

## MCC-1000MD

Two-piece Full HD surgical video camera



### Overview

#### **Two-piece Full HD surgical video camera ideal for microsurgical applications**

Designed to deliver a high level of detail for microsurgery applications, the MCC-1000MD camera head combines three Exmor™ R CMOS sensors. This sensor combined with our leading image processing technology, means the MCC-1000MD provides sensitivity of F20, a signal-to-noise ratio of 63 dB, and a horizontal resolution of 1000 TV lines or more.

The MCC-1000MD can capture Full HD images with 1,080 effective scanning lines even in progressive format, allowing you to see details and movement in videos with greater clarity than in interlaced format.

Simultaneous video outputs from two MCC-1000MD units can be synchronised, allowing capture of HD 3D stereoscopic video images. These 3D images can be displayed on Sony's 4K 3D surgical monitors such as the LMD-X310MT and LMD-X550MT, and can be recorded by our HVO-3300MT 3D medical recorder.

### Features

#### **High sensitivity designed for near darkness**

A high sensitivity of F20 means the MCC-1000MD can capture remarkably clear video and still images even in near darkness -

specifically for procedures involving areas of the anatomy that are difficult to illuminate during a particularly intricate microsurgery. This level of sensitivity allows the camera to capture more natural colours and suppress noise caused by higher gain. Ideal for ophthalmic posterior surgical procedures that involve the retina and optic nerve areas. The camera can also capture and reproduce very brightly-lit areas at standard exposure level.

### **High Dynamic Range (HDR) mode**

The MCC-1000MD can operate in HDR (High Dynamic Range) mode. When used in conjunction with an HDR display, the images can be viewed with a wider range of contrast to capture surgical images with even greater contrast and realism. Objects with surfaces that are difficult to reproduce – are visually improved, such as wetness, dark shadows, or glossiness.

### **Image control with multiple adjustment functions**

The MCC-1000MD is designed for modern clinical environments. The Picture Profile function offers a wide range of pre-set image controls. The OR staff can simply select one of the six picture profiles which match various shooting conditions in Ophthalmic surgery.

The MCC-1000MD also features other image-adjusting features such as Auto Exposure, Knee, Digital Zoom, Picture Profile, Picture Flip, and GenLock. The Picture Flip function can turn the camera picture horizontally, vertically, or both horizontally and vertically according to the microscope.

### **Various outputs for flexible connectivity**

The MCC-1000MD has enough output flexibility to connect with medical modalities with HDMI, HD-SDI (3G-SDI), S-Video, and composite video connectivity built in. This makes it easy to integrate the camera seamlessly into your current set up - be it SD or HD while ensuring you're future-proofed for migration to

any other workflow.

All outputs are active simultaneously, so it can be used with a second or even third monitor in the operating room.

### **Fluorescein mode**

For ophthalmological examination which requires the use of fluorescein dyes, the MCC-1000MD is equipped with a fluorescein mode that produces optimal image quality when shooting objects that yield fluorescence by reacting to fluorescein. It adjusts the saturation and hue for only the fluorescent colour.

### **Easily attachable to surgical microscopes**

The MCC-1000MD can be attached to a range of widely-used surgical microscopes by using the optional accessory Sony CCMA-2DAR, a compatible camera adapter. This enables surgeons to acquire Full HD quality 2D video images of ophthalmology and neurology microsurgical procedures.

### **Convenient foot switch operation**

The MCC-1000MD can be connected to two foot switches, which allow hands free control over functions such as switching picture profile change and pausing image on screen.

