

## HMS-3000MT

### 3D Head Mounted Display System



#### Overview

#### **Visualise endoscopic and laparoscopic images in stereoscopic 3D**

The Sony HMS-3000MT is a personal viewing system that provides a 3D colour video display of images from 3D surgical endoscopic/laparoscopic camera systems and other compatible 3D medical imaging systems.

The system consists of the HMI-3000MT camera control unit plus HMM-3000MT head mounted display that provides a stereoscopic visualisation from the imaging system. As an option, a second head mounted display can be connected to the camera control unit for simultaneous viewing by a second user.

The display is adjustable for more comfortable wear during extended operating periods, and also allows a 'look down' view of the operating site. Unlike passive (circular polarised) 3D systems, the dual-panel design uses two independent OLED panels to display separate images for the wearer's left and right eye. This assists with smooth, natural stereoscopic images, free of 'ghosting' and cross-talk.

The HMI-3000MT Image Processing Unit accepts video input signals in a various 2D/3D formats. Video images can be flipped or rotated for a more convenient viewpoint as desired. There's

also a range of display modes, including Picture-in-Picture mode that enables simultaneous display of a secondary image in a smaller inset window. A range of image adjustment functions allow clear, natural looking pictures under a wide range of operational conditions. Video signals can also be output for viewing on an external monitor.

## Features

### **See clear, bright, immersive images**

Dual OLED panels within the head mounted monitor provide crisp, high contrast HD image quality with a wide colour gamut and fast response time.

### **Smooth 3D video images without ghosting**

Separate OLED display panels for left and right eyes offer a smooth, natural 3D viewing experience. Compared with conventional passive (circular polarised) display devices, cross-talk and 'ghosting' are reduced.

### **See more with wide viewing angle**

High quality optics achieve a wide 45° horizontal viewing angle, enabling a more natural visual experience.

### **Adjustable for a comfortable, personalised fit**

Adjustable headband straps offer a comfortably tailored fit.

### **Unrestricted 'look-down' direct viewing**

The user can freely look down while wearing the head mounted monitor for an unrestricted view of their hands and the immediate operating site. An alignment window on the side of the head mounted monitor lets an assistant easily adjust the user's eye line to the correct position.

### **Range of picture adjustments**

A wide range of picture adjustments allow optimised viewing of any video source. Brightness, contrast and colour balance can be adjusted individually, and sharpness can be increased to make

subject edges stand out more clearly. Three picture modes can be instantly recalled, including Standard, Custom and Vivid for accentuated colour and sharpness. Pictures can be optimised further with a choice of noise reduction modes for clearer, more natural viewing.

### **Choice of display modes for optimum flexibility**

The PinP (Picture-in-Picture) function simultaneously displays a secondary camera source in a smaller inset window. Images can also be flipped or rotated 180° at the touch of a button for comfortable working with the endoscope in any position. (Main picture is displayed in 2D when PinP is activated during 3D viewing).

### **3D/2D switchable for any video source**

The HMS-3000MT can display images from conventional 2D endoscopes as well as 3D systems. It's easy to switch between 2D/3D and SDI/DVI sources by pressing the INPUT button or by using an optional footswitch (FS-24).

### **Support for two Head Mounted Monitors**

The processing unit can also be connected with a second head mounted monitor to give the wearer and another theatre staff member a simultaneous 3D view of endoscopic images. (Requires optional HMM-3000MT 3D Head Mounted Monitor and HMO-CA50M Head Mounted Display Cable, sold separately). The HMI-3000MT can control two head mounted monitors independently. A pass-through function also allows source video signals to be displayed simultaneously on another connected monitor or display device.

### **Compliance with medical standards**

This product is distributed to the US and EU as a medical device and satisfies product safety standards (e.g. IEC 60601-1). For more details, please contact your nearest Sony sales office or an authorized dealer.

## Specifications

### Picture Performance

Panel	Active Matrix OLED
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Picture Size (Diagonal)	0.7-inch
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Resolution (H × V)	1280 × 720
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Aspect	16:9
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Colors	256 levels processing (8 bits) each for Red, Green and Blue
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### Input

SDI Input	SDI/HD-SDI (x2)
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DVI-D Input	DVI-D (x2) TMDS Single link
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DC Input	DIN 3pin (AC Adapter)
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### Output

SDI Output	SDI/HD-SDI (x2) (Through)
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DVI-D Output	DVI-D (x2) (Through)
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HMM Output	HMM (x2)
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### General

Power Requirements	<p>HMI-3000MT: DC IN: 24 V/1.5A (Supplied from AC adaptor)</p> <p>AC Adaptor (Sony): AC IN: 100-240 V, 50/60 Hz, 1.0-0.5A</p> <p>DC OUT: 24 V/3.3A</p>
Power Consumption	36 W typ
Operating Temperature	<p>5 °C to 35 °C</p> <p>41 °F to 95 °F</p>
Operating Humidity	25% to 80% (no condensation)
Storage/Transport Temperature	<p>-20 °C to +60 °C</p> <p>-4 °F to +140 °F</p>
Storage/Transport Humidity	20% to 80% (no condensation)
Operating/Storage/Transport Pressure	700 hPa to 1060 hPa (Operating, Storage)
Dimensions (W x H x D)	<p>HMI: Approx. 306 mm × 56.5 mm × 358 mm</p> <p>HMM: Approx. 191 mm × 173 mm × 271 mm</p> <p>HMI: Approx. 12 18 in. × 2 14 in. × 14 18 in.</p>

	HMM: Approx. 7 58 in. × 6 78 in. × 10 34 in.
Mass	HMI: Approx. 3.3 kg (excluding power cord) HMM: Approx. 480 g (excluding connection cable) HMI: Approx. 7 lb. 4.4 oz. (excluding power cord) HMM: Approx. 1 lb 1.3 oz. (excluding connection cable)
Supplied Accessories	HMM-3000MT Head mounted monitor (1) HMO-CA50M Head mounted display cable (1) AC adapter (1) CD-ROM (Instructions for Use) (1) HMM-3000MT Instructions for Use (1) HMO-CA50M Instructions for Use (1) AC Adapter Instructions for Use (1) Before Using this Unit (1) Service Contact List (1)



## Gallery

