

SONY



LMD-X310ST

LMD-X550ST

LMD-X550ST LMD-X310ST LCD MONITOR

Innovation by
Sony & Olympus

4K 3D

4K and 3D imaging is becoming increasingly popular in today's operating rooms. High-resolution 4K imaging and 3D imaging offer depth perception and spatial orientation, providing medical staff with a more realistic visualization of complex surgical procedures.

Sony is proud to introduce 55-inch (model LMD-X550ST) and 31-inch (model LMD-X310ST) medical 4K 3D monitors that can display very high quality 4K Ultra HD color video images in 3D and 2D. These monitors are designed for use with surgical endoscope/laparoscopic camera systems, surgical microscopes, and other compatible medical imaging systems in hospital operating rooms. They are also suitable for use in doctors' offices and surgical centers, and in lecture rooms for educational use.

High Picture Quality

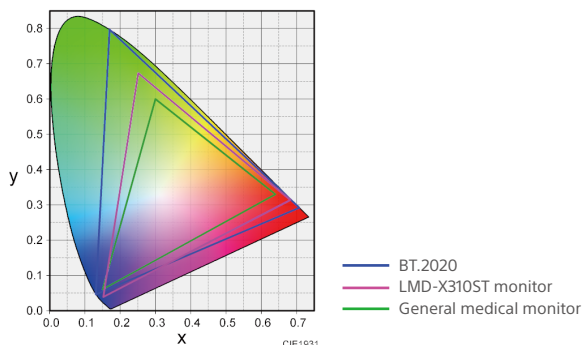
4K Ultra HD Resolutions

4K resolution on a large 31-inch (4096 x 2160) or 55-inch (3840 x 2160)* screen offers high picture quality.

* 31-inch (789-mm) and 55-inch (1,388-mm) screens are measured diagonally.

Wide Color Gamut BT.2020 signal input supported

These monitors comply with ITU-R Recommendation BT.2020 matching with Olympus 4K surgical Endoscopy system, offering a wider color gamut than the BT.709 color gamut.

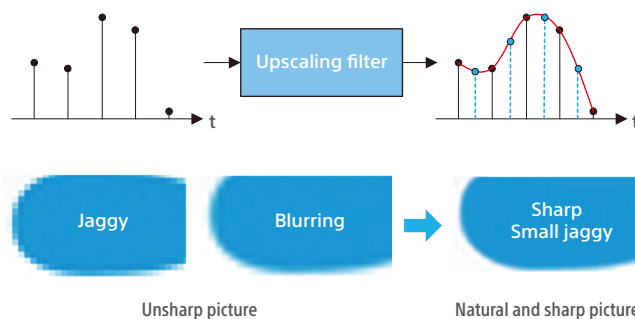


Pre-Installed Dedicated Values for Olympus Surgical Endoscopy and Systems

Special color settings, 3D settings and 4K/2K auto detection features (SDI-1 input) are supported for use with Olympus 4K Surgical Endoscopy and existing endoscopy systems. This optimizes operability with Olympus Endoscopy systems.

HD/SD to 4K Upscaling

Thanks to Sony's unique upscaling filter, these monitors can provide a natural, sharp 4K view without blurring or 'jaggies' when you upscale HD/SD images to 4K.



Clear and High-Contrast View by OptiContrast™ Panel

They incorporate Sony's unique high brightness anti-reflective OptiContrast™ Panel. This can control incidental light reflections and dispersion within the LCD panel layer for improved contrast and visibility. It also helps to eliminate dew condensation in the panel.



OptiContrast Panel

Zoom Function

Image zoom can be adjusted to 1x, 1.2x, 1.5x, or 2x, allowing an enlarged view of small details while retaining high image resolution. Zoom can be set separately for each input (SDI/HDMI/DVI).

3D Features

Various Display Formats in 3D

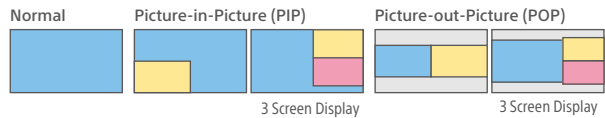
3D/2D operating mode can be set via a display menu and is confirmed by an on-screen indicator. These models can display 3D signals in both HD and 4K, and SDI (3G), DVI, and HDMI terminals are available in 3D mode. The monitors offer various 4K/HD 3D signal display formats such as side-by-side, line-by-line, and top & bottom. Furthermore, dual stream is also available when accepting an HD 3D signal via SDI, which enables the monitor to connect with a wide range of equipment with 3D output.



Wide Range of Display Modes

In addition to displaying a single 3D image, one LMD-X550ST or LMD-X310ST monitor can display images from multiple sources quickly and easily from the menu. For example, the monitor can display 3D images in rotation, side-by-side, picture-in-picture (PIP), and picture-out-picture (POP). 3D PIP/POP multi-image display options include two screens with a main 3D/2D and sub 2D picture, or three screens with three 2D pictures. 3D pictures can also be rotated 180 degrees (image flip).

