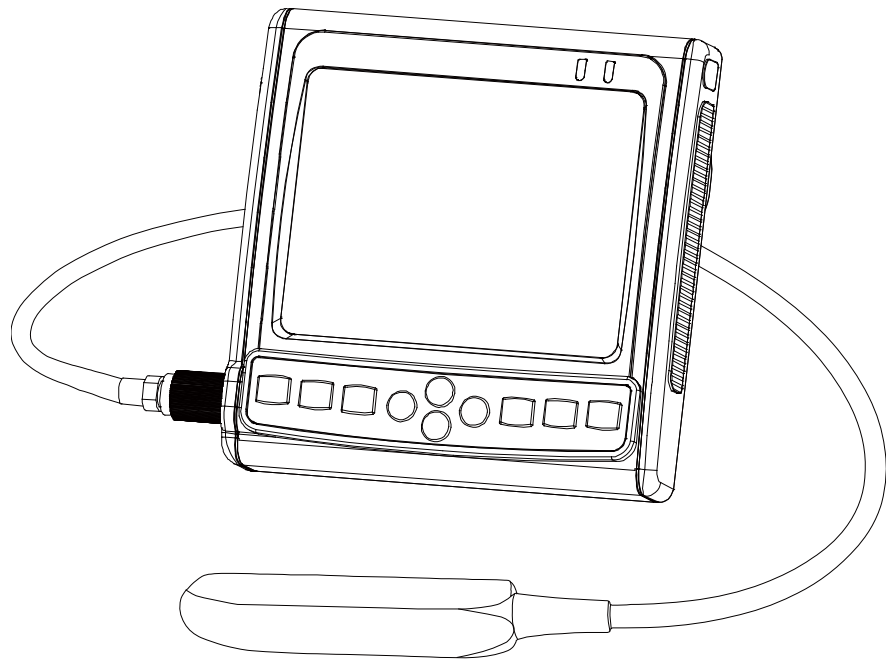


KAIXIN

V1

Ultrasonic Diagnostic Instrument (Vet)

User's Manual



Xuzhou Kaixin Electronic Instrument Co., Ltd.

Introduction

Thank you for purchasing V1 ultrasonic diagnostic instrument (Vet).

Users shall carefully read through this manual and fully understand the text before operating the equipment.

Please keep this manual after reading so that you can access at any time when needed.

The user's manual issue date: July 14, 2022, Version: V1.11

For the changes of appearance, this manual is subject to change without further notice!

Intellectual Property Information

The user's manual and the corresponding intellectual property rights belonging to Xuzhou Kaixin Electronic Instrument Company Ltd. (hereinafter referred to as Kaixin).

Individual or organization may not copy, modify or translate any part of this user's manual, without the express written permission of Kaixin.

Statement

Kaixin has the final explanation right of this user's manual.

Kaixin was considered responsible for the safety, reliability and performance in case of meeting all the following requirements:

1. Assembly, expansion, readjustment, improve and repair are all performed by professionals recognized by Kaixin;
2. All replacement parts and accessories, consumables involved repairs are Kaixin company (original) or approved by Kaixin;
3. Related electrical equipment complies with national standards and the requirements of the user's manual;
4. Operate the product in accordance with the user's manual.

Warranty and repair service

Purchased the product warranty, sees the company's service policies.

The qualified service personnel who get KAIXIN written authorization can repair the instrument out of warranty by themselves. But this should be agreed by Xuzhou Kaixin Electronic Instrument Co., Ltd. We will provide circuit diagrams, component part lists or other information to assist service personnel to repair those parts of our equipment that are designated by our company as repairable by service personnel.

Manufacturer's Information



Xuzhou Kaixin Electronic Instrument Co., Ltd.

Kaixin Mansion, C-01, Economic Development Zone, Xuzhou, Jiangsu, China.

Zip Code: 221004

Tel: +86-516-87732932 87733758

Fax: +86-516-87732932 87792848

Website: www.kxele.com

E-mail: info@kxele.com




Important Statement

1. User shall be fully responsible for the maintenance and management of this product after purchasing this product.
2. Even in the warranty period, warranty does not include the following:
 - a) Damage or loss caused by error or rough using.
 - b) Damage or loss caused by force majeure (such as fires, earthquakes, floods, or lightning etc.).
 - c) Damage or loss caused by not meeting the conditions of use specified by the system, such as inadequate power supply, incorrect installation or environmental conditions do not meeting the requirements.
 - d) Damage or loss caused by not used the system in the initial buy region.
 - e) Damage or loss caused by the system purchased not by Kaixin or its authorized dealer or agents.
3. Do not modify the software or hardware of the equipment without authorization of the manufacturer.
4. In any case, Kaixin shall not be liable for the problems, damages or losses due to re-installation, alteration or repair the system by non-Kaixin designated personnel.
5. This product is intended to provide clinical diagnostic data for the doctor.
The doctor shall be responsible for the diagnostic process. Kaixin shall not be liable for any problems arising out of the process.
6. Be sure to back up important data to external storage media, such as notebooks.
7. Due to operator's error or abnormal condition causing the data stored in the internal system is lost, Kaixin is not responsible.
8. This user's manual contains warnings for predictable dangers. Users shall also exercise care at any time to be aware of the dangers unforeseen in this manual. Kaixin shall not be liable for the damages and losses arising out of neglecting to follow the operation instructions herein described.
9. This user's manual shall be furnished with the machine so that managerial and operating personnel can refer to it any time as necessary. Once the managerial personnel of the system changes, it shall hand over this user's manual.
10. Deal with the exhausted product according to the local statute.
11. The maintenance and servicing of product shall be performed by the trained engineer or by Kaixin Electronic Instrument Company Ltd.














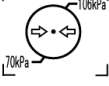
Safety Cautions


1. Warning Symbols and Definitions

The following warning symbols are used in this manual to indicate safety level and other important items. Please remember these symbols and understand the meaning as you read this user's manual. These symbols convey specific meanings as detailed in the table below:




Symbols & Words	Connotation
 Danger	Indicates an imminent danger that may result in personal death or serious injury if not avoided.
 Warning	Indicates a potential danger that may result in personal injury if not avoided.
 Attention	Indicates a potential danger or unexpected use condition that may result in light injury or property loss or affecting the use if not avoided.

2. Safety Symbols

Symbols	Meaning	Symbols	Meaning
	Type B applied part		Up
	Power switch		Keep dry
	Direct current		Fragile
	Power supply indication		Stacking limit by number
	Battery charge indicator		Temperature limits (Storage and transport)
	Follow instructions for use		Humidity limitation (Storage and transport)
	Marking for the separate collection of electrical and electronic equipment		Atmospheric pressure limitation (Storage and transport)

	Symbol for the marking of electrical and electronics devices according to Directive 2012/19/EU. The device, accessories and the packaging have to be disposed of waste correctly at the end of the usage. Please follow Local Ordinances or Regulations for disposal.
---	--

3. Labels

Labels	Description
	Warning: This is a heat plate to allow heat release from ultrasound. Remove this label before using.
	Attention: When connecting or disconnecting the probe, please note rotate this ring only!
	Download method of ultrasound workstation software. Remove this label before using.

Contents

Chapter One	Technical Specifications	- 1 -
1.1	Technical Data	- 1 -
1.2	Functions.....	- 1 -
Chapter Two	System Outline	- 2 -
2.1	Structure composition of the instrument	- 2 -
2.2	Components name.....	- 2 -
2.3	Parts of the probe (Take 6.5MHz animal transrectal linear array probe for example).....	- 2 -
2.4	Function keys description	- 3 -
Chapter Three	System Configuration.....	- 3 -
3.1	Typical configuration.....	- 3 -
3.2	Optional parts.....	- 3 -
Chapter Four	Operation Condition	- 4 -
4.1	Power supply	- 4 -
4.2	Operation Environment.....	- 4 -
4.3	Storage and Transportation	- 4 -
Chapter Five	System Installation and Check	- 5 -
5.1	System installation.....	- 6 -
5.2	Ultrasonic probe installation	- 6 -
5.2.1	Ultrasonic probe connection	- 7 -
5.2.2	Ultrasonic probe disconnection.....	- 8 -
5.3	Shutter release installation.....	- 8 -
5.4	Video recorder installation	- 8 -
5.5	Use of wireless monitor.....	- 8 -
5.6	Connect to power.....	- 8 -
5.7	Ultrasonic probe check before and after operation	- 9 -
5.8	Main unit check before and after operation.....	- 9 -
5.8.1	Inspection before start-up.....	- 9 -
5.8.2	Inspection after start-up.....	- 9 -
5.9	System reset.....	- 10 -
Chapter Six	Functional Operation	- 11 -
6.1	Startup and Shutdown	- 11 -
6.2	System functions setting	- 11 -
6.2.1	Time setting.....	- 11 -
6.2.2	TV Mode setting.....	- 11 -
6.2.3	Key Sound setting.....	- 11 -
6.2.4	Screensaver setting	- 11 -
6.2.5	Image Filter setting.....	- 11 -
6.2.6	Grid setting.....	- 12 -
6.2.7	Wifi setting.....	- 12 -
6.2.8	RF setting	- 12 -
6.2.9	Background color setting	- 12 -
6.2.10	User name setting	- 13 -
6.3	Mode selection.....	- 13 -

- 6.3.1 B Mode..... - 13 -
- 6.3.2 B/B Mode..... - 13 -
- 6.3.3 B/M Mode..... - 13 -
- 6.3.4 M Mode..... - 13 -
- 6.3.5 A Mode..... - 14 -
- 6.4 Image adjustment and control in B, B/B, B/M and M..... - 14 -
 - 6.4.1 Image brightness and contrast adjustment..... - 14 -
 - 6.4.2 Total Gain Adjustment..... - 14 -
 - 6.4.3 Near Field Gain Adjustment - 14 -
 - 6.4.4 Far Field Gain Adjustment..... - 14 -
 - 6.4.5 Dynamic Range Adjustment - 14 -
 - 6.4.6 Depth Range Selection - 14 -
 - 6.4.7 Frequency Adjustment (Frequency conversion) - 15 -
 - 6.4.8 Frame Correlation Adjustment..... - 15 -
 - 6.4.9 Image Post-process Adjustment..... - 15 -
 - 6.4.10 Edge Enhancement Adjustment..... - 15 -
 - 6.4.11 Focus Adjustment and Control..... - 15 -
 - 6.4.12 Local Zoom and Local additive color - 15 -
 - 6.4.13 Image Left/Right Reverse - 15 -
 - 6.4.14 Image Up/Down Reverse..... - 15 -
 - 6.4.15 Color Selection - 15 -
 - 6.4.16 Image Freeze/Unfreeze - 15 -
- 6.5 Gain adjustment in A mode..... - 16 -
- 6.6 Diagnostic mode preset..... - 16 -
- 6.7 Puncture guide line - 16 -
- 6.8 Body Mark and Probe Mark - 16 -
- 6.9 One-key storage image..... - 16 -
- 6.10 Image management - 17 -
 - 6.10.1 Save the image..... - 17 -
 - 6.10.2 Read the image - 17 -
 - 6.10.3 Delete the image - 17 -
 - 6.10.4 Review the image - 17 -
 - 6.10.5 Transfer a single image to workstation..... - 17 -
 - 6.10.6 Batch images transfer to workstation - 18 -
- 6.11 Cine loop..... - 18 -
- 6.12 Text Input - 18 -
- 6.13 Check list management - 19 -
 - 6.13.1 Save and view check list - 19 -
 - 6.13.2 Delete check lists - 19 -
 - 6.13.3 Transfer check lists to workstation - 19 -
- 6.14 Obstetric list management..... - 19 -
 - 6.14.1 Save and view obstetric list..... - 19 -
 - 6.14.2 Delete obstetric lists..... - 20 -
 - 6.14.3 Transfer obstetric lists to workstation..... - 20 -
- Chapter Seven General Measurement..... - 21 -**

