



## LMD-181MD/151MD

### LCD MONITORS

CHANGING

With medical equipment, the new LMD-181 MD and LMD-151 MD LCD monitors from Sony not only deliver uncompromising performance but also comply with key safety requirements.

Ideal for use in endoscopy, surgery, patient monitoring, microscopy and more, these monitors offer the high resolution, superb brightness and wide viewing angles your complex tasks demand. They also accept a range of video and computer signals. These monitors are easy to customise to your specific needs and built-in security features help prevent inadvertent operation.

#### High Performance LCD Panel

##### Natural colour reproduction

The LCD panel used in the LMD-181 MD/151 MD monitors provides high-contrast images with natural colour reproduction. Incorporating a colour filter with broad colour gamut, the panel delicately reproduces the shades of colour, and with excellent continuity in colour ramps, it displays images that are rich and natural.

##### High clarity

Sharp, crisp images are provided by the high-resolution LCD panel\*. High response speed and excellent linearity maintain image smoothness across the screen. And, because the panel is flicker-free and has resistance to magnetic fields, reproduction is clear and consistent.

The LMD-181 MD utilises an SXGA panel and the LMD-151 MD utilises an XGA panel.

##### High brightness

The high light output of these monitors allows images to be clearly displayed, even in brightly lit environments.

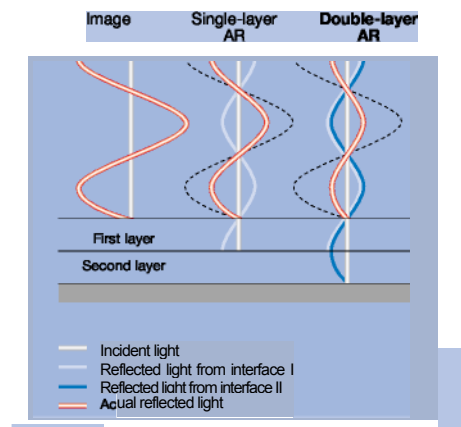
##### Wide viewing angle

The LCD panel has a wide viewing angle of 170 degrees, horizontally and vertically, so you can view images from various positions and angles.

#### Double-Layer AR-Coated Protection Panel

The LCD panel is protected from various types of damage by a high-durable protection panel. The panel has a double-layered anti-reflection coating that reduces diffused light reflection for clear, high-contrast images. Each layer of coats provides a different refractive index, so that overall reflectiveness of the panel is approximately 60% less compared with single-layer coating and 80% less compared with anti-glare coating. High transmission efficiency is also achieved with this anti-reflection finish.

THE WAY



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#### Connector Panel



#### Control Panel



#### Digital 3-lines Comb Filter



#### Input Adaptors



## Various Inputs

### Computer Input Capability

Incorporating a high-performance scan converter, the LMD-181 MD accepts signals from VGA to SXGA, and the LMD-151 MD accepts signals up to XGA. The scan converter can be turned off to view unconverted images in the original resolution.

### Video Input Capability

With an optional input adaptor, the LMD-181 MD/ 151 MD can accept video signals (NTSC, PAL and HD). The choice of input adaptors enables the LMD-181 MD/ 151 MD to be installed in a wide range of applications.

## Input Adaptors

### BKM-120D

- D1 SDI (4:2:2) signal input (x2)
- Active output with loop-through (x2)  
High-speed transmission of component digital signals can be achieved.

### BKM-129X

- Analogue component (Y/PB/PR, GBR) with loop-through BNC (x1)
- EXT SYNC with loop-through BNC (x1)  
Provides multiformat signal support, accepting RGB signals ranging from 480/60I to 1080/60I.

