



4K UHD Monitor

Instructions for Use

FM-E3230D

FM-E3230DG

FM-E3230DN

FM-E3250D

FM-E3250DG

FM-E3250DH

FM-E3250DN



Before connecting, operating or adjusting this product, please read this instruction booklet carefully and completely.

English

Table of Contents

Product Description / Intended Use
Symbol Definitions
Warnings and Precautions
Safety Instructions
Electromagnetic Compatibility
Connections and Mechanical Drawings 14-1
Accessories
/ideo Over Internet Protocol Connections
Controls
On Screen Display (OSD)
Nindow Layout
nput Signal Timing
Specifications
Cleaning Instructions

The specifications and information in this document are subject to change without notice.



Instructions for Use for this product are also available in electronic form (eIFU). Choose from several languages. Use Adobe Acrobat software to view eIFUs. Access the eIFUs online at fsnmed.com/support/eifu/

Product Description / Intended Use



This product from FSN Medical Technologies is a high-end surgical display monitor designed for advanced digital OR applications. This medical display is uniquely equipped to handle tasks in the demanding operating room environment. Performance characteristics include:

- Rapid signal detection, robust mode tables
- · Artifact-free images
- Calibrated to clinical color
- Zoom, freeze, picture-in-picture

Intended Purpose

This device is intended to be connected to other medical equipment, and to display images or videos from endoscopic cameras, room cameras, and patient information such as ultrasound, cardiology, and anesthesiology. This device is not intended for diagnosis. This device is intended to be compatible with other highly specialized surgical and diagnostic equipment used in surgical suites, operating rooms, emergency rooms, and procedural facilities.

Intended Use Environment

This device is intended to be used by a trained medical professional in a healthcare facility setting where contact with a patient is unlikely (no applied part).

This device is designed to meet the medical safety requirements for a patient vicinity device. **Warning:** This device may not be used in connection with life support equipment.

Indications for Use

This device is to be used by a trained medical professional to display images from procedures, such as endoscopy, ultrasound, cardiology, and anesthesiology. This device connects to medical imaging equipment to display images, videos or patient information during surgical procedures. This device is not intended for diagnosis.

Symbol Definitions

The following symbols appear on the product, its labeling, or the product packing. Each symbol carries a special definition, as defined below:

A	Dangerous : High Voltage		Power adapter	<u>(1)</u>	Consult accompanying documents
	Direct current	\triangle	Indicates equipotential earth ground	UDĪ	Unique Device Identifier
③	Follow instructions for use	$\uparrow\uparrow$	Indicates top-bottom direction		Korea Certification
	DC Power control switch		Fragile	(((-)	Approved according to the CCC regulations
7	Do not get wet	3	Maximum Stacking	5	China RoHS labels
	Consult the operating instructions		Indicates the manufacturer	REF	Catalog Number
	Indicates the manufacturing date	EC REP	Authorized representative in the European community	MD	Medical Device
SN	Serial Number		Humidity limitation	eIFU indicator	Consult the operating instructions - electronic
0.6-40.0	Temperature limitation	(F)	Atmospheric pressure limitation		Importer Entity
UKA UKA	UK Conformity Assessed		Power ON		Power OFF
UK RP	UK Responsible Person	VEI	Voluntary Control Council for Interference - Japan	G _{SDoc}	China Green Product
H	Eurasian Conformity	RXONLY	Available from licensed healthcare provider	29 .74P 3	UL Recognized Component
Œ	Indicates proof of conforn standards.	nity to EU	2017/745 Medical Devices	Regulatio	on and applicable
c U) us			th ANSI/AAMI ES60601-1ES 60 gards to electric shock, fire haz		
F©	Tested to comply with FCC	C Class B s	standard (USA).		
X	that the waste of electron	ic equipn ely. Pleas	ipment (WEEE Directive 20 nent must not be disposed e contact the manufacturer juipment.	as unsort	ed municipal waste and

Note: A printed copy of the manual in English is provided with the product. Users within EU member states, please contact local distributor for other languages. This applies to EU member states where the product has been purchased through authorized channels.

Warnings and Precautions

Caution Information



This symbol alerts the user that important literature concerning the operation of this unit has been included. Therefore, it should be read carefully in order to avoid potential problems.

This symbol warns users that un-insulated voltage within the unit may have sufficient magnitude to cause electrical shock. Therefore, it is dangerous to make contact with any part inside the unit. To reduce the risk of electrical shock, DO NOT remove cover (or back). There are no user-serviceable parts inside. Refer servicing to qualified service personnel.

To prevent fire or shock hazards, do not expose this unit to rain or moisture. Do not use this unit's polarized plug with an extension cord receptacle or other outlets unless the prongs can be fully inserted.



Underwriters Laboratories (UL) Classification:

UL safety Compliance:

This medical monitor is U.L. Classified WITH RESPECT TO ELECTRIC SHOCK, FIRE AND MECHANI-CAL HAZARDS ONLY IN ACCORDANCE WITH UL 60601-1/CAN/CSA C22.2 NO. 601.1



EU Conformity and EMC Compliance:

This medical monitor unit meets the requirements of EN60601-1 and EN60601-1-2 so as to conform to the EU Medical Devices Regulation (MDR 2017/745). CE class I medical device accessory.

This medical monitor complies to the above standards only when used with the supplied medical grade power supply. Use 120V rating 5-15P type plug only in the U.S.

ATM250TS-P240 (FM-E3230D, FM-E3230DG, FM-E3230DN) ATM300TS-P240 (FM-E3250D, FM-E3250DG, FM-E3250DH, FM-E3250DN)

Caution: Make sure the power cord is the correct type that is required in your geographic area. This medical monitor has a universal power supply that allows operation in either 100-120V AC or 200-240V AC voltage areas (no user adjustment is required).

7/2025 5

Use the proper power cord with correct attachment plug type. If the power source is 120 V AC, use a power cord which is a Hospital Grade Power Cord with NEMA 5-15 style plug, labeled for 125 volts AC with UL and C-UL approvals. If the power source is a 240 V AC supply, use the tandem (T blade) type attachment plug with ground conductor power cord that meets the respective European country's safety regulations.

