

JUSHA

用户手册



Model

E320AG

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1. Manual instructions





1.1 About this manual














The manual aims to guide users to install, configure and operate this professional medical monitor properly.

- When transfer the monitor to a third-party, please deliver this manual along with the monitor
- If the specification changed in the future, we will not inform again.
- Our goal is to provide you with the most accurate and usable documentation possible; if you discover errors, please let us know.
- For any further questions about this manual, you are welcome to contact Nanjing JUSHA Display Technology Co., Ltd.

1.2 Explanation of symbols

This manual and product use the symbols below.

	Gives extra information about the described subject.
	Indicates general cautionary, warning, or danger level information.
	Indicates a general prohibition.
	Indicates a general prohibition.

	Indicates that a ground that must be connected by the user for a device equipped with a ground terminal.
	Indicates the product meets the requirements of CCC.
	Indicates the product meets the requirements of FCC Part 15.
	Indicates the product meets the requirements of CE Certification.
	Indicates the product has been certificated by SGS and qualified for North American market.
	Gives information of the Authorized European representatives
	Compliance ROHS instruction
	Waste Electrical and Electronic Equipment Directive (WEEE) 2002/96/EC Waste disposal should comply with local regulations.
	Recommend to refer the User Manual
	Manufacturer information
	JUSHA trademark
	Product serial number
	Don't touch

*This monitor complies with these standards only when a medical grade power supply is used. Power supply is specified as a part of me equipment.

1.3 Safety information



Read all the important safety information before installing and operating your monitor.

About the environment

- The equipment should be installed near an easily accessible outlet.
- Place the device on a flat, solid and stable surface that can support the weight of at least 3 devices. If you use an unstable cart or stand, the device may fall, causing injury to a child or adult, and serious damage to the device.
- Never use the monitor in the presence of flammable anesthetics mixture with air, oxygen or nitrous oxide.
- Never expose the monitor to rain or moisture. Never use the monitor near water - e.g. near a bathtub, washbasin, swimming pool, kitchen sink, laundry tub or in a wet basement.
- Please heed necessary space between the monitor and the wall for ventilation. Do not cover or block any ventilation openings in the cover of the set.
- Keep small object away from the product. If small object gets into the monitor, please shut off power supply immediately and contact us for technical support.

About the power and ground

- Please use power cord provided with the monitor, and insert the plug into the socket firmly.
- Don't touch power cord or plug/unplug it when thundering, or it may cause electric shock.
- Please hold the attaching plug when you unplug it. Don't unplug it by pulling power cord, otherwise the power cord may be injured and result in electric shock.
- Do not overload wall outlets and extension cords as this may result in fire or electric shock.
- Please use the power supply within the voltage range specified in this manual, otherwise it may cause fire, electric shock or product damage.
- If the device is not used for a long time, disconnect it from the AC inlet to avoid damage by transient over-voltage.
- To fully disengage the power to the device, please disconnect the power cord from the AC inlet
- Please make sure that this product connected with a qualified computer or other devices.
- Make sure the monitor is grounded properly

About the maintains and repairs

- Product failure may cause fire, electric shock or equipment damage. If the product gives off smoke or makes unusual noises, cut off the mains supply as soon as possible and pull out the plug from the socket. Please contact JUSHA for technical support.
- Repairing is limited to trained engineers. Do not try to repair or disassemble the product by yourself. It may cause product damage or personal injury.
- Please don't touch a damaged LCD screen with bared hand. Because the leaking liquid crystal material contains toxic substance. Please contact doctor immediately once it happens.

Some useful recommendations

- For mission critical applications, we strongly recommend that a replacement unit be immediately available.
- Please avoid excessive compression on the LCD screen, which may cause damage to it.
- In order to avoid scratches, don't touch the screen with sharp objects, such as pen or fingernail. Please use a soft cloth to clean the screen.
- The operator should not touch the video interface (such as DVI port, VGA port and etc.), or it may result in potential ESD (Electronic Static Discharge) damage to the monitor.
- The backlight of LCD has a service life limitation. We strongly suggest using this monitor in the recommended brightness to extend its service life. Please turn off the monitor if not use.
- Waste disposal should comply with local regulations.
- If using this monitor improperly, potential interference to other electronic devices around could be possible. Following methods are proposed to eliminate such interference:
 - ◆ Relocate or reorient the device under interference.
 - ◆ Set up curtain appliance between the monitor and the device under interference.
 - ◆ Plug the monitor and the devices under interference into different power sockets.

2. Overview

Thank you for using JUSHA endoscopic surgery professional monitors. JUSHA endoscopic surgery professional medical monitor is designed for endoscope host, ICU display, operation room to display high-quality video and images.

