

### **Applicable model**

E550D

E550D0

E550D1

E550DG

E550DM

E550DTM

JUSHA-E550D

JUSHA-E550D0

JUSHA-E550D1

JUSHA-E550DG

JUSHA-E550DM

JUSHA-E550DTM

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# 1. Operating guide

## 1.1 About this manual

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This manual is designed to guide users to correctly install, set up and operate the professional JUSHA endoscopic monitor, so please read this manual carefully before using it.











- When this product is transferred to a third party, please forward this manual together.
- This product specification is subject to change without prior notice.
- Our goal is to provide you with the most accurate and practical instruction manual possible. But if you find errors in the manual, please be sure to inform us and thank you for your support.
- If you have any other questions about this manual, please contact Nanjing JUSHA Display Technology Co., Ltd.

## 1.2 Description of signs and symbols

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The following signs and symbols may be used in this manual and products:

	Information, providing more detailed information about the object.
	Prompt the user to pay attention to warning information that may cause danger.
	Dangerous voltage, warning information that may cause electric shock.
	Banned sign

	<p>* Indicates that the product conforms to China CCC certification.</p>
	<p>* Indicates that the product complies with the provisions of Part 15 of FCC Rules.</p>
	<p>* Indicates that the product conforms to the general European standard (certified according to the medical device standard)</p>
	<p>* Indicates that the product can be sold in the North American market.</p>
	<p>European authorised representative</p>
	<p>Comply with ROHS directive</p>
	<p>Users are advised to follow WEEE (European Union Directive 2002/96/EC) and deal with waste electricity. And electronic equipment processing and recycling) the provisions of the processing and recycling of this product.</p>
	<p>Users are advised to refer to this manual for operation.</p>
	<p>manufacturer</p>
	<p>JUSHA product LOGO</p>
	<p>Product serial number</p>



\* This monitor can only meet the corresponding certification standards when using the provided medical grade power supply.

### 1.3 Safety/security information

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**Note:**

Please read all the important safety information before installing and operating your professional monitor.

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#### **Installation environment**

- Please install the equipment near the convenient socket.
- The equipment should be placed on a flat, firm and stable platform.
- Do not use it in an environment with flammable anesthetic mixed with air, oxygen or nitrous oxide, or it may cause an explosion.
- Do not let the equipment get wet in the rain or damp; Do not use the monitor near the water source.
- When installed against a wall or other closed position, pay attention to keep a gap of at least 10cm between the monitor and the wall for heat dissipation. When using, do not cover or block any ventilation holes of the equipment shell.
- Please keep small objects or liquids away from the equipment. If small objects or liquids fall into/flow into the equipment, please immediately unplug the equipment and contact our professional maintenance personnel.

#### **And power and ground information.**

- Please use the power cord that comes with the equipment. When using, please completely insert the power plug of the equipment into the socket to keep good contact.
- Do not touch the power cord, plug in or pull out the power plug during thunder, or electric shock may occur.
- If you need to disconnect the power cord, please grasp the power plug and pull it out. Pulling the power cord may damage the power cord and cause electric shock.
- Pay attention to the power supply load capacity when using, circuit overload may cause fire or electric shock.
- Please use the correct voltage specified in this manual. If the voltage does not meet the requirements of this equipment, it may cause fire, electric shock or equipment damage.
- If the device is not used for a long time, disconnect it from the power outlet.
- If you need to completely cut off the power supply of the equipment, please unplug the power plug from the power socket.
- Please ensure that this equipment is connected to a computer or other equipment that meets the requirements.
- The equipment must be connected to protective grounding.

### **Service and maintenance information**

- Using faulty equipment may cause fire, electric shock or equipment damage. If the equipment starts to smoke with burnt smell or abnormal noise, please immediately cut off the power supply and contact Nanjing JUSHA Display Technology Co., Ltd. for help.
- Maintenance work must be carried out by qualified personnel. Do not repair or modify the equipment by yourself, otherwise it may cause equipment damage or personal injury.



- The liquid crystal leaked from the LCD screen will have toxic side effects. Please do not touch the damaged LCD screen. If you come into contact with the LCD, please clean it thoroughly immediately and consult your doctor.

### Usage suggestion

- For extremely important applications, we strongly recommend preparing spare monitors for replacement at any time.
- Do not squeeze the display panel hard, which may cause damage to the screen.
- Do not scratch or press the display screen with a sharp object (such as a pencil or pen), which may damage the display screen. Please clean the screen with a clean and soft cloth.
- Do not directly touch the signal port of the monitor, or it may cause potential electrostatic hazard to the monitor.
- The backlight of LCD has a certain service life. We strongly recommend using the recommended brightness and turning off the monitor when not in use to maximize its service life.
- Disposal of abandoned equipment should comply with local regulations.
- If the monitor is not used correctly, it may interfere with other devices when working. The following actions are recommended to clear the interference:
  - ◆ Or move the disturbed equipment.
  - ◆ A partition device is arranged between the devices.
  - ◆ Plug two devices into different sockets.

## 2. Overview

Thank you for choosing professional monitor for JUSHA endoscopic surgery!

The professional monitor for JUSHA endoscopic surgery is a high-quality image and video display instrument customized for operating room, ICU and other medical environments.

### 2.1 Packing list

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The packing box of professional display for JUSHA endoscopic surgery mainly contains:

- Endoscopic display
- AC power cord
- DVI cable (optional according to customer requirements)
- SDI cable (optional according to customer requirements)
- HDMI cable (optional according to customer requirements)
- User manual/guide/handbook
- After-sales service record form (in triplicate)
- Packing list
- JUSHA product warranty card
- Work certificate
- Desiccant



**Note:**

1. Please ensure that this product only uses the accessories provided by Nanjing JUSHA Display Technology Co., Ltd. Nanjing JUSHA Display Technology Co., Ltd. is not responsible for any technical problems caused by third-party accessories.
  2. Packing list is for reference only. Different models need to match different packing lists. Please refer to the packing list in the product
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box. If some components are damaged or lost, please contact Nanjing JUSHA Display Technology Co., Ltd. (025-83305050).