A ground post, located on the back of the display, may be used for the purpose of grounding the display's chassis. Any such ground must be installed in accordance with applicable electrical codes. The ground post is shown on the mechanical drawing found in this instructions for use.



Recycling (WEEE Directive 2012/19/EU)

Follow local governing ordinances and recycling plans regarding the recycling or disposal of this equipment.

Warning: Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.

Warning: Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.

Warning: Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of this medical monitor, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.

Warning: Using this equipment in the X-ray or magnetic resonance environment could result in degradation of the performance of this equipment, interference with other equipment or interference with radio services.

Warning: The use of cables and/or other accessories with this device, other than those specified, may result in increased emissions or decreased immunity of this device.

Warning: This product is not considered physically to connect to HF (High Frequency) electrosurgical equipment.

Warning: Not suitable for use in the presence of a flammable anesthetics mixture with oxygen or with nitrous oxide.

Safety Instructions

On Safety

- 1. Before connecting the AC power cord to the DC adapter outlet make sure the voltage designation of the DC adapter corresponds to the local electrical supply.
- 2. Never insert anything metallic into the cabinet openings of the medical monitor. Doing so may create the danger of electric shock.
- 3. To reduce the risk of electric shock, do not remove cover. No user-serviceable parts inside. Only a qualified technician should open the case of the medical monitor.
- 4. Never use your medical monitor if the power cord has been damaged. Do not allow anything to rest on the power cord, and keep the cord away from areas where people can trip over it.
- 5. Be sure to hold the plug, not the cord, when disconnecting the medical monitor power cord from an electric socket.
- 6. Unplug your medical monitor power cord when it is going to be left unused for an extended period of time.
- 7. Unplug your medical monitor power cord from the AC outlet before any service.
- 8. If your medical monitor does not operate normally, in particular, if there are any unusual sounds or smells coming from it, unplug it immediately and contact an authorized dealer or service center.
- 9. Please contact the manufacturer if the set should be installed in an inaccessible area.

Warning: Do not touch input or output connectors and the patient simultaneously.

Warning: This medical monitor is intended for connection to input/output signals and other connectors that comply with relevant IEC standard (e.g.,IEC60950 for IT equipment and IEC60601 series for medical electrical equipment). In addition, all such combination-system shall comply with the standard IEC 60601-1-1 or clause 16 of the 3 Ed. of IEC 60601-1, respectively, safety requirements for medical electrical systems. Any person who has formed a combination-system is responsible for the system to comply with the requirements of IEC 60601-1-1 or clause 16 of the 3 Ed. of IEC 60601-1, respectively. If in doubt, contact qualified technician or your local representative.

Warning: To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth. Power supply (AC/DC Adapter) is specified as a part of the Color Display. Do not position equipment in such a way that it is difficult to disconnect the power cord plug from the appliance inlet.

Warning: Do not modify this equipment without authorization of the manufacturer.

Product fuse has a lower breaking capacity. Do not install at the building power system, prospective short-circuit current exceeding 35 A.

Environmental Conditions for Operation and Storage

Temperature range within 0° C to 40° C(operation), -20° C to 60° C (storage) Relative humidity range 10% to 90% Atmospheric pressure range within 700 to 1060hPa.

On Installation

- 1. Openings in the medical monitor cabinet are provided for ventilation. To prevent overheating, these openings should not be blocked or covered. If you put the medical monitor in a bookcase or some other enclosed space, be sure to provide adequate ventilation.
- Do not expose the medical monitor to rain or use it near water. If the medical monitor accidentally gets wet, unplug it and contact an authorized dealer immediately. You can clean the medical monitor with a damp cloth if necessary, but be sure to unplug the medical monitor first.
- 3. Place your medical monitor near an easily accessible AC outlet.
- 4. High temperature can cause problems. Max operating temperature is 40°C. Don't use your medical monitor in direct sunlight and keep it away from heaters, stoves, fireplaces, and sources of heat.
- Don't place your medical Monitor on an unstable stand, Medical monitor may malfunction or fall.
- 6. This medical monitor should not topple over when tilted at a 5° angle, in any position, during NORMAL USE, excluding transport.
- 7. In the position specified for transport, medical monitor shall not overbalance when tilted at a 10 degree angle.
- 8. When carrying this product, please use both handles (if included) on the left and right side of the product, and carry using two people. If you want the product to be installed in another place, please call your service center.
- 9. Always use only the original cables and accessories with the device.
- 10. Do not lay this monitor on other equipment.

Repair

Do not attempt to service the medical monitor yourself, as opening or removing covers may expose you to dangerous voltages or other hazards, and will void the warranty. Refer all servicing to qualified service personnel. Unplug the medical monitor from its power source and refer servicing to qualified personnel under the following conditions:

- If the power cord or plug is damaged or frayed.
- If liquid has been spilled into the medical monitor.
- If objects have fallen into the medical monitor.
- If the medical monitor has been exposed to rain or moisture.
- If the medical monitor has been subjected to excessive shock by being dropped.
- If the cabinet has been damaged.
- If the medical monitor seems to be overheated.
- If the medical monitor emits smoke or abnormal odor.
- If the medical monitor fails to operate in accordance with the operating instructions.

Biohazards

To prevent spreading of infections, this device should only be used in environments where biological decontamination can be successfully performed.

Returned Product

After troubleshooting, if problems persist, disinfect the monitor and return it to FSN using the original packaging. Include the accessories that came with the monitor in the return shipment. Please enclose a brief explanation of the malfunction.

Contact FSN Medical Technologies for a Return Authorization Number and instructions, prior to returning the device.

Accessories

Use only accessories specified by the manufacturer, or sold with the medical monitor.

Classification for Safety Compliance

- Protection against electric shock: Class I including AC/DC adapter. This medical equipment is in accordance with ANSI/AAMI ES60601-1 (2005) + AMD 1 (2012) and CAN/CSA-C22.2 No. 60601-1 (2014) in regards to electric shock, fire hazards, and mechanical hazard.
- Applied Parts : No Applied Parts.
- Degree of safety in the presence of flammable anesthetics mixture with air or with oxygen or with nitrous oxide. Not suitable for use in the presence of a flammable anesthetics mixture with oxygen or with nitrous oxide.
- For critical applications, it is recommended to have a replacement monitor available.
- Mode of operation : Continuous.