2.1 Packing list

JUSHA endoscopic surgery professional medical monitor comes with:

- Endoscopic monitor
- Power Adaptor
- AC Power Cord
- DVI cable (optional)
- HDMI cable (optional)
- DP cable (optional)
- User Manual
- Packing list
- Warranty Card
- Product Certification
- Desiccant



Notice:

1. Please only use the original accessories supplied with the monitor. JUSHA is not responsible for any technical problems caused by using Third-party accessories.
 2. Packing list is for reference only, different models need to match different packing list, Please refer to the packing list in the product box. If any of the components are damaged or missing, please contact Nanjing JUSHA Display Technology Co., Ltd. (025-83305050).
 3. Please keep the original package well. If you need to transport the product, use the original package.
-

2.2 Front view and keypad



P2.1 Front view

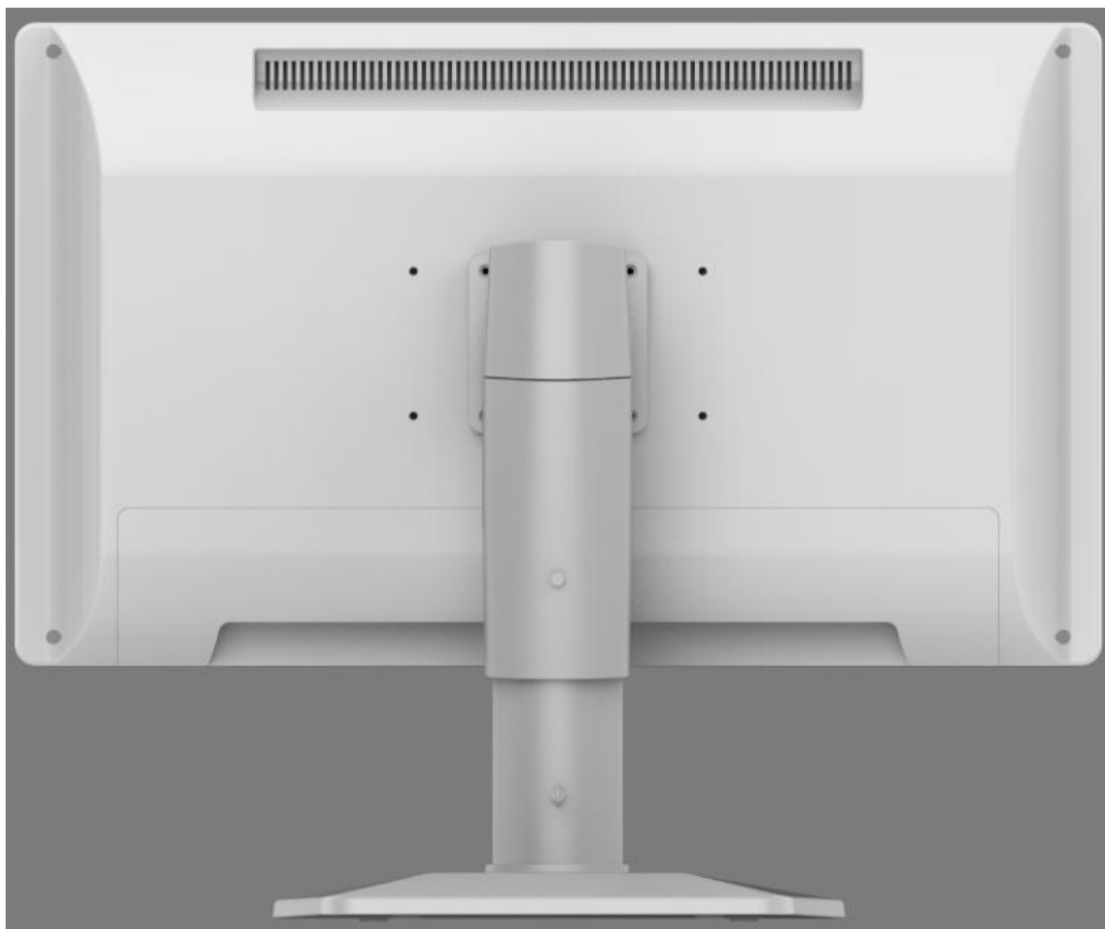


P2.2 The front keypad

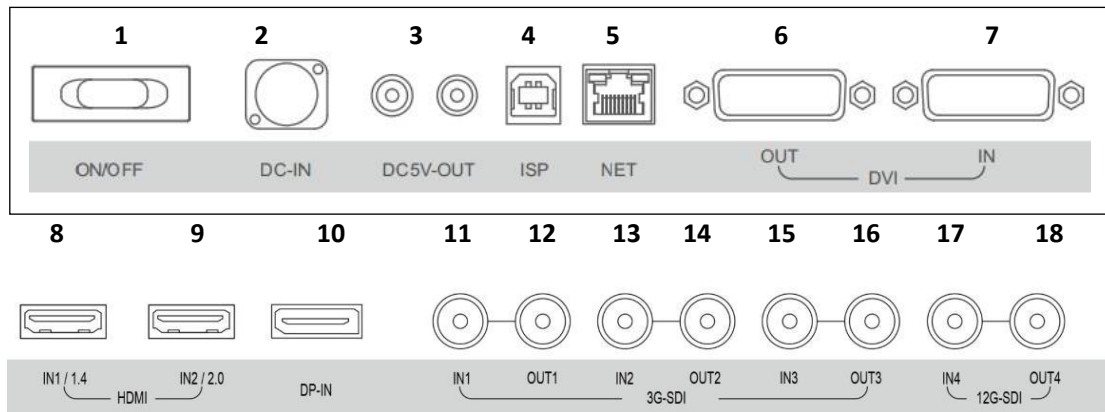
1	Left key	Decrease the value of the menu option
2	Right key	Increase the menu option value or go to the next menu level
3	Menu key	1.Open the User menu 2.Exit the User menu
4	Up key	Selects the previous menu item
5	Down key	1. Select the next menu item
6	Source Select key	Select the input source

