

SONY®

NTSC/PAL

Color Video Monitor

PVM-20M2MDU/20M2MDE/20M2MDA

PVM-14M2MDU/14M2MDE/14M2MDA



Sony introduces two high quality color monitors specifically designed for professional use in medical environments.

Sony PVM-20M2MD^{*1} and PVM-14M2MD^{*2} Color Monitors comply fully with the worldwide medical safety standards, including UL 2601-1, CSA 601.1 and EN 60 601-1, and provide high resolution along with true-to-life, reliable image reproduction.

Operational convenience and flexibility are significantly enhanced by special features such as four color temperature selection, scanning size selection, an RGB split display capability and DC output availability.

Both of these color monitors are ideally suited to a wide range of medical applications such as microsurgery, endoscopy and pathology.

Features

Superior Picture Performance

High Resolution

The PVM-20M2MD and PVM-14M2MD achieve a high resolution of 600TV lines, with a dark tint-faced CRT for a high contrast image.

Accurate Color Reproduction

The PVM-20M2MD and PVM-14M2MD provide consistent, accurate color reproduction over long periods.

To minimize any color temperature drift which can affect the accuracy of color reproduction, both monitors employ a beam current feedback circuit.

Ease of Operation

On-screen Menu Control

To set up and operate the PVM-20M2MD and PVM-14M2MD series, both are equipped with an on-screen menu which can be selected in English, German, French, Italian or Spanish.

Customized Operation

The settings for Brightness, Chroma, Phase, Contrast, Volume and Aperture control can be stored in a user memory for subsequent recall.

Effective Operational Functions

Color Temperature Selection

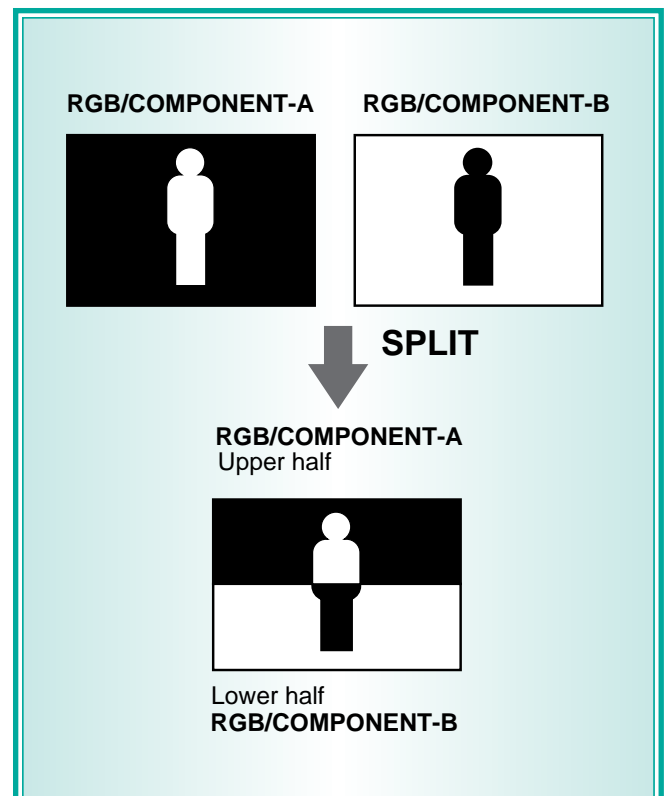
Four color temperatures can be selected: D65, D56, D93, and user preset. The user preset is a memorized setting which can be precisely adjusted in the range of 3200K to 10000K.

Scan Size Selection

The scan size can be selected from three modes – Underscan, Normal Scan, and 20% Overscan. When Underscan mode is selected, the entire active picture area is displayed. This makes it possible to view an image or screen of data in its entirety. 20% Overscan mode can be used as a form of zoom operation; this is of particular benefit in microscope and endoscope applications where, for example, it eliminates the need to change lenses.

RGB Split

RGB or component video signals fed through the two inputs can be simultaneously displayed using RGB split mode. In this mode, the displayed image is switched between the RGB/COMPONENT A and B inputs at the mid-point of the CRT frame scan. This enables the colors of pictures from two devices – for example, a camera and printer – to be displayed one above the other for easy comparison and precise adjustment.



*1 PVM-20M2MD is available in three different models; PVM-20M2MDU for NTSC areas, PVM-20M2MDE for PAL areas and PVM-20M2MDA for Australia.

*2 PVM-14M2MD is available in three different models; PVM-14M2MDU for NTSC areas, PVM-14M2MDE for PAL areas and PVM-14M2MDA for Australia.