Notice to the user:

Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established. Contact your local FSN Medical Technologies sales representative for information on changes and new products.

Electromagnetic Compatibility

This medical monitor unit has been designed and tested to comply with IEC 60601-1-2:2014/ AMD1:2020 requirements for EMC with other devices. To ensure electromagnetic compatibility (EMC), the monitor must be installed and operated according to the EMC information provided in this Instructions for Use.

This medical monitor unit has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against interference. This monitor can radiate radio frequency energy and, if not installed and used in accordance with the instructions, it may interfere with other radio communications equipment. There is no guarantee that interference will not occur in a particular installation. If this equipment is found to cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by carrying out one or more of the following measures:

- 1. Reorient or relocate the receiving antenna.
- 2. Increase the distance between the medical monitor and the subject of interference.
- 3. Plug the monitor into an outlet on a different electrical circuit than that to which the subject of interference is connected.
- 4. Consult the dealer or an experienced radio/TV technician for help.

NOTICES TO USER

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC WARNING

This medical monitor generates or uses radio frequency energy. Changes or modifications to this medical monitor may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose authority to operate this equipment if an unauthorized change or modification is made.

PRODUCT LIFETIME

The performance of panels may deteriorate over long periods of time. Periodically check that this monitor is operating correctly. The expected service life of the device is four years. Keep the monitor clean to prolong its operational lifetime.

1. Guidance and manufacturer's declaration - electromagnetic emission

1	The medical monitor is intended for use in the electromagnetic environment specified below. The user of the device should make sure that the medical monitor is operated in such an environment.								
Interference emission measurements	Conformity level	Electromagnetic environment -guidance							
RF emissions acc. to CISPR 11	Complies with Group 1	The characteristics of this device determined							
RF emissions acc. to CISPR 11	Complies with Class B	by broadcasting permit its industrial and hospital use (CISPR 11, Class A). When used in a							
Emission of harmonic oscillations acc. to IEC 61000-3-2	Complies with Class A	living area (for which CISPR 11 usually requires Class B), this device may not provide adequate							
Voltage fluctuations/flicker emissions acc. to IEC 61000-3-3	Complies	protection of radio services. The user must, if necessary, take remedial action such as imple- mentation or reorientation of the device.							

2. For the use of ME devices in professional healthcare facilities. Guidance and manufacturer's declaration - electromagnetic immunity

		lectromagnetic environment specified below. re that it is used in such an environment.
Interference immunity test	IEC 60601-1-2:2014 conformity level	Electromagnetic environment-guidance
Electrostatic discharge (ESD) acc. to IEC 61000-4-2	Complies ±2 kV, ±4 kV, ±6 kV, ±8 kV contact discharge ±2 kV, ±4 kV, ±8 kV, ± 15 kV air discharge	Floors should be made of wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity must be at least 30%
Rapid transient electric interferences/ bursts acc. to IEC 61000-4-4	Complies ± 2 kV for mains lines ± 1 kV for input/output lines	The quality of the supply voltage should correspond to that of a typical business or hospital environment.
Surge acc. to IEC 61000-4-5	Complies ± 1 kV push-pull voltage ± 2 kV common-mode voltage	The quality of the supply voltage should correspond to that of a typical business or hospital environment.
Voltage dips, short interruptions and fluctuations of the supply acc. to IEC 61000-4-11	Mains power quality should be that of a typical commercial or hospital environment. If the user of the device requests continued functioning even when interruptions of the power supply occur, it is recommended that the device be supplied from a power supply that is free of interruptions.	
*Note: U _T is the main	ns alternating voltage before	applying the test levels.

3. For the use of ME devices in professional healthcare facilities. Test specification for ENCLOSURE PORT IMMUNITY to RF wireless communications equipment (according to IEC 60601-1-2:2014)

The medical monitor is intended for use in the electromagnetic environment specified below. The user of the medical monitor should make sure that it is used in such an environment. Test fre-Maximum **IMMUNITY** Band Distance power Service Modulation TEST LEVEL quency MHz m W MHz V/m Pulse modulation 385 380 to 390 TETRA 400 1.8 1.0 27 18 Hz FM GMRS 460, 450 430 to 470 ± 5 kHz stroke 2 1.0 28 FRS 460 ± 1 kHz sine wave 710 Pulse modulation 745 704 to 787 Band 13, 17 0.2 9 1.0 217 Hz 780 GSM 800/900 810 TETRA 800, Pulse modulation 870 800 to 960 iDEN 820. 2 1.0 28 18 Hz CDMA 850, 930 LTE Band 5 GSM 1800, 1720 CDMA 1900. 1700 to Pulse modulation GSM 1900. 2 1845 1.0 28 1990 217 Hz DECT. LTE Band 1,3, 1970 4, 25 UMTS Bluetooth, WLAN 802.11 Pulse modulation 2400 to 2450 b/g/n, 2 1.0 28 2570 217 Hz RFID 2450. LTE Band 7 5240 5100 to WLAN 802.11 Pulse modulation

217 Hz

0.2

1.0

9

5500

5785

5800

a/n

12 7/2025

^{*}Note: If necessary to achieve the IMMUNITY TEST LEVEL, the distance between the transmitting antenna and the medical monitor may be reduced to 1 m. The 1 m test distance is permitted by IEC 61000-4-3.

4. Guidance and manufacturer's declaration – electromagnetic immunity – for equipment and systems that are not life-supporting

The medical monitor is intended for use in the electromagnetic environment specified below. The user of the medical monitor should make sure that it is used in such an environment.

