

HVO-1000MD

HD Video Recorder

SONY
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To make efficient use of the operating theater and to drastically improve the way doctors use surgery images, the HVO-1000MD offers many recording advantages and makes a significant contribution to effective hospital management.

Sony proudly introduces the HVO-1000MD, a new medical HD recorder that achieves stunning-quality image acquisition and reproduction in both high-definition (HD) and standard-definition (SD). The traditional process of video recording and editing can be extremely time-consuming, but the new HVO-1000MD greatly improves the workflow. Designed to boost efficiency and save valuable time, this recorder provides a number of important user benefits.

One of the characteristic features of the HVO-1000MD is that it simultaneously records images in two external media during operation and examination procedures. Consequently, it saves the time usually required for duplication. Another key feature is its interface for a streaming function that works in combination with NSR Series network security recorders.* The HVO-1000MD achieves real-time transmission of images, captured by endoscopes and cameras, and its FTP/CIFS network function can send these image files from the operating theater to computers and servers via the Intranet. As a result, doctors in their medical offices or, indeed, anywhere with network connection can instantly share these medical insights and contribute their expertise.

The HVO-1000MD can be used with multiple media including Blu-ray disc (BD-data format), DVD disc (DVD data format), removable HDD (USB), and USB flash memory, and therefore accommodates diverse customer requirements in various medical applications. By minimizing the number of buttons, the recorder realizes easy operation even for users without technical knowledge. In addition, the recorder's compact design allows it to easily fit into endoscope carts.

With its unique features and benefits, the HVO-1000MD is perfect for users seeking efficient management of images and is ideally suited to a wide range of medical applications such as endoscopy, microscope, and surgical camera use.

*This function is available from NSR Series ver.1.3. For detailed information, please contact your nearest Sony office.

Features

■ Simultaneous Recording in Two External Media

The HVO-1000MD records images onto an internal HDD and two external media at the same time. With this function, users no longer need to copy data after recording onto the internal HDD. In addition, users have greater confidence in this workflow as there is no risk of data loss with this recording method.

■ Real-time Distribution with a Streaming Function

A useful streaming function is offered for data transmission. In combination with Sony's network security recorders, the NSR Series*, the HVO-1000MD delivers live events captured by endoscopes or cameras, enabling doctors, nurses, and other medical staff outside the operating theater to follow events and be prepared for any required action.

*This function is available from ver.1.3. For detailed information, please contact your nearest Sony office.

■ Broad Support for Consumer Media

Compatible with multiple media, including Blu-ray disc, DVD disc, removable HDD (USB), and USB flash memory, the HVO-1000MD can accommodate diverse customer requirements.

■ High-Quality HD Recording (MPEG-4 AVC/H.264 Compression)

The HVO-1000MD records 1080-line high-definition video using the MPEG HD codec — MPEG-4 AVC/H.264 AVC compression — which is appropriate when compressing large-size image data such as HD images. The higher resolution of MPEG HD video compared to standard-definition video makes it possible to reproduce extremely clear and detailed images. Users can select bit ranges of 18, 8, or 4 Mb/s*, depending on their requirements for picture quality and recording length.

*By VBR recording to internal HDD in full HD signal.

■ Long Recording Time

This new medical recorder boasts a long recording time of up to approximately 24 hours of high-quality moving images with a 320 GB capacity. With Blu-ray disc external media, it can record images in high-definition for up to approximately five hours.

■ Wide Range of Interfaces

The HVO-1000MD can accept a wide variety of input signals including HD-SDI, DVI-D, SD-SDI, composite, and S-Video. 1080/60p signal can be acceptable to the HVO-1000MD by conversion to 1080/60i or 1280/720p.

■ **Simple Operation with a Minimum of Buttons**

With a reduced number of buttons on the front panel, it's easy and intuitive for users to operate this recorder.

■ **Network Data Transmission Through FTP or CIFS**

Recorded data can be transferred from the operating theater to computer via FTP or CIFS over the hospital network. This enables effective, network-based sharing of recorded material, for example, to a doctor's room located anywhere in the network.

■ **Still and Motion Image Capture**

The HVO-1000MD records both still images and moving images.

■ **Pre-install Sony USB Printer Driver**

Since the HVO-1000MD can be directly connected to one of Sony's medical USB printers (UP-DR80MD, UP-D25MD), image data can be printed for further examination and for medical reports.