7	Power Key	<p>Indicates the monitor operating status</p> <ol style="list-style-type: none"> 1.Lights up in white, indicates monitor in, power-on state 2.Touch Power Key , lights up in orange, indicates monitor in power-on standby 3.Light off, indicates monitor in power-off status
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2.3 The backside view of the monitor



P2.3 Backside of monitor



P2.4 interface definition

Connectors description:

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

3. Monitor installation

3.1 Installation instruction

**Attention :**

1. Make sure that endoscopic host and monitors are powered off.
 2. Unpack the product and check the accessories according to packing list. Confirm the monitor and accessories are complete.
-

1. Plug one side of the signal wire into monitor's back interface, and the other side into endoscopic host's interface, then Tighten the screws. E320AG supports wall design, which should withstand the force of 13kg at least.
2. Connect to the operating room grounding system through the PE ground which is on the back of the monitor.
3. Connect power adaptor to power wire firstly, and then plug power adaptor into monitor's power input port, finally power LED indicator will turns orange.

**Caution:**

- 1 Please use the power cord provided with this monitor.If the power cord is inconsistent with the table below, please contact your supplier. Please make sure the power cord matches the voltage of the power socket and has been approved by and complies with the safety standard of your particular country.
 - 2 To avoid risk of electric shock, AC/DC adaptor must only be connected to a power socket with protective earth.
 - 3 Power Cord: The monitor should be powered from a center tapped circuit when used at voltages over 120V. And plug type of monitor varies in different countries or areas, as shown in the following table.
-

Country/Area	USA/Canada	EU (except U.K)	U.K
Plug Shape			
Standard	ANSI/UL 817 CSA-C22.2 No.21	DIN VDE 0620- 1:2010	BS1363/BS546
Standard	120V	230V	230V
Country/Ara	Brazil	Japan	Korea
Plug Shape			
Standard	NBR14136	JIS 8303	KSC8305:2002R
Voltage	220V	110V	220V
Country/Area	Denmark	Singapore	China
Plug Shape			
Standard	SB 107-2-D1	SS145	GB15934-2008
Voltage	230V	230V	220V

4. Monitor settings

4.1 Turn on the monitor

Turn the power on, the power indicator will turn white, and the monitor's screen will display the JUSHA boot screen, indicating that the monitor is running.



Warning

1. The product has the memory function that can automatically record the shutdown mode after the user's last use. If, after the on-Off key is turned Off, AC power rocker switch is turned Off to shut down the product, the on-Off key has to be turned on to power on the product; If the product is powered Off directly by pressing AC power rocker switch, it is able to directly power on the product after turning on AC power switch, no need for ON/OFF switch operation.
 2. Restart the product only 4s after directly pressing AC power rocker switch and the indicator is completely off, or otherwise startup abnormality may occur.
 3. Only the original power cord and adaptor shall be used. Please guarantee the plug can be wholly plugged into the socket. Please guarantee the voltage be lower than nominal voltage of the power line.
-

4.2 Monitor sleep

When the product is turned on, press power switch button to turn off the product, then the power indicator will turn red. Turn off AC switch, power indicator will turn off and then pull off the power socket.