	· · · · · · · · · · · · · · · · · · ·	1	at it is used in such an environment.
Interference immunity tests	IEC 60601-1- 2:2014 test level	Conformity level	Electromagnetic environment – guidelines
Conducted RF disturbances acc. to IEC 61000-4-6 Radiated RF disturbances according to IEC 61 000-4-3	3 V rms 150 kHz to < 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 V eff 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the medical monitor, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance: $d = 1.2 \ \sqrt{P}$ Where P is the nominal power of the transmitter in watts [W] according to the information provided by the manufacturer of the transmitter and d is the recommended separation distance in meters [m]. The field strength of stationary transmitters at all frequencies on site a should be, according to a study, less than the conformity level b. $d = 1.2 \ \sqrt{P}$ $80 \ \text{MHz} \ \text{to} < 800 \ \text{MHz}$ $d = 2.3 \ \sqrt{P}$ $800 \ \text{MHz} \ \text{to} < 2.5 \ \text{GHz}$ Interference may occur in the vicinity of equipment marked with the following symbol: $\left(\left(\bullet\right)\right)$

Note: These guidelines may not apply in all situations. The propagation of electromagnetic quantities is affected by absorptions and reflections of buildings, objects, and persons.

a Field strengths from fixed transmitters, such as base stations for radio [cellular/cordless] telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment of the stationary transmitters, a site survey should be considered. If the measured field strength in the location at which the device is used exceeds the above conformity levels, the device should be observed to verify normal operation. If unusual performance characteristics are observed, additional measures may be necessary, such as a modified orientation or a different location for the device.

b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

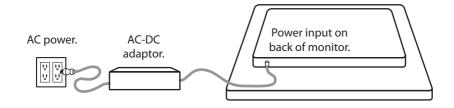
5. Recommended separation distances between portable and mobile RF communications equipment and the medical monitor

The medical monitor is intended for use in the electromagnetic environment in which the RF disturbances are controlled. The user of the device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the device – as a function of the output power of the communication device, as shown below.

Naminal namer of	Separation distanced [m] according to frequency of transmitter							
Nominal power of transmitter [W]	150kHz to< 80 MHz $d = 1.2 \sqrt{P}$	80 MHz to < 800 MHz $d = 1.2 \sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3 \sqrt{P}$					
0.01	0.12	0.12	0.23					
0.1 0.38		0.38	0.73					
1	1.2	1.2	2.3					
10 3.8		3.8	7.3					
100	12	12	23					

For transmitters rated at a maximum output power not listed above, the recommended separation distance \mathbf{d} in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where \mathbf{P} is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

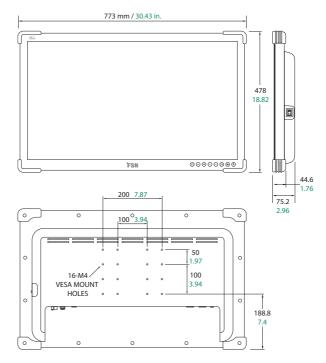
Connecting the Power Supply



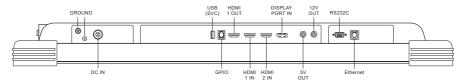
Monitor	Maximum DC Extension Cable Length* (feet)
FM-E3230D, FM-E3230DG, FM-E3230DN	75
FM-E3250D, FM-E3250DG, FM-E3250DH, FM-E3250DN	/5

^{*} If longer extension is used, there is a risk of abnormal operation of the product.

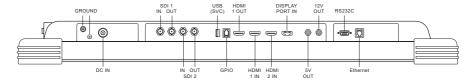
FM-E3230D, FM-E3230DG, FM-E3230DN



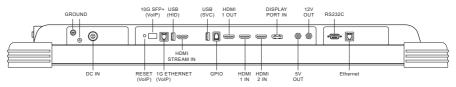
FM-E3230D



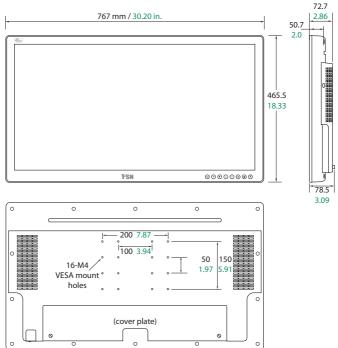
FM-E3230DG



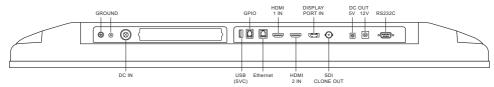
FM-E3230DN



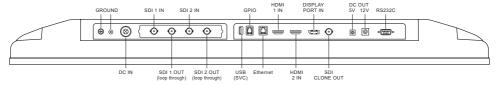
FM-E3250D, FM-E3250DG, FM-E3250DH, FM-E3250DN



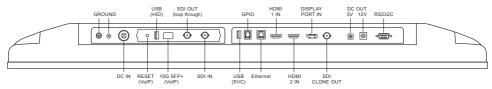
FM-E3250D



FM-E3250DG, FM-E3250DH



FM-E3250DN



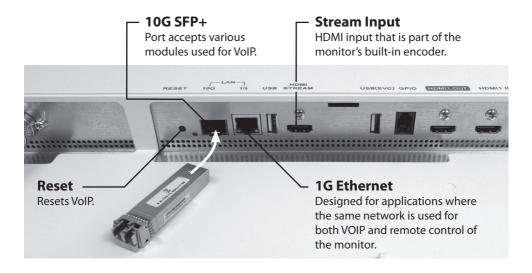
16 7/2025

Accessories

ltem	IFU	AC-DC Adaptor	AC Power Cord*	HDMI Cable	DisplayPort Cable	SDI BNC Cable	Mounting Screws
Length Weight	74g	6.23ft/1.9m 900g	6ft/1.8m 240g	6.56ft/2m 236g	6ft/1.8m 110g	6ft/1.8m 120g	8g
	Sing.						44
FM-E3230DG	•	•	•	•	•	•	
FM-E3230D FM-E3230DN				•	-		•
У\$И 0000000							
FM-E3250DG FM-E3250DH	•	•	•	•	•	(2)	•
FM-E3250D FM-E3250DN				•			•

^{*} US,UK,EU, China. Hospital grade.

