

Medical DVD Recorder

## DVO-1000MD





## A Powerful DVD Recorder for High-quality Medical Image Recording

*The Sony DVO-1000MD is a DVD recorder designed to comply with medical safety standards\*. It combines outstanding picture quality with a long three-hour recording time and operational features optimized for medical applications. Using DVD+RW discs for recording, the DVO-1000MD offers the full benefits of removable disc media. Recordings can be made without the cumbersome operation of searching for a blank area of media and without worrying about overwriting other recordings. And, needless to say, they can be randomly accessed for instant replay.*

*The DVO-1000MD also incorporates the ability to record patient data on the disc, making data management much easier in subsequent diagnostic procedures.*

*With outstanding image performance and convenient features, the DVO-1000MD DVD Recorder is the ideal choice for a wide range of medical applications such as ultrasound, endoscopy, and radiology.*

## FEATURES

### Rewritable DVD+RW Media

The DVO-1000MD DVD Recorder adopts the DVD+RW format, an established DVD format offering re-write capability on inexpensive DVD+RW media. This feature provides playback compatibility with many DVD players. While other DVD formats require a "finalize" process after the recording which can take a considerable amount of time – the DVD+RW format eliminates this, reducing the wait time to eject the disc for subsequent diagnostics. Another advantage of using DVD disc media is its long life. This makes it ideal for long-term archiving of recordings, which is a fundamental requirement in medical applications. Also, thanks to its physical size, DVD media offers great space-saving benefits over conventional VHS cassette tapes.

### High-quality Digital Recording

The DVO-1000MD employs MPEG-2 video compression to capture images with high picture clarity – an essential criterion for medical image recording. Its real-time VBR (Variable Bit Rate) encoding automatically allocates the appropriate bit rate (the amount of data used for recording) according to the picture content in real time, thus optimizing picture quality while effectively utilizing disc space.

The DVO-1000MD also records audio signals in the Dolby Digital Stereo format for excellent sound reproduction.

### Long Recording Time

The DVO-1000MD provides a long recording time of up to three hours on a single disc. Three recording modes are available, depending on the picture quality and recording duration required:

HQ Mode*:	60 minutes
SP Mode:	120 minutes
LP Mode:	180 minutes

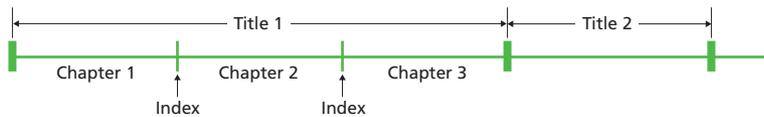
\* In HQ Mode, CBR (Constant Bit Rate) encoding is used

### Quick Random Access by Title and Chapter

The DVO-1000MD makes records as 'titles' – recording segments from when the REC button is pressed until the STOP button is pressed. Within a title, you can set "indexes" to images of interest by pressing the PAUSE button during recording – you can even set automatic index marking with a pre-determined interval. A segment between two index points is handled as a "chapter".

\* EN60601-1, EN60601-1-2, UL60601-1, CSA C22.2 No.60601.1

When playing back the disc, quick access to the top of a title or chapter is possible with the press of a button. You can also quickly access a desired title or chapter simply by selecting it from a list that is instantly displayed by pressing the "LIST" button. These powerful random access capabilities significantly speed up the process of reviewing recordings after the examination.



### High-speed Color Picture Search

The DVO-1000MD offers  $\pm 3$  times normal-speed playback as standard. Using an optional control panel, such as the SVRM-100A or DSRM-10,  $\pm 10$  times normal-speed playback becomes available with easy-to-use Jog/Shuttle dial operation. Furthermore, a maximum  $\pm 30$  times normal-speed playback is possible from other medial equipment connected via the RS-232C protocol.

### A Variety of Repeat Playback Modes

In addition to normal playback, three repeat playback modes are available:

- Repeat between two desired points
- Repeat of the chapter currently played back
- Repeat of the title currently played back

### Various Data Recording

In conjunction with medical equipment, the DVO-1000MD can record various types of information related to the examinations onto the DVD disc. Data such as disc/title names, patient data of up to 2 KB (per one title), and scale data can all be transferred from connected medical equipment via the RS-232C interface for recording onto disc.



Front Panel

### A Variety of Remote Control Interfaces

For remote control from other medical equipment, the DVO-1000MD DVD Recorder supports the RS-232C protocol – widely used in the Sony SVO-9500MD S-VHS Medical VTR. Three remote control units are also available as options: the SVRM-100A, DSRM-10, and FS-20. A USB 2.0 (Full Speed) interface is also provided.