4.3 Turn off the monitor

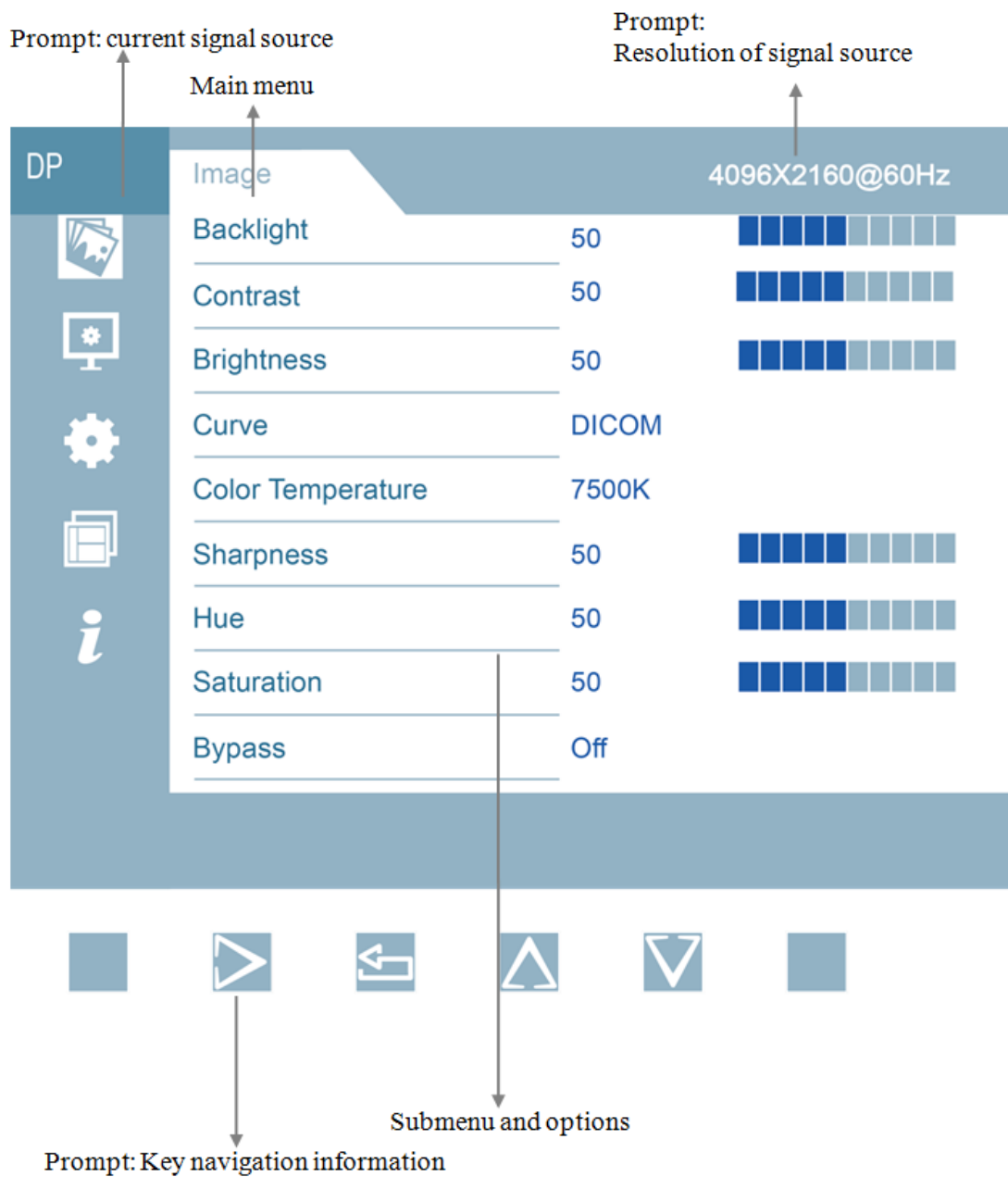
When the product is turned on, press power switch button to turn off the product, then the power indicator will turn red. Turn off AC switch, power indicator will turn off and then pull off the power socket.

4.4 Menu Instruction

By using the buttons or menu function on the product, the user can set the product differently to meet user's needs of work environment. The user can view basic information and current settings of the product through the menu. The menu diagram is as follows, and can be divided into three parts:

1. The top column shows the signal source and the physical resolution of display.

- The left icon represents the main menu information.
- The right side represents the submenu and submenu options.



Monitor settings

ENGLISH

DP Display 4096X2160@60Hz

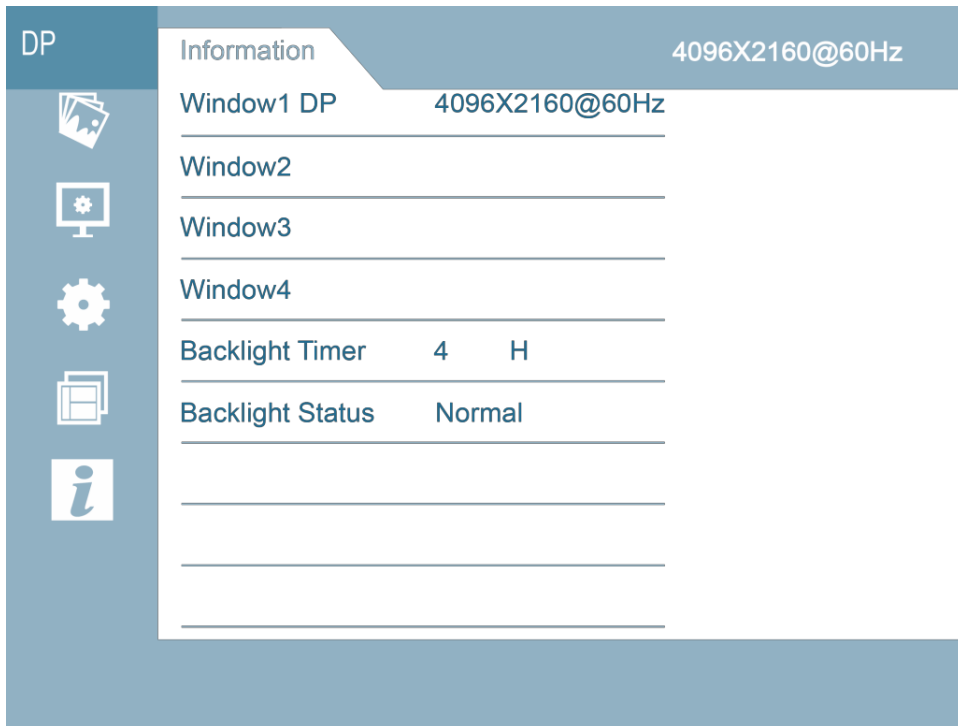
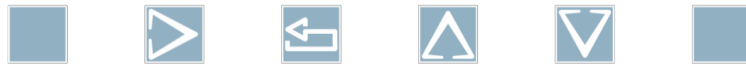
Aspect Ratio	Full Screen
Zoom Mode	Off
Noise Reduction	Off
Input Color Format	RGB
Gamut standard	sRGB