Video Over Internet Protocol FM-E3230DN



Video Over Internet Protocol FM-E3250DN



18 7/2025

Controls

On Screen Display (OSD)

		i l
	POWER	Press and hold about 2 seconds to turn the display's front screen ON and OFF. Confirm the power switch on the back of the display has been turned ON.
	MENU	Press to activate the OSD menu. When the OSD menu is active, press to exit from the main menu or submenu.
	PIP	Press to enable PIP (Picture in Picture) function. Not available when Smart Input is enabled. Press PIP and INPUT together for key beep sound on/off.
\bigcirc	DOWN	When the OSD menu is activated, press to move the menu selection downward.
\bigcirc	UP	When the OSD menu is activated, press to move the menu selection upward.
+	PLUS	When the OSD menu is activated, press to enter sub menu, or increase the adjustment of the selected function.
	MINUS	When the OSD menu is activated, press to decrease the adjustment of the selected function.
	INPUT	Press to show the input selection menu and to change the display signal source. Press UP or DOWN, then press PLUS to select the desired source.
+	\bigcirc	Press PLUS and UP together to enable or disable the key lock function
	(- -	Press PIP and INPUT together for key beep sound on/off.

On Screen Display (OSD) Menus

FSN display monitors come equipped with a rich set of features for system set-up, image adjustments, and screen layout control. These features are managed through the On Screen Display, or OSD. Some options presented in the OSD are contextual and vary depending on the active input signal. See the Controls section for a complete description of each OSD button.

1. Enter the OSD

To activate the OSD menu, press the MENU button on the front of the display monitor. To close the OSD menu, press the menu button to exit from the main menu or a sub menu.





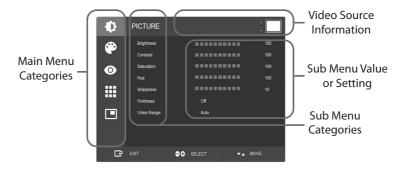
2. Pick a Main Menu Category

After entering the OSD, use the UP Λ and DOWN V buttons on the front of the display monitor to navigate to a main menu category: PICTURE, COLOR, ADVANCED, SETUP, LAYOUT.

3. Pick a Submenu Category

After entering the desired main menu category, press the + button to enter the submenus associated with the selected main menu. Use the UP \wedge and DOWN \vee buttons to navigate to the desired submenu, then adjust as needed with the + and - buttons. Select the MENU button to exit from the submenu or main menu.

On Screen Display (OSD) Menus FM-E3230D, FM-E3230DN





Submenus under the PICTURE menu

- 1. BRIGHTNESS Increases or decreases the brightness. (Range : 0~100)
- 2. CONTRAST Increases or decreases the contrast. (Range: 0~100)
- 3. SHARPNESS Increases or decreases the sharpness. (Range: 0~10)
- 4. VIVIDNESS Sets image vividness. (Off, Low, Mid, High) Enhances image quality with minimal artificial effects. Vividness function works when the video range set to 0~255.
- 5. VIDEO RANGE Select a video range setting. (0~255, 16~235, or AUTO)
 AUTO: automatically changes to 0~255 for RGB format, or to 16~235 for other formats.

On Screen Display (OSD) Menus FM-E3230D, FM-E3230DN



Submenus under the COLOR menu

- 1. COLOR SPACE Select the color space setting. (NATIVE, BT.709, BT.2020, or AUTO)
- 2. GAMMA Select the appropriate gamma. (1.8, 2.0, 2.2, 2.4, 2.6, BYPASS).
- 3. COLOR MODE Changes the white points of standard. (Custom Color, D65, D75, D93)
- 4. RED Red balance. (Only works with Custom mode) (Range: 0~255)
- 5. GREEN Green balance. (Only works with Custom mode) (Range: 0~255)
- 6. BLUE Blue balance. (Only works with Custom mode) (Range: 0~255)
- 7. HDR SUPPORT Sets the HDR (High Dynamic Range). (Off, Auto, HLG)



Submenus under the ADVANCED menu

- 1. ASPECT RATIO Changes aspect ratio of the displayed image. (Full, Auto, Fill H, 4:3, 5:4, 16:9, 1:1)
- 2. OVER SCAN Adjusts the displayed size. (0~10)
- 3. FREEZE Keeps the image still.
- 4. PRESET Save or import OSD menu settings into 10 rooms. (PICTURE, COLOR, ADVANCED, SETUP, LAYOUT)
- 5. ROTATE/MIRROR Changes the displayed image direction. (Normal, 90, 180, 270, H-Mirror, V-Mirror)
- 6. SMART INPUT* Enables automatic switch to the backup source when main source is off.
- 7. SMART MAIN* When smart input is on, current source is changed to main source.
- 8. SMART 2ND* When smart input is on, backup source is set to 2nd source.
 - * For use only with single layout mode.



Submenus under the SETUP menu

- 1. LANGUAGE Changes the menu language. (10 languages)
- 2. MENU OVERLAY Adjusts the menu transparency.
- 3. MENU POSITION Changes the menu position. (9 Positions)
- 4. MENUTIME Adjusts the length of time the menu is present on the screen. (range: 5~100 seconds)
- 5. MENU LOCK Sets the OSD lock. To unlock, press the PLUS and UP buttons.
- 6. BACKLIGHT Increases or decreases the backlight. (Range: 0~100)
- 7. DC OUTPUT Enables or disables the DC power output.
- 8. NETWORK View network information.
- 9. FACTORY RESET Changes all the OSD values to factory default.



Submenus under the LAYOUT menu - Single

1. LAYOUT Changes the image layout. (Off, PIP, PBP, Triple, Quad)

Submenus under the LAYOUT menu - PIP

- 1. LAYOUT Changes the image layout. (Off, PIP, PBP, Triple, Quad)
- 2. MODE Not applicable in PIP mode.
- 3. WINDOW SELECT Selects the active window.
- 4. INPUT SWAP Swaps the position of the primary and secondary images.
- 5. PIP SIZE Changes the PIP size.
- 6. PIP POSITION Changes the PIP position. (L-Top, R-Top, Mid, L-Bot, R-Bot)

Submenus under the LAYOUT menu - PBP

- 1. LAYOUT Changes the image layout. (Off, PIP, PBP, Triple, Quad)
- 2. MODE Changes the layout mode. (Mode1, Mode 2, Mode 3)
- 3. WINDOW SELECT Selects the active window.
- 4. INPUT SWAP Swaps the position of the primary and secondary images.