7.1 Distance Measurement.....- 21 -

7.2 Circumference/Area/Volume Measurement.....- 21 -

7.3 Slope/Heart rate/Cycle Measurement.....- 22 -

Chapter Eight Obstetric Measurement- 23 -

8.1 Measurement and Calculation items- 23 -

8.2 Measurement of Gestational Age (GA) and Estimated Date of Confinement (EDC).....- 23 -

8.3 Measurement of Swine’s lean percentage- 23 -

Chapter Nine Backfat thickness and Lean percentage measurement.....- 25 -

9.1 Measurement items- 25 -

9.2 Backfat measurement.....- 25 -

9.3 Measurement of Swine’s lean percentage- 26 -

9.4 Measurement considerations.....- 26 -

Chapter Ten Ultrasound workstation software instructions- 27 -

10.1 Ultrasound workstation software introduce- 27 -

10.2 Get ultrasound workstation software.....- 27 -

10.3 Mobile ultrasound workstation software.....- 27 -

10.3.1 Preparation before use- 28 -

10.3.2 Start using mobile ultrasound workstation software.....- 28 -

10.3.2.1 Image view.....- 28 -

10.3.2.2 Check lists management.....- 29 -

10.3.2.3 Obstetric lists management- 30 -

10.3.2.4 Images and data on the workstation transfer to U disk.....- 31 -

10.3.2.5 Mobile album view images and reports of workstation- 32 -

10.3.2.6 Quit workstation software- 32 -

10.4 PC-side ultrasound workstation software.....- 32 -

10.4.1 Preparation before use- 32 -

10.4.2 Start using PC-side ultrasound workstation software- 32 -

10.5 Change the language for ultrasound workstation software- 33 -

Chapter Eleven System Maintenance.....- 34 -

11.1 Maintenance by users- 34 -

11.1.1 System cleaning and disinfection.....- 34 -

11.1.2 Use and maintenance for the rechargeable battery.....- 36 -

11.2 Replace the fuse.....- 37 -

11.3 Replacement of power supply cord- 38 -

11.4 Troubleshooting- 38 -

11.5 Periodic Safety Checks.....- 38 -

Chapter Twelve Storage and Transportation.....- 39 -

Chapter Thirteen Safety Classification.....- 39 -

Chapter Fourteen Guidance and Manufacturer’s Declaration- 40 -

Chapter One Technical Specifications

1.1 Technical Data

1. Gray scale: 256
2. Monitor: 5.7" LED
3. Adapter ratings: 100-240V~, 1.2-0.6A, 50-60Hz
4. Output of adapter: DC12.8V 3.0A
5. Main device rating: DC12.8V 3.0A
6. Main Unit Size: approx. 158 * 158 * 65mm³ (L * W * H)
7. Weight of main unit: approx. 1.1kg (excluding accessories)

1.2 Functions

1. System preset: time, TV mode, key sound, screensaver, image filter, grid, Wifi, RF, background color, user name;
2. Mode selection function;
3. Image brightness and contrast adjustment;
4. Adjustment and display of near field, far field, total gain and dynamic range;
5. Depth range selection function;
6. Frequency conversion function;
7. Frame correlation adjustment;
8. Image post-process adjustment;
9. Edge enhancement function;
10. Single-point, multi-point focusing function;
11. Local zoom and local additive color function;
12. Image left/right, up/down reverse;
13. Color display function;
14. Image freeze/unfreeze;
15. Diagnostic modes preset function;
16. Puncture guide line;
17. Body mark and probe mark;
18. One-key storage image;
19. Image management: save, read, delete, review, transfer image to workstation;
20. Cine loop;
21. Case information, image annotation and auto time display;
22. Check list management: save and view, delete, transfer check lists to workstation;
23. Obstetric list management: save and view, delete, transfer obstetric lists to workstation;
24. Measurement of distance, circumference, area, volume, slope, heart rate and cycle;
25. OB software package including 25 tables about 8 kinds of animals, automatic calculation of GA and EDC;
26. Measurement of backfat thickness, loin thickness and lean percentage;
27. Ultrasound workstation: image view, check list management, obstetric list management.

Chapter Two System Outline

2.1 Structure composition of the instrument

V1 ultrasonic diagnostic instrument (Vet) is composed of main unit and probe, etc.

2.2 Components name

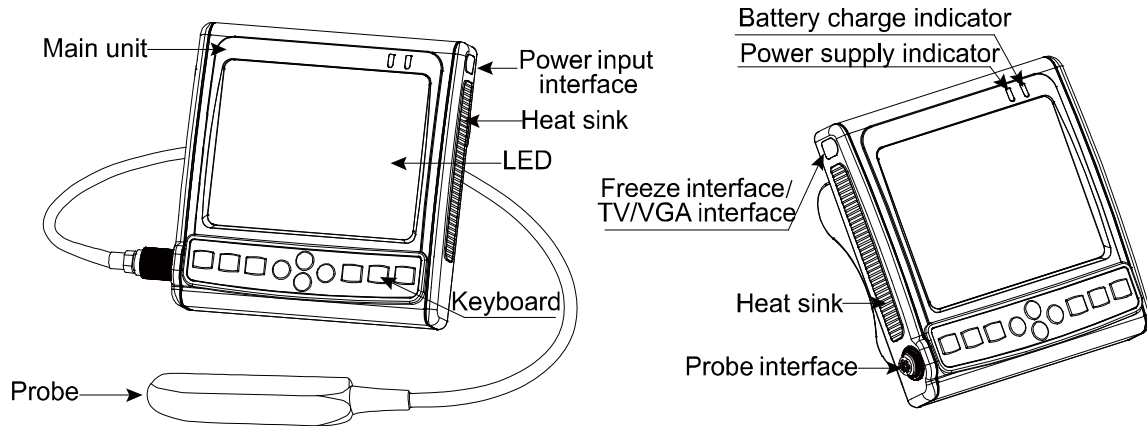


Figure V1 main unit sketch map

⚠ Warning: Heat sinks on the both sides of main unit to allow heat release from ultrasound. Remove this label before using. When main unit is working, the temperature of heat sink may be high. If used, be careful not to touch the heat sink, so as not to burn!

2.3 Parts of the probe (Take 6.5MHz animal transrectal linear array probe for example)

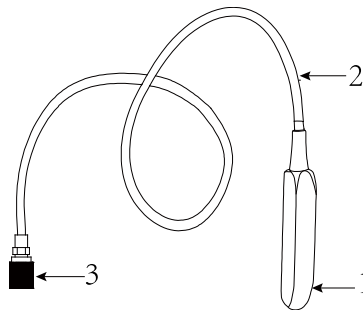









Figure Parts name of 6.5MHz animal transrectal linear array probe

Name	Function
(1) Acoustic lens	To convert electric signal to ultrasonic signal based on principle of converse piezoelectric effect. The ultrasonic signal, after entering the human body, is reflected as echo wave and converted to electric signal again. The acoustic lens is on the probe surface. Supply ultrasonic coupling gel to the acoustic lens surface when performing ultrasonic diagnosis.
(2) Cable	To connect the probe to the probe connector.
(3) Probe connector	To connect the probe to ultrasonic diagnostic instrument.

2.4 Function keys description

SN.	Function keys	Real-time status function	Freeze status function
1		Mode Selection; Long press this key to select the diagnostic mode	Text input, Transfer images/data to the ultrasound workstation, exchange measurement start-end points, etc.
2		Main-menu	Save image/Read image/Cine loop
3			Enter confirm
4			Freeze/Unfreeze
5			Direction Keys
6			Quit
7			Power switch

Chapter Three System Configuration

3.1 Typical configuration

- | | |
|--|--------|
| 1. Main unit | 1 unit |
| 2. 6.5MHz animal transrectal linear array probe | 1 PC |
| 3. Probe holder | 1 PC |
| 4. Power adapter | 1 PC |
| 5. Arm-band | 1 PC |
| 6. Shutter release | 1 PC |
| 7. Plastic seal box | 1 PC |
| 8. Soft leather bag | 1 PC |
| 9. Straps | 2 PCS |
| 10. PC or mobile ultrasound workstation software | 1 PC |

3.2 Optional parts

1. 3.5 MHz convex array probe
2. 3.5 MHz linear array loin probe
3. 4.0 MHz convex array transrectal probe
4. 6.5 MHz micro-convex probe
5. 7.5 MHz high frequency linear array probe
6. Video recorder
7. Wireless monitor

Chapter Four Operation Condition

4.1 Power supply

Adapter ratings: 100-240V~, 1.2-0.6A, 50-60Hz

Output of adapter: DC12.8V 3.0A

Main device rating: DC12.8V 3.0A

Internal supply voltage: DC11.1V ± 10%

4.2 Operation Environment

Ambient temperature: 10°C-40°C

Relative humidity: 30%-75% (without condensation)

Atmospheric pressure: 700hPa-1060hPa.

Altitude: < 2000 m

Overvoltage: Overvoltage Category II

Pollution degree: 2

4.3 Storage and Transportation

Ambient temperature: -20°C-55°C

Relative humidity: 30%-93% (without condensation)

Atmospheric pressure: 700hPa-1060hPa

⚠ Danger: Do not use this equipment where flammable gas (such as anesthetic gas, oxygen or hydrogen) or flammable liquid (such as alcohol) are present. Failure to do so may result in explosion.

⚠ Warning: Avoid using this equipment with high-frequency electric knife, high-frequency therapy equipment or defibrillators and other electronic devices, or may an electric shock occur to the patient.

⚠ Attention: The mains voltage is varies with different countries or regions.

⚠ Attention: Using radio transmitting equipment nearby the system may interfere with the normal operation of the system. Prohibited carry or use of devices that can generate radio waves within the room installed this system, such as cell phones, radio transceivers and wireless remote control toys.

⚠ Attention: System should be avoided using in following environments:

- | | |
|---|---|
| 1. Moist | 2. Rain |
| 3. Thunderstorm weather | 4. No ventilation |
| 5. Close to heat source (e.g. heaters, microwave ovens, ovens, water heaters, etc.) | |
| 6. Direct sunlight | 7. Dramatic temperature change |
| 8. Poisonous gas | 9. Corrosive gas |
| 10. Strong shock | 11. Strong electromagnetic field (e.g. MRI) |

Chapter Five System Installation and Check

⚠Warning: The waterproof grade of the equipment is IPX4 (no adverse effect on splashing water in all directions). Splash any liquid on the equipment may damage it. If you accidentally splash liquid on the equipment, please immediately turn off the power and contact your service representative.

⚠Warning: To avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective earth.

