

# SONY®

LCD Monitor

## LMD-230W

## LMD-170W

Multiformat Engine Unit

## MEU-WX1





*Sony unveils its impressive new lineup of elegant two-piece LCD monitors. Choose from the LMD-230W or LMD-170W LCD monitors, both of which use the power of the MEU-WX1 signal-processing Multiformat Engine. Their innovative designs offer the perfect solution for a wide variety of professional applications. Thin, lightweight, and simple, the two LCD monitors provide outstanding installation flexibility. And when integrated with the optional monitor stand, it is easy to adjust both height and tilt- to achieve the optimum viewing angle. Based on the latest developments in image processing, such as new "X Algorithm" technology, these monitors provide outstanding natural images with a high level of brightness and contrast. They accept a wide variety of signal formats such as analog RGB and HD, and computer signals from VGA to SXGA. Building on Sony's successful PVM series, these all new 23-inch and 17-inch LCD monitors are designed to meet a wide range of picture-monitoring demands in professional applications such as broadcast stations, OB vehicles, post-production studios, and digital photo studios.*

## Features

### ■ Superior Picture Performance

#### Excellent Brightness and Contrast

The LMD-230W and LMD-170W monitors utilize WXGA LCD panels to provide high-brightness and high-contrast images with natural color reproduction. Incorporating a color filter with broad color gamut, these monitors display outstanding natural images.

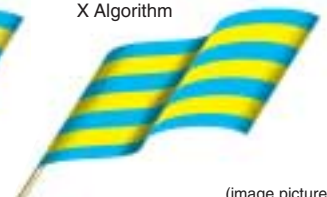
#### Interpolation Technology – X Algorithm

This new "X Algorithm" technology delivers impressive improvements in picture quality. Jaggy noise, which often occurs on the edge of moving objects in pictures, is effectively removed. Traditionally, standard-definition video signals are converted from interlace signals into progressive signals through the formation of a frame picture with two field pictures. This often results in jagged shape noise along the oblique direction of fast-moving objects. To overcome this, the "X Algorithm" technology detects motion and, through comparison of the oblique pixels above, below, and adjacent to the moving part, inserts a new line. This reproduces images smoothly, such as a fluttering flag with moving oblique lines. X Algorithm is especially effective for low-resolution images.

Conventional technology



X Algorithm



(image picture)

#### Wide Viewing Angle

The LCD panel has a wide viewing angle of 170 degrees, horizontally and vertically, enabling images to be viewed from various positions and angles.

#### AR-Coated Protection Panel

The LCD panel is protected from various types of damage by a highly durable protection panel. The panel has an anti-reflection (AR) coating with a high-transmission rate that reduces the effects of outside light.

## Stylish Design

These innovative two-piece type Sony LCD monitors consist of a thin, lightweight LCD monitor unit and highly functional signal-processing unit with many inputs and outputs. Because they are separate units, the LCD monitor is not weighed down by the circuitry of the signal-processing Multifunction Engine Unit (MEU). Consequently, its design is as thin and as light as possible – resulting in outstanding installation flexibility.

When attached to the optional monitor stand SU-558, which has a biaxial joint in the neck assembly, the LMD-170W and LMD-230W can be positioned at various heights and tilt angles – meeting a wide range of application needs.

## Input Versatility

### Multi-Format Signal Support

The MEU-WX1 accepts a wide range of analog and digital signals such as NTSC, PAL, 480/60I, 575/50I, 480/60P, 576/50P, 1080/50I, 1080/60I, and 720/60P. It also accepts 1080/24PsF, converting it into 1080/48I and 1080/25PsF converted in 1080/50I.

It can accept one analog video signal from the following inputs, which is then output with loop-through:

1. Analog component (GBR) input
2. Analog component (Y/Pb/Pr) input
3. Composite (CVBS) and Y/C (S-Y, S-C) input \*1

The MEU-WX1 also accepts one signal input from various types of analog computer signals. Incorporating a high-performance scan converter, it can accept input signals from VGA to SXGA\*2.

