

# LMD-2450W LMD-2050W

## Professional LCD Monitors



### The monitors of choice for broadcast and post-production picture monitoring

In response to the rapid spread of High Definition (HD) content creation, Sony has added two high-grade HD monitors to its LMD Series of LCD monitors. One is the LMD-2450W, featuring a 24-inch\*<sup>1</sup> panel with true HD resolution of 1920 x 1080 pixels, the other is the LMD-2050W, with a 20-inch\*<sup>2</sup> panel of 1680 x 1050 resolution.

Using the market-proven Sony ChromaTRU™ technology, these monitors achieve accurate colour matching between panels with colour reproduction equivalent to Sony CRT displays. They are also designed to offer the high functionality and operability for which Sony professional video monitors are renowned.

The LMD-2450W and LMD-2050W accept a variety of signals in both analogue and digital and HD and SD formats. Analogue interfaces include composite NTSC and PAL, Y/C, RGB and HD/SD component, all of which are offered as standard, while digital interfaces are provided in HD-SDI and SD-SDI as options.

In addition, analogue HD-15 and DVI-D interfaces are equipped as standard to accept PC signals ranging from VGA to WUXGA.

A closed caption decoder and backlight control function are also offered on both models, together with many other professional video monitor functions such as parallel remote control, markers, tally and external sync input.

The LMD-2450W and LMD-2050W, residing at the top of the LMD Series, are the best-suited LCD monitors in their class for picture monitoring in broadcast and post-production applications.

\*<sup>1</sup> 24-inch viewable area, measured diagonally.

\*<sup>2</sup> 20.1-inch viewable area, measured diagonally.

# SONY

# Main Features

## Input Versatility

### Multi-format Signal Support

The LMD-2450W and LMD-2050W both accept almost any SD or HD video format, in both analogue and digital. These include composite NTSC and PAL, component 480/60i and 575/50i, progressive 480/60P and 576/50P and high-definition 1080/60i, 1080/50i, 720/60P, 1080/24P, 1080/25P and 1080/30P. They also accept 1080/24PsF and 1080/25PsF. Standard interfaces include analogue composite (NTSC/PAL), SD/HD analogue component and RGB and Y/C. Additional analogue inputs are available using option boards. Digital interfaces including HD-SDI and SD-SDI are also offered as optional boards to meet budgetary and user needs. Furthermore, the LMD-2450W and LMD-2050W accept various types of analogue and digital computer signals via their standard HD-15 and DVI-D interfaces, respectively. Finally, with their high-performance scan converters, these monitors can display PC signals ranging from VGA to WUXGA\*.

\* The LMD-2050W cannot display 1920 x 1200 WUXGA images. Images ranging from W5XGA+ (1680 x 1050) to 1920 x 1080 are down-converted for display on the LMD-2050W.

### Preset Computer Input Frequencies

The LMD-2450W and LMD-2050W are factory preset to accept 32 and 25 typical computer input signal frequencies, respectively.

## Superb Picture Performance

### High-purity Colour Filters

The LMD-2450W and LMD-2050W use precisely manufactured RGB colour filters, allowing the reproduction of colours with stunning depth and saturation to create highly natural images.

### Accurate Gamma and Stable White Balance - ChromaTRU Colour Processing

For an extra level of colour reproduction accuracy, every LCD panel used in the LMD-2450W and LMD-2050W is precisely colour calibrated at the factory, providing characteristics consistent with those of CRT displays. The colorimetry of an LCD display, by nature, can exhibit inaccurate R, G, B colour coordinates and unbalanced R, G, B gamma curves, which can make precise colour matching between multiple monitors a challenge. These are also the primary reasons why LCD colour tone can slightly differ from CRT tone. The LMD-2450W and LMD-2050W solve this problem by precisely calibrating each LCD panel's light output so that the R, G, B colour coordinates are virtually the same as those of a CRT monitor. A second calibration is further applied so that white balance is maintained at a consistent colour temperature throughout all grayscale levels. The result of these precise calibrations is colour reproduction equivalent to Sony CRT displays.