## Specifications

### Camera Head

Image Device	1/2.8 type "Exmor" R CMOS image sensor, RGB 3CMOS type
Effective Pixels	1920 (H) x 1080 (V)
Lens Mount	C-mount

Sensitivity	F13 (Typical) (At 1080/59.94i, 89.9% reflection, 2000 lx) F20 (Typical) (At 1080/59.94i, 89.9% reflection, 2000 lx, “High Sensitivity” is “ON”)
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Picture S/N	63 dB (Y) (Typical)
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Horizontal Resolution	1000 TV lines or more
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Gain	0 dB to 30 dB
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Shutter Speed	1/60 to 1/10000
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Slow Shutter	2 to 8 Frames
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Camera Cable Connector	20-pin, round
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## Camera Control Unit

HD-SDI Video Format	1080/60i 1080/60p 1080/50i 1080/50p
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Picture Profile	Yes (Six settings)
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Picture Flip	Yes
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Freeze Function	Yes (capturing a still image)
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Off / Multi / EBU 75% / EBU 100% /

Color Bar	Test Saw
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Camera Synchronization for 3D-shooting	Yes
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AC Power Operation	Yes
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## Connectors

Input Connectors	Remote contact switch connectors 1, 2 (Stereo mini jack)
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Output Connectors	VIDEO OUT (x1) (BNC) S VIDEO OUT (x1) (4-pin mini DIN connector) HDMI OUT (x1) (HDMI connector) HD-SDI OUT (x2) (BNC, HD/3G)
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Input/Output Connectors	CAMERA (x1) (20-pin, round) RS-232C (x1) (D-sub 9-pin) 3D-SYNC IN, OUT (BNC)
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Other Connector	Equipotential ground connector (x1)
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## General

Power Requirements	100 V to 240 V AC, 50/60Hz
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Input Current	0.40 A – 0.25 A
Operating Temperature	0°C to 40°C 32°F to 104°F
Operating Humidity	20% to 80% (no condensation allowed)
Storage and Transport Temperature	-20°C to +60°C -4°F to +140°F
Storage and Transport Humidity	20% to 90% (no condensation allowed)
Storage and transport pressure	700 hPa to 1,060 hPa
Mass (Camera Head)	approx. 60 g approx. 2.1 oz
Mass (Camera Control Unit)	approx. 1.9 kg approx. 4 lb. 3 oz
Dimensions (Camera Head) (WHD, excluding longest protrusions) *1	approx. 34 x 39 x 43 mm approx. 1 3/8 x 1 9/16 x 1 3/4 in.
Dimensions (Camera Control Unit) (excluding longest	approx. 200 x 62 x 264 mm approx. 7 7/8 x 2 1/2 x 10 1/2 in.

protrusions)

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Supplied Items	Lens mount cap (x1) Before Using This Unit (x1) CD-ROM (Instruction for Use in PDF format (x1) Warranty Booklet (x1) Service Contact List (x1)
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Separately-Sold Accessories	Camera Cable - CCMC-SA06 (standard 6 m, 19.6 ft.) - CCMC-SA10 (standard 10 m, 32.8 ft.) - CCMC-SA15 (standard 15 m, 49.2 ft.) - CCMC-EA05 (extension 5 m (16.4 ft.)
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Foot Switch (FS-24) \*2

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Compliance with Medical Safety 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.
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## Related products



### LMD-2735MD

27-inch Full HD 2D LCD medical monitor



### LMD-X310MD

31-inch 4K 2D LCD medical monitor



### HVO-3300MT

Full HD 2D/3D medical recorder



### HVO-550MD

HD Medical Video Recorder, DVD/USB/NAS



### HVO-500MD

HD Medical Video Recorder, USB/NAS



### HVO-500MD (Surgical Version)

Full HD medical recorder with USB/NAS recording and still image capture



### NUCLeUS

The smart digital imaging platform for medical environments



### CCMA-2DAR

2D camera adapter for MCC-1000MD



### LMD-X2710MD

27-inch 4K 2D LCD medical monitor with 12G-SDI



### LMD-XH320MT

32-inch 4K 3D/2D LCD medical monitor



### LMD-XH550MT

55-inch 4K 3D/2D LCD medical monitor



### LMD-XH550MD

55-inch 4K 2D surgical monitor



## Gallery