3. Please keep the original packaging. If you need to transport this product again, please use the original packaging. Please don't weigh the goods during transportation.

## 2.2 Display front view and keys

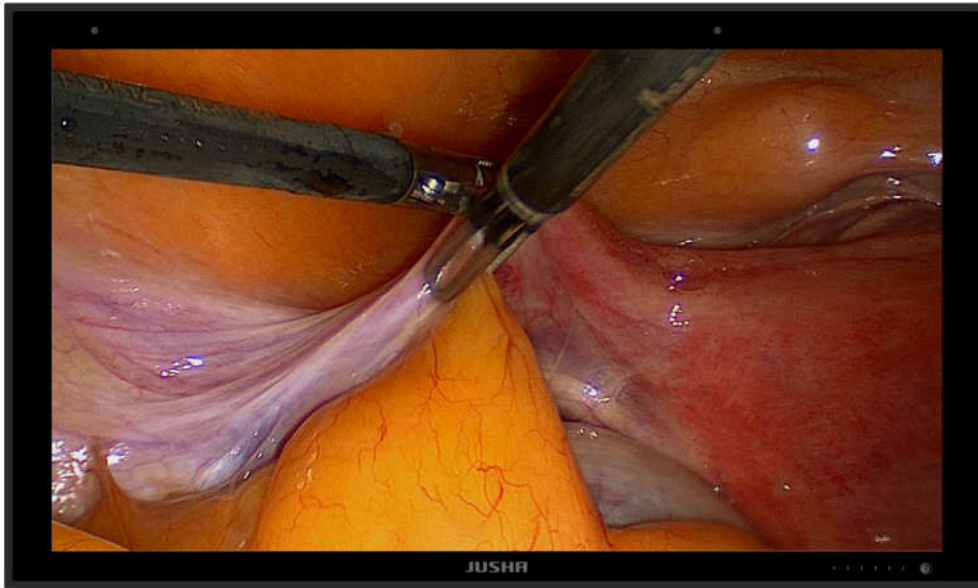


Figure 2.1 Front view of monitor

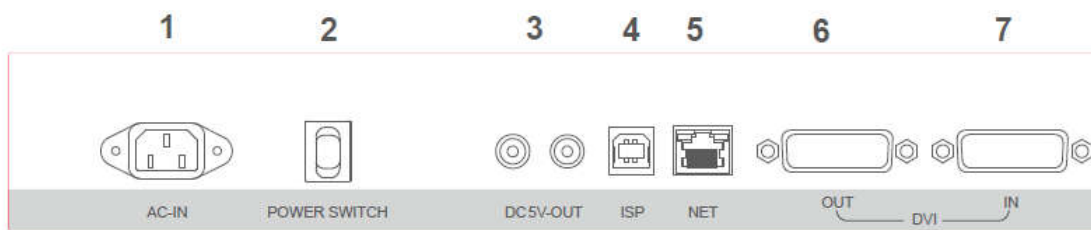


Figure 2.2 Front key

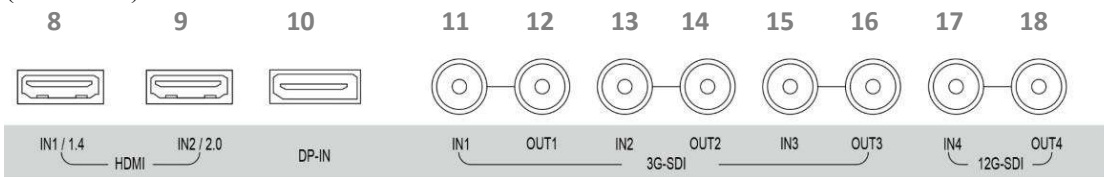
1	Left arrow key	Reduce the menu option value.
2	Right arrow key	Increase the value of menu options or enter the next level menu.
3	Menu	1. Open the user menu. 2. Exit the user menu
4	Up arrow key	Select the previous menu item.
5	Down arrow key	Select the next menu item.

6	Signal source selection key	Select input signal source
7	Power button	Indicates the working status of the display. 1. When the light is green, it is normally powered on. 2. When it is not on, the monitor will sleep.

## 2.3 Display interface



(Continued)



Description:

1	AC power input interface	10	DP input
2	Power switch	11	SDI1 input
3	Power output interface	12	SDI1 output
4	Program upgrade interface	13	SDI2 input
5	NET	14	SDI2 output
6	DVI output	15	SDI3 input
7	DVI input	16	SDI3 output
8	HDMI1.4 input	17	SDI4 input
9	HDMI2.0 input	18	SDI4 output

## 3. Display installation

### 3.1 installation instructions

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**Note:**

1. Make sure the endoscope host and monitor are turned off.
2. After opening the packing box, please check according to the "Packing List". After confirming that the display and accessories are complete and undamaged, install the display according to the following requirements and methods.

- 
1. Insert one end of the signal line into the interface on the back of the monitor and the other end into the interface of the endoscope host. Tighten the screws. This product only supports wall embedding.
  2. Connect the monitor to the grounding system of the operating room through the PE grounding stud at the back of the monitor.
  3. Plug one end of the power cord into the socket and the other end into the monitor.
- 



**Warning:**

- 1 Please refer to the power cable shown in the following table to connect the adapter. If the power cord does not match the product, please contact the supplier. To avoid accidents, please use a recognized power cord that matches the voltage of the power outlet and meets the national safety standards.
  - 2 To avoid the danger of electric shock, the power cord must be connected to the grounded power supply.
  - 3 Power cord: When the used voltage exceeds 120 volts, the display should be powered by the center tap circuit. In addition, monitors use different types of power cord plugs in different countries, as shown in the following table.
-

# Monitor installation

Region/country	United States, Canada	EU (except UK)	Britain
plug type			
standard	ANSI/UL 817 CSA-C22.2 No.21	DIN VDE 0620-1:2010	BS1363/BS546
voltage	120V	230V	230V
Region/country	Brazil	Japan	South Korea
plug type			
standard	NBR14136	JIS 8303	KSC8305:2002R
voltage	220V	110V	220V
Region/country	Denmark	Singapore	China
plug type			
standard	SB 107-2-D1	SS145	GB15934-2008
voltage	230V	230V	220V

## 4. Operational guidance

### 4.1 Turn on the display

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Connect the power cord and turn the power switch to " | ". When the power button indicator on the front of the monitor is pressed and the monitor is turned on, the power indicator will turn green. At the same time, the startup screen of the JUSHA will appear on the screen of the monitor, which indicates that the monitor is running.

