitors of Consistent Operability with PVM-A series

Main Features

- Lightweight and compact with lower power consumption
- 4K Production function*1
- HDR production features*3
- Shopping channels feature(Flexible Marker)*1
- Optimised low-latency I/P conversion
- Line-doubler support*4
- In-Monitor Display (IMD) function
- Waveform monitor, vector scope and audio level meter display
- Yoke-mount and Wall-mount capability
- User-friendly operability and user interface
- Consistent design with PVM-A Series monitors
- Camera focus function
- Time code function
- On screen Tally
- Network control function
- Auto white adjustment*2
- Picture & Picture function*2
- 2K (2048 x 1080) input and image-slide*2
- Camera/lens metadata display function and on-screen tally*2
- Anamorphic image conversion and Active Format Description*2
- Grid Display, two Center Markers and Flip functions*2
- Power-on setting, DC Low Power indicator *2
- Multiple monitors upgrade utility*2
- Detachable handle (A220/A170 only)
- Optional protection kit (BKM-PL17) (A170 only)

* 1 Supported with V2.0 * 2 Supported with V1.1 * 3 Supported with V3.0 *4 Supported with V3.1

	LMD-A240	LMD-A220	LMD-A170
Picture Performance			
Panel	a-Si TFT Active Matrix LCD		
Picture size (diagonal)	611.3 mm (24 1/8 inches)	546.1 mm (21 1/2 inches)	419.6 mm (16 5/8 inches)
Effective picture size (H x V)	518.4 x 324.0 mm (20 1/2 x 12 7/8 inches)	476.1 x 267.8 mm (18 3/4 x 10 5/8 inches)	365.8 x 205.7 mm (14 1/2 x 8 1/8 inches)
Resolution (H x V)	1920 x 1200 pixels (WUXGA)	1920 x 1080 pixels (Full HD)	
Aspect	16:10	16:09	
Colours	Approx. 1,073 million colours	Approx. 16.7 million colours	Approx. 1,073 million colours
Viewing angle (Panel specification)	89°/89°/89°/89° (typical) (up/down/left/right contrast > 10:1)		
Input			
Composite input	BNC (x1), 1.0 Vp-p ±3 dB sync negative		
SDI input	BNC (x2)		
HDMI input	HDMI (x1) (HDCP correspondence)		
Audio input	Stereo mini jack (x1), -5 dBu 47 kilohms or higher		
Parallel remote	RJ-45 Modular connector 8-pin (x1)		
Serial remote	RJ-45 Modular connector (x1) (Ethernet, 10BASE-T/100BASE-TX)		
DC input	XLR-type 4-pin (male) (x1) DC 12 V to 17 V (output impedance 0.05 Ω or less)		
Output			
Composite output	BNC (x1), loop-through, with 75 ohms automatic terminal function		
SDI output	BNC (x2) Output signal amplitude: 800 mVp-p ±10% Output impedance: 75 Ω unbalanced		
Audio monitor output	Stereo mini jack (x1)		
Speaker (built-in) output	1.0 W (monaural)		
Headphones output	Stereo mini jack (x1)		
General			
Power requirements	AC 100 V to 240 V, 0.5 A to 0.2 A, 50/60 Hz DC 12 V to 17 V, 3.6 A to 2.6 A	AC 100 V to 240 V, 0.5 A to 0.2 A, 50/60 Hz DC 12 V to 17 V, 3.4 A to 2.4 A	AC 100 V to 240 V, 0.5 A to 0.2 A, 50/60 Hz DC 12 V to 17 V, 3.6 A to 2.5 A
Power consumption	Approx. 51 W (max.) Approx. 45 W (average power consumption in the default status)	Approx. 47 W (max.) Approx. 43 W (average power consumption in the default status)	Approx. 49 W (max.) Approx. 42 W (average power consumption in the default status)
Operating temperature	0°C to 35°C (32°F to 95°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)		
Operating / Storage / Transport pressure	0% to 90%		
Operating / Storage / Transport pressure	700 hPa to 1060 hPa		
Mass	7.6 kg (16 lb 12 oz) (with monitor feet)	5.9 kg (13 lb) (with monitor feet)	4.9 kg (10 lb 13 oz) (with monitor feet)
Supplied accessories	AC power cord (1), AC plug holder (1), Before Using This Unit (1)	AC power cord (1), AC plug holder (1), Handle (1) (including 4 screws), Before Using This Unit (1)	

