

BVM-L231

23-inch Full-HD Reference LCD Monitor



The BVM-L231 reference LCD monitor supersedes the market leading BVM-A series CRT models, heralding in a new era in broadcast post-production, D-Cinema production, evaluation and mastering.

A premium Sony technology - TRIMASTER - is used in the BVM-L231 to produce an LCD monitor fully justifying the Reference designation. In developing TRIMASTER, the technology had to deliver accurate colour reproduction, precision imaging and absolute picture consistency. Sony has achieved this through 3 key devices: a high-grade customised LCD Panel, a precision High-Purity LED Backlight system and a sophisticated Display Engine.

The high-grade customised LCD panel incorporates a 10-bit driver for smooth greyscale and colour transitions, and possesses a high frame rate allowing black-frame insertion for reduced motion blur.

The Precision Backlight system uses High Purity LEDs - delivering wide reference-standard colour space, uniformity control and colour stability through the auto white-balance circuitry.

The display engine uses 2 state-of-the-art ICs employing accurate 12-bit output processing - one dedicated to I/P conversion, producing the lowest possible artefact count, and one focussed on the highly accurate colour management system, delivering stability, consistency and precise standards emulation.

The BVM-L231 also benefits from picture & picture and blend modes plus a pixel zoom function for greater user flexibility.

The BVM-L231 accepts all video formats up to 3G SDI with the optional BKM-250TG input board. It is also equipped with HDMI interface as standard.

Finally, a new backlight scanning system is integrated to improve the black level reproduction when Black Frame insertion mode is selected.

With its exceptional performance and the advantages of LCD, the BVM-L231 is a deserving successor to CRT broadcast reference monitors.

Features

Full HD Panel with 10-bit Driver

The BVM-L231 achieves both high resolution and stunning colour depth using a full 1920 x 1200 HD LCD panel and precise 10-bit drivers. It delivers outstandingly crisp, high brightness and high contrast HD images in Native mode.

LCD Panel Calibration

Each and every BVM-L231 monitor is carefully calibrated at the factory on an individual basis, providing a high level of accuracy and stability for characteristics such as gamma and uniformity.

Ultra-high Precision Uniformity Correction

White can be reproduced uniformly at every point of the screen on the BVM-L231. This is due to the use of two advanced technologies: precise adjustment of the LCD panel characteristics and sophisticated LED backlight control.

High-Purity Precision LED Backlight

Provides an exceptionally broad colour gamut for faithful colour display, as well as delivering precise picture uniformity and stability.

Nonlinear Cubic Conversion Colour Management System

The nonlinear cubic conversion colour management system uses a unique 3D LUT to reproduce an extremely wide colour gamut, thus offering more accurate colour reproduction.

Accurate, Repeatable and Stable Colour Reproduction

The innovative precision LED backlight and Colour Management System deliver accurate and consistent colour temperature right across the greyscale range. Consequently, the monitor can emulate ITU-709, SMPTE-C, and EBU colour spaces with ease. It can also emulate D-Cinema colour gamut

Auto White-Balance Function

The BVM-L231 can perform automatic colour temperature adjustments when connected to an external

colour analyzer (such as those from Minolta, DK and X-Rite).

High Accuracy Display Engine

The BVM-L231 uses a 12-bit output display engine, which allows images to be reproduced with high precision for accurate evaluation and manipulation.

Sophisticated Interlace to Progressive Algorithm

The BVM-L231 uses a sophisticated I/P conversion technique that keeps artefacts that are often seen in typical LCD monitors to a minimum, such as edge jaggedness, conversion errors, and ensure a picture delay that is less than one field.

Interlace Display Mode

Faithfully reproduces interlaced signals, emulating CRT monitors.

Input Versatility

The BVM-L231 can accept almost any SD or HD video format, both analogue and digital, plus PC signals from VGA to WUXGA (1920 x 1200). In addition to a HDMI and DVI-D interface equipped as standard, four option board slots are offered to configure the BVM-L230 monitor according to different user needs.