### HD15 Input Signal Format

Resolution	H Total	H Addr.	V Total	V Addr.	Dot Clock [MHz]	fH [kHz]	fV [Hz]	Sync. polarity		LMD-2450W	LMD-2050W
								Horizontal	Vertical		
640 x 480 @60Hz	800	640	525	480	25.175	31.469	59.940	N	N	○	○
800 x 600 @56Hz	1024	800	625	600	36.000	31.156	56.250	P	P	○	○
800 x 600 @60Hz	1056	800	628	600	40.000	37.879	60.317	P	P	○	○
800 x 600 @72Hz	1040	800	666	600	50.000	48.077	72.188	P	P	○	○
800 x 600 @75Hz	1056	800	625	600	49.500	46.875	75.000	P	P	○	○
800 x 600 @85Hz	1048	800	631	600	56.250	53.674	85.061	P	P	○	○
1024 x 768 @60Hz	1344	1024	806	768	65.000	48.363	60.004	N	N	○	○
1024 x 768 @70Hz	1328	1024	806	768	75.000	56.476	70.069	N	N	○	○
1024 x 768 @75Hz	1312	1024	800	768	78.750	60.023	75.029	P	P	○	○
1024 x 768 @85Hz	1376	1024	808	768	94.500	68.677	84.997	P	P	○	○
1152 x 864 @75Hz	1600	1152	900	864	108.000	67.500	75.000	P	P	○	○
1280 x 960 @60Hz	1800	1280	1000	960	108.000	60.000	60.000	P	P	○	○
1280 x 1024 @60Hz	1688	1280	1066	1024	108.000	63.981	60.020	P	P	○	○
1600 x 1200 @60Hz	2160	1600	1250	1200	162.000	75.000	60.000	P	P	○	—
640 x 480 @60Hz	800	640	494	480	23.625	29.531	59.780	P	N	○	○
800 x 600 @60Hz	960	800	618	600	35.500	36.979	59.837	P	N	○	○
1024 x 768 @60Hz	1184	1024	790	768	56.000	47.297	59.870	P	N	○	○
1280 x 960 @60Hz	1440	1280	988	960	85.250	59.201	59.920	P	N	○	—
1600 x 1200 @50Hz	2144	1600	1235	1200	132.375	61.742	49.994	N	P	○	—
1600 x 1200 @60Hz	1760	1600	1235	1200	130.375	74.077	59.981	P	N	○	—
1360 x 768 @50Hz	1760	1360	791	768	69.500	39.489	49.922	N	P	○	○
1360 x 768 @60Hz	1776	1360	768	768	84.625	47.649	59.936	N	P	○	○
1360 x 768 @60Hz	1520	1360	790	768	72.000	47.368	59.960	P	N	○	○
1920 x 1080 @50Hz	2544	1920	1112	1080	141.375	55.572	49.975	N	P	○	○*
1920 x 1080 @60Hz	2080	1920	1111	1080	138.625	66.647	59.988	P	N	○	○*
1920 x 1200 @50Hz	2560	1920	1235	1200	158.000	61.719	49.975	N	P	○	—
1920 x 1200 @60Hz	2080	1920	1235	1200	154.125	74.099	59.999	P	N	○	—
1280 x 768 @60Hz	1680	1280	795	768	80.125	47.693	59.992	N	P	○	○
1280 x 768 @75Hz	1712	1280	802	768	102.875	60.091	74.926	N	P	○	○
1280 x 768 @60Hz	1440	1280	790	768	68.250	47.396	59.995	P	N	○	○
720 x 400 @70Hz	900	720	449	400	28.322	31.469	70.087	N	P	○	○
1280 x 800 @60Hz					68.900	48.935	59.969	N	N	○	○
1920 x 1200 @60Hz	2120	1920	1212	1200	154.000	74.642	59.935	P	P	○	—