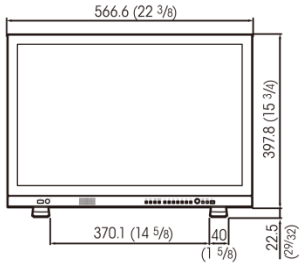
LMD-A240/A220/A170

LCD Picture Monitors

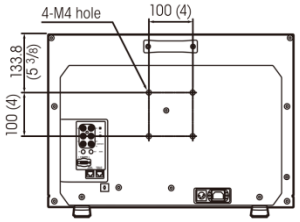
Dimensions

LMD-A240

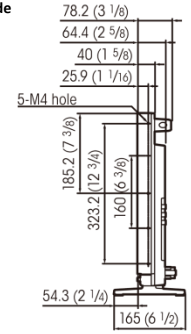
Front



Rear

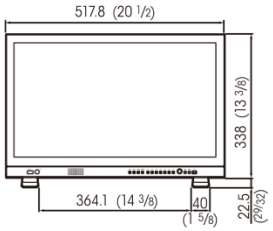


Side

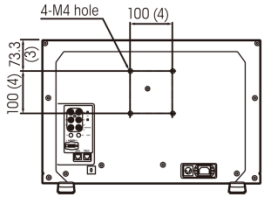


LMD-A220

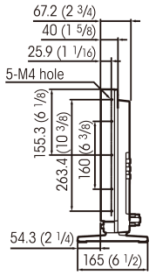
Front



Rear

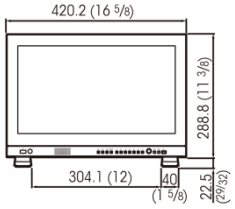


Side

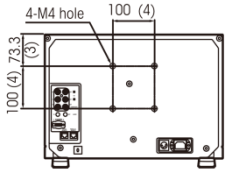


LMD-A170

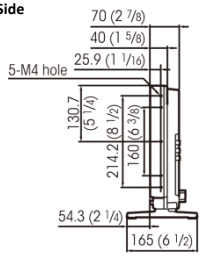
Front



Rear



Side



Unit: mm (inches)

Options

BKM-PL17

Protection kit (for LMD-A170)

MB-L17

Mounting bracket (for LMD-A170)

MB-L22

Mounting bracket
(for PVM-A250, LMD-A220 and LMD-B240*1)

*1 Suffix/1 or later is required

Signal Formats

LMD-A240/A220/A170

System	Signal standard				
	Analog composite	SDI			HDMI
		SD/HD	Dual link*5	3G	
575/50i (PAL)	O	O	–		O
480/60i (NTSC)*1	O	O	–		O
576/50p	–	–	–	–	O
480/60p*1	–	–	–	–	O
640 x 480/60p*1	–	–	–	–	O
1920 x 1080/24PsF*1*2	–	O	O*3	O*3	–
1920 x 1080/25PsF*2	–	O	O*3	O*3	–
1920 x 1080/30PsF*1*2	–	O*5	O*3	O*3	–
1920 x 1080/24p*1	–	O	O*3	O*3	O
1920 x 1080/25p	–	O	O*3	O*3	O
1920 x 1080/30p*1	–	O	O*3	O*3	O
1920 x 1080/50i	–	O	O*3	O*3	O
1920 x 1080/60i*1	–	O	O*3	O*3	O
1920 x 1080/50p	–	–	O*4	O*4	O
1920 x 1080/60p*1	–	–	O*4	O*4	O
1280 x 720/24p*1	–	O	–	–	–
1280 x 720/25p	–	O	–	–	–
1280 x 720/30p*1	–	O	–	–	–
1280 x 720/50p	–	O	–	O*3	O
1280 x 720/60p*1	–	O	–	O*3	O
2048 x 1080/24PsF*1*2*5	–	O	O*3	O*3	–
2048 x 1080/25PsF*2*5	–	O	O*3	O*3	–
2048 x 1080/30PsF*1*2*5	–	O	O*3	O*3	–
2048 x 1080/24p*1*5	–	O	O*3	O*3	–
2048 x 1080/25p*5	–	O	O*3	O*3	–
2048 x 1080/30p*1*5	–	O	O*3	O*3	–
2048 x 1080/48p*1*5	–	–	O*4	O*4	–
2048 x 1080/50p*5	–	–	O*4	O*4	–
2048 x 1080/60p*1*5	–	–	O*4	O*4	–

