HVO-3000MT
3D HD Video Recorder

SONY
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3D world
Created by Sony

The new dimension in clarity
Adding spatial orientation to medical imaging

Sony proudly introduces the HVO-3000MT, a new 3D medical-grade HD video recorder that provides exceptional picture quality for both 3D and 2D*1 video recording and playback. Users can record high-quality images onto the internal hard disk drive and a variety of removable media including Blu-ray disc, DVD disc, USB removable hard disk drive, and USB flash memory.*2

3D imaging is fast becoming extremely popular in medical applications such as microscopic surgery, endoscopic surgery, and robotic-assisted surgery because it adds spatial orientation to medical imaging, providing a truer visual experience that is closer to natural sight than 2D imaging.

For microscopic surgery applications, the 3D stereoscopic images that are viewed by the surgeon through a microscope can be shared with other medical staff members utilizing a Sony 3D medical-grade monitor, such as the LMD-2451MT. These 3D images can be easily recorded using the HVO-3000MT.

Physicians can better educate patients and fellow surgeons by integrating 3D images – along with Sony's medical-grade 3D monitors and cameras – into every phase of their workflow, from operating rooms to consulting rooms and teaching facilities.

Together with Sony's medical-grade 3D monitors and cameras, the HVO-3000MT is ideal for all surgery applications.

*1 Users can switch between 2D and 3D functionality via system settings and a subsequent power reset.
*2 Some removable media may not be compatible.

☰ Key Features

Stereoscopic 3D Images
The HVO-3000MT can record and play back high-quality 3D video with simple operation. The improved depth perception and spatial orientation provided by 3D can help surgeons more easily grasp, cut, and suture tissue.

1080p/60
For 3D and 2D video, the HVO-3000MT can record and play back in high quality HD video with 1080 vertical lines of resolution, and 60 progressive frames per second.

Simultaneous Recording
The HVO-3000MT can simultaneously record images onto the internal hard disk drive and up to two external media.*1 With this capability, users save time by not having to subsequently copy data from the internal drive to external media. An added benefit is that this workflow gives users greater confidence, as it eliminates the potential risk of data loss by automatically creating a backup.

High-quality Recording
(MPEG-4 AVC/H.264 Compression)
The HVO-3000MT records 3D and HD video using MPEG-4 AVC/H.264 compression, which is ideal for compressing large-size image data such as 3D and HD images. This highly efficient compression capability enables users to record extremely clear and detailed images, and greatly extends the recording time. Users can select bit ranges from six to 24 Mbps*2, depending on their requirements for picture quality and recording length.

Network Compatibility
Recorded data can be uploaded from the operating room to a computer by FTP (File Transfer Protocol) or CIFS (Common Internet File System) over the hospital network in the same way as recording onto removable media. This enables effective, network-based sharing of recorded material; for example, recordings can be shared between the surgeon in the operating room and a doctor who is located elsewhere on the hospital's IP network.

Long Recording Time
This medical recorder can record up to approximately 31 hours of high-quality video on its internal hard disk drive. With a double-layered Blu-ray disc, it can record more than four hours of video.*3

Still Image Capture
The HVO-3000MT can capture high-quality 3D and 2D still images and store these on the internal hard disk drive and a variety of removable media – users simply press the CAPTURE button or an FS-24 Foot Switch.*4 3D still images are recorded in MPF (Multi-Picture Format) files that are compatible with MPF-compatible image viewers.

*1 Compatible with popular media including Blu-ray disc, DVD disc, USB removable hard disk drive, and USB flash memory.
*2 Maximum bit rate with a Full HD signal.
*3 When recording in highest quality (1080p/60 with a 24-Mbps bit rate). Actual recording times may vary.
*4 Optional product, sold separately.

Wide Range of Video Inputs

The HVO-3000MT can accept a wide variety of input signals including 3G-SDI, HD-SDI, and DVI-D (for both 3D and 2D), and SD-SDI, composite, and S-Video (for 2D only).

Touch Panel Support

It is easy for users to operate HVO-3000MT recording and playback, and to input data such as patient ID, name, gender, and date of birth, using an external touch panel monitor.[5]

Easy Patient Information Input

External keyboards, barcode readers, and card readers are also supported for quick and easy patient data input.[6]

Sony Digital Printer Connectivity

The printer driver for Sony's USB printers[7] is pre-installed. The HVO-3000MT can be directly connected to one of Sony's medical-grade printers so that recorded still images can be printed for further examination and for medical reports.