N=Negative P=Positive \*down-converted to display

### Input Signals/Input Adaptors

Video Signal Formats	Input Signal				Interface					
	Total Line	Active Line	Aspect Ratio	Frame rate**	Composite/ Y/C	RGB/ Component	SDI 4:2:2	SD-SDI HD-SDI	Composite/ Y/C	RGB/ Component
					Standard	Optional BKM-220D	Optional BKM-243HS	Optional BKM-277W	Optional BKM-229X	
575/50i (PAL)	625	575	16:9/4:3	25	○	○	○	○	○	○
480/60i (NTSC)	525	483	16:9/4:3	30	○	○	○	○	○	○
576/50P	625	576	16:9/4:3	50	—	○	—	—	—	○
480/60P	525	483	16:9/4:3	60	—	○	—	—	—	○
1080/24PsF	1125	1080	16:9	24	—	○**	—	○	—	○**
1080/25PsF	1125	1080	16:9	25	—	○**	—	○	—	○**
1080/24P	1125	1080	16:9	24	—	○**	—	○	—	○**
1080/25P	1125	1080	16:9	25	—	○**	—	○	—	○**
1080/30P	1125	1080	16:9	30	—	○**	—	○	—	○**
1080/50i	1125	1080	16:9	25	—	○	—	○	—	○
1080/60i*	1125	1080	16:9	30	—	○	—	○	—	○
720/50P	750	720	16:9	50	—	○**	—	○	—	○**
720/60P	750	720	16:9	60	—	○	—	○	—	○

\*\* For component \*\*3 Compatible with 1/1.001

### LMD-2450W / LMD-2050W Connector Panel



## Sophisticated I/P Conversion

The LMD-2450W and LMD-2050W use a motion-adaptive I/P-conversion process to achieve conversion results that are optimised to the picture content, whether it is static or dynamic. Highly accurate I/P conversion is provided regardless of signal resolution, for example, whether the input is HD or SD.

## Excellent Brightness and Contrast

The LMD-2450W and LMD-2050W provide high-brightness, high-contrast images by utilising super-wide aperture LCD panels.

## Extremely Wide Viewing Angle

The LMD-2450W and LMD-2050W offer the most stable images within the LMD Series when viewed from various angles. They both offer a wide viewing angle of 178 degrees, horizontally and vertically, with virtually no reduction in picture contrast, colour saturation and hue shift. This allows precise images to be clearly viewed from various positions and angles – a critical requirement in professional video monitoring.

## Operational Convenience

### Advanced Marker Settings

These monitors can display various area markers, including a centre marker, aspect markers and a safety zone marker. The brightness of these markers can be selected from three different levels: white, gray and dark gray. Users can also select either a black or gray matte to fill the outer area of the aspect markers. These flexible marker controls, together with the choice of many different aspect markers, make the LMD-2450W and LMD-2050W extremely convenient display devices for a variety of shooting scenarios – from standard video acquisition to digital cinematography.

### Marker Variation

	16:9 Mode	4:3 Mode
Aspect Marker	4:3, 15:9, 14:9, 13:9, 1.85:1, 2.35:1, 1.85:1 & 4:3	16:9
Centre marker	○	○
Safety Area	80%, 85%, 88%, 90%, 93%	80%, 85%, 88%, 90%, 93%

### Colour Temperature Selection

The colour temperature of both the LMD-2450W and LMD-2050W monitors can be selected from 9300k, 6500k and a user-defined preset.

### Selectable Scan Size

The scan size of the LMD-2450W and LMD-2050W monitors can be selected between 5% overscan and 0% scan modes. The aspect ratio can be switched between 16:9 and 4:3 according to the input signal.

### Three-colour Tally

The LMD-2450W and LMD-2050W come equipped with a tally lamp that can be lit via a parallel remote connector. The status of the signal displayed on the monitor can be identified by the tally colour - red, green, or amber.

### Smart APA (Auto Pixel Alignment) for Computer Input

The image size of the LMD-2450W and LMD-2050W monitors can be automatically adjusted to its optimal setting with the one-touch APA key.

## CIE Colour Coordinates



The CIE  $u'v'$  chart is used to evaluate the light output of display devices. In this diagram, the raw light output of a Sony LCD panel is compared with that of a Sony CRT. The triangular areas show their different colour reproduction capabilities (Colour Space). The green and red dots indicate the colour of light output from a Sony LCD panel and from a Sony CRT for certain RGB input signals. Note that the same light colour is not obtained for the same video input. The ChromaTRU process, on the other hand, reproduces consistent light output extremely close to that of a CRT.