*1 Compatible with 1/1.001 frame rates.
*2 LMD-A Series: 1080/25PsF, 30PsF, 2048/25PsF, 30PsF are displayed as 1080/25PsF, 30PsF, 2048/25PsF, 30PsF on the screen if the Payload ID is added to the video signal, or displayed as 1080/50i, 60i, 2048/50i, 60i if the ID is not added.
*3 10-bit 4:4:4 Y/CB/CR and 4:4:4 RGB are supported.
*4 10-bit 4:2:2 Y/CB/CR is supported.
*5 LMD-A240/LMD-A220/LMD-A170 only support 1920 x 1080/30PsF, the dual link and 2048 signals. Supported with V1.1.

DVI Input Signals*6

LMD-A240/A220/A170

System	HDMI/DVI		
Resolution	Dot clock (MHz)	fH (kHz)	fV (Hz)
640 × 480	25.175	31.5	60
1280 × 768	68.25	47.4	
1280 × 1024	108.000	64.0	
1360 × 768	85.500	47.7	
1440 × 900	88.750	55.5	
1680 × 1050	119.000	64.7	

*6 A DVI-HDMI conversion cable is required.
The sides of the displayed picture may be hidden depending on the input signal.

LMD-A240/A220/A170

LCD Picture Monitors

Flexible Mounting For Picture Monitoring

LMD-A Series monitors incorporate a lightweight, compact body. Their design offers flexibility, and can be adapted according to the application: a desktop unit with standard table feet, or without the stand for wall applications. These monitors support Wall mounting with a 100-mm pitch, and EIA 19-inch standard racks.*1 This allows the monitors to be used for all types of application – desktop editing, office viewing, used on a studio monitor wall, or installed in OB vans.

*1 The LMD-A240 cannot be 19" rack-mountable.

LMD-A240 standard

LMD-A240 without stand

	LMD-A240	LMD-A220	LMD-A170
Standard monitor feet	✓	✓	✓
Wall mounting (100 x 100 mm)	✓	✓	✓
Yoke mounting*2	✓	✓	✓
Rack mount (optional)	–	MB-L22	MB-L17
Protection kit (optional)	–	–	BKM-PL17

* 2rd vendor yoke mount is required.

User-friendly Operability and UI

A rotary-type switch and seven function-assignable buttons allow users quick and intuitive operation. Operation buttons with LED indicators enable error-free operation, even in dark environments.*3 LMD-A Series monitors offer the same functions and operability as PVM-A Series. This means that both types of monitor can be operated and controlled in the same way.

*3 LED lights can be switched on/off.

Front control panel: Consistent design between the PVM-A and LMD-A Series.

Optional Protection Kit

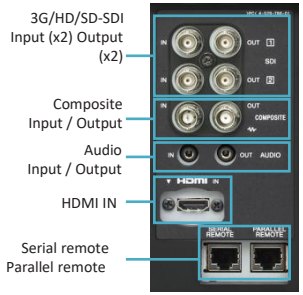
This accessory provides an AR-coated protection panel for the LMD-A170 monitor, along with corner bumpers to safeguard the monitor from scratches and impact. The benefit of this is significant when renting out these monitors – for example, panel damage is reduced and there is a far lower incidence of panel replacement and downtime during rental cycles.

LMD-A170
with protection kit image

Input Versatility

LMD-A Series monitors are equipped with built in standard input interfaces: 3G/HD/SD-SDI (x2), HDMI (HDCP) input (x1), and composite (x1). These monitors support dual-link HD-SDI to accept up to 1920 x 1080/50p, 60p signals.*4 They also support 2048 x 1080/50p, 60p signals.*4

*4 Supported with V1.1.