### 4.2 Sleep monitor

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When the monitor is running, press the monitor power button, the power indicator will turn orange, the monitor has no picture, and the backlight is turned off, which indicates that the monitor is sleeping. At this time, press the power button of the monitor, the power indicator will turn white, and the startup screen of the JUSHA will appear on the monitor screen, which indicates that the monitor is running again.

### 4.3 Turn off the display

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Turn the AC power switch to "O", and then unplug the power cord.

### 4.4 Menu introduction

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By using the buttons or menu functions on the product, users can set the product in different ways to meet the needs of the user's working environment. Users can view the basic information and current settings of the product through the menu. The menu is shown below and can be divided into three parts:

1. The top column shows the signal source and the physical resolution of the display.
2. The icon on the left side indicates the main menu information.
3. The right side indicates sub-menu and sub-menu options.

# Monitor settings

ENGLISH

DVI Image 1600x1200@60Hz

Backlight	80	
Contrast	50	
Brightness	50	
Curve	Gamma2.0	
Color Temperature	6500K	
Sharpness	50	
Hue		
Saturation		
User Mode	Model1	



DVI Display 1920x1080@60Hz

Aspect Ratio	Full Screen
Zoom Mode	Off
Noise Reduction	Off
Input Color Format	Auto
RGB Rango	Auto









DVI SetUP 1920x1080@60Hz

	Bypass	Off
	Language	English
	Mirror	Off
	Menu Lock	On
	Factory Reset	Off
	Emergency Port	Off
	Buzzer	Off
	XFV Switch	On



DVI M-Win 1920x1080@60Hz

	Multi-Window Mode	Off
	Window Select	
	PiP Size	
	PiP Position	



# Monitor settings

ENGLISH

The screenshot shows a settings menu for a DVI monitor. The menu is displayed on a dark blue background with white text and icons. On the left side, there is a vertical list of icons: a DVI connector, a multi-monitor icon, a monitor with a gear, a gear, a printer, and an information 'i' icon. The main content area is divided into sections by horizontal lines. The top section is titled 'Information' and shows '1920x1080@60Hz'. Below this, there are four sections labeled 'Window1', 'Window2', 'Window3', and 'Window4', each followed by a horizontal line. The 'Window1' section also includes 'DVI' and '1920x1080@60Hz'. Below the window sections is a 'Backlight Hours' section with 'O' and 'H' options, followed by several empty horizontal lines. At the bottom of the screen, there is a navigation bar with six icons: a square, a right-pointing triangle, a left-pointing triangle, an upward-pointing triangle, a downward-pointing triangle, and another square.

The structure of user menu and functional specification :

<b>Menu page</b>	<b>Menu operations</b>	<b>Parameter and specification</b>	<b>Factory default</b>
Image	Backlight	0-100	80
	Contrast	0-100	50
	Brightness	0-100	50
	Curve	GAMMA1.8	GAMMA2.0
		GAMMA2.0	
		GAMMA2.2	
		GAMMA2.4	
		GAMMA2.6	
	Color Temperature	DICOM	6500K
		6500K	
		7500K	
		9300K	
	USER		
	Sharpness	0-100	50
Hue	0-100	50	
Saturation	0-100	50	
User mode	Mode 1	Mode 1	
	Mode 2		
	Mode 3		
	Mode 4		
	Mode 5		
	Mode 6		
Display	Aspect Ratio	Full screen	Full screen
		4:3	
		5:4	
		16:9	
		1:1	
		Min. proportion	
		Max. proportion	

# Monitor settings


ENGLISH

	Zoom Mode	Off	Off
		5%	
		10%	
		15%	
		20%	
	Noise Reduction	Off	Off
		Low	
		Medium	
		Strong	
	Input color format	RGB	Auto
		YPbPr	
		Auto	
	RGB Range	Full	Auto
		Limit	
Auto			
Setup	Bypass	On	Off
		Off	
	Language	简体中文	English
		English	
	Mirror	Off	Off
		On	
	Menu lock	Off	On
		On	
	Factory reset	On	Off
		Off	
	Emergency Port	HDMI1	Off
		HDMI2	
		SDI1	
		SDI2	
SDI3			
SDI4			
SDI_4X3G			
DVI			

		Off	
	Buzzer	Off	On
		On	
	XFV	Off	Off
		On	
Multi-window mode Setup	Multi-Window Mode	Off	Off
		PIP mode	
		PBP mode 1	
		PBP mode 2	
		Three-picture mode	
		Four -picture mode	
	Window selection	Window 1	Window 1
		Window 2	
		Window 3	
		Window 4	
		All windows	
	PIP Size	Small	Medium
		Medium	
		Large	
		Ultra-large	
	PIP Position	Top Left	Top Left
		Top Right	
		Bottom Left	
Bottom Right			
Information	Window 1	Channel select	Resolution information
	Window 2	Channel select	Resolution information
	Window 3	Channel select	Resolution information
	Window 4	Channel select	Resolution information
	Working time of backlight	Time Display	Unit: Hour



## 4.5 Operating OSD menu

### 4.5.1 Outbound menu

After opening the product, press any key to call the navigation menu, then press the , and the OSD menu will be displayed on the product screen. If the next operation is not performed within 15 seconds, the OSD menu will disappear again.




### 4.5.2 Exit menu

There are two ways to exit the OSD menu:

1. On the submenu page, press  to return to the previous option of the current operation; Then press  to exit the menu.
2. If nothing is done within 15 seconds, the menu will automatically disappear.