\*1 Y/C input signals must be input via BNC connectors that are converted from S-Video connectors.

\*2 SXGA images are downconverted for display.

### Signal-Interface Options

The MEU-WX1 can receive HDS/SDI, SDI or DV signals via the following newly designed small-sized optional input adaptors:



SDI 4:2:2 Input Adaptor

#### BKM-220D

- SDI signal input (x2) • Monitor output (x1)
- Power consumption: 1.5 W

HD/D1-SDI Input Adaptor

#### BKM-243HS

- HD SDI/SDI signal input (x2) • Monitor output (x1)
- Power consumption: 2 W
- HD SDI and SDI signals are automatically detected.

DV Input Adaptor

#### BKM-255DV

- DV signal port\* (x 2) • Transfer rate: 400 Mbps
- Power consumption: 4 W

The BKM-255DV accepts and outputs DV signals. However it does not accept the full AV/C command sets.

\*The port has a 6-pin connector. And power is not supplied through this port.

### Computer Signal Memory

The MEU-WX1 includes sufficient memory for 16 preset computer input signals.

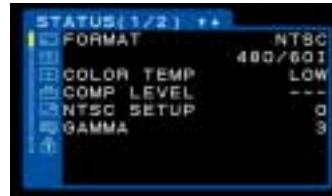
### Smart APA (Auto Pixel Alignment) for Computer Input

Image size can be automatically adjusted to their optimal settings with the one-touch APA key.

## Flexibility

### Seven-Language On-Screen Display

The On-Screen Display is available in English, French, Spanish, German, Italian, Japanese, and Chinese.



### Color Temperature/Gamma Selection

High/low color temperatures or user presets can be selected.

### Selectable Scan Size for Video Input and Aspect Ratio

The screen size can be selected between 5% over-scan and 0% inscan modes.

The aspect ratio can be switched between 16:9 and 4:3 according to input signals.

### Various Markers

The following marker functions are available: safety area marker, 4:3 marker, 2.35:1 marker, and 4:3 & 1.85:1 box marker - convenient for movie makers.

	16:9	4:3
MARKER	4:3, 15:9, 14:9, 13:9, 1.85:1, 2.35:1, 1.85:1 & 4:3	16:9
CENTER MARKER	○	○
SAFETY AREA	80%, 88%, 90%, 93%	80%, 88%, 90%, 93%

### Three-Color Tally

The tally lamp can be lit up via a parallel remote connector, and the status of the monitor can be identified by the tally color – red, green, or amber.

## Parallel Remote Control

The MEU-WX1 can be controlled remotely with the parallel remote connector. There are 31 functions in the Remote menu (such as the ability to switch input signals), of which seven can be allocated to the connector.

## Stereo Audio Monitoring

The MEU-WX1 is equipped with stereo speakers (0.5W+0.5W), which enable the user to monitor audio.

## Protected Controls

The key-inhibit switch helps prevent inadvertent operation from the control panel.

- **H/V Delay Function**
- **Chroma Transient Improvement (CTI) Function**
- **ACC Off**
- **DC Operation**  
(when the LMD-170W and the MEU-WX1 are operated)
- **Setup Level for Analog Component and NTSC signal**
- **Sub Control on Contrast, Chroma, Phase and Brightness**
- **Blue-Only Mode**
- **Monochrome Mode**
- **Auto Chroma/Phase Setup**
- **Power-Saving Function (Computer input only)**
- **DDC-2B Plug and Play (Computer input only)**