⚠Warning:

1. All plugs of instruments of this system shall be connected into the power socket with protectively earth on the wall and the socket must meet the requirement of power rating of instrument. Use of multiple portable socket-outlets may affect protective earth to make leakage currents exceed the safety requirements.
2. Please follow the correct electrical connections method to connect the power supply and earth, otherwise there will be danger of electric shock. Do not connect the grounding wire to any gas pipe or water pipe, or it may cause bad grounding and danger of explosion.
3. Prohibit the live parts of the equipment or other devices (such as various signal input and output ports, etc.) contact with the patient, if this equipment or other equipment has failure, the patient will have danger of electric shock.
4. Additional equipment connected to the medical electrical equipment must comply with the respective IEC standards (e.g. IEC60950 for data processing equipment, IEC 60601-1 for medical electrical systems). Anybody connecting additional equipment to medical electrical equipment configures a medical system and is therefore responsible that the system complies with the requirements for medical electrical systems. Attention is drawn to the fact that local laws take priority over the above mentioned requirements. When more than one device is connected to use, the accumulation of leakage current may cause the danger of security. If in doubt, consult your local representative or the technical service department.
5. If the integrity of the external protective conductor in the installation or its arrangement is in doubt, equipment shall be operated from its internal electrical power source.

⚠Warning:

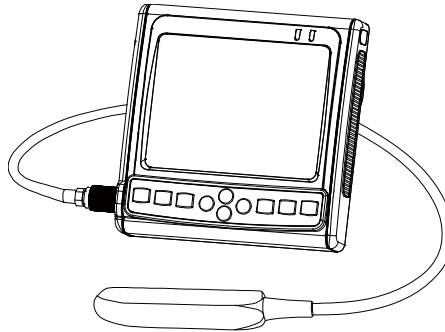
1. When instrument works abnormally, do stop working, turn off the power and check the reason, then contacts the KAIXIN Company about it.
2. Turn off power and pull out of the plug from socket after each ultrasonic diagnostic operation.
3. It is forbidden to drag and press the power and probe cables emphatically; regularly inspect whether there is pull-apart and bareness, if there is the phenomena like this, turn off power supply immediately, stop using it and change it for new one.
4. It is forbidden to load and unload the probe or move the instrument in galvanic to avoid danger of safety.
5. Pull out of the plug from socket after operation in thunderstorm weather to avoid the instrument being damaged by lightning.
6. If the temperature changes greatly in short time will cause vapor recovery inside of instrument, the case may damage the instrument.
7. The instrument is turned off completely only by disconnecting the power supply from the wall socket.

⚠Warning: The power adapter, probe, shutter release and power supply cord as described in this section are replaced by operator. But these parts must be provided by KAIXIN or his authorized supplier.

5.1 System installation

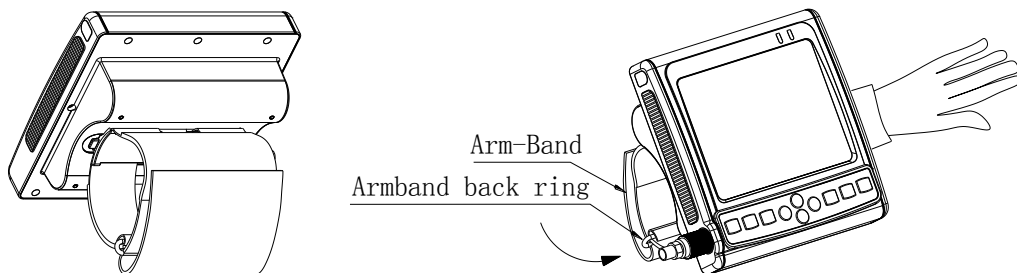
Please carefully read through and fully understand the use-method before installing the system, and check the goods for its completeness according to the packing list furnished. This system provides the following several usages, for the user to select:

1. Place the instrument on a desktop to use



2. Instrument fixed in the arm to use

⚠Attention: when using the arm-band, if allergy, please consult a doctor immediately and increase protective measures (e.g. Wear gloves before use).



- a. Extend your arm into the arm-band according to arrow direction, or disconnect the arm-band to put on your arm, the long end through the back ring.
- b. Strain the arm-band and stick it firmly on the Velcro.

3. Instrument places on the soft leather lag and hangs on the chest to use

Installation:

- a. Take out the instrument and accessory, put the instrument into the soft leather bag;
- b. The probe connector passes through the oval hole of the leather bag, and then install the probe;
- c. Install the straps on the rings of leather bag;
- d. Adjust the strap length, the one hung on the neck, the other one fixed on the waist, you can also use a strap around your neck or diagonal used in your shoulder.

The benefits of using this method:

- a. Self-built darkroom for the strong-light environments.
- b. The protection of soft leather bag can avoid collisions and pollution in the use process.

5.2 Ultrasonic probe installation

⚠Danger: Use together with flammable anaesthetic, it may result in explosion.

⚠Warning:

1. Do not use the probe not provided by our company, otherwise the equipment and the probe will cause damage, and may cause fire in extreme cases.
2. Check the ultrasonic probe and connecting cable after diagnostic operation. Use of defective probe may cause electric shock.
3. Do not strike the probe; using the damaged probe may cause electric shock to the patient.
4. Unauthorized disassembly of the probe shall be prohibited as it may cause electric shock.

⚠Attention: Probe is highly sensitive to shake, be used with caution. About probe's use and cleaning, the details see the relevant sections.

⚠Attention:

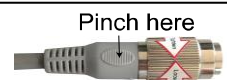
1. Turn off the ultrasonic system before disconnecting the probe. Disconnecting the probe with system power on may damage the system or probe.
2. Before disconnecting the probe, place the cable and probe on a stable and leveled position so that the probe may not be damaged or injury person by unexpected fall.
3. Freeze the instrument when instrument is start-up without operation to increase of service life of probe.
4. Repeat available machine time should be more than 5 minutes to avoid turn on/off power supply in short time.

⚠Attention: The allowable maximum temperature of 41°C for applied part (probe) having contact with the patient is applicable for long-term (more than 10 min) contact with healthy skin of patient. If it exceeds 41°C, the contact time with the patient should be controlled to prevent burns.

5.2.1 Ultrasonic probe connection

⚠Warning: Before connecting or using the probe, make sure that the probe, connecting cable and connector are in normal condition (free of cracks or drop). Use of defective probe may cause electric shock.

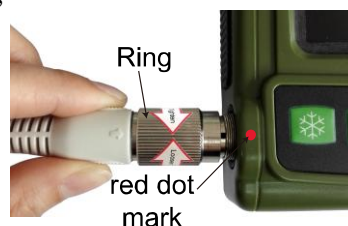
1. Turn off the system, pinch the oval position on both sides of the probe cable



while keep the arrow above, as shown



2. As shown below, insert the probe connector horizontally into the probe socket labeled "PROBE" on the left side of the main unit, when inserting the probe, the notch on the probe connector should be aligned with the position of the red dot mark on the main unit housing, and push the probe firmly into the probe socket of main unit;



3. After pushed in place, hold the machine with one hand and rotate the ring clockwise with one hand until the probe is locked.

Note: Lock the ring clockwise in the direction indicated on the label. Before turning the ring clockwise, be sure to push the probe connector into place and then rotate to prevent the ring from idling.



Probe connection schematic

5.2.2 Ultrasonic probe disconnection

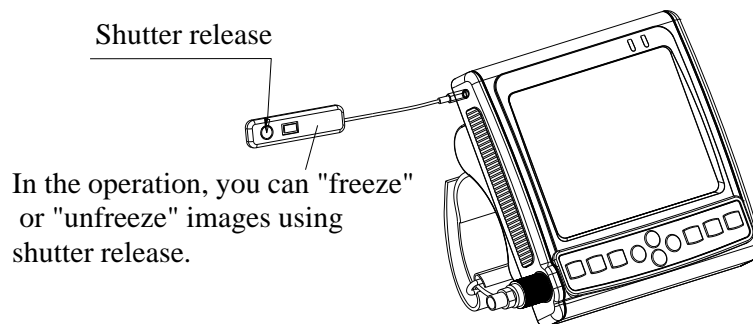
1. Turn off the system, pinch the oval position on both sides of the probe cable with one hand and rotate the probe ring counterclockwise with the other hand;
2. When rotating counterclockwise, pull out the ultrasonic probe connector vertically when the ring touches the probe cable.



Probe disconnection schematic

5.3 Shutter release installation

Install shutter release to Freeze interface (TV/VGA interface) as shown in the figure.



5.4 Video recorder installation

1. Turn off the system, connect the equipotential terminal (⚡) of the video recorder to the earthing;
2. Connect one end of the video connection line to the video recorder and the other end to the "TV/VGA interface" on the left of main unit;
3. Insert one end of power plug (jack) of the video recorder to the power input socket of the video recorder, the other end to the power supply socket.

Note: When connecting the video recorder, the main unit needs to output the TV signal. Please contact Kaixin Company.

5.5 Use of wireless monitor

1. Set the RF according to the section 6.2.8 and select the RF channel, such as "RF: 1";
2. Turn on the wireless monitor's power switch;
3. To set the wireless monitor. First select the source "RF", then search the RF channel;
4. Wireless monitor starts automatic search, after completed search, the wireless monitor automatically synchronizes the display of the main unit screen content.

Note: When selecting the wireless monitor, you need a wireless monitor of receiving a 5.8GHz signal.

5.6 Connect to power

1. Connect to the power adapter

Insert the output plug of adapter into DC power input interface, on the upper right of main unit.

2. Connect to the main power supply

Insert the power plug (jack) furnished with the machine into power input socket of the power adapter, the other end to the mains socket-outlet. The instrument uses three-core power supply. It connects with the protective earth line when power plug inserts into its socket.

Warning:

- 1. Adapter has no switch. APPLIANCE COUPLER or MAINS PLUG is used as the isolation means from the SUPPLY MAINS. Not to position the EQUIPMENT so that it is difficult to operate the disconnection device.**
- 2. The device should be used only with power adapter provided by Kaixin Company.**
- 3. To avoid damaging power adapter or harming people by unexpected fallen, make sure the power adapter is placed on the leveled desk.**
- 4. The operator must not touch signal input/ signal output and patient simultaneously.**

5.7 Ultrasonic probe check before and after operation

Before and after ultrasonic diagnosis to check if there are any exceptionally on the surface of the probe or cable jacket, such as peeling, cracks, bulge, or if the acoustic lens is reliable, disinfected or cleaned.

5.8 Main unit check before and after operation

5.8.1 Inspection before start-up

Check the following items before starting the machine:

1. The temperature, humidity and atmospheric pressure shall meet the requirements of operation condition.
2. No condensation occurs.
3. No distortion, damage or contamination on system and peripheral. Clean the parts as specified in relevant sections, if the contaminant is present.
4. Check the control panel, LED screen and enclosure to ensure they are in good working condition and free of abnormality (such as cracks and loosened screws).
5. No damage on cables (power cable, etc.), and hard up on its connection.
6. Check probe and its connections to ensure they are free of abnormality (such as scuffing, drop-off or contamination). If the contaminant is present, clean, disinfect the contaminated objects as specified in relevant sections.
7. No barriers around the intake of equipment.
8. See to it that probe has been cleaned, disinfected; else dispose it as specified in relevant sections.
9. Check all the ports of the machine for possible damage or blockage.
10. Clean the field and environment.

5.8.2 Inspection after start-up

Check the following items after starting the machine:

1. No abnormal voice, strange smell and overheating appear.
2. Check the machine to ensure a normal start-up: The power indication light is on and startup picture is shown on the screen. Then the machine will be automatically set in B mode.
3. Check the acoustic lens for abnormal heat when the probe is in use. This can be done by hand touching the probe to feel the temperature of the lens.
4. Check the image to ensure trouble-free display (no excessive noise or flicker).
5. Check the control panel to ensure normal operation condition.
6. Check the instrument to ensure that the phenomenon of local high temperature will not appear.

 **Attention: If the overheat acoustic lens is placed on the patient's skin, heat injury may occur.**

⚠Attention: When the equipment is operated in normal use, the external surface of equipment may be high, but the function operation can be completed in a short time (such as $1s \leq t < 10s$) without affecting the use and harm to the patient and the operator.