Medical Cart-friendly Design

To fit neatly into an endoscopy cart, the HVO-3000MT features a compact design, and measures just 305 mm (12 1/8 in) wide by 115.5 mm (4 5/8 in) high.

Side-by-side/Line-by-line Support

Users can select the 3D output mode from side-by-side or line-by-line. The HVO-3000MT also offers the flexibility of selecting an external 3D monitor.
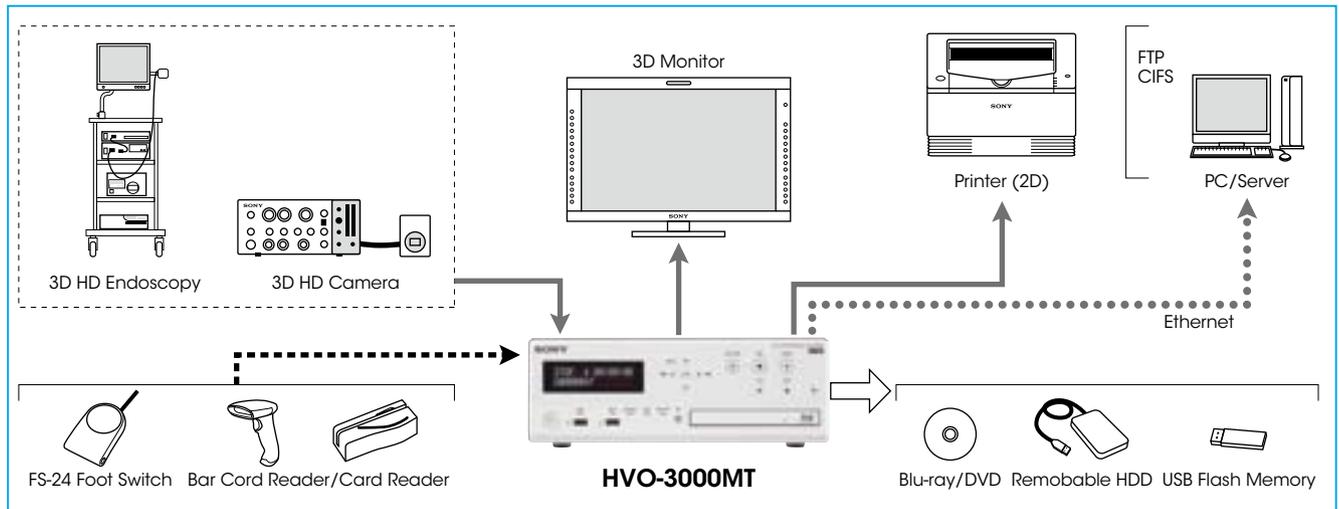
Compliance with Medical Safety Standards

- UL60601-1, 1st Edition
- CAN/CSA-C22.2 No.601-1-M90
- IEC60601-1, 2nd Edition
- EN60601-1, 2nd Edition
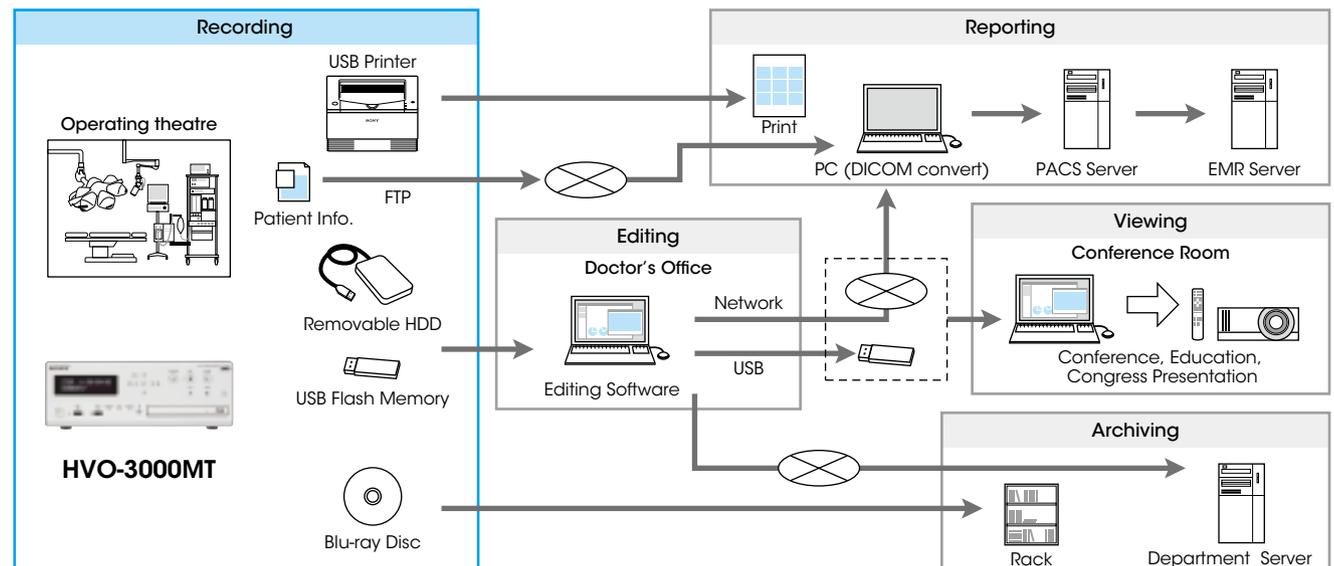
*5 Requires a USB touch panel monitor, sold separately.
*6 For more details on compatible input devices, please contact your nearest Sony office or an authorized dealer.
*7 The UP-DR80MD and UP-D25MD.

