



## Medical LCD Monitor

The Sony LMD-2140MD is a medical-grade 21-inch<sup>\*1</sup> LCD monitor, optimised for video endoscopy applications, that meets the stringent medical safety and EMC standards and requirements. The LMD-2140MD incorporates a superb-quality LCD panel that provides an extremely high level of brightness, contrast, and colour depth.

The use of original SonyX-Algorithm<sup>2</sup> technology allows natural reproduction of video images, which is often difficult to achieve on typical LCD monitors. In addition, this monitor provides superior versatility with a variety of signal input capabilities for analogue or digital, SD or HD, and DVI-D, as well as user-friendly operational conveniences such as its User Memory functionality. All of these features, together with a compact and light design, make the Sony LMD-2140MD the monitor of choice in video endoscopy cart installations.

<sup>\*1</sup> Viewable area measured diagonally

<sup>\*2</sup> X-Algorithm is used for 480/60i and 575/50i signals only

### Features

#### Excellent Picture Reproduction

**Sophisticated I/P (Interlace to Progressive) Conversion**  
With conventional LCD monitors, interlace signals are displayed on the progressive LCD pixel array by combining two adjacent picture fields into one picture frame, or by doubling scanning lines to create the progressive picture frame. However, these I/P conversion methods can cause picture degradation when displaying moving images. To solve this problem, the LMD-2140MD provides sophisticated I/P conversion using X-Algorithm technology. This combines the pixels above, below, and in the diagonal direction of the moving picture part, and then inserts a natural pixel to create the absent lines. The result is much smoother image reproduction for both moving and static picture areas.

#### High Clarity Panel

The LMD-2140MD incorporates an extremely bright 21-inch<sup>\*1</sup> LCD panel with a 4:3 aspect ratio and a robust multi-layer AR-coated protection layer, which minimises the damage caused by scratching the panel. The AR coating also reduces the reflection from ambient light to a minimum. As a result, when used in bright lighting conditions, high contrast is maintained even in dark areas of the picture - a benefit over current CRT monitors.

#### Versatility Inputs

The LMD-2140MD can accept a variety of signals ranging from SD to HD video, analogue VGA to SXGA<sup>3</sup> PC input, as well as DVI-D input. In addition to its standard inputs, 5 types of optional input adaptors are offered for use in its two rear slots. This allows multiple signal sources from a variety of equipment to be connected and monitored simply by selecting them via the input button on the front panel. The LMD-2140MD also provides both parallel and serial remote control ports as standard.

<sup>\*3</sup> SXGA images are downconverted for display

#### Operational Convenience

The User Memory functionality provides the capability of saving 20 patterns of memory settings. This allows doctors to easily set, save, and recall their preferred picture settings using an assigned user name. In addition, factory default settings can instantly be recalled by the touch of two buttons. The following parameters can be saved: \*Colour temperature, \*Brightness, \*Contrast, \*Chroma, \*Phase, \*Aperture, \*Gamma, \*Aspect, \*Scan, \*Picture Delay Minimum, \*User Memory Name, \*User Colour Temperature. Instant access to most of these controls is available from the buttons on the front bezel, as well as the OSD menu, which is provided in 7 languages.

#### Compact and Lightweight

Thanks to the thin and lightweight LCD panel, the LMD-2140MD is much shorter in depth and lighter in weight than a conventional CRT monitor.

#### VESA Mounting

Complying with the VESA standards of 100 mm hole spacings, the LMD-2140MD can easily be mounted on an arm, a wall or from a ceiling.

# LMD-2140MD Specifications

## Picture Performance

LCD Panel	Type	a-Si TFT Active Matrix LCD with an AR-coated protection panel
	Resolution	1024 x 768 dots
	Picture Size (H x W) (Diagonal)	Approx. 430 x 322 mm (17 x 12 3/4 inches) 21 1/4 inches (537 mm)
	Aspect	4:3
	Colours	16,770,000 colours
	Viewing Angle	85°/85°/85°/85°(typical) (up/down/left/right contrast>10:1)

