

## PVM-X2400

4K HDR TRIMASTER high grade picture monitor



### Overview

#### **PVM-X series monitors expand footprints in 4K HDR production**

Expand your 4K HDR production and colour match with the industry-leading BVM-HX series Master Monitor. With its compact size and high portability, the PVM-X series monitors bring all-white luminance of 1000 cd/m<sup>2</sup>\* to production monitoring across a wide range of applications.

\*Panel specification. This is a typical luminance value at D65 (x, y = 0.3127, 0.329) but not guaranteed.

### Features

#### **Acclaimed TRIMASTER™ image technology**

Our TRIMASTER™ architecture is purpose-built to get the highest performance from professional displays. Its core technologies deliver accurate colour reproduction, precise imaging and remarkable consistency in picture quality. Advanced panel controls and signal processing have been refined for the ultimate experience in image reproduction.

#### **Consistent colour matching**

Make sure every part of your production works with the same high-grade images. Whether you're filming HD or 4K, our PVM-X Series Monitors seamlessly colour-match with the BVM-HX Series 4K HDR Master Monitors and LMD-A Series HD HDR Picture

Monitors. The premium LCD panel offers 1000 cd/m<sup>2</sup>\* luminance for easy on-set, studio and in-truck monitoring.

\*Panel specification. This luminance value is a typical value at D65(x, y = 0.3127, 0.329) that is not guaranteed.

## **More efficient productions and HDR-to-SDR conversion**

Move efficiently between HDR and SDR with the optional PVML-HSX1 HDR-SDR conversion license for live production. And convert colour spaces, OETF, progressive to interlace, quad-link 3G to single-link 12G, and 4K to HD at the same time. Compare HDR and converted SDR images side by side and output converted pictures to other 4K or HD monitors too, via the enhanced monitor output.

A free trial of the fully featured PVML-HSX1 license is available\* for up to 240 hours of monitor run time and is automatically activated.

\*From V3.0 firmware. The trial timing is linked to the monitor's internal clock. The time will count down whether you are using the license or not.

## **Adaptive contrast for quick reviews**

Enabling you to confirm the total balance of highlights and low lights at a glance, thanks to our Dynamic Contrast Drive. Backlight luminance adapts so you can easily review the balance of highlights and low lights. Enjoy better black representation during night scenes and clearer highlights in brighter, daylight filming. Access a dynamic contrast ratio of 1,000,000:1 with the press of a single function key by default (F12 key).

## **Find every detail in the shadows**

Monitor the details in darker areas of your image, with three Black Detail Modes for a range of lighting situations. Black level is

reduced without affecting gamma, so you can inspect the shadow with the correct colours and grey scale intact. Easily move between modes with pre-assigned function keys by default (F10 key for mid/ F11 key for high).

## **Control the image with 4K & HD scopes with HDR/SDR scale**

Display a waveform monitor, vector scope and colour gamut scope\* simultaneously, with scales for both HDR and SDR. Confirm the input signal level and output luminance, with a choice of three waveform displays, luminance, RGB/YCBCR parade or RGB overlay with the gamut error display.

\*From V3.0 firmware

## **Quad view display for multiple looks**

Explore and compare settings, with a quad-view display\* that shows everything you need. Individual settings are available for EOTF (in SDR and HDR), SDI/HDMI, RGB/YCBCR, colour space, transfer matrix, colour temperature, contrast and brightness. Each display view can apply User 3D LUTs and it's even possible to display scopes in dual and triple picture modes.

\*Only in HD input sources

## **User 3D LUT signal output support**

Check pre-graded images, wherever you are. The user LUT function allows you to apply customised LUTs in quad-view mode for side-by-side comparison. Simply load User 3D LUT files via the USB port and take advantage of the PVM-X Series' tetrahedral LUT interpolation, which delivers smoother grey scale reproduction.

\*From V4.0 firmware onwards, the optional PVML-TDX1 3D LUT baked output licence and PVML-SCX1 signal conversion output licence allow PVM-X Series monitors to output a converted picture from the enhanced monitor output

## **A wide choice of 4K connections**

A range of built-in standard input interfaces can simplify systems and streamline productions of all scales: 12G/6G/3G/HD-SDI BNC (x2), 3G/HD-SDI BNC (x2) and HDMI\* (x1). 12G simplifies wiring, from simple to large-scale field systems. Quad-link 3G-SDI supports more 'traditional' devices, while HDMI simplifies interfacing with devices such as rasterizers, multi-viewers, digital cameras, set top boxes, UHD Blu-ray players and PCs.

\*HDCP2.3/1.4

## **Fast, easy set-up for multiple monitors**

Save time and provide a uniform experience with the ability to copy monitor set-up parameters\* to multiple monitors. Set the parameters for one monitor and then configure all remaining monitors via USB memory.\*\* Use Monitor Auto White Adjustment for a colour temperature calibration function that quickly matches white balance across all PVM-X Series monitors.

\*User 3D LUT data and calibration data are an exception from the setting copy function

\*\*From V3.0 firmware

## **A menu designed for speed and customisation**

Adjust, save and retrieve monitor settings easily with intuitive menus display. Create and rename up to 30 different channels according to your preferences.