⚠Attention: Thoroughly clean the coupling gel on the probe surface each time after ultrasonic operation, or the coupling gel may become hardened on the acoustic lens of the probe, deteriorating quality of image.



5.9 System reset

In case of abnormal screen display or no-working for system operation, try to restart the system by turning on/off the main unit power.

Chapter Six Functional Operation

6.1 Startup and Shutdown










In shutdown status, press  key, machine starts up, power indicator  lights.

In startup status, hold down  key, machine shuts down, power indicator  goes out. Please note that when shut down the machine, the time of pressing key is a rather long than normal pressing key.










6.2 System functions setting

In B, B/B, B/M, M mode and in real-time status can be set as follows.










6.2.1 Time setting

1. In real-time mode, press  key to enter main-menu, press direction keys   to select "Preset";
2. Press  key to enter setting interface;
3. Press direction keys   to select "YY, MM, DD, hr, min";
4. When setting year, month, day, hour and minute, press direction key  to increase value or press direction key  to decrease value;
5. Press  key to confirm the time setting and quit setting interface.










6.2.2 TV Mode setting

1. In real-time mode, press  key to enter main-menu, press direction keys   to select "Preset";
2. Press  key to enter setting interface;
3. Press direction keys   to select "Mode";
4. Press direction keys   to achieve TV mode conversion between PAL and NTSC;
5. Press  key to confirm this setting and quit setting interface.

6.2.3 Key Sound setting










1. In real-time mode, press  key to enter main-menu, press direction keys   to select "Preset";
2. Press  key to enter setting interface;
3. Press direction keys   to select "Key Sound";
4. Press direction keys   to select between "On" and "Off";
5. Press  key to confirm this setting and quit setting interface.

6.2.4 Screensaver setting










1. In real-time mode, press  key to enter main-menu, press direction keys   to select "Preset";
2. Press  key to enter setting interface;
3. Press direction keys   to select "Screen saver";
4. Press direction keys   to adjust the screensaver time; screensaver time are "00-99" minutes, "00" stands for turn off the screensaver;
5. Press  key to confirm this setting and quit setting interface.

Note: Go beyond the system setting screensaver time without pressing any key, the machine will automatically enter a screensaver status. Press any key, the system will return to normal operation status.

6.2.5 Image Filter setting










1. In real-time mode, press  key to enter main-menu, press direction keys   to select "Preset";
2. Press  key to enter setting interface;
3. Press direction keys   to select "Filter";
4. Press direction keys   to select two kinds of filters;
5. Press  key to confirm this setting and quit setting interface.

6.2.6 Grid setting










1. In real-time mode, press  key to enter main-menu, press direction keys   to select “Preset”;
2. Press  key to enter setting interface;
3. Press direction keys   to select “Grid”;
4. Press direction keys   to select “00-09”.
 - “00” shows “no grid”;
 - “01” shows backfat ruler, vertical spacing of ruler is 5mm;
 - “02” shows “line grid”;
 - “03” shows “dot grid”;
 - “04” shows 10mm-spacing dot-like scale;
 - “05” shows 2mm-spacing dot-like scale;
 - “06” show 10mm-spacing and 2mm-spacing dot-like scales;
 - “07” shows longitudinal 1mm-spacing grid (When the image depth is less than 10cm);
 - “08” shows longitudinal 5mm-spacing grid;
 - “09” shows longitudinal 10mm-spacing grid.
5. Press  key to confirm this setting and quit setting interface.

Note: Grid is displayed on B mode after has been set.

6.2.7 Wifi setting

1. In real-time mode, press  key to enter main-menu, press direction keys   to select “Preset”;
2. Press  key to enter setting interface;
3. Press direction keys   to select “Wifi”;
4. Press direction keys   to select between “On” and “Off”;
5. Press  key to confirm this setting and quit setting interface.










6.2.8 RF setting

1. In real-time mode, press  key to enter main-menu, press direction keys   to select “Preset”;
2. Press  key to enter setting interface;
3. Press direction keys   to select “RF”;
4. Press direction keys   to select RF channels among “1-8” or select RF “Off”;
5. Press  key to confirm this setting and quit setting interface.

Note:

1. **When setting RF, it costs more time to select the channels. RF channel setting must follow steps 1-5 above. If you do not press the Enter key to confirm, RF channel setting is unsuccessful, and there will be a channel mismatch, which needs to be resetting.**
2. **If the signal does not receive properly, please set it according to the available channels labeled on the back of the machine.**

6.2.9 Background color setting

1. In real-time mode, press  key to enter main-menu, press direction keys   to select “Preset”;
2. Press  key to enter setting interface;
3. Press direction keys   to select “BackColor”;
4. Press direction keys   to select six kinds of background colors;
5. Press  key to confirm this setting and quit setting interface.

6.2.10 User name setting

1. In real-time mode, press key to enter main-menu, press direction keys to select “Preset”;
2. Press key to enter setting interface;
3. Press direction keys to select “User Name”;
4. Press key, the cursor is located above “ID”; at the same time characters input menu will be shown at the bottom of the screen:

Caps 0 1 2 3 4 A B C D E F G H I J K L M
 Shift 5 6 7 8 9 N O P Q R S T U V W X Y Z

Press direction keys to move cursor to point to Caps, and then press key to achieve capital and small letter conversion; if the cursor point to Shift, press key to achieve the conversion between the letter and punctuation.

5. Press direction keys to choose “numbers” or “characters” and press key to confirm;
6. If need modify the content, in the characters input status press Shift key, the special characters input menu is shown at the bottom of the screen displays:

Caps
 Shift ! " # \$ % & ' () * + , - . /] { }

Press direction keys to move cursor to point to character “←” or “→”, press key, move the cursor to the position need to deleted character, and then press directions keys to move cursor to character “←”, press key, delete input content and retype.

7. Press key to quit the character input menu, press key again to quit the cursor status, press key to return the frozen status.

6.3 Mode selection

In real-time mode, repeatedly press key to achieve mode switching of B, B/B, B/M, M and A.

6.3.1 B Mode

B mode is a basic operation mode after startup and a single-framed B mode image is displayed. Press key to freeze/unfreeze the image. In real-time mode, press key to exit B mode.

6.3.2 B/B Mode

1. In real-time mode, press key to enter B/B mode.
2. B/B image switch. Press key to enter main-menu, press direction keys to move the cursor to “B/B Mode” and then press direction keys to switch left/right image display. The selected image is activated and the other one is frozen.
3. In real-time mode, press key to exit B/B mode.

6.3.3 B/M Mode

1. In real-time mode, press key to enter B/M mode.
2. Move sample line. Press key to quit the current using status of direction keys. Press left/right direction keys to move sample line.
3. In real-time mode, press key to exit B/M mode.

6.3.4 M Mode

1. In real-time mode, press key to enter M mode.
2. Change M speed: Press key to enter main-menu, press direction keys to move cursor to “M Speed” and then press direction keys to select the eight kinds of scan speed.
3. In real-time mode, press key to exit M mode.

6.3.5 A Mode









In real-time mode, press  key to enter or exit A mode.

6.4 Image adjustment and control in B, B/B, B/M and M



In real-time mode, you can adjust the total gain, near field gain, far field gain, dynamic range, depth range, frequency, frame correlation, image post-process, edge enhancement, focus quantity, local zoom, left/right reverse, up/down reverse, color, backlight, brightness and contrast, etc.

6.4.1 Image brightness and contrast adjustment






The brightness and contrast level of the screen is one of the most important factors for the image quality. The brightness and contrast adjustment should be done in relation to the ambient brightness. Therefore the actual brightness and contrast level shall be adjusted according to the specific environmental condition.

1. In the startup default status, press freeze key to unfreeze, press  key to quit the current using status of direction keys;
2. Press direction keys  , the "BackLight, Bright, Contrast" adjustment bars appear on the screen;
3. Press direction keys  , choose "BackLight, Bright, Contrast" adjustment bar;
4. Press direction keys  , change the brightness of backlight, brightness and contrast of the image;
5. Finish the settings, press  key or automatically later exit the adjustment status.






Note:

1. In A mode, the brightness and contrast cannot be adjusted.
2. If not adjust the brightness and contrast using direction keys  , you must exit current use status of direction keys.






6.4.2 Total Gain Adjustment

In real-time mode, press  key to enter main-menu, press direction keys   to move cursor to "Gain" in the display area. Press direction key  to increase image total gain and direction key  to reduce total gain so as to control the total gain of the entire image.






6.4.3 Near Field Gain Adjustment

In real-time mode, press  key to enter main-menu, press direction keys   to move cursor to "Near" in the display area. Press direction key  to increase near field gain and direction key  to reduce near field gain so as to control the gain in near field region.







6.4.4 Far Field Gain Adjustment

In real-time mode, press  key to enter main-menu, press direction keys   to move cursor to "Far" in the display area. Press direction key  to increase far field gain and direction key  to reduce far field gain so as to control the gain in far field region.






6.4.5 Dynamic Range Adjustment

In real-time mode, press  key to enter main-menu, press direction keys   to move cursor to "Dyn" in the display area. Press direction key  to increase the value of dynamic range and direction key  to decrease the value of dynamic range so as to control the dynamic range of the entire image.






6.4.6 Depth Range Selection

In real-time mode, press  key to enter main-menu, press direction keys   to move cursor to "Depth" in the display area. Press direction keys   to select eight kinds of depths, press  key to quit depth range selection.






6.4.7 Frequency Adjustment (Frequency conversion)

In real-time mode, press  key to enter main-menu, press direction keys   to move cursor to "Freq." in the display area. Press direction keys   to achieve frequency conversion.






6.4.8 Frame Correlation Adjustment

In real-time B, B/B mode, press  key to enter main-menu, press direction keys   to move cursor to "Frame Avg" in the display area. Press direction keys   to achieve four levels of frame correlation.






6.4.9 Image Post-process Adjustment




In real-time mode, press  key to enter main-menu, press direction keys   to move cursor to "IP" in the display area. Press direction keys   to obtain four levels of corrected images.



6.4.10 Edge Enhancement Adjustment

In real-time mode, press  key to enter main-menu, press direction keys   to move cursor to "IE" in the display area. Press direction keys   to obtain four levels of sharpened images.






6.4.11 Focus Adjustment and Control

In real-time B, B/B mode, press  key to enter main-menu, press direction keys   to move cursor to "Focus Qty" in the display area. Press direction keys   to choose four kinds of focus modes: stage 1(Full process dynamic focus), 2, 3 and 4.

In real-time B, B/B mode, press  key to quit menu mode, press direction keys   again to move the focus up and down.






Note: In B/M or M mode, only allowed choosing single focus mode. Press direction keys   to move the focus position.

6.4.12 Local Zoom and Local additive color




In real time mode, press  key to enter main-menu, press direction keys   to move cursor to "Local Zoom" in the display area, press  key, a box appears. Press direction keys to move the box to the position to be enlarged, the selected image be enlarged; Press  key to quit local zoom status.

In the color display, the image selected by above operation will be enlarged and added color.






6.4.13 Image Left/Right Reverse

In real-time B, B/B, B/M mode, press  key to enter main-menu, press direction keys   to move cursor to "L/R" in the display area, and then press direction keys   to achieve image horizontal reverse. The image left/right reverse is the change of probe scanning direction. The probe scanning direction is indicated by the arrow on the upper left area of the image.