Yoke-mount and Wall-mount Capability

LMD-A Series monitors have screw holes on their side bezels for yoke mounting. This type of mounting is convenient when installing a monitor to a camera crane or monitor stand. There are also Wall-mount 100-mm pitch holes on each monitor's rear panel

LMD-A240
with yoke-mount image
(3rd vendor yoke mount is required)

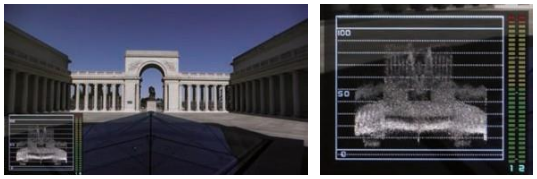
LMD-A240/A220/A170

LCD Picture Monitors

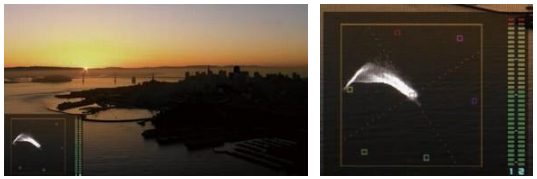
Waveform Monitor and Vector Scope Display*1

These enable users to monitor sources using the internal waveform and vector scope. These displays also provide some of the same evaluation tools as larger dedicated equipment. Both the waveform monitor and the vector scope offer zoom functions for very precise signal adjustment (from zero to 20% video level). In addition, the waveform monitor includes a line select feature, so users can adjust levels based on individual areas of the screen. Both displays have two-channel audio monitoring. In conjunction with the Picture & Picture function*1, the waveform monitor and vector scope display can monitor two camera signals.

*1 Supported with V1.1.



Waveform monitor



Vector scope

Camera Focus Function

LMD-A Series monitors can control the aperture level of a video signal, and display images on screen with sharpened edges to help camera focus operation. Further to this, the sharpened edges can be displayed in user-selectable colours (white, red, green, blue, and yellow) for more precise focusing.

Camera focus image

Time code and In-monitor Display (IMD) Function

With an external remote function via Ethernet, image source names and tally information can be displayed on screen. LMD-A Series monitors support the TSL system protocol. The IMD system can display European language text including umlaut and accent marks.

Time code and waveform monitor

Time code, on-screen tally, and 93% area marker

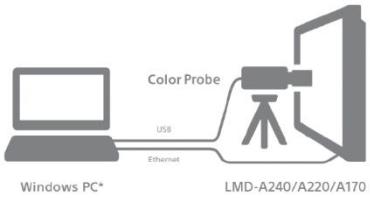
IMD on the LMD-A240 16:10 screen

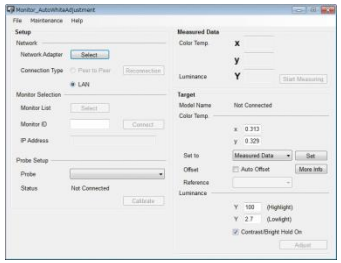
Auto White Adjustment*2

LMD-A240, LMD-A220, LMD-A170
monitors employ a software-based colour temperature (white balance) calibration function, which is called Monitor_AutoWhiteAdjustment. Combined with a PC and commercially available calibration tools*3, this function enables simple adjustment of the monitor's white balance.

*2 Supported with V1.1.

*3 Refer to a download page of Monitor Auto White adjustment for more details.





"Monitor_AutoWhiteAdjustment" GUI image

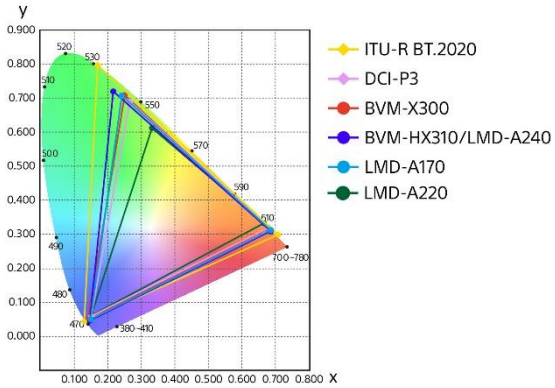
LMD-A240/A220/A170

LCD Picture Monitors

Wide Colour Gamut*1

Thanks to Premium LCD technology*2, Version 2.0 of these monitors supports ITU-R BT.2020, DCI-P3, S-GAMUT/S-GAMUT3/S-GAMUT3.cine, sRGB, and Adobe RGB. colour reproduction is very close to BVM/PVM Series reproduction in the wide colour gamut. Combining the LMD-A Series Version 2.0 with BVM/PVM, you can build a lower cost monitoring system with higher satisfaction in colour consistency.

