



## 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)<br>(up/down/left/right contrast>10:1)   |

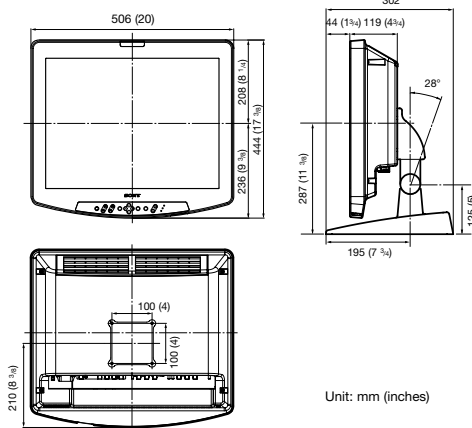
## Input / Output

|               |              |  |
|---------------|--------------|--|
| Input         | Composite    | BNC (x 1)<br>1.0 Vp-p ±3 dB, sync negative   |
|               | Y/C          | 4pin Mini DIN (x 1)<br>Y: 1.0 Vp-p ±3dB, sync negative<br>C: 0.286 Vp-p ±3dB (NTSC) /<br>0.3 Vp-p ±3dB (PAL) |
| Component/RGB | BNC (x 3)    |  |
|               | Component    | Y: 1.0 Vp-p ±3 dB<br>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<br>or negative polarity binary  |
|               | Computer     |  |
|               | DVI-D        | TMDS (Single Link)   |
|               | Analogue RGB | HD D-sub15pin (female)<br>0.7 Vp-p, 75 Ω sync positive (R, G, B)   |

## Optional Accessories

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

## Dimensions

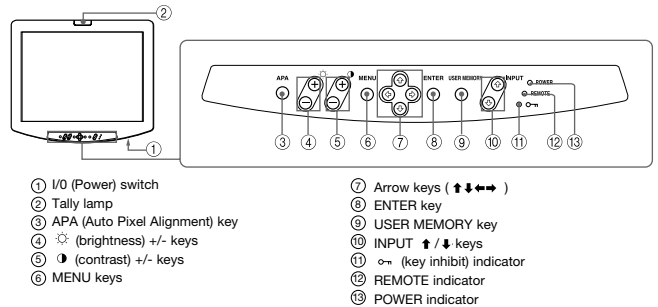


|               |           |   |
|---------------|-----------|---|
| Remote        | Parallel  | Modular 8 pin (Assignable)                                    |
|               | Serial    | RS-232C (serial remote), D-sub 9-pin                          |
| Output        | Composite | BNC (x 1), Loop-through, 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           |

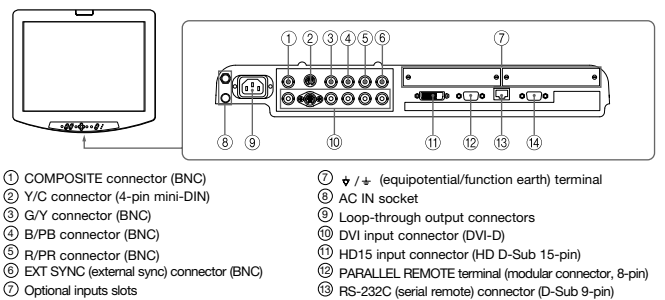
## General

|                                       |   |
|---------------------------------------|---|
| Power Consumption                     | Maximum: Approx. 100 W (with 2 x BKM-255DV)<br>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



## Connector Panel



© 2004 Sony Corporation. All rights reserved. Reproduction in whole or in part without written permission is prohibited. Features and specifications are subject to change without notice. All non-metric weights and measures are approximate. Sony is registered trademark of Sony Corporation, Japan. All other trademarks are the property of their respective owners. GA LMD-2140MD/GB- / 2004

# SONY

SONY EUROPE

www.sonybiz.net