### BKM-128WX

- Analogue composite (NTSC/PAL) with loop-through BNC (x2)
- Y/C with loop-through Mini DIN 4-pin (x1)
- Analogue component (Y/PB/PR, GBR) with loop-through BNC (x1)
- EXT SYNC with loop-through BNC (x1)
- Aperture Enhance Function for analogue composite and Y/C signals
- Incorporated Trap Filter for analogue RGB/component signal
- Automatic 75 termination

### BKM-155DV

- This IEEE 1394/DV-Input adaptor is under preparation

### BKM-127W

- Analogue composite (NTSC/PAL) with loop-through BNC (x2)
- Y/C with loop-through Mini DIN 4-pin (x1)  
With precise signal decoding, it offers accurate colour reproduction of composite signals.  
Also, by adopting Sony Digital 3-lines Comb Filter, noise such as cross-luminance can be substantially reduced.

# EXCELLENT PICTURE QUALITY

## Other Features

Fluid-resistant structure

Especially designed for medical environments, the LMD-181 MD/151 MD monitors are resistant to liquid and chemical spills and splashes.

Protected controls

The key inhibit switch prevents inadvertent operation from the control panel.

Parallel remote\*

Direct control of inputs, aspect ratio, etc. is possible.

Advanced ergonomic design

The LMD-181 MD/151 MD has obtained ISO13406 certification, which standardises the ergonomic requirements for visual displays based on flat panels.

APA (Auto Pixel Alignment) for computer input

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

Horizontal size and position control

Dot phase, size and position can be manually controlled.

Overscan function for video input

Overscan mode can be selected between 5% and 10%.

Stereo speakers\*

\* The audio signal cannot be changed even when the input signal is switched.

Seven-language On-Screen Display

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

Power saving function

The LMD-181 MD/151 MD automatically switches to standby/off mode when no signal input is detected.

Low EMC and EMI emissions

VESA mounting standard

Complying with the VESA standards of 100 mm hole spacings, the LMD-181 MD/151 MD can easily be mounted on a wall or from the ceiling.

Optional monitor stand

A stand is provided as an option. When attached, the monitor can be tilted 0/10/20/30 degrees.

Colour temperature/gamma selection

High/low colour temperatures and five gamma presets can be selected.

DDC-2B Plug & Play

20 User memories for computer signals

Low power consumption

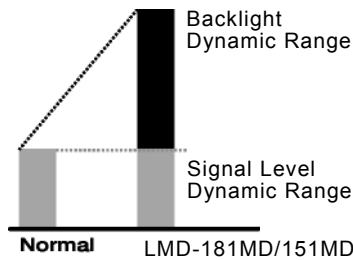
Selectable aspect ratio and HD centre 4:3 zoom for video input

Aspect ratio can be selected between 4:3 and 16:9 depending on the video source. When HD signal is input, the centre part of the 16:9 HD image can be displayed as a 4:3 image, while closely maintaining the resolution of the original source.



Contrast adjustment

The LMD-181 MD/151 MD has a wide dynamic range for adjusting contrast, by varying the backlight brightness and the signal level together.

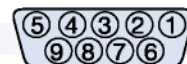


## Parallel Remote Terminal\*

D-sub 9 pin, female

	with <b>BKM-120D</b>	with <b>BKM-127W</b>	with <b>BKM-129X</b>	with <b>BKM-128X</b>
1	Computer	Computer	Computer	Computer
2	SDI-1	Video-1	RGB	Video/RGB
3	SDI-2	Video-2	Component	S-Video/Component
4	—	S-Video 3	—	Input Select**
5	4:16:9	16:9	4:16:9	3
6	0% Overscan	0% Overscan	0% Overscan	16:9
7	5% Overscan	5% Overscan	5% Overscan	0% Overscan
8	GND	GND	GND	5% Overscan
9	GND	GND	GND	GND

\* This function works only when an optional input adaptor is installed.\*\* When the pin 2 or 3 is selected (the pin 4 is not selected), VIDEO or S-VIDEO is selected and when the pin 2 or 3 is selected after the pin 4 is selected, RGB or component is selected.