6.4.14 Image Up/Down Reverse

In real-time mode, press  key to enter main-menu, press direction keys   to move cursor to "U/D" and then press direction keys   to achieve image vertical reverse.






6.4.15 Color Selection

In real-time mode, press  key to enter main-menu, press direction keys   to move cursor to "Color" in the display area. Press direction keys   to achieve the conversion of eight kinds of colors (including one kind of black and white).

6.4.16 Image Freeze/Unfreeze


In real-time mode, press  key to freeze the image; in frozen status, press  key to unfreeze the image.


6.5 Gain adjustment in A mode

In real-time A mode, press  key to enter main-menu, press direction keys   to move cursor to "Gain" in the display area. Press direction key  to increase image gain, press direction key  to reduce it.




















6.6 Diagnostic mode preset

The product can be preset with four diagnostic modes, and the diagnostic modes are represented by A, B, C, and D codes. These modes can be defined by user and be stored. In the diagnostic mode, it is recommended that the user save the adjusted parameters in the desired diagnostic mode and enter the parameters you want directly next time. The details are as follows:

1. In real-time B mode, "Mode: A" is displayed in the upper right corner of the image, long press the  key, the diagnostic mode code A, B, C, D is displayed cyclically; select the desired diagnostic mode code, such as "Mode: B";




2. After the code is selected, the user can customize the image parameters. After completed the parameters, long press  key to store, the system will send a "beep" tone, which saves the user-defined parameters to the selected diagnostic mode.


6.7 Puncture guide line


In real-time B mode, press  key to enter main-menu, press direction keys   to move cursor to "Puncture" and then press direction keys   to choose line 1, press  key to confirm, two puncture guide lines appear on the screen, press direction keys   to change the angle of the first puncture guide line, press direction keys   to change the start position of the first puncture guide line; Press  key, the cursor is located on the "Puncture", press direction keys   to choose line 2, press  key to confirm, press direction keys   to change the angle of the second puncture guide line, press direction keys   to change the start position of the second puncture guide line. Press  key to quit the puncture guide status.


6.8 Body Mark and Probe Mark

This product contains 27 body marks that are divided into two pages when display. The operation steps are as follows:

1. In frozen status, press direction keys   to move cursor to "BodyMark", press  key, body marks will be showed in the image area, press direction keys to change pages;

2. Press direction keys to move to the position of desired body mark, press  key to confirm the selected body mark;


3. Press direction keys to change the probe mark position; press  key to change probe mark direction;

4. Press  key to quit body mark and probe mark status;

5. Press  key to quit froze and body mark status.

6.9 One-key storage image

1. In B, B/B, B/M, M mode, freeze the image;

2. Press  key, the image code is displayed on lower right corner of the screen, such as "036". After the code disappears, the current frozen image is stored in the frame "036".







Explanation:

1. One-key storage can saved the current frozen image into the inter memory of main unit; it can stored up to 420 images.

2. For the stored image, its file name is automatically named by the image code.
3. When storing images with one-key, you should always pay attention to the remaining frames within the inter memory of main unit to prevent invalid storage. After 420 images have been saved, delete it manually.







6.10 Image management

6.10.1 Save the image

1. In B, B/B, B/M, M mode, freeze the image;
2. Press  key, a “Save” prompt appears on lower right corner of the screen;
3. Press direction keys   to select the image code need to be saved, such as choose “003”;
4. Press  key, the current image is saved in the frame for coded “003”. The saved image code is preceded with asterisk “*”;
5. Press  key to quit saving status and press  key to return to real-time status.






Explanation: Images can be saved into the inter memory of main unit; it can stored up to 420 images.

6.10.2 Read the image







1. In B, B/B, B/M, M mode, freeze the image;
2. Continuously press  key twice, a “Read” prompt appears on lower right corner of the screen;
3. Press direction keys   to select the image code need to be read out, such as choose “003*”;
4. Press  key to read out the image stored in the frame “003*”, “Img” character showed at the lower right corner of the screen;
5. Press  key to quit reading status and press  key to return to real-time status.

Explanation: When reading images, it must choose the image code with “*”.



6.10.3 Delete the image



1. In B, B/B, B/M, M mode, freeze the image, press  key to enter saving or reading image status;
2. Press direction key   to select the image code to be deleted, such as choose “002*”;
3. Press  key, the image stored in the main unit will be deleted, “*” will automatically disappear;
4. Repeat the 2-3 steps, delete other images;
5. Press  key to return to real-time mode.

6.10.4 Review the image

1. In B, B/B, B/M, M mode, freeze the image, press  key to enter saving or reading image status;
2. Press  key to review the images, the stored images will be automatically played by the fixed time interval;
3. Press direction keys   to select the previous or the next image to review;
4. Press  key to return to frozen status;
5. Press  key to return to real-time mode.




6.10.5 Transfer a single image to workstation

1. In B, B/B, B/M, M mode, freeze the image, press  key to enter saving or reading image status, such as choose “004*”;
2. Press  key, a symbol “>>>>” prompt appears on lower right corner of the screen, after the prompt disappear, the image stored in frame “004*” is transferred to ultrasound workstation;


3. Press  key to quit saving or reading image status;
4. Press  key to return to real-time mode.

Note: The specific functions of ultrasound workstation, see “Chapter Ten Ultrasound workstation software instructions”.

6.10.6 Batch images transfer to workstation






1. In B, B/B, B/M, M mode, freeze the image, press  key to transfer all the stored images to the ultrasound workstation;
2. Press  key to quit frozen status;
3. Press  key to return to real-time mode.

Explanation:


1. In the transmission process, the lower right corner of the screen shows the number of frames being transmitted, long press  key to terminate the transmission at any time.
2. When transferring batch images, the system time displayed in the upper right corner of the main unit is at rest; when the transmission ends, the system time automatically returns to normal. All batch images transmission takes a long time, please be patient!
3. The specific functions of ultrasound workstation, see “Chapter Ten Ultrasound workstation software instructions”.

6.11 Cine loop

In real-time mode, the system is always saving the scanned image. The playback images are for a period time images before freeze.

Freeze the image, continuously press  key three times to enter the automatic playback status; Press  key to enter pause status when playing back; Press direction keys   to view images frame by frame in pause status; Continuously press  key three times again to return to automatic playback status. In the process of saving and playback, the lower right corner of the screen shows the relevant saved and played frames.




Press  key to return to frozen status.

Press  key unfreeze and quit playback status.



Note: If the images appear abnormal, that is without enough storage time and the images have not been stored full.












6.12 Text Input

Operation steps:

1. In real-time B, B/B, B/M, M mode, freeze image, press direction keys   to move cursor to “Comment” position of display area;
2. Press  key, the cursor is located behind “ID”, at the same time characters input menu will be shown at the bottom of the screen:









Caps	0 1 2 3 4	A B C D E F G H I J K L M
Shift	5 6 7 8 9	N O P Q R S T U V W X Y Z

Press direction keys to move cursor to point to Caps, and then press  key to achieve capital and small letter conversion; If the cursor point to Shift, press  key to achieve the conversion between the letter and punctuation;

3. Press direction keys to choose “numbers” or “characters” and press  key to confirm;
4. After inputting ID, press  key, the screen below shows “Pregnancy, Unpregnancy, Suspected, Disease” four kinds of results; at the same time the date and time of inspection automatically shown behind the result;
5. Press direction keys   to select the result, press  key to confirm and exit;
6. If need to note in the image area, in the comment status, press  key to exit characters input menu, the cursor is located behind ID, press direction keys to move cursor to image area, continuously press  key twice, and then input the content according to Step 3.
7. If need to modify the content, press direction keys   to select “Clear”, at last press  key to clear all noted marks and retype;
8. Press  key to quit.

6.13 Check list management








6.13.1 Save and view check list

1. In the B, B/B mode, freeze the desired image;
2. Record the “ID” and “Result” according to the text input method, press  key to confirm and save to check list;
3. Press direction keys   to move cursor to “Checklist”, press  key to enter check list interface;
4. Press direction keys   to view stored check lists;
5. Press  key to exit check list interface and press  key to return to real-time status.







Explanation:

1. In the check list, the contents of each column respectively: SN, ID, Result and Time.
2. The main unit stores up to 200 check lists.

6.13.2 Delete check lists

1. In the B, B/B frozen status, press direction keys   to move cursor to “Checklist”, press  key to enter check list interface;
2. Press direction keys   to clear all the check lists;
3. Press  key to exit check list interface and press  key to return to real-time status.




6.13.3 Transfer check lists to workstation





1. In the B, B/B mode, freeze the desired image;
2. Press direction keys   to move cursor to “Checklist”, press  key to enter check list interface;
3. Press  key, a symbol “>>>>” prompt appears at the top right of the screen, after the prompt disappear, all the check lists will be transferred to ultrasound workstation;
4. Press  key to exit check list interface and press  key to return to real-time status.

Note: The specific functions of ultrasound workstation, see “Chapter Ten Ultrasound workstation software instructions”.

6.14 Obstetric list management

6.14.1 Save and view obstetric list

1. In the B, B/B mode, freeze the desired image;
2. Obstetric results were obtained by obstetric measurement; the results were saved to the main unit;
3. Press direction keys   to move cursor to “OB List”, press  key to enter obstetric list interface;








4. Press direction keys   to view stored obstetric lists;
5. Press  key to exit obstetric list interface and press  key to return to real-time status.

Explanation:







1. In the obstetric list, the contents of each column respectively: SN, Time, ID, Animal, Formula, GA and EDC.

2. The main unit stores up to 200 obstetric lists.

6.14.2 Delete obstetric lists

1. In the B, B/B frozen status, press direction keys   to move cursor to “OB List”, press  key to enter obstetric list interface;
2. Press direction keys   to clear all the obstetric lists;
3. Press  key to exit obstetric list interface and press  key to return to real-time status.














6.14.3 Transfer obstetric lists to workstation

1. In the B, B/B mode, freeze the desired image;
2. Press direction keys   to move cursor to “OB List”, press  key to enter obstetric list interface;
3. Press  key, a symbol “>>>>” prompt appears at the top right of the screen, after the prompt disappear, all the obstetric lists will be transferred to ultrasound workstation;
4. Press  key to exit obstetric list interface and press  key to return to real-time status.

Note: The specific functions of ultrasound workstation, see “Chapter Ten Ultrasound workstation software instructions”.


















Chapter Seven General Measurement

7.1 Distance Measurement

1. In B, B/B mode, freeze desired image, the cursor is located on the “Measure” position of display area;
2. Press  key, the measurement methods are showed in the lower left of the screen, press direction keys   to choose “1.Distance”, press  key again, the cursor will show “+”;
3. Press direction keys to move the “+” mark to desired position, press  key to set the “+” mark position as the starting point of the measurement;
4. Press direction keys to move the “+” mark to the end point of the measurement. A lighted dotted line appears between the starting point and the end point as the dashed locus of the measurement. The measured value is automatically displayed at the built-in mark “+: ----mm” on the right side of the screen;
5. Press  key to exchange the starting point and end point of the measurement;
6. Press  key to finish the first measurement;
7. Press  key again, repeat the steps 3~6 to complete the multi-group data measurement;
8. Press  key to quit the measurement status;
9. Press direction keys   to choose “Clear” and press  key to clear all marks and data;
10. Press  key to return the real-time status.