DP SetUp 4096X2160@60Hz

User Mode	Mod1
Language	English
Mirror	Off
Menu Lock	On
FactReset	Off
EmergencyPort	DVI
Bazzer	Off





P4.1 Signal source selection menu

2 The structure of user menu and functional specification :


Menu page	Menu	Parameter and	Factory
Image	Backlight	0-100	50
	Contrast	0-100	50
	Brightness	0-100	50
	Curve	GAMMA1.8	GAMMA2.0
		GAMMA2.0	
		GAMMA2.2	
		GAMMA2.4	
		GAMMA2.6	
		DICOM	
	Color	6500K	6500K
		7500K	
		9300K	
		USER	
Sharpness	0-100	50	
Hue	0-100	50	
Saturation	0-100	50	
Bypass	Off	Off	
	On		
Display	Aspect Ratio	Full screen	Full screen
		4:3	
		5:4	
		16:9	
		1:1	
		Min. proportion	
		Max. proportion	
		Zoom Mode	
	5%		
	10%		
	15%		
	20%		
	Noise Reduction	Off	Off
		Low	
		Medium	
Strong			

	Input color format	Auto	Auto
		RGB	
		YPbPr	
	Gamut Standard	BT2020	Auto
		SRGB	
		Auto	
SetUp	User mode	Mode 1	Mode 1
		Mode 2	
		Mode 3	
		Mode 4	
		Mode 5	
		Mode 6	
	Language	Simplified	Simplified Chinese
		English	
	Mirror	Off	Off
		On	
	Menu lock	Off	Off
		On	
	Factory reset	On	
		Off	
	EmergencyPort	Off	DVI
		HDMI1	
		HDMI2	
DVI			
SDI1			
SDI2			
SDI3			
SDI4			
SDI 4X3G			
Buzzer	Off	On	
	On		
Multi-window mode	Multi-Window Mode	Off	Off
		PIP mode	
		PBP mode 1	
		PBP mode 2	
		Three-picture	
		Four -picture	
	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		

		Botton Left	
		Botton 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	



4.5 Operate OSD menu

4.5.1 Call out menu

When the product is turned on, press any key to call navigation menu, and press , OSD menu appears on the product screen. If the next operation is not performed within 15s, OSD menu will disappear again.







4.5.2 Exit menu

Two methods are available to exit OSD menu:

1. On the submenu page, press  to return to the previous option of current operation; and then press  to exit the menu.
2. If no operation is performed within 15s, the menu will automatically disappear.







4.5.3 Adjust backlight

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, [Image] page is displayed firstly.
2. Press  to move cursor to enter Image submenu.
3. Move cursor to [Backlight]by  .
4. The user may, as necessary, set backlight value of the screen by pressing  /  to increase or decrease the value of progress bar. Regulation step: 1, default value: 50.







4.5.4 Adjust Contrast

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Press  to call out menu to enter Image submenu page.
3. Move cursor to [Contrast] by pressing / .
4. The user may, as necessary, set the contrast by pressing / to increase or decrease the value of progress bar. Regulation step: 1, default value: 50.







4.5.5 Adjust brightness

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Press  to call out menu to enter Image submenu page.
3. Move cursor to [Brightness] by pressing /.
4. The user may, as necessary, set the digital brightness by pressing / to increase or decrease the value of progress bar. Regulation step: 1, default value: 50.

4.5.6 Curve selection

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Press  to call out menu to enter Image submenu page.
3. Move cursor to [Curve] by pressing /.
4. The user may, as necessary, select different curves by pressing /
Options: GAMMA1.8, GAMMA2.0, GAMMA2.2, GAMMA2.4, GAMMA2.6, DICOM. Default value: GAMMA2.0.







Note:



The product's built-in correction is calibrated accurately and meets DICOM standards. DICOM calibration ensures that medical images exhibit more visible gray scales, and we recommend that DICOM correction be used for the most medical image diagnoses.







4.5.7 Color temperature selection

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Press  to call out menu to enter Image submenu page.
3. Move cursor to [Color Temperature] by pressing /.
4. The user may, as necessary, select different color temperatures by pressing / Options: 6500K,7500K ,9300K and USER.
Default value: 6500K.