### Parallel Remote Control

The LMD-2450W and LMD-2050W can be controlled remotely via a parallel remote connector. There are 38 functions in the remote menu, such as the ability to switch input signals, of which eight can be allocated to the connector.

### Stereo Audio Monitoring

The LMD-2450W and LMD-2050W are equipped with stereo speakers (0.5 W + 0.5 W), which enable the operator to monitor audio.

### Protected Controls

The key-inhibit function of the LMD-2450W and LMD-2050W monitors helps prevent inadvertent operation from the control panel.

### Closed-Caption Decoder

The LMD-2450W and LMD-2050W are equipped with a closed caption decoder. The closed caption information embedded in the analogue composite and component inputs can be decoded for display.

### Mounting Flexibility (VESA, 19-inch EIA Standard Rack)

Complying with VESA (Video Electronics Standard Association) standards, both the LMD-2450W and LMD-2050W can easily be mounted (100 x 100 mm pitch) on a wall or ceiling. The LMD-2050W (8U high) can also be rack-mounted in a 19-inch EIA standard rack using the optional MB-529 Mounting Bracket, even though the monitor itself is wider than 19 inches.

# Specifications

## Other Features

- WFM and Audio\* Level Meter Windows  
\* Only embedded audio is supported.
- Picture by Picture mode
- H/V Delay Function
- ACC Off
- DC Operation
- Setup Level for Analogue Component and NTSC signals
- Sub Control buttons for adjusting Contrast, Chroma, Phase and Brightness
- Blue-Only Mode
- Monochrome Mode
- Auto Chroma/Phase Setup
- Remote (Ethernet, RS-232C, Parallel Remote)
- DVI-D Input
- Power-saving Function (computer input only)
- DCC-2B

## Optional Accessories

### BKM-220D

SD-SDI 4:2:2 Input Adaptor



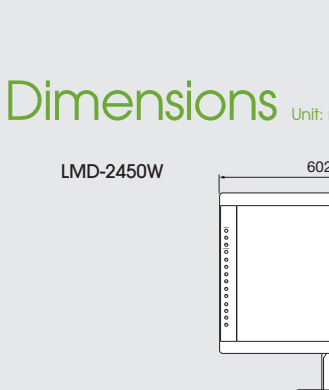
### BKM-243HS

HD-SDI/SD-SDI Input Adaptor



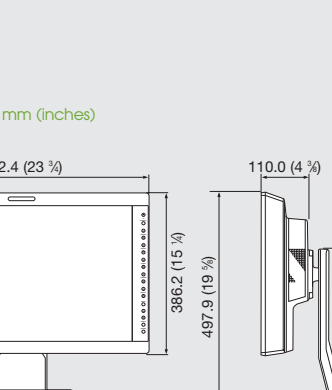
### BKM-227W

NTSC/PAL Input Adaptor



### BKM-229X

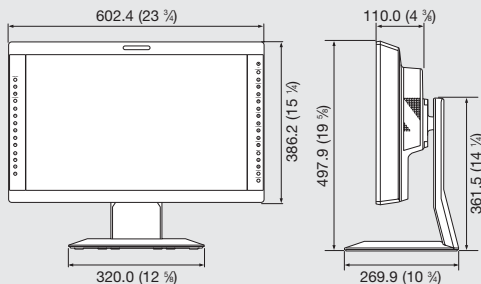
Analogue Component Adaptor



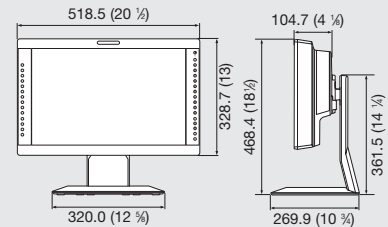
## Dimensions

Unit: mm (Inches)