*1 Supported with V2.0.
*2 LMD-A240 Serial Number 7100001 (for regions except China) & 7300001 (for China)
LMD-A170 Serial Number 7100001 (for regions except China) & 7300001 (for China)



HDR production features*3

The LMD-A Series monitors are cost-effective yet highly capable entry solution for HD HDR and 4K HDR production. The monitor is one of the first HD picture monitors to support EOTF of S-Log3(Live HDR) which allows for seamless integration into Sony HDR Live production workflow. While also supporting ITU-R BT.2100(HLG), the LMD-A series will also easily integrate with Sony camcorders to enable Instant HDR workflow.
SMPTE ST2084, S-Log3, S-Log2 and 2.4(HDR) are also supported for a variety of video productions.

*3 Supported with V3.0

4K Production Features*4

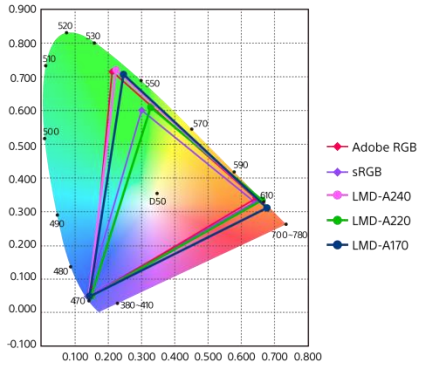
The LMD-A240, LMD-A220, and LMD-A170 V2.0 fulfil the demand for affordable HD monitors in a 4K system. These units support the ITU-R BT.2020 colour space and accept one of the Quad-Link 2SI 3G-SDI signals. To fully utilize its wide colour gamut, each monitor offers DCI-P3 and S-GAMUT/S-GAMUT3/S-GAMUT3.cine settings, with proper EOTFs such as 2.6 gamma, S-Log3 (SDR), and S-Log2 (SDR).

*4 Supported with V2.0

Graphics Applications Features*5

Each monitor accepts a computer signal though HDMI. To fully utilize its wide colour gamut, the monitor also offers Adobe RGB and sRGB settings in colour space, and D50 preset in colour temperature.

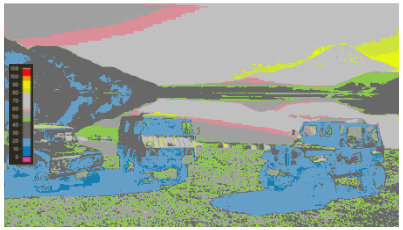
*5 Supported with V2.0



False Colour Function*6

These monitors can display false colour depends on the signal level from a camera . As the whole picture is changed, it is easy to see levels for over-exposure, under-exposure, and appropriate exposure. You can adjust these levels and turn the scale*7 of false colour on and off, as required.

*6 Supported with V2.0
*7 False colour scale itself only supports a 0.45 OETF signal.



LMD-A240/A220/A170

LCD Picture Monitors

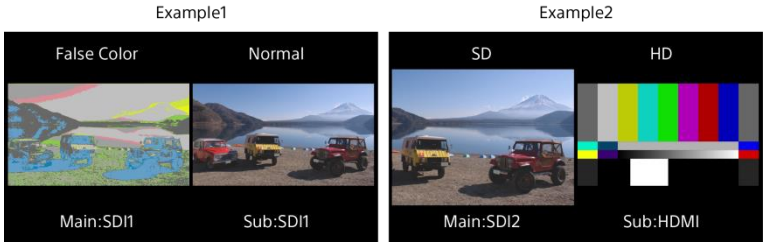
LMD-A Series monitors with camera-linkage functions* provide the convenience of working efficiency both in the field and in the post-process. Their functions include camera metadata display and a Picture and Picture function. Also these monitors provide convenient features that save administrative operating costs, including User Preset, password lock, and a networking upgrade function.