7.2 Circumference/Area/Volume Measurement

● Circumference/area/volume measurement with ellipse method







1. In B, B/B mode, freeze desired image, the cursor is located on the “Measure” position of display area;
2. Press  key, the measurement methods are showed in the lower left of the screen, press direction keys   to choose “2.Ellipse”, press  key again, the cursor will show “+”;
3. Press direction keys to move the “+” mark to desired position, press  key to set the “+” mark position as the starting point of the measurement;
4. Press direction keys to move the “+” mark to the end point of the measurement, at the same time the elliptic curve appears;
5. Press  key, the “- +” mark appears on the lower right of the image. Hold down  or  key to change the minor axis of the ellipse so as to satisfy the test area. The measured values are displayed at the built-in characters “C: ----mm, A: ----mm², V: ----cm³” on the right part of the screen automatically;
6. Press  key again to quit the minor axis status; Press  key to exchange the starting point and end point;
7. Press  key to finish the first measurement;
8. Press  key again, repeat the steps from 3 to 7 to complete the multi-group data measurement;
9. Press  key to quit the measurement status;
10. Press direction keys   to choose “Clear” and press  key to clear all marks and data;
11. Press  key to return the real-time status.

● Circumference/area measurement with trace method








1. In B, B/B mode, freeze desired image, the cursor is located on the “Measure” position of display area;

2. Press  key, the measurement methods are showed in the lower left of the screen, press direction keys   to choose "3.Trace", press  key again, the cursor will show "+";
3. Press direction keys to move the "+" mark to desired position, press  key to set the "+" mark position as the start of the measurement;
4. Press direction keys to move the "+" mark to the end point of the measurement. At the same time, a locus appears in the direction of operation between the two measurement marks. The measured circumference value is displayed automatically at the built-in mark "C: ----mm" on the right part of the screen. Press  key to display at the built-in mark "A: 0.0mm²" the value of the measured area formed by measurement line enclosure;
5. Press  key again, repeat the steps from 3 to 4 to complete the multi-group data measurement;
6. Press  key to quit the measurement status;
7. Press direction keys   to choose "Clear" and press  key to clear all marks and data;
8. Press  key to return the real-time status.

● **Circumference/area measurement with point method**

1. In B, B/B mode, freeze desired image, the cursor is located on the "Measure" position of display area;
2. Press  key, the measurement methods are showed in the lower left of the screen, press direction keys   to choose "4.Point", press  key again, the cursor will show "+";
3. Press direction keys to move the "+" mark to desired position, press  key to mark the first point, continue to press direction keys, move the "+" mark to next desired position, press  key to mark the second point; By analogy, to mark all desired points;

Note: The number of points must be within 8 to 32.

4. When completed the marking of desired points, press  key, it appears trace on the screen (trace is automatically drawn along the order of marking point until close the beginning point and end point), the measured circumference and area values are automatically displayed at the built-in mark "C: ----mm, A: 0.0mm²" on the right part of the screen; If continuously marks the thirty-two point, it directly appears trace on the screen, the measured circumference and area values are automatically displayed at the built-in mark "C: ----mm, A: 0.0mm²" on the right part of the screen;
5. Press  key again, the cursor will show "+", repeat steps 3, 4 to complete the multi-group data measurement;
6. Press  key to quit the measurement status;
7. Press direction keys   to choose "Clear" and press  key to clear all marks and data;
8. Press  key to return the real-time status.

7.3 Slope/Heart rate/Cycle Measurement

In B/M, M frozen status, measure slope/heart rate/cycle. The method is identical with distance measurement.

Note: Cycle denotes time measured in ms (millisecond)

HR denotes heart rate measured in times/minute (times per minute)

EF denotes slope coefficient measured in mm/s (millimeter per second)

⚠ Attention: The accuracy of software measurement: distance measurement ≤ 0.1mm; area measurement ≤ 0.1mm²; volume measurement ≤ 0.01cm³; heart rate measurement ≤ 1bpm; time measurement ≤ 1ms. Due to differences in images obtained by each user in different times, the actual object for the accuracy of the measurement may be greater than the above-mentioned values.























Chapter Eight Obstetric Measurement

8.1 Measurement and Calculation items

Obstetric tables of the system including: 1.Bovine, 2.Equine, 3.Ovine, 4.Canine, 5.Feline, 6.Goat, 7.Llama, 8. Swine, which is reference for doctor.







8.2 Measurement of Gestational Age (GA) and Estimated Date of Confinement (EDC)













Follow the steps below:

1. In B, B/B mode, freeze desired image, press direction keys   to move cursor to "OB" position of display area;
2. Press  key to display the obstetric measurement animals on the lower part of the screen, "Select Animal: 1.Bovine, 2.Equine, 3.Ovine, 4.Canine, 5.Feline, 6.Goat, 7.Llama, 8. Swine", press direction keys   to select the measurement animal, press  key to confirm, measured parameters of this animal are showed on the lower part of the screen, (if select goat, display the types of goat);
3. Press direction keys   to select the measured parameters (if select goat, this step is to select the type of goat, press  key again to display the measured parameters of goat), press  key, the cursor will show "+";
4. Press direction keys to move the "+" mark to desired position, press  key to set the "+" mark position as the starting point of the measurement;
5. Press direction keys to move the "+" mark to the end point of the measurement. At the same time, a lighted dotted line appears between the start and the end as the dashed locus of the measurement. The measured value is automatically displayed at the built-in mark "+: ----mm" on the right side of the screen; G.A and EDC value to be displayed in real time in the right area of the screen;
6. Press  key to exchange the starting point and end point;
7. Press  key to finish the first measurement;
8. Repeat the steps from 3 to 7 to complete the multi-group data measurement;
9. Press  key to quit measurement status for this animal;
10. Press direction keys   to select other measured animal, press  key to confirm, repeat steps 3 to 7 to complete a variety of animals measurements;
11. Continuously press  key twice to quit obstetric measurement status;
12. Press direction keys   to choose "Clear" and press  key to clear all marks and data;
13. Press  key to return the real-time status.

8.3 Measurement of Swine's lean percentage

% Lean calculation formula uses NSIF formula.

1. In B, B/B mode, freeze desired image, press direction keys   to move cursor to "OB" position of display area;
2. Press  key to display the obstetric measurement animals on the lower part of the screen, "Select Animal: 1.Bovine, 2.Equine, 3.Ovine, 4.Canine, 5.Feline, 6.Goat, 7.Llama, 8. Swine", press direction keys   to select "8.Swine", press  key to confirm, measured parameters of swine are showed on the lower part of the screen;

3. Press direction keys   to select "2. Lean", press  key again to confirm, the cursor will show "+";
4. Press direction keys   to select "Weight" (range 1~300kg), press  key again to confirm;
5. Measure the backfat thickness with distance measurement method, the backfat thickness is displayed in real time in the right area of the screen; measure loin with distance measurement method, the loin is displayed in real time in the right area of the screen; press  key to finish the loin measurement, the %Lean will be displayed in the right area of the screen;
6. Continuously press  key twice to quit obstetric measurement status;
7. Press direction keys   to choose "Clear" and press  key to clear all marks and data;
8. Press  key to return the real-time status.

Chapter Nine Backfat thickness and Lean percentage measurement

In A mode, you can measure the swine's backfat thickness and lean percentage.

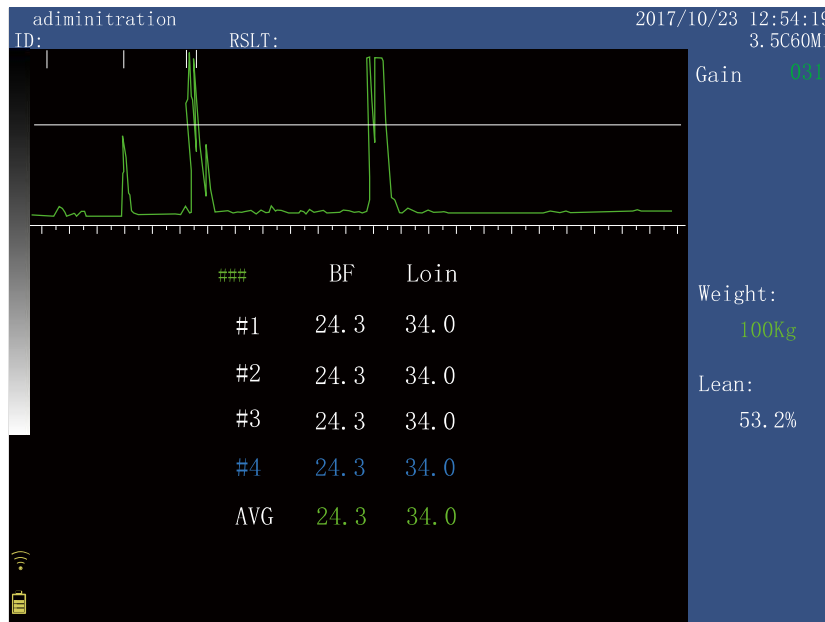


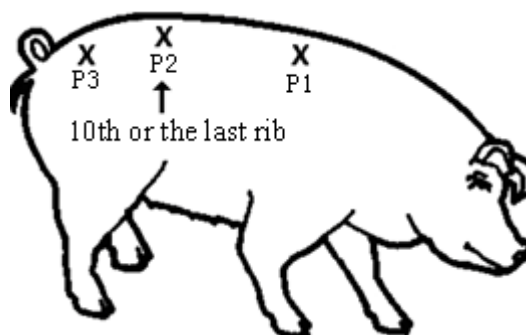
Figure: A mode interface

9.1 Measurement items

Name	Abbreviation	Unit
Backfat thickness	BF	mm
Loin thickness	Loin	mm
Average thickness	AVG	mm
Weight	Weight	Kg
Lean percentage	Lean	%

9.2 Backfat measurement

1. Choose the desired measurement site: the trailing edge of shoulder (P1), the tenth rib (P2), the lumbosacral junction (P3);









2. Put ultrasonic coupling gel to the appropriate site of swine's back, in order to make good contact between swine skin and sound window. The probe is placed against the skin of the animal and is kept perpendicular to the back, move the probe gently, make sure no air bubbles between the skin and probe. Keep the swine quiet during the test (you can feed the swine during the test).

3. After the image is automatically frozen, the machine automatically displays four groups' measurement data and the corresponding waveform.

Note: You can get accurate values of the three layers of backfat at the P2 site (the last rib). Many hogs have the thin third layer of backfat. As they increase in weight and age, the third layer becomes thicker and wider spread over the body. Measurement at P1 site (the trailing edge of shoulder: about 4-5 rib) is more difficult and inconsistent. P3 site (the lumbosacral junction) will get accurate measurement for two layers of backfat but may not give an accurate measurement for the third layers due to the muscle tissue.

9.3 Measurement of Swine's lean percentage

1. In real-time A mode, press  key to enter main-menu, press direction keys   to move cursor to "Weight" in the display area. Press direction keys   to adjust the "Weight" (range: 37~300kg);
2. Put ultrasonic coupling gel to the appropriate site of swine's back, in order to make good contact between swine skin and sound window. The probe is placed against the skin of the animal and is kept perpendicular to the back, move the probe gently, make sure no air bubbles between the skin and probe. Keep the swine quiet during the test (you can feed the swine during the test);
3. After the image is automatically frozen, the backfat thickness and loin thickness are measured, and the lean percentage is automatically displayed in the right area of the screen;
4. Press  key to return the real-time status.

Explanation: Before measuring the swine's lean percentage, you must enter the weight of the swine (weight range 37 to 300 kg); otherwise, the default weight is 100 kg.