Remote/Tally

The PVM-20M2MD and PVM-14M2MD are equipped with two types of remote control interface. A parallel interface (REMOTE 1) controls input selection, the overscan function and Tally. 8V DC is available to power a customized parallel remote control unit. For versatile system integration, these monitors can also be remotely controlled through a D-sub 9-pin serial remote interface complying with the RS-232C standard. Using this interface, the PVM-20M2MD and PVM-14M2MD can be controlled from a computer.



DC OUT Function

DC 8V / 0.8 A output is available as a power supply for any additional equipment in the system.

Versatile Analog Signal Inputs

For user flexibility, the PVM-20M2MD and PVM-14M2MD are equipped with input connections for component (Y / R-Y / B-Y), RGB, Y/C and composite video signals. Dual RGB/COMPONENT inputs are provided, the 'A' inputs having a loop-through facility. Both sets of inputs include an external sync connector.

* The RGB/COMPONENT input is selected from the on-screen menu.

Auto and Manual Degaussing

When power is turned on, the CRT is automatically degaussed. In addition, the PVM-20M2MD and PVM-14M2MD have a manual degaussing switch which can be used to demagnetize the tube when required.

19-inch EIA Standard Rack Mountable

The PVM-20M2MD can be mounted in a 19-inch EIA standard rack with the optional Sony SLR-103A Slide Rail Kit.

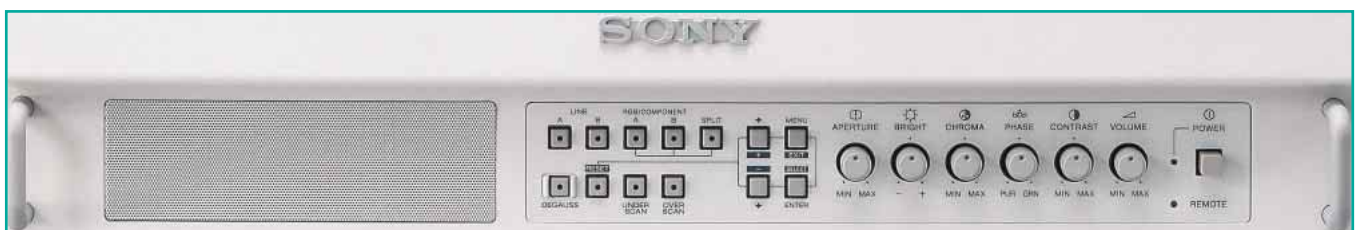
The PVM-14M2MD can also be mounted in a 19-inch EIA standard rack with the optional Sony MB-502B Rack Mounting Bracket and Sony SLR-102 Slide Rail Kit.

Built-in Speaker

A built-in audio amplifier and speaker provide a monaural monitoring facility.



Front Panel Control section



Suitability for Medical Applications

Safety Approval

The PVM-20M2MD and PVM-14M2MD conform to the worldwide safety regulations including UL 2601-1, CSA 601.1 and EN 60 601-1. Wherever they are used, these monitors are therefore suitable for professional applications in medical environments.

Fluid Resistance and Control Protection

Both monitors are supplied with two types of cover. One comprises a pair of side covers which are attached to the ventilation holes to protect against liquid accidentally entering the monitor. The other is a control panel cover which prevents inadvertent operation.

These accessories add to the reliability of the PVM-20M2MD and PVM-14M2MD in medical applications.

Ground Earth Terminal

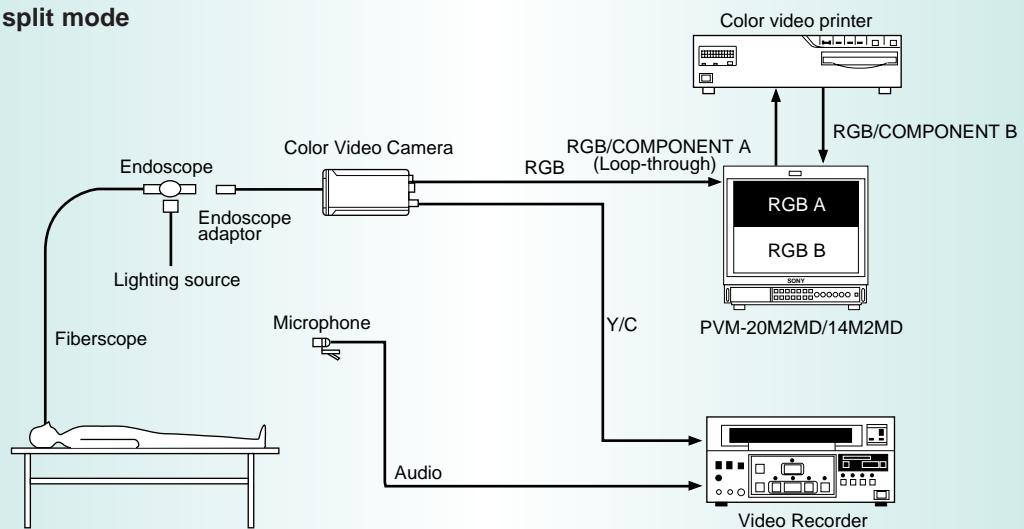
For safety, the PVM-20M2MD and PVM-14M2MD benefit from low electrical leakage which can be vital in a medical environment. For added safety in cardiac floating (CF) applications, both monitors are equipped with a ground earth terminal.