# LMD-181 MD/151 MD SPECIFICATIONS

LMD-181 MD

LMD-151 MD

## Computer Signals

### Picture Performance

Type	a-Si TFT Active Matrix LCD with a double-layer AR-coated protection panel	
Resolution	H: max. 1280 dots V: max. 1024 lines	H: max. 1024 dots V: max. 768 lines
Dot pitch	0.2805 x 0.2805 mm (1.32 x 1.32 inches)	0.297 x 0.297 mm (1.32 x 1.32 inches)
Picture size (H x W) (Diagonal)	Approx. 379 x 287 mm (15 x 11 <sup>3</sup> / <sub>8</sub> inches) 18 <sup>1</sup> / <sub>8</sub> -inch (460 mm)	Approx. 304 x 228 mm (12 x 9 inches) 15.0-inch (380 mm)
Aspect ratio	5:4	4:3
Display colour	Approx. 16,770,000	
Viewing angle	85°/85°/85°/85° (Typical U/D/L/R Contrast>10:1)	
Overscan	0% / 5% / 10% (video input)	

### Input/Output

#### Computer terminal

Analogue RGB input	HD D-sub 15-pin x1	
R	0.7 Vp-p, 75	, positive
G	0.7 Vp-p, 75	, positive
B	0.7 Vp-p, 75	, positive
Scanning frequency (horizontal)	24 to 73 kHz	24 to 73 kHz (up to XGA)
(vertical)	48 to 85 Hz (up to 60 Hz for SXGA)	48 to 85 Hz
Plug & Play	DDC-2B	
Video/HD	1 option slot for Input Adaptors	
Scanning frequency (horizontal)	15 to 45 kHz (video input only) 48 to 60 Hz	
Audio in	Stereo mini jack, -5 dBu, more than 47 k	
PARALLEL remote	D-sub 9-pin	
Speaker output	Stereo (1 W x2)	
DC output	12 V/0.2 A	

### General

Power requirement	AC 100 to 240 V ±10%, 50/60 Hz	
Power consumption	0.9 to 0.5 A	0.7 to 0.4 A
Operating temperature	0 to 40 °C (32 to 104 °F)	
Storage temperature	-10 to 40 °C (14 to 104 °F)	
Operating humidity	30 to 85 % (no condensation)	
Storage humidity	0 to 90 % (no condensation)	
Operating/storage pressure	700 to 1060 hPa	
Dimensions (W x H x D)	432 x 395 x 124 mm (17 <sup>1</sup> / <sub>8</sub> x 15 <sup>5</sup> / <sub>8</sub> x 5 inches) with stand approx. 432 x 481 x 244 mm (17 <sup>1</sup> / <sub>8</sub> x 19 x 9 <sup>5</sup> / <sub>8</sub> inches)	393 x 338 x 114 mm (15 <sup>1</sup> / <sub>2</sub> x 13 <sup>3</sup> / <sub>8</sub> x 4 <sup>1</sup> / <sub>2</sub> inches) with stand approx. 393 x 432 x 244 mm (15 <sup>1</sup> / <sub>2</sub> x 17 <sup>1</sup> / <sub>8</sub> x 8 <sup>5</sup> / <sub>8</sub> inches)
Mass	Approx. 7.0 kg (15 lb 7 oz) with stand and input adaptor Approx. 9.0 kg (19 lb 13 oz)	Approx. 6.0 kg (13 lb 4 oz) with stand and input adaptor Approx. 8.0 kg (17 lb 10 oz)

### Regulation

#### Compliance

IC Class A, CE(MDD), C-Tick, Ergonomic

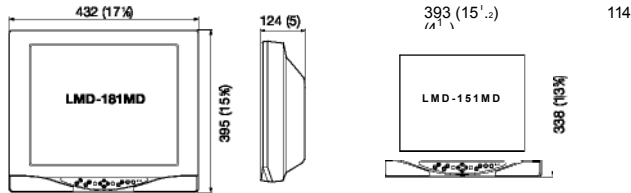
### Supplied accessories

AC Cable, Warranty card (1), AC Plug Holder (2), Instructions for use

### Optional accessories

Monitor Stand SU-557,  
Input Adaptor BKM-120D/127W/129X/128WX/155DV

### Dimensions



\* Macintosh® display signals can be accepted up to 1152 x 870, 75 Hz. \*\*  
Picture elements are more than 99.99% intact.