4.5.8 Adjust sharpness

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Press  to call out menu to enter Image submenu page.
3. Move cursor to [Sharpness] by pressing /.
4. The user may, as necessary, set the sharpness value by pressing / to increase or decrease the value of progress bar. Regulation step: 1, default value: 50.







4.5.9 Adjust hue

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Press  to call out menu to enter Image submenu page.
3. Move cursor to **【Hue】** by pressing /.
4. The user may, as necessary, set the sharpness value by pressing / to increase the value of progress bar. Regulation step: 1, default value: 50.







. 4.5.10 Adjust saturation

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Press  to call out menu to enter Image submenu page.
3. Move cursor to [Saturation] by pressing  .
4. The user may, as necessary, set the sharpness value by pressing   to increase or decrease the value of progress bar. Regulation step: 1, default value: 50.









. 4.5.11 Adjust bypass switch

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Press  to call out menu to enter Image submenu page.
3. Move cursor to [Direct Mode Operation] by pressing  .
4. The user may, as necessary, enable or disable the direct mode operation by pressing   Option: ON/OFF, default value: OFF.

4.5.12 Adjust ratio mode

Operations are as follows:








1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Press   to move cursor to [Display Setting].
3. Press  to enter submenu setting interface.
4. Move cursor to [Ratio Mode] by pressing  .
5. The user may, as necessary, select different ratio modes by pressing   according to the actually input signal.
Options: full screen, 4:3, 5:4, 16:9, 1:1, minimum ratio, maximum ratio;
default value: full screen.

4.5.13 Adjust amplification mode

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out









menu and by default, **【Image】** page is displayed.

2. Move cursor to [Display Setting] by pressing ...
3. Press  to enter Display Setting submenu page.
4. Move cursor to [Amplification Setting] by pressing .
5. The user may, as necessary, select different amplification modes by pressing .

Options: OFF, 5%, 10%, 15% and 20%; Default value: OFF









4.5.14 Adjust noise reduction

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Move cursor to [Display Setting] by pressing .
3. Press  to enter Display Setting submenu page.
4. Move cursor to [Noise Reduction] by pressing .
5. The user may, as necessary, switch over among noise reduction modes by pressing : OFF, Low, Medium and High. Default value: OFF

4.5.15 Adjust the input color format

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Move cursor to [Display Setting] by pressing .
3. Press  to enter Display Setting submenu page.
4. Move cursor to [Input Color Setting] by pressing .
5. The user may, as necessary, switch over among input color formats by pressing .

Options: Automatic, RGB, YPbPr, Default value: automatic

4.5.16 Adjust user mode

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default **【Image】** page is displayed.

2. Press to move cursor to [Display Setting].
3. Press to enter submenu setting interface.
4. Move cursor to [User Mode] by pressing .
5. User may switch over user modes, and mode 1, 2, 3, 4, 5 and 6 are optional. Default value: mode 1.

4.5.17 Adjust product language

Operations are as follows:

1. Press any key to call navigation menu, and press to call out menu and by default, **【Image】** page is displayed.
 2. Press to move cursor to [Setting].
 3. Press to enter submenu interface.
 4. Move cursor to [Language] by pressing ..
 5. The user may select languages by pressing ..
- Options: English, Simplified Chinese; Default value: Chinese (Domestic); English (Export)

4.4.18 Mirror switch regulation



Operations are as follows:

1. Press any key to call navigation menu, and press to call out menu and by default, **【Image】** page is displayed.
 2. Press to move cursor to [Setting].
 3. Press to enter submenu setting interface.
 4. Move cursor to [Mirror Image] by pressing .
 5. User may select mirror image switch by pressing ..
- Option: ON, OFF. Default value: OFF.

4.5.19 Menu lock switch regulation










Operations are as follows:

1. Press any key to call navigation menu, and press to call out menu and by default, **【Image】** page is displayed.
2. Press to move cursor to [Setting].
3. Press to enter submenu setting interface.
4. Move cursor to [Menu Lock] by pressing .

5. User may switch over key lock by pressing  ..
Option: ON, OFF. Default value: OFF.









4.4.20 Factory reset

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Press   to move cursor to [Setting].
3. Press  to enter submenu setting interface.
4. Move cursor to [Factory Reset] by pressing  .
5. Switch over factory reset options by pressing   .
Option: ON, OFF. Default value: OFF.
6. Press  to confirm option.









4.5.21 Multi-window mode

Operations are as follows:

1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Press   to move cursor to [Multi-window Setting].
3. Press  to enter the multi-window setting submenu interface.
4. Move cursor to [Multi-window Mode] by pressing  .
5. Switch over multi-window mode by pressing   .
Option: single picture, PIP mode, PBP mode 1, PBP mode 2, three-picture mode, four-picture mode; Default value: single picture.