Metal Cabinet

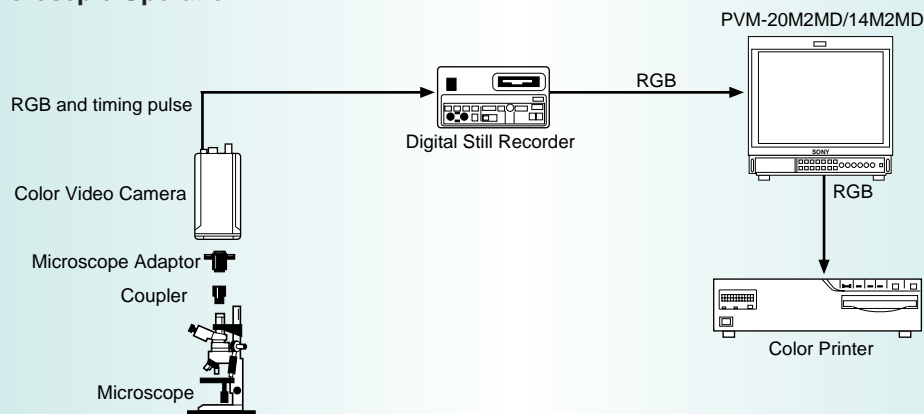
Both monitors are housed in a metal cabinet for durability and to reduce electromagnetic interference.

System Connections

Endoscopic diagnosis system -in RGB split mode



Video Microscple Operation



* All the equipments connected to this unit shall be certified according to Standard IEC601-1, IEC950, IEC65 or other IEC/ISO Standards applicable to the equipments.

Specifications

PVM-20M2MDU/ PVM-20M2MDE/ PVM-20M2MDA

PVM-14M2MDU/ PVM-14M2MDE/PVM-14M2MDA

Signal performance

Color system:	NTSC, PAL automatically selected
Resolution:	600TV lines at center
Aperture correction:	0 to +6dB
Frequency response:	LINE 10.0MHz (±3dB) *Y signal only RGB 10MHz (±3dB)
Synchronization:	AFC time constant 1.0mS
Line pull range:	H ±500Hz V -8Hz

Picture and performance

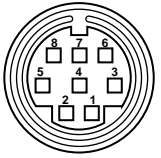
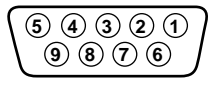
CRT:	20-inch CRT with P-22 phosphor, visible picture size 479.8mm (19-inch measured diagonally)	14-inch CRT with P-22 phosphor, visible picture size 331.6mm (13-inch measured diagonally)
AG pitch:	0.4mm	0.25mm
Normal scan:	7% overscan	
Over scan:	20% overscan	
Under scan:	5% underscan	
H linearity:	less than 5% (typical)	less than 4% (typical)
V linearity:	less than 5% (typical)	less than 4% (typical)
Convergence: center	less than 0.6mm (typical)	less than 0.4mm (typical)
peripheral	less than 1.0mm (typical)	less than 0.5mm (typical)
Raster size stability:	H less than 1.0% V less than 1.5%	
HV regulation:	less than 4.0%	less than 3.5%
Color temperature:	D65, D56, D93 USER (3200K to 10000K, factory set to D65)	

General

AC input range:	AC100 to 240V, 50/60Hz	
Total power consumption:	1.5 to 0.6A	1.2 to 0.5A
Audio out:	0.8W monaural (distortion less than 5%)	
Operating conditions:	0 to 40°C (32 to 104°F) temperature, 700 to 1060 hPa pressure, 30 to 85% humidity	
Storage conditions:	-10 to 40°C (14 to 104°F) temperature, 700 to 1060 hPa pressure, 0 to 90% humidity	
Dimensions:	450 (W) x 457.5 (H) x 503 (D) mm (17 3/4 x 18 1/8 x 19 7/8 inches)	346 (W) x 340 (H) x 430.5 (D) mm (13 5/8 x 13 1/2 x 17 inches)
Mass:	30.0kg (66lb 2oz)	16.7kg (37lb 8oz)