LMD-2450W



LMD-2050W



		LMD-2450W	LMD-2050W
<b>Picture Performance</b>			
Type		A-Si TFT Active Matrix LCD	A-Si TFT Active Matrix LCD
Resolution		1920 x 1200 pixels (WUXGA)	1680 x 1050 pixels (WSXGA+)
Picture Size (H x W) (Viewable area) (Diagonal)		Approx. 518.4 x 324.0 mm (Approx. 20 1/2 x 12 1/8 inches)	Approx. 433.5 x 272.9 mm (Approx. 17 1/8 x 10 3/4 inches)
Aspect		16:10	
Colours		Approx 16,700,000 colours (8bits)	
Viewing Angle		89°/89°/89°/89° (typical) (up/down/left/right contrast>10:1)	
<b>Input</b>			
Standard	Composite	BNC x 1, 1.0 Vp-p ±3dB sync negative	
	Y/C	4pin Mini DIN x 1 Y: 1.0 Vp-p ±3dB sync negative, C: 0.286 Vp-p ±3dB (NTSC burst signal level), 0.3 Vp-p ±3dB (PAL burst signal level)	
	RGB, Component	BNC x 3 RGB: 0.7 Vp-p ±3dB (Sync On Green, 0.3 Vp-p sync negative) Component: 0.7 Vp-p ±3dB (75% chrominance standard colour bar signal)	
	External Sync	BNC x 1 0.3 to 4.0 Vp-p ±bipolarity ternary or negative polarity binary	
	Audio	RCA pin x 2 (L, R) -5 dBu 47 kΩ or higher	
	HD15	D-sub 15 pin x 1, R/G/B: 0.7 Vp-p sync positive (Sync On Green, 0.3 Vp-p sync negative) Sync: Total level (polarity free, H/V separate and composite sync) Plug & Play function: corresponds to DDC-2B	
	DVI	TMDS signal link	
	Parallel remote	Modular connector 8 pin x 1 (pin assignment at users' allocation)	
	Serial remote (LAN)	D-sub 9-pin (RS232C) x 1, RJ-45 modular connector (ETHERNET) x 1 (10BASE-T/100BASE-TX)	
	DVI	TMDS signal link	
	DC in	XLR type 4pin x 1 DC24V (output impedance 0.005Ω or less)	
Optional	Option input slot	2 slots (for HD-SDI, SDI capability and extra analogue I/O's)	
<b>Output</b>			
Standard	Composite	BNC x 1, Loop-though, with 75Ω automatic termination	
	Y/C	4pin mini DIN x 1 Loop-though, with 75Ω automatic termination	
	RGB, Component	BNC x 3, Loop-though, with 75Ω automatic termination	
	External Sync	BNC x 1, Loop-though, with 75Ω automatic termination	
	Audio monitor out	RCA pin type x 2 (L, R)	
	Speaker (Built-in)	1 W + 1 W (stereo)	
<b>General</b>			
Power Requirement		AC100V to 240V 50/60Hz 0.6A to 1.1A, DC24V 4.6A	AC100V to 240V 50/60Hz 0.4A to 0.8A, DC24V 3.3A
Power Consumption		Maximum Approx. 115 W (with 2 x BKM-229X)	Maximum Approx. 95 W (with 2 x BKM-229X)
Operating Temperature		0 to 35 °C (recommended operation temperature 20 to 30 °C)	
Operating Humidity		30 to 85 % (No condensation)	
Storage & Transport Temperature		-20 to 60 °C	
Storage & Transport Humidity		0 to 90 %	
Operating/Storage/Trans. Pressure		700 to 1060 hPa	
Dimensions (W x H x D)			
Dimension		602.4 x 497.9 x 269.9 mm (23 3/4 x 19 5/8 x 10 3/4 inches)	518.5 x 468.4 x 269.9 mm (20 1/2 x 18 1/2 x 10 3/4 inches)
Dimension without stand		602.4 x 386.2 x 110.0 mm (23 3/4 x 15 1/4 x 4 3/8 inches)	518.5 x 328.7 x 104.7 mm (20 1/2 x 13 x 4 1/8 inches)
Display Stand (W x H x D)		320.0 x 361.5 x 269.9 mm (12 5/8 x 14 1/4 x 10 3/4 inches)	
Mass	With two option boards	Approx. 11.4 kg (25 lb 2 oz) with BKM-229X x 2	Approx. 10.5 kg (23 lb 2 oz) with BKM-229X x 2
	Without option boards	Approx. 11.0 kg (24 lb 4 oz)	Approx. 10.1 kg (22 lb 4 oz)

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