## Other Features

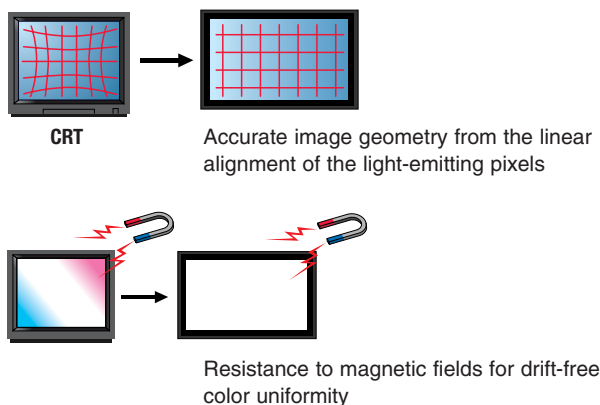
### Mountable in a 19-Inch EIA Standard Rack

The LMD-170W can be mounted in a 7U-sized, 19-inch EIA standard rack with the optional Mounting Bracket MB-522. The MEU-WX1 can be mounted in a 1U-sized, 19-inch EIA standard rack with the supplied mounting bracket.

### VESA Mounting Standard

Complying with VESA standards, the LMD-170W and 230W can easily be mounted on a wall or a ceiling. Although a large-screen monitor, it remains thin and lightweight because the large-scale signal-processing circuitry is contained in the separate MEU-WX1 instead. In addition, the arm of the monitor unit can be adjusted with more flexibility thanks to fewer connector cables between the monitor unit and the MEU-WX1.

### LCD Panel Advantages



## Optional Accessories



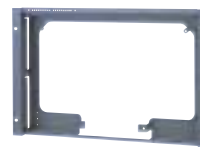
- **BKM-220D**  
SDI 4:2:2 Input Adaptor



- **BKM-243HS**  
HD/D1-SDI Input Adaptor



- **SU-558**  
Monitor Stand



- **MB-522**  
Rack-Mounting Bracket  
(for LMD-170W only)



- **BKM-255DV**  
DV Input Adaptor



- **SMF-600**  
Extension Cable (10 m)

## LMD-230W/170W



LMD-230W with the optional SU-558 monitor stand



LMD-170W with the optional SU-558 monitor stand

## MEU-WX1

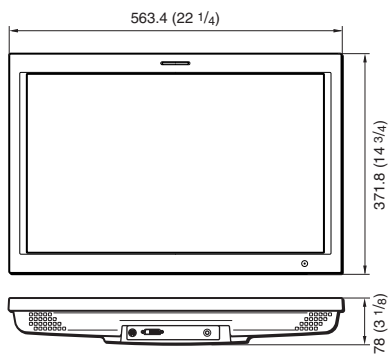
### Front Panel



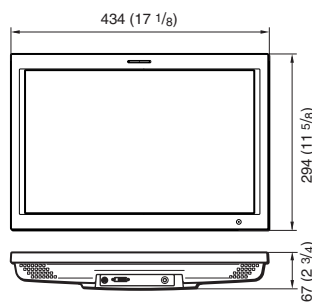
### Rear Panel



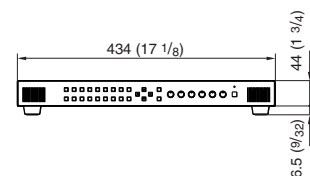
## Dimensions



■ LMD-230W



■ LMD-170W



■ MEU-WX1

Unit: mm (inches)