≡ System Configuration

3D Monitor · FTP CIFS · Printer (2D) · PC/Server · 3D HD Endoscopy · 3D HD Camera · Ethernet · FS-24 Foot Switch · Bar Cord Reader/Card Reader · **HVO-3000MT** · Blu-ray/DVD · Removable HDD · USB Flash Memory

≡ Work Flow

Recording · Reporting · USB Printer · Print · Operating theatre · PC (DICOM convert) · PACS Server · EMR Server · Patient Info. · FTP · Editing · Doctor's Office · Network · Viewing · Conference Room · Removable HDD · Editing Software · USB · USB Flash Memory · Conference, Education, Congress Presentation · **HVO-3000MT** · Archiving · Blu-ray Disc · Rack · Department Server

☰ 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	20% to 90% (Maximum wet-bulb temperature: 30°C (86°F)) (no condensation)
Storage and transport pressure	700 hPa to 1,040 hPa
Mass	8.4 kg (18 lb 8.3 oz)
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	500GB for physical capacity. 400GB for recording capacity.
Blu-ray Disc/DVD drive (1)	Compatible media: BD-RE2.0, BD-R1.0, DVD-R

Input connectors

S-VIDEO IN	DIN 4-pin type (x1) 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 (x1) Composite: 1.0 Vp-p (75 Ω), Sync negative
DVI IN	DVI 19-pin (x2) TMDS 1 channel (single link)
RGB IN	Mini D-sub 15-pin (x1)
HD-SDI IN	BNC (x2) SD: SMPTE259M / HD: SMPTE292M / 3G: SMPTE424M compliant (75 Ω)
AUDIO LINE IN	Stereo mini jack (x1)

Output connectors

S-VIDEO OUT	DIN 4-pin type (x1) 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 (x1) Composite: 1.0 Vp-p (75 Ω), Sync negative
DVI OUT	DVI 19-pin (x1) TMDS 1 channel (single link)
SDI OUT	BNC (x1) SD/HD/3G: 0.8 Vp-p (75 Ω)
AUDIO LINE OUT	Stereo mini jack (x1)

Other interfaces

USB	USB Type A (x4) USB 2.0
Network	RJ-45 (x1) 1000Base-T/100Base-TX
REMOTE RS-232C	D-sub 9pin (x2)
REMOTE contact switch	Stereo mini jack (x4)
MENU MONITOR	Mini D-sub 15pin (x1)

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

LMD-2451MT
3D LCD Monitor

UP-DR80MD
Digital Color Printer

UP-D25MD
Digital Color Printer

FS-24
Foot Switch

UP-55MD
Color Video Printer

UP-25MD
Color Video Printer

LMD-2451MD
LCD Medical Monitor (2D)

LMD-3250MD
LCD Medical Monitor (2D)

☰ Recommended Peripherals

Touch Panel Monitor
Elo TouchSystems:
ET1528L (15-inch), ET1928L (19-inch)

Barcode Reader
Motorola: Symbol LS2280

Barcode Reader
Motorola: DS6878-HC

Card Reader
Denso Wave: SRU-301MK II-U,
SRU-302MK II-U

☰ Panels

Front Panel

Rear Panel

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