4.5.22 Window selection

Operations are as follows:

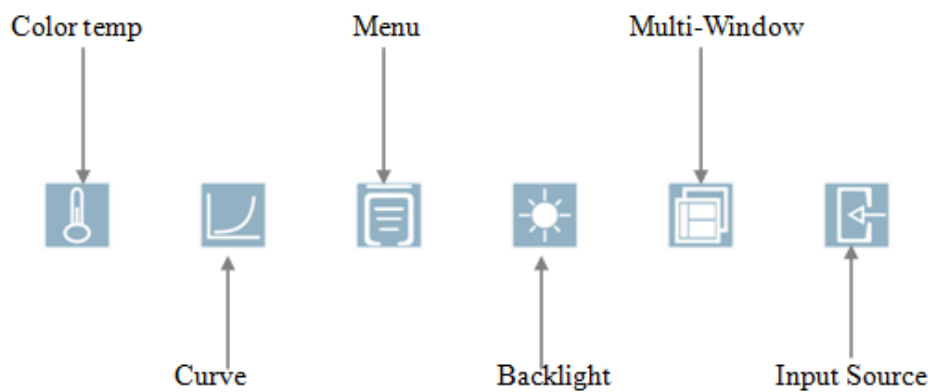
1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
2. Press   to move cursor to [Multi-window Setting].
3. Press  to enter the multi-window setting submenu interface.
4. Move cursor to [Window Selection] by pressing  .
5. Switch over windows by pressing   . Option: window 1;
Default value: window 1.

4.4.23 Dimensions of secondary picture

Operations are as follows:





1. Press any key to call navigation menu, and press  to call out menu and by default, **【Image】** page is displayed.
 2. Press / to move cursor to [Multi-window Setting].
 3. Press  to enter the multi-window setting submenu interface.
 4. Move cursor to [Dimensions of Secondary Picture] by pressing /.
 5. Switch over dimensions of secondary picture by pressing /.
- Option: Small, Medium, Large, Ultra-large;
Default value: Medium.

4.6 Hot key



4.6.1 Colortemp hot key





Operations are as follows:

1. Press any key to call navigation menu, and Press  to call Colortemp Selection menu.
2. Press / to switch colortemp options: 6500K, 7500K, 9300K and USER.
3. Press  to exit menu.



4.6.2 Curve hot key





Operations are as follows:

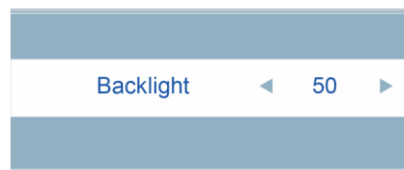
1. Press any key to call navigation menu, and Press  to call out Curve Selection menu.
2. Press / to switch colortemp options: Gamma1.8, Gamma2.0, Gamma2.2, Gamma2.4, Gamma2.6 and DICOM.
3. Press  to exit menu.



4.6.3 Backlight hot key






Operations are as follows:

1. Press any key to call navigation menu, and Press  to call Backlight adjust menu.
2. The user may, as necessary, set backlight value of the monitor by pressing / to increase or decrease the value, default value: 50.
3. Press  to exit menu.



4.6.4 Multi-Window hot key






Operations are as follows:

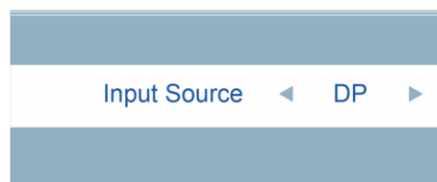
1. Press any key to call out navigation menu, and Press  to call out Multi-Window Selection menu.
2. Press / to switch Multi-Window options: Off, PIP, PBP1, PBP2, Triple and Quad.
3. Press  to confirm the Multi-Window selected.
4. Press  to exit menu.



4.6.5 Input Source hot key

Operations are as follows:

1. Press any key to call navigation menu, and Press  to call out Input Source Selection menu.
2. Press / to switch among signal source options: HDMI1, HDMI2, SDI1, SDI2, SDI3, SDI4, SDI4X3G, DVI and DP.
3. Press  to confirm the signal source channel selected.
4. Press  to exit menu.



5. Important information

5.1 Technical specifications

Input voltage	DC 24V,6.25A(MAX)
Standby power consumption	<0.5W
Consumption(nominal)	<150W
LCD Panel	32inches, Color Active Matrix Liquid Crystal Display
Viewing Angle	Horizontal 178°, Vertical 178° (CR ≥10)
Pixels distance	0.1845(H)mm x 0.1845(V)mm
Resolution	3840x2160
Visual Size	708.48(H)mm x 398.52(V)mm
Video Interface	Input: DVI-D*1/HDMI*2/DP*1/3G-SDI*3/12G-SDI*1 Output: DVI-D*1/3G-SDI*3/12G-SDI*1
Power output	interface DC 5V 2A * 2
Operation Environment	Temperature: 0°C ~ 40°C Humidity: 5% ~ 90% , no condensation Air pressure: 700hPa ~ 1060hPa
Environment for transportation and storage	Temperature: -20°C ~ 60°C Humidity: 5% ~ 90% , no condensation Air pressure: 200hPa ~ 1060hPa
Certification standards	CCC、CE



Notice :

The specifications of JUSHA products are subject to change without notice.

