

# SONY



## HMS-3000MT

Head Mounted Display System



# Visualize endoscopic and laparoscopic images in stereoscopic 3D

The Sony HMS-3000MT is a personal viewing system that provides a 3D color 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 image processor unit plus HMM-3000MT head mounted display that provides a stereoscopic visualization 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 without obstructing your peripheral view during a procedure. Unlike passive (circular polarized) 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.

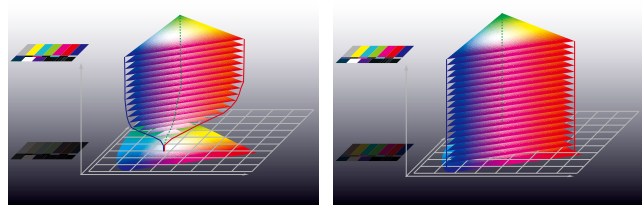
The HMI-3000MT image processor unit accepts video input signals in a various 2D/3D formats. Video images can be flipped or rotated for a more convenient viewpoint as desired. There's also a range of display modes, including Picture-in-Picture mode that enables simultaneous display of a secondary image in a smaller inset window. A range of image adjustment functions allow clear looking pictures under a wide range of operational conditions. Video signals can also be output for viewing on an external monitor.

## Key Features

### See clear, bright, immersive images

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

#### Accurate Color Reproduction



LCD screen image



Sony's OLED screen image

\* Simulated images

#### Quick Response Time



LCD screen image



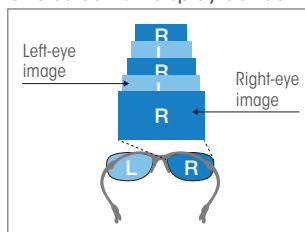
Sony's OLED screen image

\* Simulated images

### Smooth 3D video images without ghosting

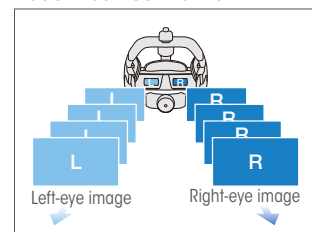
Separate OLED display panels for left and right eyes offer a smooth, natural 3D viewing experience. Compared with conventional passive (circular polarized) display devices, cross-talk and 'ghosting' are reduced.

#### One screen 3D display device



Single Screen Case

#### Head mounted monitor



HMM Case

### See more with wide viewing angle

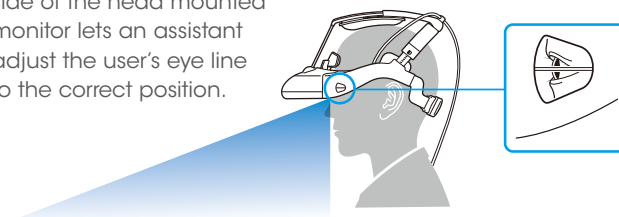
High quality optics achieve a wide 45° horizontal viewing angle, enabling a more natural visual experience.

### Adjustable for a comfortable, personalized 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 adjust the user's eye line to the correct position.