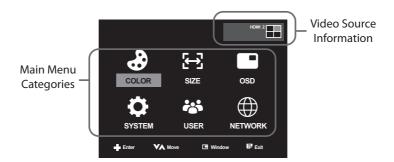
Submenus under the LAYOUT menu - Triple

- 1. LAYOUT Changes the image layout. (Off, PIP, PBP, Triple, Quad)
- 2. MODE Changes the layout mode. (Mode1, Mode 2, Mode 3, Mode 4)
- 3. WINDOW SELECT Selects the active window.

Submenus under the LAYOUT menu - Quad

- 1. LAYOUT Changes the image layout. (Off, PIP, PBP, Triple, Quad)
- 2. MODE Changes the layout mode. (Mode1, Mode 2, Mode 3, Mode 4, Mode 5)
- 3. WINDOW SELECT Selects the active window.

On Screen Display (OSD) Menus FM-E3250D, FM-E3250DG, FM-E3250DN





Submenus under the COLOR menu

- 1. COLOR SPACE Select the color space setting. (Auto, BT709, BT2020, DCI, Native)
- 2. GAMMA Select the appropriate gamma. (Only works with SDR) (1.8, 2.0, 2.2, 2.4, 2.6, Bypass, DICOM)
- 3. COLOR TEMP Changes the white points of standard. (D65, D75, D93, C1, C2, C3, User)
- 4. RED GAIN Red balance. (Range: 0~255)
- 5. GREEN GAIN Green balance. (Range: 0~255)
- 6. BLUE GAIN Blue balance. (Range: 0~255)
- 7. VIDEO RANGE Select a video range. (Auto, Full, Limit)
 - When set to Auto, range will automatically switch to Full with RGB input signal. All other input signal formats will switch to Limit.
- 8. BRIGHTNESS Increases or decrease the brightness. (Range: 0~100)
- 9. CONTRAST Increases or decreases the contrast. (Range : $0\sim100$)
- 10. SHARPNESS Increases or decreases the sharpness. (Range: 0~100)
- 11. HDR High Dynamic Range. (Off, Auto, PQ, HLG) HDR expands the range of brightness to be as close as possible to the actual visual experience.
 - PQ: Perceptual quantization gamma curves.
 - HLG: Hybrid log gamma curves.



Submenus under the SIZE menu

- 1. ASPECT RATIO Changes aspect ratio of the displayed image. (4:3, 5:4, 16:9, Auto)
- 2. OVER SCAN Adjusts the displayed size. (0~10)
- 3. FREEZE FRAME Keeps the image still.
- 4. ROTATION Changes the displayed image direction. (Normal, 180, Horizon-Mirror)



Submenus under the OSD menu

- 1. LANGUAGE Changes the menu language. (English, Chinese, Korean, Japanese, German, French, Spanish, Italian, Turkish, Portuguese)
- 2. LOCK Locks or unlocks the OSD menu. (Press PLUS and UP together)
- 3. POSITION Changes the menu position. (5 Positions)
- 4. TIME Adjusts the length of time the menu is present on the screen. (10~30 seconds, infinity)
- 5. TRANSPRENCY Adjusts the OSD transparency. (0~100)

On Screen Display (OSD) Menus FM-E3250D, FM-E3250DG, FM-E3250DN



Submenus under the SYSTEM menu

- 1. BACKLIGHT Increases or decreases the backlight. (Range: 0~100)
- 2. DC OUTPUT Enables or disables the DC power output.
- 3. SMART INPUT* Enables automatic switch to the backup source when main source is off.
 - * For use only with single layout mode.
- CLONE OUTPUT Changes the output resolution of the clone output. (1920x1080 50Hz/60Hz, 3840x2160 50Hz/60Hz)
- 5. CLONE MASK Sets the mask for the clone output.

Mask Color: Black, White, Red, Green, Blue

Mask Position X: Move the mask area left and right.

Mask Position Y: Move the mask area up and down.

 $Mask\,Width: Increase\,the\,width\,of\,the\,mask\,area.$

Mask Height: Increase the height of the mask area

FACTORY RESET Changes all the OSD values to factory default. Press and hold the Plus key for 3 seconds to reset.



Submenus under the USER menu

- 1. PRESET NUMBER (Room 0~9) Save or import OSD menu settings into 10 rooms. (COLOR, SIZE, OSD, SYSTEM)
- 2. LOAD Press and hold the Plus (+) key for 3 seconds to load the OSD menu's settings.
- 3. SAVE Press and hold the Plus (+) key for 3 seconds to save the OSD menu's settings.



Submenus under the NETWORK menu

1. DHCP Sets the Dynamic Host Configuration Protocol. (On, Off)

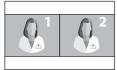
Window Layout FM-E3230D, FM-E3230DG, FM-E3230DN

Picture in Picture (PIP)



PIP Sizes: small, medium, large, huge. PIP Positions: left-top, right-top, middle, left-bottom, right-bottom.