5.2 Safety standards

Safety standards for JUSHA-ES42:

the Medical Display Safety standards	IEC 60601-1: 2012. EN 60601-1:2013 GB4943.1-2011
Authentication	CCC、CE
Declaration of Conformity	ROHS

5.3 Electromagnetic compatibility

EMC for JUSHA-ES42:

Electromagnetic compatibility	IEC 60601-1-2: 2014. EN 60601-1-2:2015 GB/T9254-2008 GB17625.1-2012
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Warning: Warning: Display requires special precautions regarding EMC and need to be installed, put into service and used according to the following information.

1. Do not use other cables provided or specified by us. Using other cables may cause the increase of emission or decrease of immunity.
2. Do not put any portable and mobile RF communications equipment close to display. Doing so may affect display.
3. Display should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the equipment or system should be observed to verify normal operation the configuration in which it will be used.
4. Anyone who connects additional equipment to the signal input part or signal output parts, configuring a medical system, are responsible that the system complies with the requirements of IEC/EN60601-1-2.

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 E320AG, 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 B	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

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	800-960	Pulse modulation 18Hz, 28V/m
870		
930		
1720	1700-1990	Pulse modulation 217Hz, 28V/m
1845		

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. Declarations

6.1 Legal notice

The auxiliary equipment that is connected with JUSHA display should meet the corresponding IEC Standard (data processing equipment should meet IEC 60950-1 Standard and armamentariums should meet IEC60601-1 Standard). In addition, all configurations should meet IEC 60601-1: 2005 + CORR. 1:2006 + CORR. 2:2007 + AM1:2012 Standard. Before a configuration is connected to signal output or input interface for processing system configuration, technician should make sure that the system meets IEC 60601-1: 2005 + CORR. 1:2006 + CORR. 2:2007 + AM1:2012 Standard.

Staffs that are responsible for connecting the monitor with system should make sure that installed devices meet IEC 60601-1: 2005 + CORR. 1:2006 + CORR. 2:2007 + AM1:2012 Standard. If there is any question, please contact with JUSHA Engineering Technology Service Department or local marketing representatives.

JUSHA markets its products through armamentarium manufacturers, distributors and franchisers. Therefore, please consult your seller whether he/she provides relevant maintenance service.

JUSHA will neither take any responsibility nor authorize anyone to take any responsibility for product distribution and its use. Please read carefully the related documents, operation instruction and labels on package before you apply the product so that you can use and maintain the product properly.

Please note that its performance will be affected by system configuration, software, application program and client's data and client's operating control. Though JUSHA product is compatible with many systems, client's specific function might be come true differently. Whether

the product is suitable for specific purpose or application program it depends on clients, therefore, JUSHA should not guarantee for it.

JUSHA expressly disclaims all warranties of any kind, whether statutory, express or implied, including, but not limited to, implied warranties of merchantability, fitness for particular purpose and non-infringement. JUSHA hereby explicitly rejects all warranties and state of any kind, any property or extent whether statutory, express or it leads to any laws ,rules, commercial practice, conventions or trade disputes etc.

In no event shall JUSHA and its suppliers/franchisers be liable for any special, incidental, punitive, indirect or consequential damages (including, but not limited to, delay deliver, non-delivery, fault items, product design or production manufacture, being unable to use the product and service, loss of business or profits or other reasons, and any responsibility caused by buy or sell, lease, install or use related products, these terms and conditions and related articles of agreement.

The limits in this article and/or exclusions are not necessary suitable for some inadmissible exclusion clause, warranties or limited judicial districts. The maximum extent is permitted by applicable law in named jurisdiction under the circumstance.

JUSHA keeps patents, copyright and its exclusive right and all information in this manual including JUSHA all designs and related materials. Anyone cannot plagiarize JUSHA design or copy its product to sell or use without the company's explicit authority.

6.2 After-sale service declaration

The after-sale warranty is three years from the date of purchase, only if the product has been used with the recommended brightness. We are responsible for the quality problems caused by non-artificial factors and the maintenances are free of charge.



Notice:

The user must contact and get permission from JUSHA before sending back the product for repairs.

To avoid the damage and/or loss during transit, the user must deliver the product in its original package or other adequate package with an equal degree of protection to the local distributor. Meanwhile, user must present proof of the product purchase date.

The user is not allowed to repair the monitor from anywhere except the authorized after-service spots. The original serial number should not be modified or removed. Don't derogate from requirements of this manual, otherwise it may result in quality assurance failure.

This product provides limited responsibility for quality assurance. JUSHA isn't responsible for malfunction caused directly/indirectly/accidentally by users themselves. Users should pay attention to the settings of the operation system and other applications. Above factors will affect the product performance

6.3 Proprietary rights

Nanjing JUSHA Display Technology Co., Ltd keeps the copyright of this manual and other related ownership. It is not allowed to copy, use or sell this manual without authorization of Nanjing JUSHA Display Technology Co., Lt

7. Contact information

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