### 4.5.3 Unlock menu

There are two ways to unlock the OSD menu (after the menu lock function is turned on, the menu automatically locks after 15S of inactivity):

1. After opening the product, directly press the  key to unlock the menu, and you will see the prompt menu of key unlocking success. At this time, operate the key normally and call up the corresponding menu.
2. After opening the product, press any key (other than  and shutdown key) to bring up the key lock prompt menu, and then press the  key under the prompt menu to unlock the key.

### 4.5.4 Adjust backlight brightness

The operation is as follows:







1. Press any key to call the navigation menu, and then press the  "Exhale" menu. By default, the [Image] page will be displayed first.
2. Press the  to move the cursor to enter the image submenu.
3. Move the cursor   to [backlight brightness]
4. Users can set the backlight value of the screen by increasing or decreasing the value of the progress bar by pressing   as needed. Adjustment step: 1, default value: 50.

**Note:**







The LED backlight has a certain service life.

We recommend that you use the screen brightness value of 50 to prolong the service life of the product.

**4.5.5 Adjust contrast**







1. Press any key to call the navigation menu, and then press the  "Exhale" menu. By default, the [Image] page will be displayed first.
2. Press the  to move the cursor to enter the image submenu.
3. Move the cursor   to [Contrast]
4. Users can set the contrast of the screen by increasing or decreasing the value of the progress bar by pressing   as needed.  
Adjustment step: 1, default value: 50.

**4.5.6 Adjust digital brightness**

1. Press any key to call the navigation menu, and then press the  "Exhale" menu. By default, the [Image] page will be displayed first.
2. Press the  to move the cursor to enter the image submenu.
3. Move the cursor   to [Digital Brightness]
4. Users can set the digital brightness of the screen by pressing   to increase or decrease the value of the progress bar as needed.  
Adjustment step: 1, default value: 50.

**4.5.7 Select curve**

The operation is as follows:







1. Press any key to call the navigation menu, and then press the  "Exhale" menu. By default, the [Image] page will be displayed first.
2. Press the  to move the cursor to enter the image submenu.
3. Move the cursor   to [curve]
4. Users can select different curves according to their needs by pressing   option: GAMMA1.8, GAMMA2.0, GAMMA2.2, GAMMA2.4, GAMMA2.6 and DICOM. Default value: GAMMA2.0.

**Note:**

The built-in calibration of the product is accurately calibrated and conforms to DICOM standard. DICOM calibration can ensure that medical images show more obvious gray scale. We suggest that DICOM calibration should be used for most medical image diagnosis.









**4.5.8 Adjust color temperature**

The operation is as follows:

1. Press any key to call the navigation menu, and then press the  "Exhale" menu. By default, the [Image] page will be displayed first.
  2. Press the  to move the cursor to enter the image submenu.
  3. Move the cursor   to [color temperature].
  4. Users can set different color temperatures according to their needs by pressing  .
- Options: 6500K, 7500K, 9300K and USER  
Default value: 6500K.

**4.5.9 Adjust sharpness**







The operation is as follows:

1. Press any key to call the navigation menu, and then press the  "Exhale" menu. By default, the [Image] page will be displayed first.
2. Press the  to move the cursor to enter the image submenu.
3. Move the cursor   to [color temperature].
4. Users can set different [sharpness] according to their needs by pressing  .
5. The user can set the sharpness value by increasing or decreasing the value of the progress bar according to the  . Adjustment step: 10, default value: 50.

**4.5.10 Adjust tone**







The operation is as follows:



1. Press any key to call the navigation menu, and then press the  "Exhale" menu. By default, the [Image] page will be displayed first.
2. Press the  to move the cursor to enter the image submenu.
3. Move the cursor   to [Hue].
4. The user can set the hue value by increasing or decreasing the value of the progress bar according to the  . Adjustment step: 1, default value: 50.





#### 4.5.11 Adjusting saturation

The operation is as follows:

1. Press any key to call the navigation menu, and then press the  "Exhale" menu. By default, the [Image] page will be displayed first.
2. Press the  to move the cursor to enter the image submenu.
3. Move the cursor   to [saturation].
4. The user can set the saturation value by increasing or decreasing the value of the progress bar according to the  . Adjustment step: 1, default value: 50.




#### 4.5.12 Adjust user mode






The operation is as follows:

1. Press any key to call the navigation menu, and then press the  "Exhale" menu. By default, the [Image] page will be displayed first.
2. Press the  to move the cursor to enter the image submenu.
3. Press   to move the cursor to [User Mode].
4. Users can switch user modes, and modes 1, 2, 3, 4, 5 and 6 are optional. Default value: mode 1.

#### 4.5.13 Adjusting proportional mode









The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
2. Press   to move the cursor to [Display Settings].

3. Press  to enter the submenu setting interface.
4. Press / to move the cursor to [proportional mode].
5. Users can set different scale modes according to / according to the actual input signal.  
Options: full screen, 4: 3, 5: 4, 16: 9, 1: 1, minimum ratio, maximum ratio;  
Default: Full screen.

#### 4.5.14 Adjust amplification mode









The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
2. Press / to move the cursor to [Display Settings].
3. Press  to enter the submenu setting interface.
4. Press / to move the cursor to [zoom in mode].
5. Users can choose different magnification modes according to / according to their needs.

Options: Off, 5%, 10%, 15% and 20%; Default: Off


#### 4.5.15 Adjust noise reduction

The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
2. Press / to move the cursor to [Display Settings].
3. Press  to enter the submenu setting interface.
4. Press / to move the cursor to [Noise Reduction].
5. Users can press / to switch in different noise reduction modes according to their needs,  
: OFF, low, medium and high. Default: Off

#### 4.5.16 Adjust the color format

The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.

2. Press / to move the cursor to [Display Settings].
3. Press to enter the submenu setting interface.
4. Press / to move the cursor to [Enter color format].
5. Users can press / to switch between input color formats according to their needs.

Options: automatic, RGB, YPbPr, default: automatic

#### 4.5.17 Adjust RGB range

The operation is as follows:

1. Press any key to call the navigation menu, then press the "Exhale" menu, and the [Image] page will be displayed by default.
2. Press / to move the cursor to [Display Settings].
3. Press to enter the submenu setting interface.
4. Press / to move the cursor to [RGB range].
5. Users can press / to switch between RGB ranges according to their needs.