Picture by Picture (PBP)





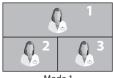


Mode 2



Mode 3

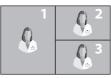
Triple



Mode 1



Mode 2



Mode 3

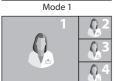


Mode 4

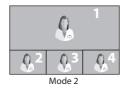
Window Layout FM-E3230DG, FM-E3230DN

Quad

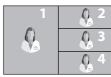




Mode 5



Mode 3



Mode 4

Window Layout

FM-E3250D, FM-E3250DG, FM-E3250DH, FM-E3250DN

Picture by Picture (PBP)



Picture in Picture (PIP)















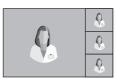


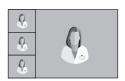
Quad





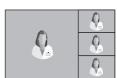














Input Signal Timing (SDI)

Interface	Resolution	Sampling and Format	Pixel Depth	SDI 1	SDI 2
	1280 x 720 / 24p *	YCbCr4:2:2	10 bit		$ \cdot $
	1280 x 720 / 25p	YCbCr4:2:2	10 bit	•	
	1280 x 720 / 30p	YCbCr4:2:2	10 bit		$ \cdot $
	1280 x 720 / 50p	YCbCr4:2:2	10 bit	•	
	1280 x 720 / 59.94p	YCbCr4:2:2	10 bit	•	$ oxedsymbol{\cdot} $
lin.	1280 x 720 / 60p0	YCbCr4:2:2	10 bit	•	
HD	1920 x 1080 / 24p *	YCbCr4:2:2	10 bit		$ \cdot $
	1920 x 1080 / 25p	YCbCr4:2:2	10 bit		$ \cdot $
	1920 x 1080 / 30p	YCbCr4:2:2	10 bit		$ \cdot $
	1920 x 1080 / 50i	YCbCr4:2:2	10 bit		
	1920 x 1080 / 59.94i	YCbCr4:2:2	10 bit		
	1920 x 1080 / 60i	YCbCr4:2:2	10 bit		

Interface	Resolution	Sampling and Format	Pixel Depth	SDI 1	SDI 2
	1280 x 720 / 50p	YCbCr 4 : 4 : 4	10 bit		
	1280 x 720 / 60p	YCbCr 4:4:4	10 bit		
	1920 x 1080 / 50i	YCbCr 4 : 4 : 4 Level A & B Level A-Dual Link	10 bit	•	•
3G	1920 x 1080 / 60i	YCbCr 4 : 4 : 4 Level A & B Level A-Dual Link	10 bit	•	•
	1920 x 1080 / 50p	YCbCr 4:2:2 Level A & B Level A-Dual Link	10 bit		
	1920 x 1080 / 60p	YCbCr 4:2:2 Level A & B Level A-Dual Link	10 bit	•	•
	3840 x 2160 / 50p	YCbCr4:2:2	10 bit	•	•
12G	3840 x 2160 / 60p	YCbCr 4:2:2	10 bit		
120	4096 x 2160 / 50p	YCbCr 4:2:2	10 bit	•	
	4096 x 2160 / 60p	YCbCr 4:2:2	10 bit	•	•

^{*} FM-E3230DG

Input Signal Timing (HDMI, DP)

Resolution	Sampling and Format	Pixel Depth	HDMI 1	HDMI 2	DP	Resolution	Sampling and Format	Pixel Depth	HDMI 1	HDMI 2	DP
640 x 480 / 60p	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit				3840 x 2160 / 30p	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit			
720 x 480 / 60p	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit	:			4096 x 2160 / 25p	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit			
720 x 576 / 50p	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit	•	•	•	4096 x 2160 / 30p	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit			
1280 x 720 / 50p	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit			•	3840 x 2160 / 50p	RGB 4:4:4 RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:4:4	8 bit 10 bit 8 bit 10 bit			
1280 x 720 / 60p	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit				3040 X 2100 / 30p	YCbCr 4:2:2 YCbCr 4:2:0	12 bit 8 bit			•
1920 x 1080 / 50i	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit			•	3840 x 2160 / 60p	RGB 4:4:4 RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:4:4	8 bit 10 bit 8 bit 10 bit			•
1920 x 1080 / 60i	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit	:				YCbCr 4:2:2 YCbCr 4:2:0 RGB 4:4:4	12 bit 8 bit 8 bit			•
1920 x 1080 / 50p	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit	· ·	· ·	· ·	4096 x 2160 / 50p	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	10 bit 8 bit 10 bit 12 bit			
1920 x 1080 / 60p	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit					YCbCr 4:2:0 RGB 4:4:4 RGB 4:4:4	8 bit 8 bit 10 bit			•
3840 x 2160 / 25p	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8 / 10 bit 8 / 10 bit 12 bit	· ·	· ·	· ·	4096 x 2160 / 60p	YCbCr 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2 YCbCr 4:2:0	8 bit 10 bit 12 bit 8 bit			•

7/2025 27

Specification FM-E3230DG, FM-E3230DN

Item		Description				
Panel		32 inch TFT LCD				
Resolution		3840 x 2160 pixels				
Active Area		708.48 (H)mm x 398.82 (V)mm				
Pixel Pitch (mm)		0.1845 x 0.1845				
Response Time (typical)		18 ms				
Number of Colors		1.07 Billion				
Brightness (typical)		800 cd/m ²				
Color Gamut		BT.709(100%), BT.2020(DCI-P3 95%)				
Contrast Ratio (typical)		1500:1				
Surface Treatment		Anti-glare				
Viewing Angle (CR>10)		R/L 178°, U/D 178°				
Input Signal		HDMI 2.0 DP 1.4 SST SDI (12G) 10G SFP+ (Rx)	FM-E3230D x 2 x 1 - -	FM-E3230DG x 2 x 1 x 2	FM-E3230DN x3 x1 - x1	
Output Signal		HDMI 2.0 SDI (12G) 10G SFP+ (Tx)	x 1 - -	x 1 x 2	x 1 - x 1	
Power Supply		AC/DC Adaptor (AC 100~240V, DC 24V/8.3A)				
	FM-E3230D	150W max				
Power Consumption	FM-E3230DG	160W max				
Consumption	FM-E3230DN	155W max				
Unit Dimension		773(W) x 478(H) x 75.2(D) mm 30.43(W) x 18.82(H) x 2.96(D) inch				
Package Dimension		905(W) x 744(H) x 230(D) mm 35.6(W) x 29.3(H) x 9(D) inch				
IP Rating		IP33 - overall				
Weight	FM-E3230D	10.5 kg, 23.15 lbs. (monitor with cover) 16.3 kg, 35.94 lbs. (shipping package)				
	FM-E3230DG	10.7 kg, 23.6 lbs. (monitor with cover) 16.5 kg, 36.38 lbs. (shipping package)				
	FM-E3230DN	10.6 kg, 23.4 lbs. (monitor with cover) 16.4 kg, 36.16 lbs. (shipping package)				