The LMD-A Series offer common user interfaces (UIs), so that users can combine these monitors yet achieve the same functionality and operational familiarity across all display types.

Enhanced field Application Features*1

Sync-free side-by-side*1 with low latency allows you to monitor two signals without synchronization. You can configure each picture as HD or SD with different frame rates, taking them from both SDI and HDMI. The monitor is ideal for field applications, with sync-free side-by-side, false colour, and audio muting functions. You can monitor two pictures without synchronization. False colour allows you to check the exposure level of a camera at a glance from a distance. Audio muting helps you to start shooting quickly.

*1 Supported with V2.0. This function works with the false colour function, camera focus function, and metadata on the main picture of the two pictures.



* Simulated images

Picture & Picture

The unique Picture & Picture function*2 of the LMD-A Series allows simultaneous display of two input signals on the monitor's screen. This function helps with colour adjustment and setting of camera frames.

*2 Supported with V1.1.
This function works when synchronous SDI signals are input

Side-by-side

Wipe

Blending

Difference

Camera/Lens Metadata Display Function And On-Screen Tally*3

LMD-A Series monitors can display the camera and lens metadata set of a camera system, according to the SMPTE RDD18*4 document for Acquisition Metadata Sets for Video Camera Parameters. Further to this, these monitors also support a subset of Sony's private metadata.*5 Each monitor is also equipped with a three-colour (red, green, and yellow) on-screen tally function. The position of the tally display can be changed to either the upper or lower section of the screen.

*3 Supported with V1.1.
*4 Camera/Lens metadata is supported by F65, PMW-F55, PMW-F5, PXW-FS7M2 and PXW-FS7 as well as equipment capable of SMPTE RDD18.
*5 Not all metadata is supported.

* Simulated images

PXW-FS7M2

* Simulated images

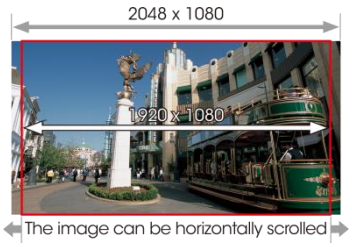
LMD-A240/A220/A170

LCD Picture Monitors

2K (2048 x 1080) Input and Image-slide*1

LMD-A Series monitors are capable of 2K (2048 x 1080 resolution) input. The 2K signal is displayed in two ways – as a full 2K image scaled into a full-HD (1920 x 1080) screen, or as a 2K native display with an image-slide function.

*1 Supported with V1.1



Anamorphic Image Conversion*2

Horizontally squeezed 3G/HD-SDI signals from an onset camera system are correctly displayed onscreen by LMD-A Series monitors*3. These signals include two major systems: 16:9 1920 x 1080 (1280 x 720) signals and 17:9 2048 x 1080 signals.

*2 Supported with V1.1

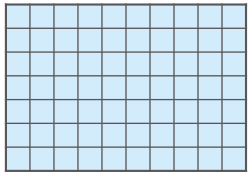
*3 Only 3G/HD-SDI and dual-link HD-SDI are supported.

Anamorphic OFF (X2.0) | Native scan ON (X2.0 17 : 9) | Native scan OFF (2.39:1)

Grid Display*4

This function displays arbitrary multiple vertical and horizontal lines to help when users check the composition of a picture.

*4 Supported with V1.1



Vertical and horizontal lines

Flexible area marker *5

Two flexible area markers can be freely set on the screen. This is useful for shopping channels; these require a unique screen layout to instantly differentiate between a product and its commercial data. The monitor allows you to set two flexible area markers anywhere on the screen.

*5 Supported with V2.0.

Marker Preset Image 1 | Marker Preset Image 2 | Marker Preset Image 3

Center Markers*6

In addition to a standard Center Marker 1, Center Marker 2 is also available. This second marker enables easier checking of the center portion's focus.