Options: automatic, full color gamut, limit, default: automatic.






#### 4.5.18 Adjust straight-through mode

The operation is as follows:

1. Press any key to call the navigation menu, and then press the "Exhale" menu. By default, the [Image] page will be displayed first.
2. Press / to move the cursor to [Settings].
3. Press to enter the submenu setting interface.
4. Move the cursor / to [Pass-through mode].
5. The user can enable or disable the direct mode by pressing the / option: On/Off, and the default value is Off.






#### 4.5.19 Regulate language

The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
  2. Press  to move the cursor to [Settings].
  3. Press  to enter the submenu setting interface.
  4. Press  to move the cursor to [Language]
  5. Users can select the language by pressing .
- Options: English, Simplified Chinese; Default value: Chinese (domestic);  
English (export)






### 4.5.20 Adjusting mirror image

The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
  2. Press  to move the cursor to [Settings].
  3. Press  to enter the submenu setting interface.
  4. Press  to move the cursor to [Mirror].
  5. Users can press  to select the mirror switch.
- Options: on, off. Default: Off.






### 4.5.21 Adjusting key lock

The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
  2. Press  to move the cursor to [Settings].
  3. Press  to enter the submenu setting interface.
  4. Press  to move the cursor to [key lock].
  5. Users can press  to open the menu lock.
- Options: on, off. Default: Off.






### 4.5.22 Adjust factory reset

The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
2. Press  to move the cursor to [Settings].
3. Press  to enter the submenu setting interface.
4. Press  to move the cursor to [factory reset].
5. Press  to switch the factory reset option.  
Options: on, off. Default: Off.






#### 4.5.23 Adjust emergency passage

The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
2. Press  to move the cursor to [Settings].
3. Press  to enter the submenu setting interface.
4. Press  to move the cursor to [Emergency Passage].
5. Press  to switch the information source option corresponding to the emergency channel.  
Options: HDMI1, HDMI2, SDI1, SDI2, SDI3, SDI4, SDI4x3G, DVI, off.  
Default: Off.






#### 4.5.24 Adjusting buzzer

The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
2. Press  to move the cursor to [Settings].
3. Press  to enter the submenu setting interface.
4. Press  to move the cursor to [buzzer].
5. Press the switch option of  switch buzzer.  
Options: on, off. Default: Off.






## 4.5.25 Adjusting film reading lamp

The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
2. Press  to move the cursor to [Settings].
3. Press  to enter the submenu setting interface.
4. Press  to move the cursor to [Reading Light].
5. Press the  to switch the switch option of the film reading lamp.  
Options: on, off. Default: Off.






## 4.5.26 Adjust multi-window mode

The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
2. Press  to move the cursor to [Multi-window Settings].
3. Press  to enter the submenu setting interface.
4. Press  to move the cursor to [Multi-window mode].
5. Press  to switch the multi-window option.  
Options: off, PIP, PBP 1, PBP 2, three windows, four windows; Default: Off.






## 4.5.27 Select window

The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
2. Press  to move the cursor to [Multi-window Settings].
3. Press  to enter the submenu setting interface.
4. Press  to move the cursor to [Selection Window].
5. Press  to select Windows.  
Options: window 1, window 2, etc. There will be different options according to the choice of multi-window mode;  
Default value: Window 1.






#### 4.5.28 Adjust PIP size

The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
2. Press  to move the cursor to [Multi-window Settings].
3. Press  to enter the multi-window setting submenu interface.
4. Press  to move the cursor to [PIP size].
5. Press  to switch the size of PIP window.  
Options: small, medium, large and super large;  
Default value: medium.

#### 4.5.29 Adjust PIP position

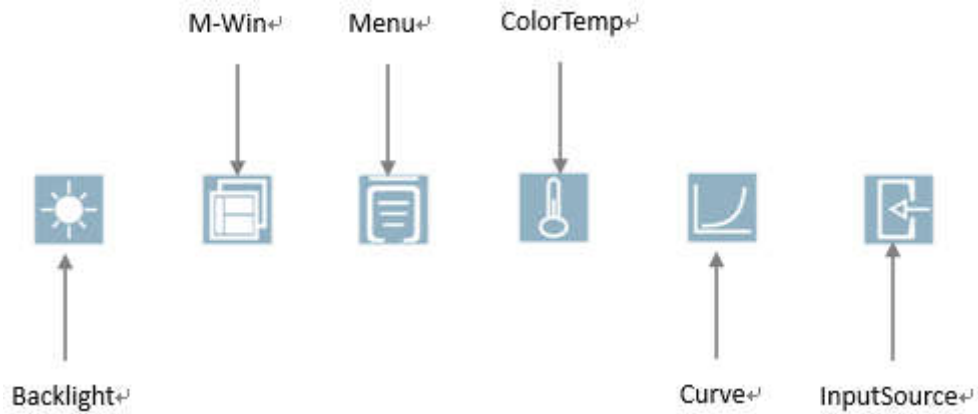
The operation is as follows:

1. Press any key to call the navigation menu, then press the  "Exhale" menu, and the [Image] page will be displayed by default.
2. Press  to move the cursor to [Multi-window Settings].
3. Press  to enter the multi-window setting submenu interface.
4. Press  to move the cursor to [PIP position].
5. Press  to switch the PIP window position.  
Options: upper left, upper right, lower left and lower right;  
Default value: upper left.