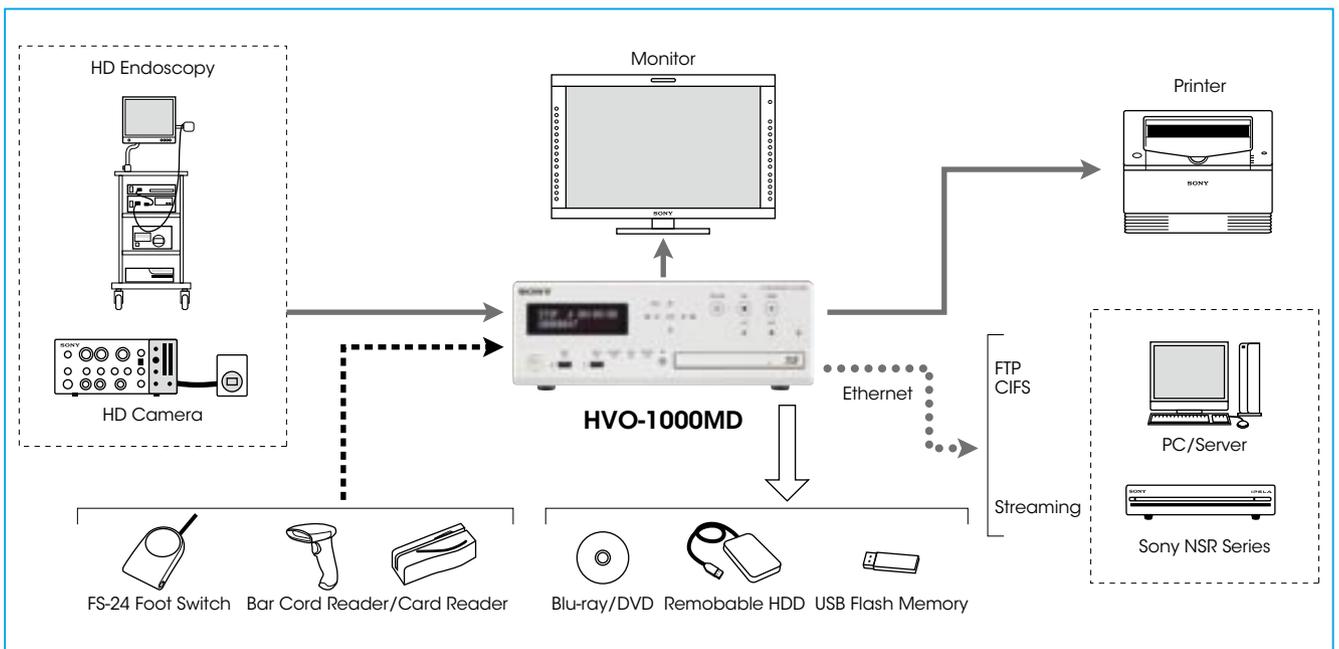
■ **Compact Design for Medical Cart**

In order to fit neatly into an endoscope cart, the HVO-1000MD has a compact design, and measures just 305 mm wide by 110 mm high.

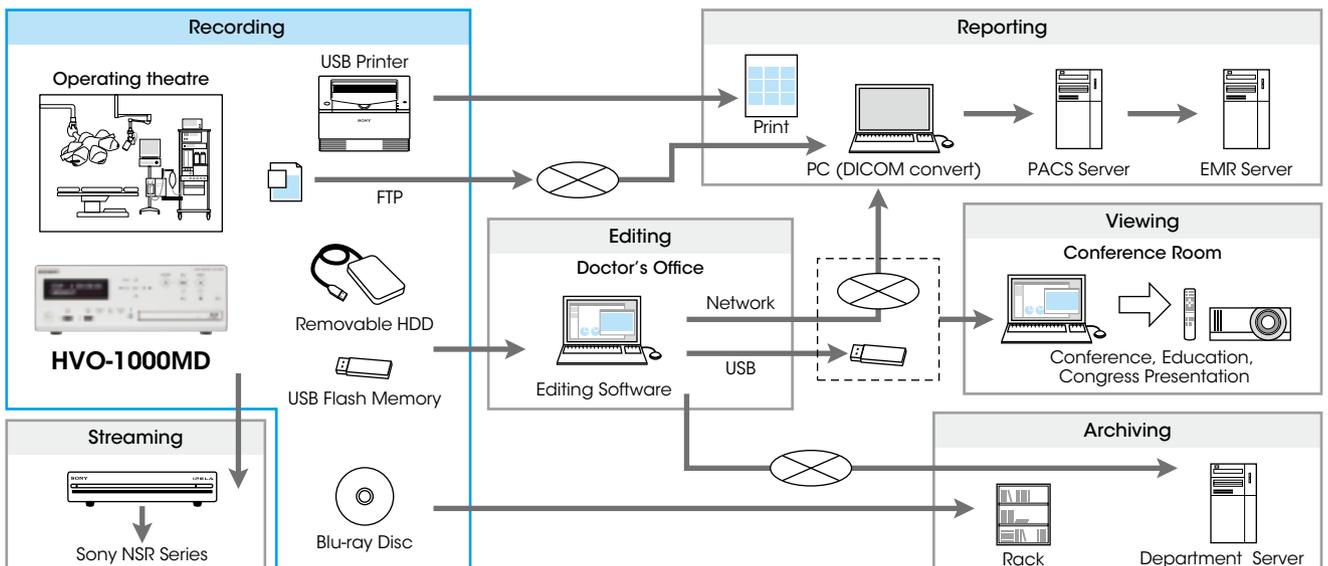
■ **Compliance with Medical Safety Standards**