When the monitor is used for safety control of personnel, assets or stable picture/sound,  
or for emergencies, we strongly recommend you use more than one unit or prepare a spare

Sony address/contact details/dealer stamp

### Resolution

640 x 350	VGA mode 1	31.469	70.086	0	0
	VGA VESA® 85 Hz	37.861	85.080	0	0
640 x 400	PC 9801 Normal	24.823	56.416	0	0
	VGA mode 2	31.469	70.086	0	0
640 x 480	VGA VESA 85 Hz	37.861	85.080	0	0
	VGA mode 3	31.469	59.940	0	0
	Macintosh 13"	35.000	66.667	0	0
	VGA VESA 72 Hz	37.861	72.809	0	0
800 x 600	VGA VESA 75 Hz	37.500	75.000	0	0
	VGA VESA 85 Hz	43.269	85.008	0	0
	SVGA VESA 56 Hz	35.156	56.250	0	0
	SVGA VESA 60 Hz	37.879	60.317	0	0
	SVGA VESA 72 Hz	48.077	72.188	0	0
	SVGA VESA 75 Hz	46.875	75.000	0	0
832 x 624	SVGA VESA 85 Hz	53.674	85.061	0	0
	Macintosh 16"	49.724	74.550	0	0
1024 x 768	XGA VESA 43 Hz	35.522	43.479	0	0
	XGA VESA 60 Hz	48.363	60.004	0	0
	XGA VESA 70 Hz	56.476	70.069	0	0
	XGA VESA 75 Hz	60.023	75.029	0	0
1152 x 864	XGA VESA 85 Hz	68.677	84.997	0	0
	SXGA VESA 70 Hz	63.995	70.016	0	—
1152 x 900	SXGA VESA 75 Hz	67.500	75.000	0	—
	Sunmicro LO	61.795	85.960	0	—
1280 x 960	Sunmicro HI	71.713	76.047	0	—
	SXGA VESA 60 Hz	60.000	60.000	0	—
1280 x 1024	SXGA VESA 43 Hz	46.433	43.436	0	—
	SXGA VESA 60 Hz	69.974	60.013	0	—

### Video Signal Formats

System	Horizontal scanning frequency (kHz)	Total lines per frame	Active lines per frame	Vertical scanning frequency (kHz)	Aspect
575/50I (PAL)	15.625	625	575	50	16:9 / 4:3
480/60I (NTSC)	15.734	525	483	60	16:9 / 4:3
1080/48I	27.000	1125	1080	48	16:9
1080/50I	28.125	1125	1080	50	16:9
576/50P	31.250	625	576	50	16:9 / 4:3
480/60P	31.469	525	483	60	16:9 / 4:3
1080/60I	33.750	1125	1080	60	16:9
720/60P	45.000	750	720	60	16:9

### Acceptable Input Adaptors

System	H SIZE Standard		Input Adaptor			
	LMD-151MD	LMD-181MD	BKM-120D	BKM-127W	BKM-128WX	BKM-129X
575/50I (PAL)	2516	3144	0	0	0	0
480/60I (NTSC)	2494	3098	0	0	0	0
1080/48I	1464	1832	—	—	0	0
1080/50I	1404	1758	—	—	0	0
576/50P	1258	1570	—	—	0	0
480/60P	1220	1524	—	—	0	0
1080/60I	1170	1466	—	—	0	0
720/60P	1318	1648	—	—	0	0

BKM-120D: SDI x2 Input/Output  
BKM-127W: Composite x2 Input/Output, Y/C x1  
BKM-128WX: Composite x1 Input/Output, Y/C x1 Inp  
Component or RGB (switchable) x1 Input/Output  
BKM-129X: Component or RGB (switchable) x1

## MEDICO SYSTEMS

### VIDEO SYSTEMER APS

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