By pressing the 'Channel Select' button, operators can check channel settings on the channel status view, and then change the settings of selected channel by pressing and holding the 'Select/Enter' button for more than 2 seconds. Operators can quickly review and modify the existing settings at a glance with the newly developed overarching hierarchical settings menu.

## **Powerful stereo sound for busy environments**

Monitor sound in stereo, even in noisy settings like busy sets and loud machine rooms. Two 2W front speakers offer powerful sound. And muting can be instant, through the pre-assigned

function key.

Learn how to use

Get the most out of the PVML-HSX1 HDR-SDR conversion license for Sony's TRIMASTER high-grade picture monitors, PVM-X3200, PVM-X2400 and PVM-X1800. This license can be used to support Sony's proprietary HDR-SDR conversion when used in a live production environment. 4K to HD down-conversion and 3D LUT conversion can also be applied at the same time and output to external 4K/ HD devices.

## **On-set & editing**

- False colour and camera focus functions (from V3.0 firmware)
- Flexible and variable area markers, aspect marker and centre marker
- Grid display (from V4.0 firmware)
- Zoom function
- Yoke-mount and wall-mount capability
- DC power Input (X2400 and X1800 only)
- Optional protection kit: PVMK-PX24 and PVMK-PX18 (X2400 and X1800 only)
- Audio level meter display
- Timecode display
- User reset

## **Studio & OB trucks**

- Side by side view
- Automatic HDR setting by Video Payload ID and SR Live Metadata
- In-monitor display (from V4.0 firmware)
- Network control function and parallel remote (from V4.0 firmware)
- EIA standard rack-mount capability (X2400 and X1800 only)
- Internal signal pattern
- Chroma up function (from V4.0 firmware)
- Closed caption (from V4.0 firmware)
- Mono, blue only and R/G/B off

- Screen saver

## Specifications

### Picture Performance

Panel	$\alpha$ -Si TFT Active Matrix LCD
Picture Size (Diagonal)	610.0 mm (24 inches)
Effective Picture Size (H x V)	531.6 x 299.1 mm (21 x 11 7/8 inches)
Resolution (H x V)	3840 x 2160 pixels
Aspect	16:9
Pixel efficiency	99.99%
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)	89°/89°/89°/89° (up/down/left/right contrast > 10:1)
Normal scan	0% scan
Underscan	3% underscan
	D60, D65, D93, DCI*1, and user 1-10

Colour temperature	(5,000 K to 10,000 K adjustable)
Luminance (panel specification) (typical)	1000 cd/m <sup>2</sup> *2
Colour space (Colour gamut)	ITU-R BT.2020*3, ITU-R BT.709, DCI-P3*3, S-GAMUT3*3, S-GAMUT3.Cine*3
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)
Warm-up time	Approx. 30 minutes To provide stable picture quality, turn on the power of the monitor and leave it in this state for more than 30 minutes.

## Input

SDI	(12G/6G/3G/HD-SDI) BNC (x2), (3G/HD-SDI) BNC (x2), Input impedance: 75 Ω unbalanced
HDMI Input	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 $\Omega$ or less)
USB input	USB (USB2.0) connector (x1)

## Output

Enhanced Monitor Output*4	(12G/6G/3G/HD-SDI) BNC (x1), Output impedance: 75 $\Omega$ unbalanced
SDI Output	(12G/6G/3G/HD-SDI) BNC (x2) , (3G/HD-SDI) BNC (x2) , Output impedance: 75 $\Omega$ unbalanced
Audio Monitor Output	Stereo mini jack (x1)
Speaker (Built-in) Output	2.0 W+2.0W (Stereo)
Headphone Output	Stereo mini jack (x1)

## General



Power Requirements	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
Power consumption	Approx. 225 W (Maximum at AC operation) Approx. 205 W (Maximum at DC operation) 0.3 W in off-mode (When the Power switch is off)
Off Mode Activated	After About 60 Minutes
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)	568 x 382 x 158.5 mm*5 (22 3/8 x 15 1/8 x 6 1/4 inches) (without monitor stand) 568 x 398 x 178.5 mm*5 (22 3/8 x 15

	3/4 x 7 1/8 inches) (with monitor stand)
Mass	Approx. 10.5 kg (23 lb 2.4 oz)
Supplied Accessories	AC power cord (1), AC plug holder (1), Before Using This Unit (1)
Optional Accessories	PVMK-RX24 Rack-mounting bracket PVMK-PX24 Protection Panel BKM-17R

## Notes

\*1 DCI: x=0.314, y=0.351

\*2 Panel specification. This luminance value is a typical value at D65(x, y = 0.3127, 0.329) that is not guaranteed.

\*3 The PVM-X2400 does not cover selected colour space in full.

\*4 A V2.0 firmware update is available. V1.0 firmware is upgradeable to V2.0 or higher via the monitor's USB port. Embedded Audio signals and timecode data are not output with V2.0.

\*5

Without projecting parts.

## Related products



### **PVML-HSX1**

HDR-SDR conversion license for PVM-X3200/X2400/X1800



### **PVM-X3200**

4K HDR TRIMASTER high grade picture monitor



### **PVML-SCX1**

Signal conversion output license for PVM-X3200/X2400/X1800



### **PVML-TDX1**

3D LUT baked output license for PVM-X3200/X2400/X1800



### **PVM-X1800**

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## Gallery