Multi-Format Signal Support - Up to 3G SDI

The BVM-L231 is capable of displaying an exceptionally broad range of signal formats with an extremely high degree of colour accuracy. These include: composite video formats NTSC, PAL & SECAM, analogue components RGB & Y/C, and multi-format signals 480/60i, 480/60p, 575/50i, 575/50p, 720/50p, 720/60p, 1080/24p, 1080/24psf, 1080/25p, 1080/25psf, 1080/30p, 1080/30psf, 1080/50i, 1080/50p, 1080/60i, 1080/60p, 2048x1080 (2K) and PC signals from VGA to WUXGA.

It also supports Dual-Link HD-SDI signals: 10-bit 4:4:4 RGB 1920x1080-50i/60i & 24/25/30p/psf; 10-bit 4:2:2 1920x1080-50p/60p, and 12-bit 4:4:4 XYZ 2048x1080-24p/24psf.

3G SDI Input

The BVM-L231 has a 3G SDI input capability. On Sony's monitors, the 3G SDI interface is compliant with the SMPTE 425 standard, transmitting up to 4:2:2/10-bit 1080/60P video data using one SDI cable. This single-link system is known as a SD-SDI or HD-SDI system, but it can also handle both Dual-Link HD-SDI and 3G SDI video data with the use of Sony's 3G SDI interface. This 3G SDI interface enables the BVM-L231 monitor to accept 50P and 60P video data. Where an upgrade to a Dual-Link HD-SDI system is necessary, this single-link 3G SDI system is the ideal alternative.

Dual Image Processing

Image Side by Side, Wipe, Butterfly and Blend modes provide users with enhanced operational flexibility.

New Pixel Zoom Mode

Allows picture magnification up to 800% without scaling.

Black Frame Insertion Mode

Dramatically reduces motion blur - a problem common to many LCD monitors.

S-Log Gamma

S-Log is the original logarithmic gamma developed for the F35 series CineAlta camera. It enables to transmit the full Dynamic of the camera over 700%. The monitor S-Log anti Gamma function allows displaying the full dynamic range on the screen.

Separate Control unit with memory stick slot

The Memory Stick socket located in the BKM-16R control unit enables users to download and save all monitor set-ups such as input channel configuration, control preset adjustments, white balance settings and maintenance parameters.

Centralised Monitor-Wall Control

Multiple monitors can be easily managed by a single control unit via a serial RJ45 Ethernet connector.

Benefits

Suitable for a Wide Range of Reference and Mastering Applications

Ideal for BROADCAST (studio and engineering etc.), PRODUCTION (OB, monitor wall, camera and VTR control etc.), and POST-PRODUCTION (top-end multi-format editing consoles, telecinema and digital cinema).

Ultimate Picture Quality Rivaling Top-Flight CRT Monitors

The BVM-L231 is capable of displaying High Definition native 1920x1080 picture resolution on its LCD display. Taken together with its customised LCD panel and 10-bit drivers for smooth colour gradation, its precision LED backlight for wide colour gamut and picture consistency, and its new 12-bit output display engine processor for accurate colour reproduction and sophisticated I/P conversion, the BVM-L231 is truly the standard-bearer amongst reference LCD monitors.

Superb Colour Accuracy

The innovative Colour Management System ensures consistent and repeatable colour to ITU-709, SMPTE-C and EBU standards and from monitor to monitor. The level of accuracy is the same as displayed by the BVM-A series of CRT monitors.

Outstanding Greyscale and Colour Depth Provide Lifelike Picture Quality

Achieved through 10-bit LCD panel drivers and 12-bit output signal processing.

Picture Quality Decisions can be made with Confidence

The BVM-L231 Monitor's exceptional performance in the key areas of picture quality, accuracy, consistency and stability make this product a natural choice as a measurement and reference tool.

Consistently Optimal Picture Performance

Less 'drift' than CRT displays, with an absence of picture distortions such as convergence, geometry, linearity and focus variation. The BVM-L231 is also immune to magnetic field interference.