### A Wide Range of Interfaces

The DVO-1000MD is equipped with a wide range of interfaces including analog composite, S-Video and analog audio I/Os, and an audio monitor output. An i.LINK™ (DV) input is also provided to achieve high-quality digital video recording with minimal signal degradation.

\* i.LINK is a Sony trademark used only to designate that a product is equipped with an IEEE1394 connector. Some products with an i.LINK connector may not communicate with each other. Please refer to the documentation that comes with any device having an i.LINK connector for information on compatibility, operating conditions, and proper connection.

### Quick Recording Using an Internal HDD

The DVO-1000MD is equipped with an internal HDD (Hard Disk Drive) so that recording always starts the moment the record button is pressed. The DVO-1000MD first starts recording to its HDD while the inserted DVD disc is initializing itself for recording. Once the DVD disc is ready to record, the DVO-1000MD starts writing onto the DVD disc using the data temporarily stored on the HDD. This mechanism, not available on typical DVD recorders, makes it possible to start recording right after the DVD disc is inserted, as well as when resuming the unit from "stop" mode. In addition, the HDD can also be used for data recovery in the unlikely event that a recording fails on the DVD disc\*.

\* Data recovery must be conducted by a Sony service representative. For details, please contact your nearest Sony office.

### Other Features

- Compliance with medical safety standards: EN60601-1, EN60601-1-2, UL60601-1, CSA C22.2 No.60601.1
- Compact design and low power consumption
- NTSC/PAL switchable operation
- Universal powering: AC 100 V to 240 V

## SPECIFICATIONS

DVO-1000MD	
General	
Power Requirements:	AC 100 V to 240 V, 50/60 Hz
Power Consumption:	35 W
Operating Temperature:	+5 to +40°C
Storage Temperature:	-20 to +60°C
Operating Humidity:	20 to 80%
Dimensions:	212 x 128.5 x 382 cm (8 3/8 x 5 x 15 inches)
Mass:	6 kg (13 lb 4 oz)
Recording System:	DVD Recording, NTSC/PAL Switchable
Recording Format:	Video: MPEG-2 compression Audio: Dolby Digital format
Recordable Media:	DVD+RW (2.4x and 4x speed)
Recording Time:	HQ Mode: 60 minutes SP Mode: 120 minutes LP Mode: 180 minutes
Medical Standards:	EN60601-1, EN60601-1-2, UL60601-1, CSA C22.2 No.60601.1

Input/Output	
Analog Composite Input:	BNC x2, with loop-through, unbalanced, 1.0 Vp-p, 75 $\Omega$
S-Video Input:	4-pin DIN x2, with loop-through Y: 1 Vp-p, 75 $\Omega$ , unbalanced C: 0.286 Vp-p (NTSC)/0.3 Vp-p (PAL), 75 $\Omega$ , unbalanced
Analog Composite Output:	BNC x1, 1 $\pm$ 0.2 Vp-p, 75 $\Omega$ , unbalanced
S-Video Output:	4-pin DIN x1 Y: 1.0 Vp-p, 75 $\Omega$ , unbalanced C: 0.286 Vp-p (NTSC)/0.3 Vp-p (PAL), 75 $\Omega$ , unbalanced
Analog Audio Input:	RCA Pin x2 (L/R), 2 Vrms (full bit), input impedance 47 k $\Omega$
Analog Audio Output:	RCA Pin x2 (L/R), 2 Vrms (full bit), load impedance 47 k $\Omega$
Monitor Audio Output:	Monitor RCA Pin x1, 2 Vrms (full bit), load impedance 47 k $\Omega$
i.LINK (DV IN):	i.LINK 6-pin x1, IEEE1394
Remote Control:	RS-232C x1, D-sub 9-pin Remote1 x1, stereo mini jack (for connection with the optional SVRM-100A/DSRM-10 controllers) Remote2 x1, stereo mini jack (for connection with the optional FS-20 foot switch) USB 2.0 x1 (Full Speed)

Supplied Accessories:	
	Operation Manual, Protocol Manual

Rear Panel



## OPTIONAL ACCESSORIES



**DSRM-10**  
Remote Control Unit



**SVRM-100A**  
Remote Control Unit



**FS-20**  
Foot Switch



**VMC-IL6615B/iL6635B**  
i.LINK cable (6-pin to 6-pin)



**VMC-IL4615B/iL4435B**  
i.LINK cable (6-pin to 4-pin)

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