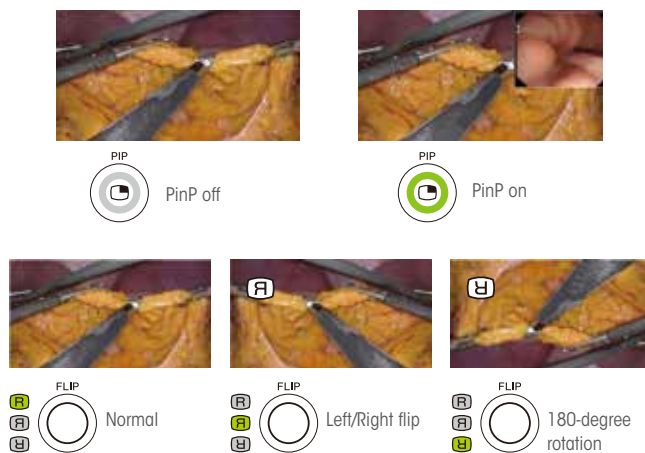


## Range of picture adjustments

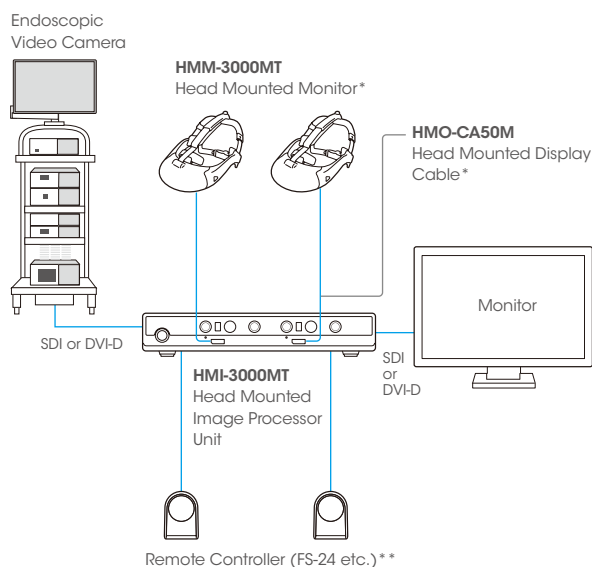
A wide range of picture adjustments allow optimized viewing of any video source. Brightness, contrast and color balance can be adjusted individually, and sharpness can be increased to make subject edges stand out more clearly. Three picture modes can be instantly recalled, including Standard, Custom and Vivid for accentuated color and sharpness. Pictures can be optimized further with a choice of noise reduction modes for clearer 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 working with the endoscope in any position. (Main picture is displayed in 2D when PinP is activated during 3D viewing).



## System Example



\* Requires optional HMM-3000MT and HMO-CA50M to support second HMM.

\*\* The FS-24 has only an IPX3 water resistant rating, and should not be used in operating rooms or other locations where it may be subject to exposure to fluids. For safety, products with IPX6 or higher rating should be used in such instances.

## 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).

\* The FS-24 has an ingress protection rating of IPX3, and cannot be used in operating rooms. For the use in operating rooms, please use the products with IPX6 or greater for safety.

## 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.

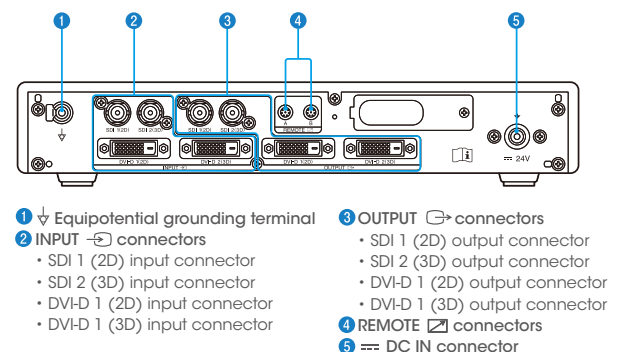
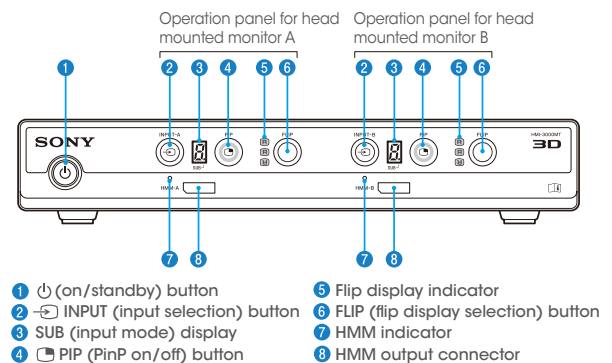
## Compliance with Medical Safety Standards\*

This device is compliant and certified for IEC 60601-1 and product safety standards in the U.S.A., Canada and Europe.

\* Registration status as a medical device may vary, depending on country.

For more details, please contact your nearest Sony office or an authorized dealer.