*6 Supported with V1.1

Center marker 1 | Center marker 2

Optimized Low-latency I/P Conversion

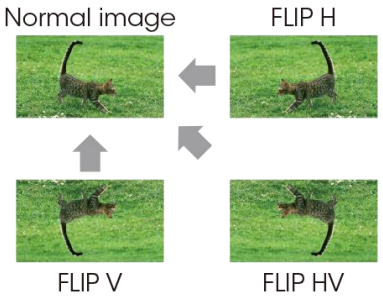
The I/P conversion system delivers automatically optimized signal processing according to input signals with low-latency (less than 0.5 field). This system helps users to edit and monitor for a live production.

Line-doubler support

The Line-doubler is used for checking field dominance of an interlaced video signal.

Flip Function*

The Flip function turns the reversed image to a normal view, horizontally or vertically.



Multiple Monitors Upgrade Utility*

Multiple LMD-A Series monitors on the same Ethernet network can be upgraded by simple operation.

Power-on Setting*

This function allows users to select setting data when the monitor starts up; this includes last memory, user preset, and factory preset settings. Users can set the monitor accurately and quickly. This function is very useful for rental equipment.

User Presets*

When multiple users share the same monitor, each user can memorize his/her setting data and retrieve this data whenever required. This frees the user from time-consuming and repetitive setting tasks.

DC Low Power Indicator *

The power indicator blinks when the DC power supply is low.

Password Lock for User Preset*

When multiple users share the same monitor, each user can register his/her own password for colour temperature and user preset data. This ensures the user correctly recalls previous user preset data, and keeps preset information safe from unauthorized use.

Short-cut to Function Key Configuration*

By simply pressing the function key repeatedly, the user can take a short-cut to the settings menu screen.

On-screen Tally*

The on-screen tally can display in three colours. The position of the tally display can be changed to either the upper or lower section of the screen.


On-screen tally (upper)


On-screen tally (lower)

Active Format Description (AFD) Function*

LMD-A Series monitors read the ancillary data flag on an SDI, and upconvert the SD image to display automatically on the full HD resolution screen. This is achieved by adjusting the resolution and aspect ratio.
(Only SD-SDI signals are supported.)


SD image


Up-converted image

* All functions on this page with an asterisk are supported with V1.1.

Professional Monitors Optional Accessories List

		Master Monitors			Picture Monitors					
		BVM-HX310	BVM-E251	BVM-E171	PVM-X3200	PVM-X2400	PVM-X1800	LMD-A240	LMD-A220	LMD-A170
BKM-17R	Monitor Control Unit	Yes	Yes	Yes	Yes*3	Yes*3	Yes*3	Yes*2	Yes*2	Yes*2
BKM-37H	Control Unit Attachment Kit with Tilt	-	Yes*4	-	-	-	-	-	-	-
BKM-38H	Control Unit Attachment Kit	-	Yes*4	-	-	-	-	-	-	-
BKM-39H	Control Unit Attachment kit	-	-	Yes*4	-	-	-	-	-	-
BVML-HE171	HDR License	-	-	Yes	-	-	-	-	-	-
PVML-HSX1	HDR-SDR Conversion License for PVM-X3200/X2400/X1800	-	-	-	Yes	Yes	Yes	-	-	-
PVMK-PX18	Protection Kit for PVM-X1800	-	-	-	-	-	Yes	-	-	-
PVMK-PX24	Protection Kit for PVM-X2400	-	-	-	-	Yes	-	-	-	-
PVMK-RX18	Mounting Bracket for PVM-X1800	-	-	-	-	-	Yes	-	-	-
PVMK-RX24	Mounting Bracket for PVM-X2400	-	-	-	-	Yes	-	-	-	-
BKM-PL17	Protection Kit for the LMD-A170	-	-	-	-	-	-	-	-	Yes
MB-L17	Mounting Bracket for LMD-A170	-	-	-	-	-	-	-	-	Yes
MB-L22	Mounting Bracket for LMD-A220/B240	-	-	-	-	-	-	-	Yes	-
SMF-17R20	Monitor Interface Cable	-	Yes	Yes	-	-	-	-	-	-

*2 Available functions of these monitors are limited.
*3 New functions of BVM-HX310, PVM-X3200, PVM-X2400 and PVM-X1800 can be assigned to the numeric keys from 1 to 9.
*4 Product code suffix /3 or later.
*5 Suffix/1 or later required.

SONY

Distributed by

DM20602V1YIT22FEB_IPSE