# Specifications

Model Name	LMD-230W		LMD-170W	
<b>Picture Performance</b>				
Type	a-Si TFT Active Matrix LCD with an AR-coated protection panel			
Resolution	1280 x 768 dots		1280 x 768 dots	
Pixel efficiency	99.99%			
Dot pitch	0.3915 x 0.3915 mm		0.291 x 0.291 mm	
Picture Size (H x W)	Approx. 501 x 301 mm (19 3/4 x 11 7/8 inches)		Approx. 372 x 223 mm (14 3/4 x 8 7/8 inches)	
(Diagonal)	23.0-inch (584.40 mm)		17.1-inch (434.38 mm)	
Aspect	15:9			
Colors	16,770,000 colors			
Viewing Angle	85°/85°/85°/85° (typical) (up/down/left/right contrast>10:1)			
<b>Input</b>				
Display Input connector				
Digital input				
DVI-D				
Dot clock	25.175 MHz	68.250 MHz	25.175 MHz	68.250 MHz
Scanning Frequency (horizontal)	31.469 kHz	47.396 kHz	31.469 kHz	47.396 kHz
(vertical)	59.940 Hz	59.995 Hz	59.940 Hz	59.995 Hz
<b>General</b>				
Power Consumption	Approx. 62 W		Approx. 42 W	
Power requirement	DC16.5 V		DC12 V, DC16.5 V	
Operating Temperature	0 to 35 °C (32 to 95 °F)			
Operating Humidity	30 to 80% (no condensation)			
Storage & Transport Temperature	-10 to 40 °C (14 to 104 °F)			
Storage & Transport Humidity	0 to 80%			
Operating/Storage/Trans. Pressure	700 to 1060 hPa			
Dimensions (W x H x D)	563 x 372 x 78 mm * (22 1/4 x 14 3/4 x 3 1/8 inches) *		434 x 294 x 67 mm * (17 1/8 x 11 5/8 x 2 3/4 inches) *	
Mass	Approx. 6.6 Kg (14 lb 9 oz)* Approx. 11.8 Kg (26 lb)**		Approx. 4.9 Kg (10 lb 13 oz)* Approx. 10.1 Kg (22 lb 4 oz)**	

\*without the optional SU-558 monitor stand

\*\*with the optional SU-558 monitor stand

Model Name	MEU-WX1		
<b>Input/Output</b>			
Input	Connector/Slot		
	G/Y/Composite	B/Pb/S-Y	R/Pr/S-C
Composite	Loop through BNC (x1) Automatic 75 Ω termination	Loop through BNC (x1) Automatic 75 Ω termination	Loop through BNC (x1) Automatic 75 Ω termination
Y/C	1.0 Vp-p ±3 dB sync negative	1.0 Vp-p ±3 dB sync negative	0.286 Vp-p ±3 dB (NTSC) 0.3 Vp-p ±3 dB (PAL)
Component	0.7 Vp-p ±3 dB		
RGB	0.7 Vp-p ±3 dB Sync on G 0.3Vp-p	0.7 Vp-p ±3 dB	0.7 Vp-p ±3 dB
Audio in (for Video signals)	Stereo mini jack (x1), -5 dBu, more than 47 kΩ		
OPTION A-1	Option Slot (x1)		
OPTION A-2	Option Slot (x1)		
OPTION B-1	Option Slot (x1)		
OPTION B-2	Option Slot (x1)		
Ext. sync	Loop through BNC (x1) automatic 75 Ω termination 0.3 ~ 4 Vp-p ±3 dB, sync negative usable tri-level sync signal 0.6 Vp-p ±3 dB		
Computer	HD D-sub 15-pin (female) (x1) 0.7 Vp-p, 75 Ω, positive (R,G,B)		
Audio in (for computer signals)	Stereo mini jack (x1), -5dBu, more than 47 kΩ		
DC IN*	XLR 4-pin (male) (x1), 12 V, output impedance 0.05 Ω or less		
<b>Output</b>			
Audio monitor out	Stereo mini jack (x1)		
Speaker Out	Stereo (0.5 W+0.5 W)		
PARALLEL Remote	Modular 8-pin (Assignable)		
Display Signal Out	Exclusive connector(x1)		
Display DC Out*	XLR 4-pin (female) (x1), DC 16.5 V (when AC power is supplied) DC 12 V (when DC power is supplied)		
<b>Video</b>			
Horizontal Scanning Frequency	15 to 45 kHz		
Frame Scanning Frequency	48 to 60 Hz		
<b>Computer</b>			
Dot clock	110 MHz		
Horizontal Scanning Frequency	28 to 69 kHz		
Vertical Scanning Frequency (frame)	60 to 85 Hz		
Plug & Play	DDC-2B		

\*When operating this system with DC power, the MEU-WX1 supplies power to the LMD-170W.