## Front and Rear Panels

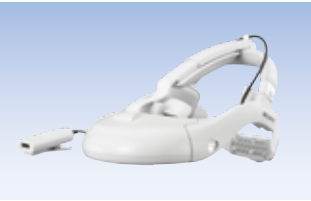


- 1 ↓ Equipotential grounding terminal
- 2 INPUT (INPUT) connectors
  - SDI 1 (2D) input connector
  - SDI 2 (3D) input connector
  - DVI-D 1 (2D) input connector
  - DVI-D 1 (3D) input connector
- 3 OUTPUT (OUTPUT) connectors
  - SDI 1 (2D) output connector
  - SDI 2 (3D) output connector
  - DVI-D 1 (2D) output connector
  - DVI-D 1 (3D) output connector
- 4 REMOTE (REMOTE) connectors
- 5 DC IN connector

# Specifications

	HMS-3000MT
Picture Performance	
Panel	Active Matrix OLED
Picture Size (Diagonal)	0.7-inch
Resolution (H x V)	1280 x 720
Aspect	16:9
Colors	256 levels processing (8 bits) each for Red, Green and Blue
Input	
SDI Input	SDI/HD-SDI (x2)
DVI-D Input	DVI-D (x2) TMDS Single link
DC Input	DIN 3pin (AC-80MD)
Output	
SDI Output	SDI/HD-SDI (x2) (Through)
DVI-D Output	DVI-D (x2) (Through)
HMM Output	HMM (x2)
General	
Power Requirements	HMI-3000MT: DC IN: 24 V/1.5A (Supplied from AC adaptor) AC Adaptor (Sony, AC-80MD): AC IN: 100-240 V, 50/60 Hz, 1.0-0.5A DC OUT: 24 V/3.3A
Power Consumption	36 W typ
Operating Temperature	5 °C to 35 °C 41 °F to 95 °F
Operating Humidity	25% to 80% (no condensation)
Storage/Transport Temperature	-20 °C to +60 °C -4 °F to +140 °F
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)	HMI: Approx. 306 mm x 56.5 mm x 358 mm HMM: Approx. 191 mm x 173 mm x 271 mm HMI: Approx. 12 1/8 in. x 2 1/4 in. x 14 1/8 in. HMM: Approx. 7 5/8 in. x 6 7/8 in. x 10 3/4 in.
Mass	HMI: Approx. 3.3 kg (excluding power cord) HMM: Approx. 490 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-80MD AC adapter (1) CD-ROM (Instructions for Use) (1) HMM-3000MT Instructions for Use (1) HMO-CA50M Instructions for Use (1) AC-80MD Instructions for Use (1) Before Using this Unit (1) Service Contact List (1)

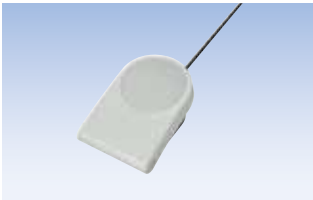
# Optional Accessories



HMM-3000MT  
Head Mounted Monitor

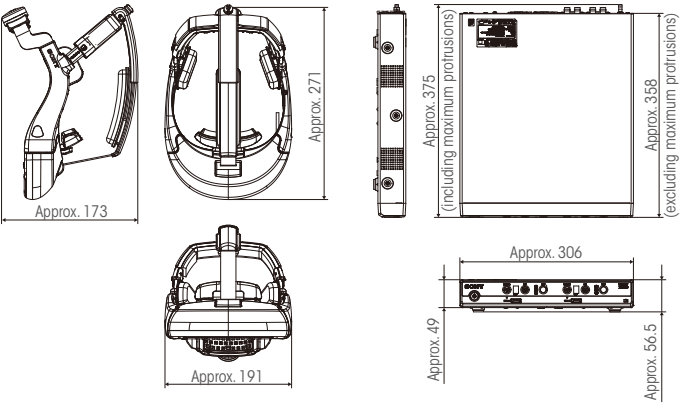


HMO-CA50M  
Head Mounted Display Cable



FS-24  
Foot Switch

# Dimensions



Unit: mm (inches)

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The values for mass and dimension are approximate.  
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Registration status as a medical device may vary, depending on country.  
For more details, please contact your nearest Sony office or an authorized dealer.