Faithful Reproduction of Interlaced Pictures

Capable of reproducing interlaced video images to the same standard as CRT monitors.

High Quality Motion Display

Black Frame Insertion Mode dramatically reduces motion blur.

Exemplary Picture Consistency

Consistent and repeatable chroma and greyscale performance ensures efficient matching between monitors.

Productivity Boost

New dual image processing including Picture Side by Side, Wipe, Butterfly, Blending modes and a new Pixel Zoom mode allow quick evaluation and comparison of two input sources.

Exceptionally Versatile

Due to its broad range of inputs and multi-format signal capabilities, the BVM-L231 is equally suited to AV or IT-based applications, allowing you the freedom to operate in whichever format you choose, even D-Cinema.

Future Proof

Multi-format and HD capability plus optional decoder boards will ensure that the BVM-L231 remains current.

Easier to Install and Accommodate than CRT

Space saving / lightweight / low heat output

Air Conditioning Requirements lower than with CRT

LCD monitors generate less heat.

Easy Maintenance

No routine convergence, focus, geometry or linearity adjustments necessary. No susceptibility to magnetic fields.

Lower Total Cost of Ownership than CRT

Long operational life / high reliability.
Low energy bills.
Low routine maintenance cost
Reduced environmental disposal costs.

Technical Specifications

PICTURE PERFORMANCE

Type	
Preset Brightness	100 cd/m ² (D-Cine: 48 cd/m ²) (when 100 % white signal is input)
Panel drive	RGB 10 bit
Panel frame rate	96/100/120 Hz
Viewing angle	85°/85°/85°/85° (typical) (up/down/left/right contrast > 10:1)
Picture Size (Viewable Area)	H x V: 483.8 x 302.4 mm (19 1/8 x 12 inches) Diagonal: 570.6 mm (22 1/2 inches)
Aspect Ratio	16:10
Resolution (H x V)	1920 x 1200 pixels (WUXGA)
Pixel Efficiency	99.99%
Backlight	High-purity LEDs

INPUT/OUTPUT

Video Input/Output	Four (4) slots
PC Input	DVI-D (x1) (HDCP correspondence)
HDMI	HDMI (x1) (HDCP correspondence, Deep color correspondence)
LAN	Ethernet (10 BASE-T/100 BASE-TX), RJ-45 (x1)
Parallel Remote	D-sub 9-pin (female) (x1)
Option A	Mini-DIN 8-pin (female) (x1)
Option B	USB (Type A) (x1) (used for future expansion)
DC 5V Out	Circle 4-pin (female) (x1)

GENERAL

Power Requirements	100 V to 240 V AC, 2.0 A to 0.9 A, 50/60 Hz
Power consumption	Approx. 180 W (at maximum load, the luminance compensation due to the aged deterioration of the LED is included.)
Operating Temperature	0 °C to 35 °C (32 °F to 95 °F) (Recommended operation temperature 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 and Trans. Temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Storage and Trans. Humidity	0 % to 90 %
Storage and Trans. Pressure	700 hPa to 1060 hPa
Dimensions (W x H x D)	565.5 x 436.4 x 243.1 mm (22 3/8 x 17 1/4 x 9 5/8 inches)
Mass	Approx. 21 kg (46 lb 5 oz)

Supplied Accessories

AC Power cords	
AC Plug holder (1)	
Cable holder (1)	
Cable for colour temperature adjustment (1)	
Operation manual (1)	
CD-ROM (1)	
Using the CD-ROM manual (1)	

Accessories

Control Units



BKM-16R
Monitor Control Unit



BKM-37H
Controller Attachment Stand

Monitors



BKM-220D
4:2:2 Sdi Input Adaptor



BKM-243HS
HDSDI/4:2:2 SDI Input Adaptor

Option Boards and Cables



BKM-227W
NTSC / PAL input adaptor for LMD monitors



BKM-250TG
3G/HD/SD-SDI Input Adaptor



BKM-229X
Analogue component input adaptor for LMD monitors

Other



SMF-700
Monitor Interface Cable for BVM-L Series