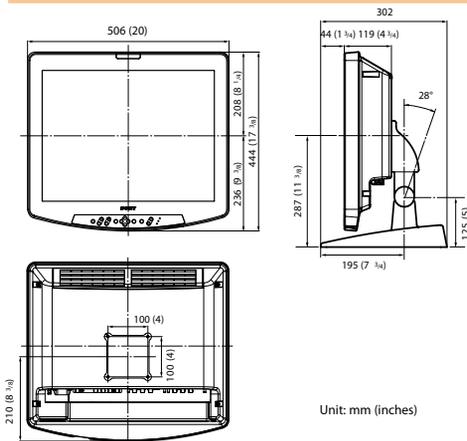
## Input / Output

Input	Composite	BNC (x 1) 1.0 Vp-p ±3 dB, sync negative
	Y/C	4pin Mini DIN (x 1) Y: 1.0 Vp-p ±3dB, sync negative C: 0.286 Vp-p ±3dB (NTSC) / 0.3 Vp-p ±3dB (PAL)
	Component/RGB	BNC (x 3)
	Component	Y: 1.0 Vp-p ±3 dB Pb, Pr: 0.7 Vp-p ±3 dB
	RGB	G: 0.7 Vp-p ±3 dB, Sync on G 0.3 Vp-p B: 0.7 Vp-p ±3 dB R: 0.7 Vp-p ±3 dB
Ext. Sync	BNC (x1)	0.3 ~ 4 Vp-p ±bipolarity ternary or negative polarity binary
	Computer	
	DVI-D	TMD5 (Single Link)
	Analogue RGB	HD D-sub15pin (female) 0.7 Vp-p, 75 Ω sync positive (R, G, B)

## Optional Accessories

BKM-227W	NTSC/PAL Input Adaptor
BKM-229X	Analogue Component Input Adaptor
BKM-220D	SDI 4:2:2 Input Adaptor
BKM-243HS	HD SDI & SDI Input Adaptor
BKM-255DV	DV Input Adaptor
SU-560	Monitor Stand

## Dimensions

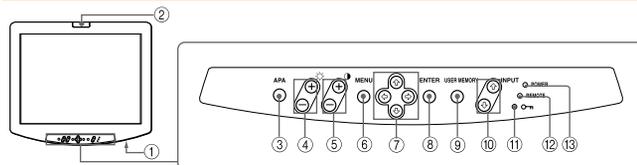


Remote	Parallel	Modular 8 pin (Assignable)
	Serial	RS-232C (serial remote), D-sub 9-pin
Output	Composite	BNC (x 1), Loop-through, automatic 75 Ω termination
	Y/C	4pin Mini DIN (x 1), Loop-through, automatic 75 Ω termination
	Component/RGB	BNC (x 3), Loop-through, automatic 75 Ω termination
	Ext. Sync	BNC (x 1), Loop-through, automatic 75 Ω termination

## General

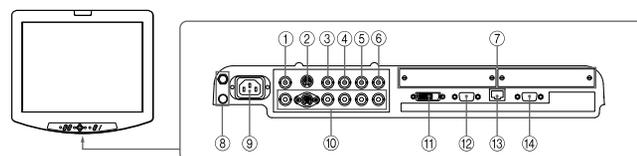
Power Consumption	Maximum: Approx. 100 W (with 2 x BKM-255DV) Standard: Approx. 92 W (without optional input adaptor)
Power Requirement	AC 100 to 240 V ±10%, 50/60 Hz
Operating Temperature	0 to 40°C (32 to 104° F)
Operating Humidity	30 to 85 % (no condensation)
Storage & Transport Temperature	-10 to 40°C (14 to 104° F)
Storage & Transport Humidity	0 to 90 % (no condensation)
Operating / Storage / Trans. Pressure	700 hPa to 1060 hPa
Dimensions (W x H x D)(inches)	505 x 444 x 119 (20 x 17 3/8 x 4 3/4)
Mass	Approx. 9.8Kg (with 2 x BKM-255DV) 21 lb 10 oz
Supplied Accessories	AC Power Cord (1), AC plug holder (2), Operating Instructions (1), CD-ROM (1), Warranty Card (1), Using the CD-ROM Manual (1), Interface Manual for Programmers (1), Quick Reference (1), When you first use the monitor (1), Sales Companies Guide (1)

## Front Panel



- ① I/O (Power) switch
- ② Tally lamp
- ③ APA (Auto Pixel Alignment) key
- ④ (brightness) +/- keys
- ⑤ (contrast) +/- keys
- ⑥ MENU keys
- ⑦ Arrow keys (↑ ↓ ← →)
- ⑧ ENTER key
- ⑨ USER MEMORY key
- ⑩ INPUT / keys
- ⑪ (key inhibit) indicator
- ⑫ REMOTE indicator
- ⑬ POWER indicator

## Connector Panel



- ① COMPOSITE connector (BNC)
- ② Y/C connector (4-pin mini-DIN)
- ③ G/Y connector (BNC)
- ④ B/PB connector (BNC)
- ⑤ R/PR connector (BNC)
- ⑥ EXT SYNC (external sync) connector (BNC)
- ⑦ Optional inputs slots
- ⑧ AC IN socket
- ⑨ Loop-through output connectors
- ⑩ DVI input connector (DVI-D)
- ⑪ HD15 input connector (HD D-Sub 15-pin)
- ⑫ PARALLEL REMOTE terminal (modular connector, 8-pin)
- ⑬ RS-232C (serial remote) connector (D-Sub 9-pin)

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