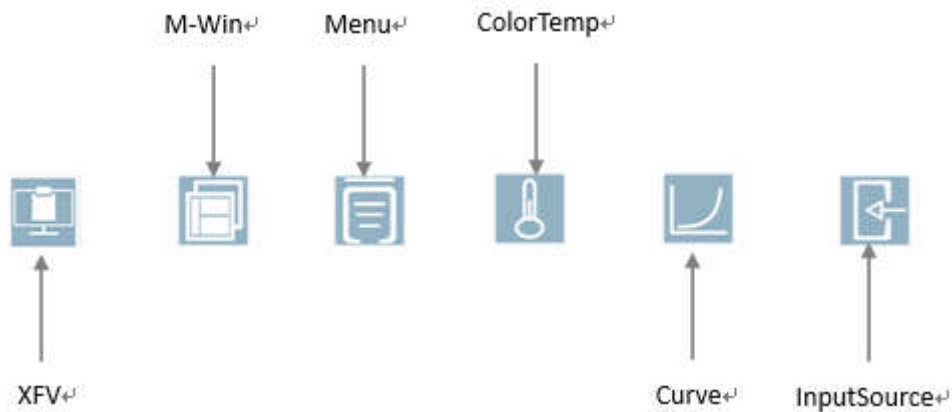
### 4.6 Shortcut key

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Navigation icon when the film reading lamp function is not turned on:




Navigation icon when the film reading lamp function is turned on:

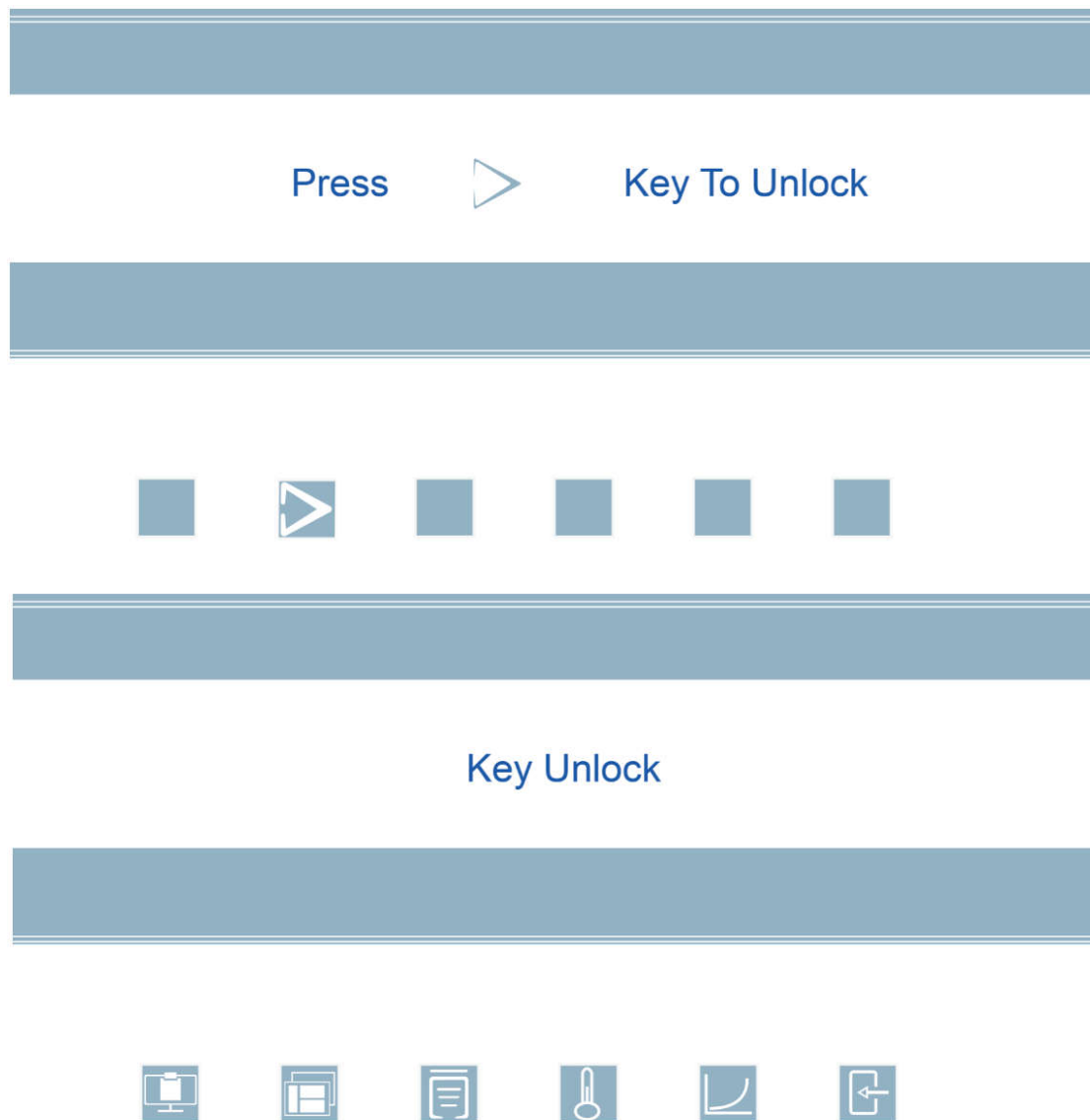


## 4.6.1 Unlock key

The operation is as follows:





1. Press any key (other than right key and power key) to call out the key lock prompt menu.
2. Then press the  to unlock the menu, and bring up the "key unlocked" menu.

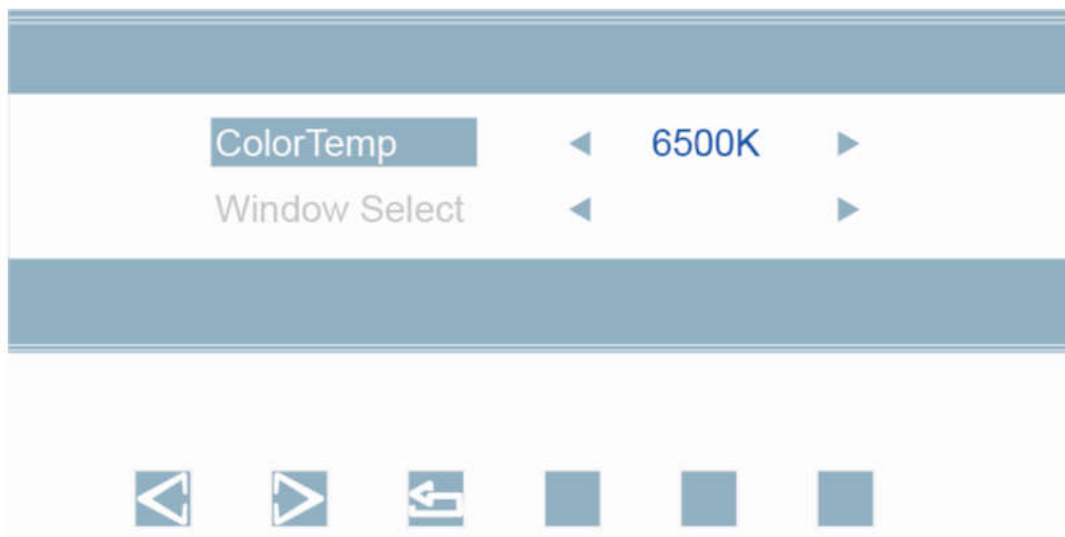




#### 4.6.2 Color temperature shortcut key





The operation is as follows:

1. Press any key to call out the navigation menu, and then press  to bring up the "color temperature" menu.
2. Press / to switch color temperature options: 6500K, 7500K, 9300K and USER.
3. Press  to exit the menu



### 4.6.3 Curved shortcut key





The operation is as follows:

1. Press any key to call out the navigation menu, and then press  to bring up the "curve" menu.
2. Press / to switch curve options: Gamma2.0, Gamma2.2, Gamma2.4, Gamma2.6 and DICOM.
3. Press  to exit the menu.



#### 4.6.4 Brightness shortcut key (the film reading lamp function is off)



The operation is as follows:

1. Press any key to call out the navigation menu, and then press  to bring up the "Backlight" menu.
2. Users can set the backlight value of the monitor according to their needs, and increase or decrease the value according to /. The default value is 50.
3. Press  to exit the menu.








#### 4.6.5 Film reading lamp shortcut key (the film reading lamp function is on)

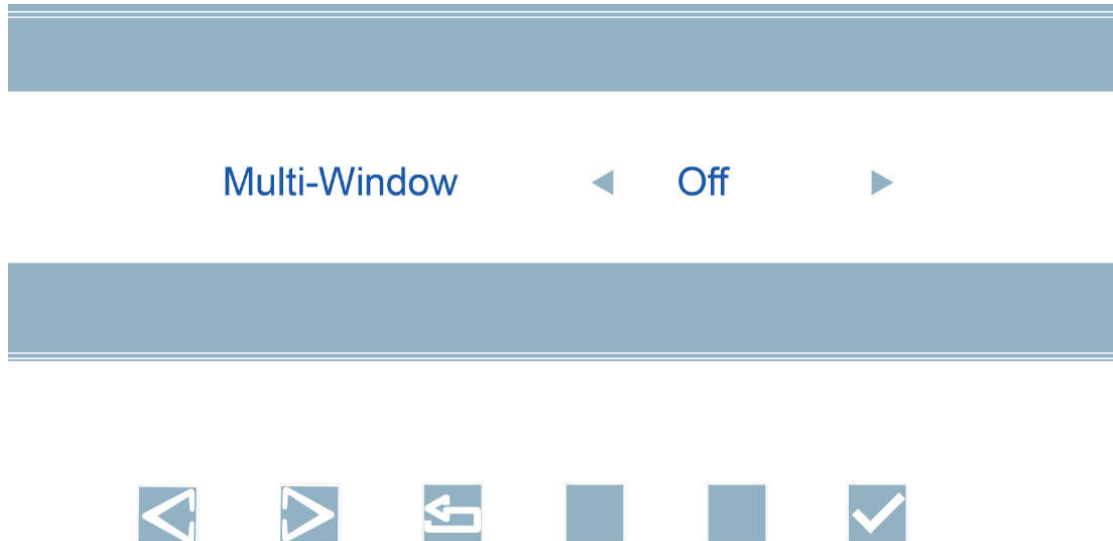
The operation is as follows:

1. Press any key to call out the navigation menu, and then press  to adjust the "reading lamp" function.
2. Users can set the mode of reading light according to their needs, which can be adjusted according to the order of , namely: full screen, left half screen, right half screen and off.

#### 4.6.6 Multiple window shortcut keys




The operation is as follows:

1. Press any key to call out the navigation menu, and then press  to bring up the "multiple windows" menu.
2. Press / to switch the multi-window options: off, PIP, PBP 1, PBP 2, three windows and four windows.
3. Press  to confirm the selection.
4. Press  to exit the menu.



## 4.6.7 Signal source shortcut key

The operation is as follows:

1. Press any key to call out the navigation menu, and then press  to bring up the "source" menu.
2. Press  to switch the input signal options: HDMI, SDI1, SDI2, SDI3, SDI4, SDI4x3G, DVI and DP.
3. After selecting the required signal source, stop operating the key, and the signal source will automatically switch to the selected channel.
4. Press  to exit the menu.

Input Source



HDMI2



Window Select



## 5. important information

### 5.1 technical specifications

Power supply voltage	AC input: AC 220Vdc, 4A (MAX)
operating power	<300W(Typical)
liquid crystal display	54.64inches, TFT color LCD screen
brightness	450 cd/m2 (maximum)
visible angle	178 horizontally and 178 vertically 178° (CR $\geq$ 10)
Pixel distance	(H)0.315 ×(V) 0.315 (mm)
Resolution	(H) 3840 × (V) 2160(MAX)
Visible size	(H) 1209.6 × (V) 680.4 (mm)
Video input interface	DVI-D*1/HDMI*2/DP*1/3G-SDI*3/12G-SDI*1/4*3G-SDI*1(Reuse with 3G/12g-SDI)
Video output interface	DVI-D*1/3G-SDI*3/12G-SDI*1/4*3G-SDI*1(Reuse with 3G/12g-SDI)
power output	DC 5V/2A * 2
operating environment	Temperature: 0°C ~ 40°C Humidity: 20%~85% (Non condensation) Air pressure: 700hPa~1060hPa
Storage and transportation environment	Temperature:-20°C ~ 40°C Humidity: 10%~85% (Non condensation) Air pressure: 200hPa~1060hPa
authentication	3C、CE



**Note:**

This product specification is subject to change without prior notice.