Specification FM-E3250DG, FM-E3250DH, FM-E3250DN

ltem		Description				
Panel		32 inch mini-LED				
Resolution		3840 x 2160 pixels				
Active Area		708.48 (H)mm x 398.52 (V)mm				
Pixel Pitch (mm)		0.1845 x 0.1845				
Response Time (typical)		20 ms				
Dimming Zones		2304				
Number of Colors		1.07 Billion, 10 bit (True 10) support				
Brightness (typical)		1000 cd/m² white luminance (full screen) 1800 cd/m² white luminance (10% center patch)				
Color Gamut		BT.709(100%), BT.2020(DCI-P3 98%)				
Contrast Ratio (typical)		1800 : 1 (1,000,000 : 1 dynamic)				
Surface Treatment		Anti-glare				
Viewing Angle (CR>10)	R/L 178°, U/D 178°				
Input Signal		HDMI 2.0 DP 1.4 SST SDI (12G) 10G SFP+ (Rx)	FM-E3250D x 2 x 1 -	FM-E3250DG FM-E3250DH	FM-E3250DN x 2 x 1 x 1 x 1	
Output Signal		SDI (12G) clone out SDI (12G) loop throug 10G SFP+ (Tx)	x 1 gh - -	x 1 x 2 -	x 1 x 1 x 1	
DC Power Out		12V/2A x 1, 5V/2A x 1				
External Control		RS-232, Ethernet				
GPIO Port		Source change, Single/PBP/PIP select, Recording indicator				
Power Supply		AC/DC Adaptor (AC 100~240V, DC 24V/12.5A)				
	FM-E3250D	190W max				
Power	FM-E3250DG	200W max				
Consumption	FM-E3250DH	200W max				
	FM-E3250DN	205W max				
Unit Dimension		767(W) x 465.5(H) x 72.7(D) mm 30.20(W) x 18.32(H) x 2.86(D) inch				
Package Dimension		905(W) x 744(H) x 230(D) mm 35.6(W) x 29.3(H) x 9(D) inch				

Specification FM-E3250DG, FM-E3250DH, FM-E3250DN

Item		Description	
IP Rating		IP22	
Weight	FM-E3250D	11.5 kg, 25.35 lbs. (monitor with cover) 17.8 kg, 39.24 lbs. (shipping package)	
	FM-E3250DG	11.6 kg, 25.57 lbs. (monitor with cover) 17.9 kg, 39.46 lbs. (shipping package)	
	FM-E3250DH	11.8 kg, 26.01 lbs. (monitor with cover) 18.1 kg, 39.90 lbs. (shipping package)	
	FM-E3250DN	11.7 kg, 25.79 lbs. (monitor with cover) 18 kg, 39.68 lbs. (shipping package)	

Cleaning Instructions

Follow your hospital protocol for the handling of blood and body fluids. Clean the display with a diluted mixture of mild detergent and water. Use a soft cotton towel or swab. Use of certain detergents may cause degradation to the labels and plastic components of the product. Consult cleanser manufacturer to see if agent is compatible. Do not allow liquid to enter the display.

Precautions

- Take care not to damage or scratch the front filter or panel.
- Do not use cloth made from synthetic material (polyester) as this may cause electrostatic discoloration within the panel.
- Follow your hospital protocol in case the display needs to be disinfected prior to installation.

Front Filter

- 1. Remove dust with a dry, lint-free, non-abrasive soft cotton cloth.
- 2. Remove fingerprints or grease using a lint-free, non-abrasive soft cotton cloth that is lightly moistened with plain water or isopropyl alcohol with concentration < 5%.
- 3. Gently wipe dry with a dry cotton cloth.

Do NOT use on front filter:

- Alcohol/solvents at higher concentration > 5% Strong alkalis, strong solvents Acid
- Detergents with fluoride Detergents with ammonia Detergents with abrasives Steel wool Sponge with abrasives Steel blades Synthetic (polyester) cloth Cloth with steel thread

Cabinet

- 1. Clean the cabinet using a soft cotton cloth, lightly moistened with a recognized cleaning product for medical equipment.
- 2. Repeat with water only.
- 3. Wipe dry with a dry cloth.

The cabinet has been tested for resistance to the following products:

Virex Ready-to-use Disinfectant Cleaner
 Misty Clear Lemon 10 Disinfectant
 Misty Multi-Purpose Disinfectant Cleaner
 Zep Heavy-duty glass & all surface cleaner
 Klear Screen
 Screen TFT (Kontakt Chemie)
 Incidin
 Foam (Ecolab)
 Microzid
 Mild detergent
 Isopropyl alcohol with concentration
 Household bleach (generic sodium hypochlorite, solutions of 5.25% sodium hypochlorite diluted with water between 1:10 and 1:100)
 Precise Hospital Foam Cleaner Disinfectant

7/2025 31

Thank you for choosing our product.

Service

Contact the appropriate customer service listed below for product information or assistance.

Warranty

One year, parts and labor.

EC Representative KTR Europe GmbH

Mergenthalerallee 77, Eschborn 65760, Germany

Tel: +49(0)6196-887170



FORESEESON GmbH

Industriestrasse 38a, 63150 Heusenstamm, Germany Tel. +49(0)6104-643980





UK RP FORESEESON UK Ltd.

1st floor, Hornbeam House, 81 Bridge Road East Molesey, Surrey, KT8 9HH **United Kingdom** Tel. +44-(0)208-546-1047



FORESEESON KOREA

B-408, U-Space2, 670 Daewangpangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea Tel. +82-31-8017-0780



FORESEESON (Shanghai) Medical Equipment Co., Ltd.

Room 1010, Building A 1439 Wuzhong Road

Rhein Hongjing Center, Minhang District, Shanghai, China

Tel: 18521095596



FORESEESON CUSTOM DISPLAYS, INC.

2210 E. Winston Road, Anaheim, CA 92806 USA Tel. 1-714-300-0540 Fax. 1-714-300-0546

FSN2091 2/2025 Rev. - 7/2025

Specifications are subject to change with or without notice.