9.4 Measurement considerations

1. When measuring the older animal, if necessary, it needs to remove the hair at the site and wet the skin with hot water, then apply light oil to wet the skin one minute or two before measuring. Always keep the probe perpendicular to the swine's back; measurement errors may result if probe is at an angle. If chooses the inaccurate site, such as animal shoulder or arm, the measured result is not accurate.
2. When the probe leaves the measuring site, it needs to reapply ultrasonic coupling gel evenly to continue measurement.
3. Have a bad contact, first remove any possible manure, straw and excess hair, etc., which may cause a poor contact between the sound window and skin and leading to inaccurate measured results.
4. Recommend using dedicated ultrasonic coupling gel, also can use vegetable oil.

Chapter Ten Ultrasound workstation software instructions

The images and data stored on the V1 machine are wirelessly transmitted to the ultimate consumers via Wifi, and the user only needs to install the ultrasonic workstation software provided by KAIXIN at the terminal. The machine provides two kinds of ultrasonic workstation software, Android mobile and PC-side ultrasonic workstation software.

10.1 Ultrasound workstation software introduce

Before using the ultrasound workstation software, you need to install “KAIXIN Ultrasound workstation software” on your Pad, Smart Phone or PC. Mobile ultrasound workstation software is suitable for Android phones or Pad (only supports the mobile phone/Pad with Android OS 5.0 or above version; not support mobile phone/iPad with IOS); PC-side ultrasound workstation software for Windows operating system computer (supports Windows XP, Windows 7/8/10).

10.2 Get ultrasound workstation software


- **Get mobile ultrasound workstation software**

1. According to the information provided in the APP download method label pasted on the machine, get “KAIXIN ultrasound workstation software”, and install it.
2. After finish the installation, set up the phone.
 - (1) Go to Settings, tap Display, tap Font size to adjust text size on screen, in order to display completely, should select “Normal”.
 - (2) Go to Settings, tap Permissions to enter permission interface, tap “kx_station_v”, and open the permission.
3. After finish the operation, you can use it.

⚠ Attention: When installing the APP software, if the installation is blocked, please allow to continue installing it.

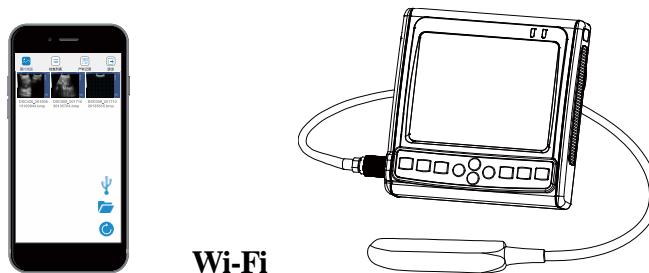
⚠ Attention: After the equipment is connected to the phone or pad, if appear “No Internet access”, please choose to continue to use the current network connection.

- **Get PC-side ultrasound workstation software**



According to the information provided in the APP download method label pasted on the machine, get “KAIXIN ultrasound workstation software”, copy to the computer, open the workstation software folder, double-click the icon , you can use.

10.3 Mobile ultrasound workstation software


All the icons on the mobile ultrasound workstation software may be different due to the display screen of the phone or Pad; the display interface may be slightly different, the actual products shall govern. The usage for the phone and Pad is similar, this article only take phone as an example to introduce.







10.3.1 Preparation before use

1. In the V1 preset interface, Wifi is set to “On”;
2. Connect to WLAN. Go to Settings of phone, tap WLAN, open WLAN, the phone will search and list the available WLAN;
3. In the available WLAN list, select V1 network ID, such as “1712250”, connect to it;
4. After the connection is successful, tap the icon “ kx_station_v” to enter ultrasound workstation interface, the wireless signal icon “


Note:




1. You first turn on the Wifi of V1 equipment and then set up the phone’s WLAN. After WLAN connection is successful, open the ultrasound workstation software.
2. The Wifi network ID of V1 equipment is the default number displayed on the nameplate of V1, such as “1712250”.
3. When the network is disconnected, the wireless signal icon  on the V1 screen disappears.


10.3.2 Start using mobile ultrasound workstation software

Mobile ultrasound workstation software kx_station_v includes image view, check list management, obstetric list management. kx_station_v software consists of four function keys: Image View , Check List , OB  and quit .

10.3.2.1 Image view


1. After the connection between V1 equipment and kx_station_v is successful, the lower left corner of V1 screen shows the wireless signal icon .
2. The images stored inside of V1 equipment will be transferred to the ultrasound workstation:

- a. Transfer a single image: Freeze the image, press  key to enter saving or reading image status, such as choose “004*”; Press  key, a symbol “>>>>” prompt appears on lower right corner of the screen, after the prompt disappear, the image stored in frame “004*” is transferred to ultrasound workstation;
- b. Batch images transfer: Freeze the image, press  key to transfer all the stored images to the ultrasound workstation;


Note: When transferring single or multiple images to the ultrasound workstation with WiFi, if the image cannot be transferred, the screen prompts “Poor network environment, please try again later!”. Wait until the network is good, and press  key to continue transferring the image.

- c. Press  key to quit, then press  key to return to real-time mode.









3. Tap Image View  to browse received images.

4. Tap the icon  in the lower right corner of the Image View interface, open the mobile album, find the "image", you can browse the received images.

Explanation:

1. Tap the refresh icon  on the lower right corner of the ultrasound workstation software, the received images can be displayed correctly and be arranged according to the internal number of descending order stored in the V1 equipment.
2. Images are named according to system time. For example: DSC012_20171026135127
Indicates the 12th image stored inside the V1 equipment at 13:51:27, Oct 26, 2017.
3. The stored bmp images are saved to your phone or Pad folder.
View or delete the path: open Files/Local/Internal storage/kxStation “image” folder on your phone or Pad.
For example: Local /Internal Storage/kxStation/image/DSC012_20171026135127.bmp

10.3.2.2 Check lists management

1. After the connection between V1 equipment and kx_station_v is successful, the lower left corner of V1 screen shows the wireless signal icon ;
2. The check lists stored inside of V1 equipment will be transferred to the ultrasound workstation:
 - a. In the B, B/B mode, freeze the desired image;
 - b. Press direction keys   to move cursor to “Checklist”, press  key to enter check list interface;
 - c. Press  key, a symbol “>>>” prompt appears at the upper right of the screen, after the prompt disappear, all the check lists will be transferred to ultrasound workstation;
 - d. Press  key to exit check list interface and press  key to return to real-time status.
3. Tap Check List  to browse received check lists.



● **Save check list**

In the check list interface, tap “Note” column to enter remarks, tap “save”, prompt “Saved successfully” to save the check list to the database.

Explanation:

1. After saving the check list, you can't enter the “Note” content.
2. The stored check lists are saved to your phone or Pad folder.
View or delete the path: open Files/Local/Internal storage/kxStation “checklist” folder on your phone or Pad.
For example: Local /Internal Storage/kxStation/checklist/2017-10-27 08: 34.db
3. The stored check lists files (suffix .db) need to be viewed using ultrasound workstation software.

● **Inquire check list**

- (1) The saved check list can be queried. Tap “inquire”, the query dialog box appears, according to the provide search field to query the required check list, the query method is as follows:
 - A. In the query dialog, the search fields provided are: NO, Check Result, Check Time, Note.
 - B. Query according to the search field. For example, select the checkbox and enter the exact number: NO. 123_____.
 - C. Query according to an established combined conditions. For example, Check Time 2017-10-10  to 2017-10-30 , select the check date directly or manually enter the check date according to the date format; the check date is entered in the order from front to back.

D. Fuzzy matching query, as long as the word can query. For example,

Note normal result

Note: Whether which methods to inquire, you must select the checkbox in front of the search field.

(2) After setting the search conditions, tap **inquire** to get the check list of queries; tap **Cancel** to give up inquire.

(3) According to the query conditions to get the desired result, then tap “inquire” to enter the query dialog box, the checkbox is not selected, click **inquire**, default display all lists.

● **Import check list**

In the check list interface, click “import”, click the database to import the saved database into the current check list.

● **Generate report**


In the check list interface, click “report”, the check list is generated as a report.

● **Empty the check list**

In the check list interface, click “empty” to delete all check lists.




⚠ Attention: When the display screen is small, the check lists displayed on the screen may not be displayed completely. In this case, you can slide left or right on the list to view.


10.3.2.3 Obstetric lists management



1. After the connection between V1 equipment and kx_station_v is successful, the lower left corner of V1 screen shows the wireless signal icon ;


2. The obstetric lists stored inside of V1 equipment will be transferred to the ultrasound workstation:

a. In the B, B/B mode, freeze the desired image;

b. Press direction keys   to move cursor to “OB List”, press  key to enter obstetric list interface;

c. Press  key, a symbol “>>>>” prompt appears at the upper right of the screen, after the prompt disappear, all the obstetric lists will be transferred to ultrasound workstation;

d. Press  key to exit obstetric list interface and press  key to return to real-time status.

3. Tap  to browse received obstetric lists.

● **Save obstetric list**

In the obstetric list interface, tap “save”, prompt “Saved successfully” to save the obstetric list to the database.

Explanation:



1. The stored obstetric lists are saved to your phone or Pad folder.

View or delete the path: open Files/Local/Internal storage/kxStation “ob” folder on your phone or Pad. For example: Local /Internal Storage/kxStation/ob/2017-10-28 15: 46.db

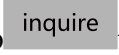
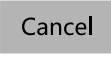

2. The stored obstetric lists files (suffix .db) need to be viewed using ultrasound workstation software.

● **Inquire obstetric list**

(1) The saved obstetric list can be queried. Tap “inquire”, the query dialog box appears, according to the provide search field to query the required obstetric list, the query method is as follows:

- A. In the query dialog, the search fields provided are: Check Time, NO, Animal, OB Formula, G.A and EDC.
- B. Query according to the search field. For example, select the checkbox and enter the exact number: NO. 123 _____.
- C. Query according to an established combined conditions. Query the check time or gestational age (G.A), you can select the check date or G.A directly, you can also manually enter according to the date format; the check date is entered in the order from front to back. For example, Check Time 2017-10-10  to 2017-10-30 .
- D. Fuzzy matching query, as long as the word can query. For example, G.A 06 _____.

Note: Whether which methods to inquire, you must select the checkbox in front of the search field.

- (2) After setting the search conditions, tap  to get the obstetric list of queries; tap  to give up inquire.
- (3) According to the query conditions to get the desired result, then tap “inquire” to enter the query dialog box, the checkbox is not selected, click , default display all lists.

- **Import obstetric list**


In the obstetric list interface, click “import”, click the database to import the saved database into the current obstetric list.

- **Generate report**


In the obstetric list interface, click “report”, the obstetric list is generated as a report.

- **Empty the obstetric list**


In the obstetric list interface, click “empty” to delete all obstetric lists.

 **Attention: When the display screen is small, the obstetric lists displayed on the screen may not be displayed completely. In this case, you can slide left or right on the list to view.**


10.3.2.4 Images and data on the workstation transfer to U disk

1. Open the workstation software;
2. Insert the U disk into the USB port of the mobile phone, the mobile phone prompts "Allow the app kx_station_v to access the USB device?", choose "OK", the workstation software prompts "U disk has been identified!";
3. Tap the icon  in the lower right corner of the Image View interface of workstation software, the workstation software prompts "U disk is storing data, please wait patiently...", after the prompt disappears, all images and data of the workstation will be transferred to U disk by one-key.

Explanation:

1. When transferring to U disk by one-key, you must first open the workstation software and then insert U disk, to ensure that the workstation can identify the U disk.
2. Tap the icon , all the images, the saved checklists and obstetric lists, the generated reports on the workstation software will transfer to U disk by one-key.
3. The images, checklists, obstetric lists and reports saved in the kxStation folder of U disk. The image is stored in U:\ kxSation\image; the checklist is stored in U:\kxSation\checklist; the obstetric list is stored in U:\kxSation\OB; the generated report is stored in U:\ kxSation\ report.