## 5.2 Safety standard

Safety standard:

Safety standard for medical display	IEC 60601-1: 2012. EN 60601-1:2013 GB4943.1-2011
Authentication	CCC、CE
Declaration of conformity	RoHS

## 5.3 Electromagnetic compatibility

Electromagnetic compatibility meets the following conditions:

Electromagnetic compatibility	IEC 60601-1-2: 2014. EN 60601-1-2:2015 GB/T9254-2008 GB17625.1-2012
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### Warning

This product is Class A, which may cause radio interference in living environment. In this case, users may need to take practical measures against interference.

## 5.4 Guidance and Manufacturer's Declaration

Below cables information are provided for EMC reference.

Cable	Max. cable length, Shielded/unshielded		Number	Cable classification
AC Power Line	1.8m	Unshielded	1 Set	AC Power
DVI Cable	2m	shielded	1 Set	Signal

**Important information regarding Electro Magnetic Compatibility (EMC)**

This electrical medical equipment needs special precautions regarding EMC and put into service according to the EMC information provided in the user manual; The equipment conforms to this IEC 60601-1-2:2014 standard for both immunity and emissions. Nevertheless, special precautions need to be observed:

The equipment with no ESSENTIAL PERFORMANCE is intended used in Professional healthcare facility environment except for near active HF SURGICAL EQUIPMENT and the RF shielded room of an ME SYSTEM for magnetic resonance imaging, where the intensity of EM DISTURBANCES is high.

**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.

The use of accessories 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 the E550DG, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.

When the AC input voltage is interrupted, the equipment will shut down and if the power supply restored, it should be recovered by operator manually, this degradation could be accepted because it will not lead to unacceptable risks and it will not result in the loss of basic safety or essential performance.

**EMI Compliance Table (Table 1)**

**Table 1 - Emission**

Phenomenon	Compliance	Electromagnetic environment
RF emissions	CISPR 11 Group 1, Class A	Professional healthcare facility environment
Harmonic distortion	IEC 61000-3-2 Class D	Professional healthcare facility environment
Voltage fluctuations and flicker	IEC 61000-3-3 Compliance	Professional healthcare facility environment

**NOTE** The EMISSIONS characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential



environment (for which CISPR 11 class B is normally required) this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment.

EMS Compliance Table (Table 2-5)

Table 2 - Enclosure Port

Phenomenon	Basic EMC standard	Immunity test levels
		Professional healthcare facility environment
Electrostatic Discharge	IEC 61000-4-2	±8 kV contact ±2kV, ±4kV, ±8kV, ±15kV air
Radiated RF EM field	IEC 61000-4-3	3V/m 80MHz-2.7GHz 80% AM at 1kHz
Proximity fields from RF wireless communications equipment	IEC 61000-4-3	Refer to table 3
Rated power frequency magnetic fields	IEC 61000-4-8	30A/m 50Hz or 60Hz

Table 3 – Proximity fields from RF wireless communications equipment

Test frequency (MHz)	Band (MHz)	Immunity test levels
		Professional healthcare facility environment
385	380-390	Pulse modulation 18Hz, 27V/m
450	430-470	FM, ±5kHz deviation, 1kHz sine, 28V/m
710	704-787	Pulse modulation 217Hz, 9V/m
745		
780		
810		
870	800-960	Pulse modulation 18Hz, 28V/m
930		
1720		
1845	1700-1990	Pulse modulation 217Hz, 28V/m
1970		
2450	2400-2570	Pulse modulation 217Hz, 28V/m
5240	5100-5800	Pulse modulation 217Hz, 9V/m
5500		
5785		

**Table 4 – Input a.c. power Port**

Phenomenon	Basic EMC standard	Immunity test levels
		Professional healthcare facility environment
Electrical fast transients/burst	IEC 61000-4-4	±2 kV 100kHz repetition frequency
Surges Line-to-line	IEC 61000-4-5	±0.5 kV, ±1 kV
Surges Line-to-ground	IEC 61000-4-5	±0.5 kV, ±1 kV, ±2 kV
Conducted disturbances induced by RF fields	IEC 61000-4-6	3V, 0.15MHz-80MHz 6V in ISM bands between 0.15MHz and 80MHz 80%AM at 1kHz
Voltage dips	IEC 61000-4-11	0% $U_T$ ; 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°
		0% $U_T$ ; 1 cycle and 70% $U_T$ ; 25/30 cycles Single phase: at 0°
Voltage interruptions	IEC 61000-4-11	0% $U_T$ ; 250/300 cycles

**Table 5 – Signal input/output parts Port**

Phenomenon	Basic EMC standard	Immunity test levels
		Professional healthcare facility environment
Conducted disturbances induced by RF fields	IEC 61000-4-6	3V, 0.15MHz-80MHz 6V in ISM bands between 0.15MHz and 80MHz 80%AM at 1kHz

## 6. statement

### 6.1 Legal statement

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The auxiliary equipment connected to the display must pass the corresponding IEC standard certification (data processing equipment must comply with IEC 60950-1 standard, and medical equipment must comply with IEC60601-1 standard). In addition, all configurations shall comply with IEC 606011: 2005+Corr.1: 2006+Corr.2: 2007+AM1: 2012 standard. Anyone who connects other devices to the signal output or input interface for system configuration must ensure that the system conforms to IEC 606011: 2005+Corr.1: 2006+Corr.2: 2007+AM1: 2012 standard.

Any staff responsible for connecting the monitor with the system shall ensure that the installed equipment complies with IEC 606011: 2005+Corr.1: 2006+Corr.2: 2007+AM1: 2012 standard. In case of doubt, please contact JUSHA Medical Engineering Technology Service Department or local sales representative in time.

JUSHA Medical sells its products through other medical equipment manufacturers, distributors and dealers. Therefore, when purchasing this product, you should consult the seller whether to provide corresponding product maintenance services.

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The quality guarantee is only for the products provided by Nanjing JUSHA Display Technology Co., Ltd., and the problems caused by other third-party equipment are not covered by this quality guarantee.



**Note:**

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## **6.3 Declaration of ownership**

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