Input / Outputs

Line-A:	Composite with loopthrough BNC, Automatic 75Ω terminated Audio IN/OUT, phono jack (monaural)
Line-B:	Y/C with loopthrough Mini DIN 4pin, Automatic 75Ω terminated Audio IN/OUT, phono jack (monaural)
RGB/COMPONENT-A:	RGB/COMPONENT with loopthrough BNC, Automatic 75Ω terminated Audio IN/OUT, phono jack (monaural)
RGB/COMPONENT-B:	RGB/COMPONENT, BNC Audio IN, phono jack (monaural)
EXT SYNC for RGB input:	RGB A: IN/OUT with loopthrough BNC, Automatic 75Ω terminated RGB B: IN, BNC
Remote/Tally inputs:	MINI DIN 8-pin input selection, remote on/off, overscan function connector: control and tally control. D-sub 9pin serial remote interface complying with RS-232C connector:

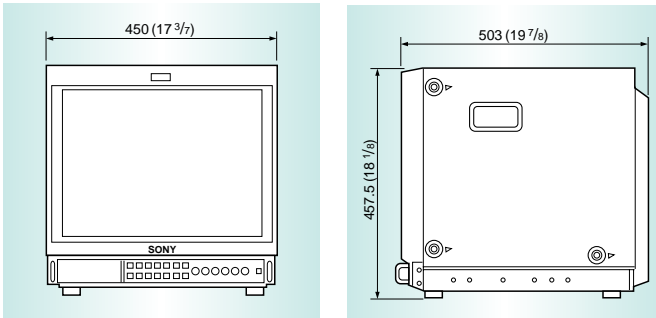
		
	MINI DIN 8-pin	D-sub 9pin
1	REMOTE ON/OFF	-
2	LINE A	RX
3	GND	TX
4	LINE B	-
5	TALLY	GND
6	OVERSCAN	-
7	RGB A	RTS
8	RGB B	CTS
9	-	-

UL 2601-1, CSA 601.1, EN 60 601-1
(TÜV Rheinland/Gm mark)
FCC-A, IC-A, CE(MDD), VCCI-A, JEIDA,
C-TICK, DHHS, DNHW

AC power cord (1)
AC plug holder (1)
Side covers (2)
Control panel cover (1)
Panel hinges (2)
Remote control connector 8-pin mini DIN (1)
Instructions for Use (1)
RS-232C protocol manual (1)

Dimensions

PVM-20M2MDU/20M2MDE/20M2MDA

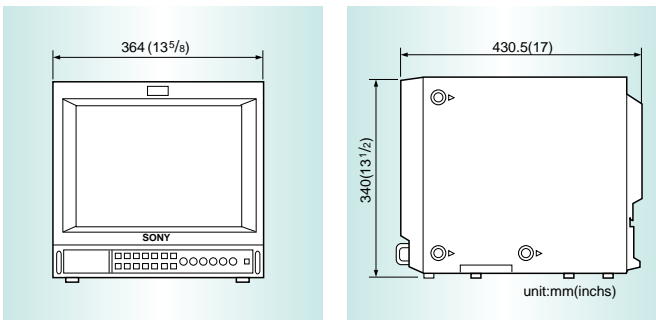


MB-502B

Rack mounting bracket for PVM-14M2MD



PVM-14M2MDU/14M2MDE/14M2MDA



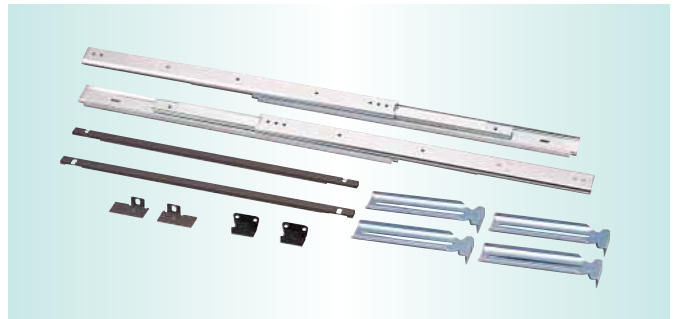
SLR-102

Slide rail for PVM-14M2MD

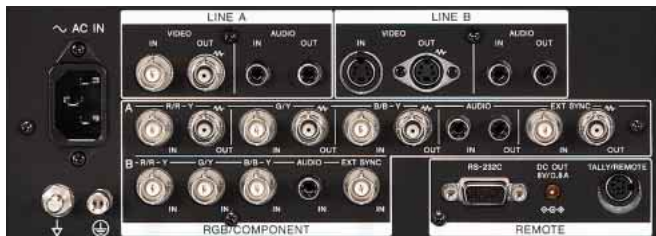


SLR-103A

Slide rail for PVM-20M2MD



Rear Panel Connector Section



Features and specifications subject to change without notice.

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