Model Name	MEU-WX1	
<b>General</b>		
Power consumption	Maximum: Approx. 92 W (with 2 x BKM-243HS and LMD-230W) Standard: Approx. 26 W (without optional input adaptor)	
Power requirement	AC 100 to 240 V±10%, 50/60 Hz, DC 12 V (LMD-170W only)	
Operating Temperature	0 to 35 °C (32 to 95 °F)	
Operating Humidity	30 to 85% (no condensation)	
Storage and Trans. Temperature	-10 to 40 °C (14 to 104 °F)	
Storage & Transport Humidity	0 to 90%	
Operating/Storage/Trans. Pressure	700 to 1060 hPa	
Dimensions (W x H x D) excluding protrusions	434 x 44 x 305 mm (17 1/8 x 1 3/4 x 12 1/8 inches)	
Mass	Approx. 4.5 Kg (9 lb 15 oz)*	

\*Excluding supplied accessories

## ■ Supplied Accessories

LMD-170W, LMD-230W : Display interface cable, Warranty card, Operating instructions  
MEU-WX1 : AC cord, AC plug holder, Mounting bracket, Operating instructions, CD-ROM, Warranty card

## ■ Regulation Compliance

UL-1950, FCC Class-A, CSA C22.2 No.950 (c-UL), IC Class-A, EN60950, EN55103-1, EN55103-2, CE, VCCI Class-A, C-tick

## ■ Video signal formats

System	Horizontal Scanning frequency (kHz)	Total lines per frame	Active lines per frame	Vertical scanning frequency (Hz)	Aspect	Composite Y/C	RGB Component	Input adaptor		
								BKM-220D	BKM-243HS	BKM-2550V
575/50I	15.625	625	575	50	16:9/4:3	○	○	○	○	○
480/60I	15.734	525	483	60	16:9/4:3	○	○	○	○	○
576/50P	31.250	625	576	50	16:9/4:3	—	○	—	—	—
480/60P	31.469	525	483	60	16:9/4:3	—	○	—	—	—
1080/24PsF	27.000	1125	1080	48	16:9	—	○	—	○	—
1080/50I	28.125	1125	1080	50	16:9	—	○	—	○	—
1035/60I	33.750	1125	1035	60	16:9	—	○	—	○	—
1080/60I	33.750	1125	1080	60	16:9	—	○	—	○	—
720/60P	45.000	750	720	60	16:9	—	○	—	○	—

## ■ Formats of Preset Data

No.		Preset Signal	fH [kHz]	fV [Hz]	H/V
P01	640 x 480	VGA mode 3	31.469	59.940	N/N
P02		VGA VESA 75 Hz	37.500	75.000	N/N
P03		VGA VESA 85 Hz	43.269	85.008	N/N
P04		VGA (non-CRT)	29.531	59.780	P/N
P05	800 x 600	SVGA VESA 60 Hz	37.879	60.317	P/P
P06		SVGA VESA 75 Hz	46.875	75.000	P/P
P07		SVGA VESA 85 Hz	53.674	85.061	P/P
P08		SVGA (non-CRT)	36.979	59.837	P/N
P09	1024 x 768	XGA VESA 60 Hz	48.363	60.004	N/N
P10		XGA VESA 75 Hz	60.023	75.029	P/P
P11		XGA VESA 85 Hz	68.677	84.997	P/P
P12		WXGA (CRT 60 Hz)	47.693	59.992	N/P
P13	1280 x 768	WXGA (non-CRT)	47.396	59.995	P/N
P14		SXGA VESA 60 Hz	63.981	60.020	P/P
P15		SXGA (non-CRT)	63.194	59.957	P/N
P16		720 x 400	VGA TEXT	31.469	70.087

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