Multi-image Display (Examples)



Flip Pattern



User-Friendly Control Panel

Operation is simplified by the monitor's intuitive, easy-to-use control panel. LED backlighting only highlights active control buttons, guiding the user and reducing the risk of inadvertent operation, especially in dark environments. Custom buttons can be assigned to commonly used functions.

Front Panel

- 1 Power indicator
- 2 CONTROL button
- 3 OSD menu operation buttons
- 4 2D/3D select button
- 5 CUSTOM button
- 6 A.I.M.E. button
- 7 2 or 3 screen display setting buttons
- 8 Input select buttons
- 9 (ON/STANDBY) switch

Rear/Bottom Panel

- 1 HDMI cable holder
- 2 HDMI input connector
- 3 3G/HD/SD-SDI input/output connector (BNC type) SDI 1 (4K/HD)
- 4 3G/HD/SD-SDI input/output connector (BNC type) SDI 2 (HD)
- 5 SERIAL REMOTE connector (RJ-45)
- 6 12 V 1.7 A output connector
- 7 5 V 1.6 A output connector
- 8 DVI-D input/output connector
- 9 SERIAL REMOTE RS-232C connector (D-sub 9-pin, female)
- 10 (DC 26 V input) connector (LMD-X310ST only)
- 11 (equipotential) terminal
- 12 (AC input) connector (LMD-X550ST only)

Color Matching Function

When displaying 3D images (when you are wearing 3D glasses or a 3D eye-shield), a color matching function minimizes the color shifts between 2D display and 3D display. This function is activated automatically in 3D mode. Also, depth and parallax can be adjusted by a disparity simulation function.*

* Adjusted images are not reflected in the monitor's loop-through output.

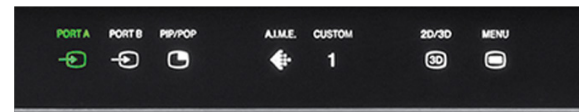
3D Eye-Shield Kit Provided

The lightweight CFV-E30SK eye shield kit comprises one frame and three disposable 3D eye-shields, and is designed for user comfort over extended periods.



2D/3D Switching Button

A 2D/3D switching button is placed on the control panel, which allows users to change modes efficiently and directly.



Compact and Stylish Design

Narrow Black Bezel for Optimized 3D Viewing

The narrow black bezel realizes a wider display area which is suitable for displaying in 3D. Also the monitor's slim, compact, easy-to-hold design facilitates simple user adjustment of the monitor position.

Specifications

	LMD-X310ST	LMD-X550ST
Picture Performance		
Panel	a-Si TFT Active Matrix LCD	
Picture Size (Diagonal)	789.06 mm (31 1/8 inches)	1387.8 mm (54 3/4 inches)
Effective Picture Size (H x V)	698.0 x 368.1 mm (27 1/2 x 14 1/2 inches)	1209.6 x 680.4 mm (47 5/8 x 26 7/8 inches)
Pixel pitch	0.1704 x 0.1704 mm	0.315 x 0.315 mm
Resolution (H x V)	4096 x 2160 pixels	3840 x 2160 pixels
Aspect	17:9	16:9
Pixel Efficiency	> 0.9999	
Backlight	LED	
Panel Technology	LCD with IPS	
Luminance (Panel Specification)	435 cd/m ² (Typical)	520 cd/m ² (typical)
Contrast Ratio	1450 : 1	1400 : 1
Number of Gray scale	10 bit	
Colors	1,073,741,824	
Panel Frame Rate	50/60 Hz	100/120 Hz
Viewing Angle (Panel Specification)	> 89° / > 89° / > 89° / > 89°	
Vertical Viewing Angle (3D Mode)	27° at a viewing distance more than 775 mm, crosstalk ratio less than 7% (typical)	32° at a viewing distance more than 1,200 mm, crosstalk ratio less than 7% (typical)
Gamma	1.8, 2.0, 2.2, 2.4, 2.6, DICOM, Highlight	
Input		
HDMI Input	HDMI (x1) (HDCP 1.4a correspondence)	
DVI-D Input	DVI-D (x1) (HDCP 1.4a correspondence, TMDS single link)	
SDI Input	SDI-1: BNC (x4)/SDI-2: BNC (x1) (3G/HD/SD-SDI)*1	
Serial Remote (LAN)	D-sub 9-pin (RS-232C) (x1), RJ-45 (x1) (Ethernet, 10BASE-T/100BASE-TX)	
Output		
DVI-D Output	DVI-D (x1) when HDCP disabling	
SDI Output	SDI-1: BNC (x4)/SDI-2: BNC (x1) (3G/HD/SD-SDI)	
DC 5 V / 12 V Output	5 V Output (x1), 8 W 12 V Output (x1) 20 W max	
General		
Power Requirements	LCD monitor DC Input: 26 V, 6.9 A AC adaptor (AC-300MD): 245 (W) x 150 (L) x 58 (H) mm AC adaptor's AC IN: 100 V to 240 V, 50/60 Hz, 2.1 A to 1.0 A	LCD monitor AC IN: 100 V to 240 V, 50/60 Hz, 3.2 A to 1.3 A
Power Consumption	LCD Monitor: Approx. 180 W (max.)	Approx. 290 W (max.)
Operating Temperature	0 °C to 40 °C (32 °F to 104 °F) (Recommended: 20 °C to 30 °C (68 °F to 86 °F))	
Operating Humidity	30% to 85% (no condensation)	
Storage/Transport Temperature	-20 °C to +60 °C (-4 °F to +140 °F)	
Storage/Transport Humidity	0% to 90%	
Operating/Storage/Transport Pressure	700 hPa to 1060 hPa	
Dimensions (W x H x D)*2	753.8 x 456.4 x 69.3 mm (29 3/4 x 18 x 2 3/4 inches) (Slimmest D 28 mm)	1264.6 x 771.5 x 85.5 mm (49 7/8 x 30 3/8 x 3 3/8 inches) (Slimmest D 33.9 mm)
Mass	Approx. 11.8 kg (26 lb 0.23 oz)	Approx. 35.2 kg (77 lb 9.6 oz)
Mounting	100 x 100 mm VESA (M4) 100 x 200 mm VESA (M6)	200 x 200 mm VESA (M6) 300 x 300 mm VESA (M6)
Supplied Accessories		
	AC adaptor : AC-300MD (1) AC power cord (1) Instructions for Use (CD-ROM) (1) Before Using This Unit (1) AC power plug holder (2) Instructions for Use of the AC adaptor (1) Service Contact List (1) M4 x 12 mm Screw (4) 3D Eye Shield Kit: CFV-E30SK (1) Instructions for Use of the eye shield kit (1) European Representative (1)	AC power cord (1) Instructions for Use (CD-ROM) (1) Before Using This Unit (1) AC power plug holder (2) Service Contact List (1) M6 x 12 mm Screw (4) 3D Eye Shield Kit: CFV-E30SK (1) Instructions for Use of the eye shield kit (1) European Representative (1)