- UL60601-1 First Edition
- CAN/CSA-C22.2 No.601.1-M90
- EN60601-1:1990 + A1:1993 + A2:1995
- IEC60601-1-2:2007
- IEC60601-1 Second Edition

System Configuration



Work Flow



Specifications

General	
Power requirements	100 V to 240 V AC, 50 Hz/60 Hz
Input current	1.9 A to 0.8 A
Operating temperature	5°C to 40°C (41°F to 104°F)
Operating humidity	20% to 80% (Maximum wet-bulb temperature: 30°C (86°F) (no condensation)
Operating pressure	700 hpa to 1,040 hpa
Temperature range for storage	-20°C to +60°C (-4°F to +140°F)
Humidity range for storage (no condensation)	20% to 90% (Maximum wet-bulb temperature: 30°C (86°F))
Storage and transport pressure	700 hPa to 1,040 hPa
Mass	8.4 kg (18.5 lb.)
Dimensions (w x d x h)	305 x 410 x 115.5 mm (12 1/8 x 16 1/4 x 4 5/8 in.) (including protrusions)
Recording devices	
Internal hard disk drive	320 GB
Blu-ray Disc/DVD drive (1)	Compatible media: BD-RE2.0, BD-R1.0, DVD-R
Input connectors	
S-VIDEO IN	Mini DIN 4-pin type (1) Y: 1.0 Vp-p (75 Ω) Sync negative C (BURST): 0.286 Vp-p (75 Ω) (NTSC) C (BURST): 0.3 Vp-p (75 Ω) (PAL)
VIDEO IN	BNC (1), Composite, 1.0 Vp-p (75 Ω), Sync negative
DVI-D IN	Receptacle (1), TMDS 1 channel (single link)
RGB IN	D-sub 15-pin (1), 0.7 Vp-p/with sync on green G: 1.0 Vp-p 75 Ω
HD-SDI IN	BNC (1) SD: SMPTE259M compliant HD: SMPTE292M compliant 75 Ω
AUDIO LINE IN	Stereo mini jack (1) 1.4 Vrms (full bit), input impedance 10 kΩ or higher, unbalanced
Output connectors	
S-VIDEO OUT	Mini DIN 4-pin type (1) Y: 1.0 Vp-p (75 Ω) Sync negative C (BURST): 0.286 Vp-p (75 Ω) (NTSC) C (BURST): 0.3 Vp-p (75 Ω) (PAL)
VIDEO OUT	BNC (1), Composite, 1.0 Vp-p (75 Ω), Sync negative
DVI-D OUT	Receptacle (1), TMDS 1 channel (single link)
HD-SDI OUT	BNC (1), SD/HD 0.8 Vp-p 75 Ω
AUDIO OUT	Stereo mini jack (1), 1.4 Vrms (full bit), load impedance 10 kΩ, unbalanced
Other interfaces	
USB	USB 2.0 (4)
Network	RJ-45 (1), 1000Base-T/100Base-TX
REMOTE RS-232C	D-sub 9-pin (2)
REMOTE contact switch	Stereo mini jack (4)
REMOTE MONITOR	RJ-45 type (1)
Equipotential connector	
Supplied Accessories	
Before Using this Unit (1), CD-ROM (Instructions For Use, PROTOCOL MANUAL) (1), Warranty booklet (1), Infrared remote control unit (1)	

Optional Accessories



FS-24



UP-D25MD



UP-DR80MD



LMD-1950MD



LMD-2450MD



LMD-3250MD

Panels



Front Panel



Rear Panel

Distributed by

MK10665V1YIT10APR

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