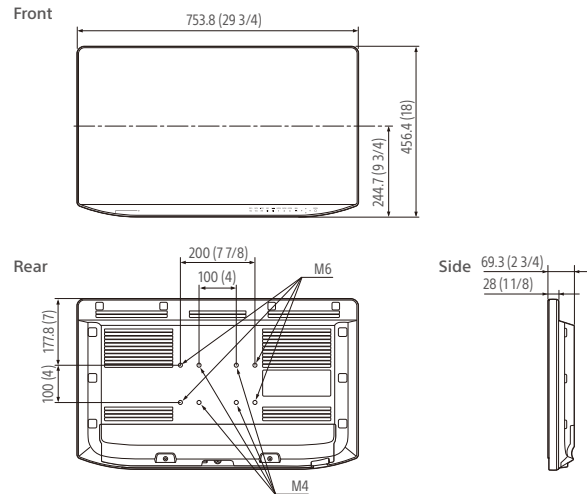
*1 SDI-1 input supported 4K/FHD Auto signal detection
*2 The values for dimensions are approximate.

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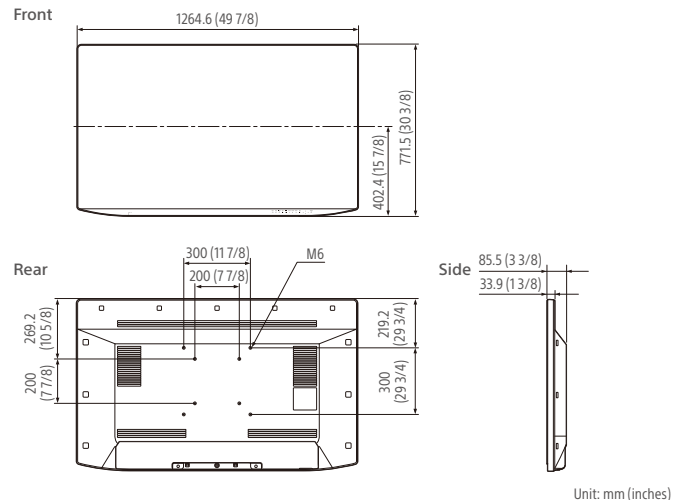
SOMED/OP-1 MO-3 E (01)

Dimensions

LMD-X310ST



LMD-X550ST



Unit: mm (inches)

Optional Accessories

BKM-30GM Circular-polarizer 3D Glasses	BKM-31GM Circular-polarizer 3D Glasses (clip-on)	CFV-E30SK 3D Eye Shield Kit	CFV-E20SK 2D Eye Shield Kit
CFV-E30D 3D Eye Shield Pack	CFV-E20D 2D Eye Shield Pack	CFV-B100 Shield Frame	SU-600MD Monitor Stand (Only for LMD-X310ST)

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This device is not available in some areas.