10.3.2.5 Mobile album view images and reports of workstation

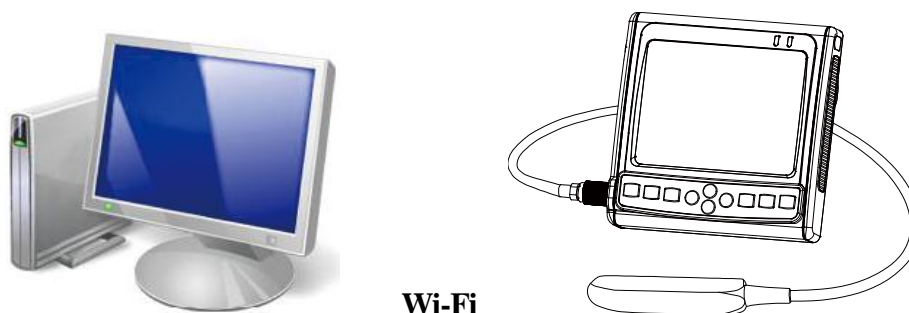
1. Open the workstation software;
2. Tap the icon  in the lower right corner of the Image View interface of workstation software, open the mobile album, find the "image" and "report", you can view the saved images and the generated reports.

10.3.2.6 Quit workstation software



Tap quit  to quit mobile ultrasound workstation software.

10.4 PC-side ultrasound workstation software


The usages for PC-side ultrasonic workstation software are similar to mobile workstation; it communicates with V1 equipment via Wifi.



10.4.1 Preparation before use

1. Install the PC-side ultrasonic workstation software "kx_station_v" on the computer, kx_station_v is free to install, just copy the software to the computer;
2. In the V1 preset interface, Wifi is set to "On";
3. The computer needs to connect to the V1 equipment via Wireless network card or Wifi. Open the computer's wireless network connection, in the available WLAN list, select V1 network ID, such as "1712250", connect to it;
4. After the connection is successful, double-click the icon  "kx_station_v" to enter ultrasound workstation interface, the wireless signal icon  appears on the lower left corner of the V1 screen, then you can use the PC-side ultrasound workstation software.

Note:

1. You first turn on the Wifi of V1 equipment and then set up the computer's WLAN. After WLAN connection is successful, open the ultrasound workstation software.
2. The Wifi network ID of V1 equipment is the default number displayed on the nameplate of V1, such as "1712250".
3. When the network is disconnected, the wireless signal icon  on the V1 screen disappears.

10.4.2 Start using PC-side ultrasound workstation software

The function for PC-side ultrasound workstation software kx_station_v is similar to the mobile workstation, including image view, check list management, obstetric list management. The following describes the differences.

1. In the check list interface, click "Preview", the check list is displayed in the form of report, the user can preview its contents; click "Print" to print out the check list.

2. In the obstetric list interface, click on “Preview”, the obstetric list is displayed in the form of report, the users can preview its contents; click “Print” to print out the obstetric list.

3. The stored bmp images, check lists and obstetric lists are stored in the kxStation folder of computer's D drive. The image is stored in D: \ kxSation \ image; the checklist is stored in D: \ kxSation \ checklist; the obstetric record is stored in D: \ kxSation \ OB.

4. The stored check lists files and obstetric lists files (suffix .db) need to be viewed using ultrasound workstation software.

10.5 Change the language for ultrasound workstation software

1. Go to Settings of the phone or Pad, tap Language & input, tap Language and choose the used language;

2. After finish the settings, enter the ultrasound workstation again, the ultrasound workstation interface appears the changed language.

Note: KAIXIN ultrasound workstation software supports Chinese and English. Other languages are not support. In the V1 English version, the ultrasound workstation software needs to use the corresponding English language.

Chapter Eleven System Maintenance

The system maintenance should be performed by the user and service engineer. Users shall be in full charge of maintenance and operation of the system after purchasing the product.

⚠Warning: The following parts of the equipment are not serviced or maintained while in use.

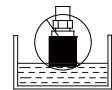
11.1 Maintenance by users

11.1.1 System cleaning and disinfection

⚠Warning: Turn off the instrument and pull out the power supply wire before cleaning every instrument. It may cause electric shock if clean the system under power is on.

⚠Warning: The waterproof grade of the equipment is IPX4 (no adverse effect on splashing water in all directions). Do not spill water or liquid into the device during cleaning or maintenance. Failure to do so may cause malfunction.

⚠Warning:
Do not place the ultrasonic probe connector into water or disinfection, as it may cause electric shock or the malfunction of probe.



⚠Attention:

1. To prevent possible infection, it is advisable to wear sterilized gloves when cleaning, disinfecting the ultrasonic probe.
2. In the process of cleaning and disinfection, avoid probe overheat (exceeding 55°C) as it may be damaged or deformed under excessive heat.

1. Clean the probe

- (1) Must wear sterilized gloves to prevent possible infection.
- (2) Rinse the probe with water or soapy water to remove all contaminants, or use a soft urethane sponge to wipe the probe. Do not use brushes as it may damage the probe.
- (3) After finishing the rinsing, use a sterilized cloth or gauze to wipe the water on the surface of probe. Do not dry the probe by heating it.

2. High-level disinfection

Please follow the disinfection method provided in this user's manual for disinfection.

- (1) Before disinfection, wear sterilized gloves to prevent possible infection;
- (2) You must clean the probe before disinfection. Recommend the solution to disinfect in the following table.

Glutaraldehyde-based disinfectant:

Chemical Name	Reagent Name	Step
Glutaraldehyde (2.4%)	Cidex Glutaraldehyde disinfectant	Please refer to the instructions of the solution for details.

Non-glutaraldehyde-based disinfectant:

Chemical Name	Reagent Name	Step
Phthalaldehyde solution (0.55%)	Cidex OPA	Please refer to the instructions of the solution for details.

- Please follow the instructions about disinfectant concentration and disinfection method, as well as the precautions about disinfectants provided by disinfectant provider. But do not rinse or soak the probe connector or close to connector cable.
 - The soaking time of probe in the disinfectant is limited to the minimum time recommended by disinfectant manufacturer (e.g., Cidex OPA manufacturer recommended minimum 12 minutes).
 - Please follow local laws and regulations to choice the disinfectants.
- (3) After disinfection, rinse the probe with a large number of sterile water (about 2 gallons) for at least one minute to remove the residual chemicals. You may follow the recommended method by the disinfectant manufacturer to rinse.
 - (4) After finishing the rinsing, use a sterilized cloth or gauze to wipe the water on the surface of probe. Do not dry the probe by heating it.

⚠Attention: The waterproof grade of transrectal probe is IPX7, immersion depth from probe's acoustic head to the sheath of probe handle; the waterproof grade for other probes is IPX4.

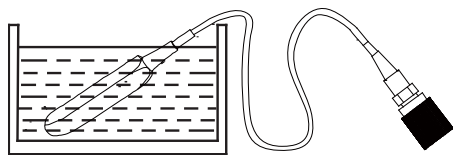


Fig. Immersion disinfection of transrectal probe (sketch map)

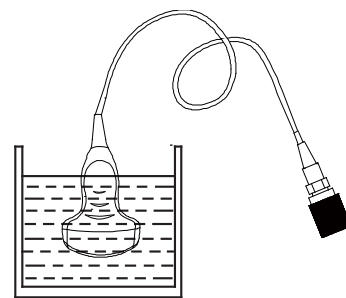


Fig. Immersion disinfection of probe (except transrectal probe)

⚠Attention:

1. It is a normal phenomenon that color of the acoustic lens may change and text of the probe label may fade away.
2. The regular disinfection times should be minimized as it may lead to degrade of the probe safety and performance.

3. Check probe after cleaning and disinfection

- (1) Check the probe enclosure and its cable to ensure they are free of abnormality (such as scuffing, cracks or drop-off);
- (2) The sound window of probe is thin; ensure that there are no any abnormality on the sound window, such as scuffing, cracks, peeling, bulge and drop-off.

4. Clean the probe cable and its connector

- (1) Clean the probe cable and its connector with soft, dry cloth.
- (2) In case of die-hard blots, clean with soft cloth dipped in moderate detergent and then air-dry it.

5. Clean the LED screen

Use a soft cloth dipped in glass cleaner to clean the LED screen, and then air-dried.

⚠Attention: Do not clean the screen with hydrocarbon detergent for example alcohol etc or OA equipment cleaning media.

⚠Attention: Prohibit using sharp objects to touch the LED screen, and prohibit pressing or squeezing against the LED screen.

6. Clean the control panel, shell


Clean the instrument surface with soft, dry cloth or with soft cloth dipped in moderate water cleaning media to remove the blots, and then dry the instrument with soft, dry cloth or with air.

7. Clean the video recorder, shutter release

- (1) Use the soft dry cloth to wipe the video recorder, shutter release.
- (2) If it is difficult to wipe away the blemish, clean with soft cloth dipped in moderate detergent and then air-dry it.

11.1.2 Use and maintenance for the rechargeable battery

1. Plug the output port of power adapter into the DC power input port on the right side of main unit to charge. When charging, the battery charge indicator flashes orange and green alternately; when fully charged, the indicator is in a orange no-flashing state.
2. The shutdown charging time is about more than 4 hours, boot charging about 7.5 hours; over-charging or discharging will shorten the battery life. The full charged battery can be used about 5 hours.
3. The excess high or low temperature will affect the charging and discharging performance, and short the battery life and capacity.

**⚠Attention: A power indicator will appear “

⚠Attention: Battery is consumable; the battery cycle-life is based on the times of charge and discharge as unit. When the use time reduced significantly compared with normal conditions, the battery should be promptly replaced.**

⚠Attention: When the equipment is unlikely to be used for a period of time, and leakage from a battery would result in an unacceptable risk, please remove the battery.

⚠Attention: Don't throw away the exhausted battery anywhere; especially throw it in the fire. Please deal with it according to local statutes. Use pollution degree II to deal with.

⚠Attention:

1. Do not throw the battery into water or be wet, which will lead to the battery leakage, explosion or fire;
2. Do not use or store the battery near the heat source, such as fire or heater, which will lead to the battery leakage, explosion or fire;
3. Do not connect the anode and cathode reversely, which will lead to the battery leakage, explosion or fire;
4. Do not heat up or throw the battery into fire, which will lead to the leakage, explosion or fire;
5. Do not connect the anode and cathode with any metal or conductor; do not transport or store the battery together with necklaces, hairpins or other metal objects, which will lead to the leakage, explosion or fire;
6. Do not hammerblow, throw or mechanically shake the battery, which will lead to the leakage, explosion or fire;
7. Do not insert the battery with nail or other spiculate objects; do not hammerblow or trample the battery, which will lead to the leakage, explosion or fire;
8. Do not weld the battery terminal directly, which will lead to the leakage, explosion or fire;
9. Do not disassemble the battery in any way, which will lead to the leakage, explosion or fire;
10. Do not charge the battery near the heat source or extra-hot environment, which will lead to the leakage, explosion or fire;
11. Do not put the battery into the microwave oven or pressure vessel, which will lead to the leakage, explosion or fire;
12. Do not mixed use the battery together with one-off battery (such as dry battery), or different capability or different model or different brand battery, which will lead to the leakage, explosion or fire;
13. Do not use the abnormal battery with particular smell or abnormal heat or distortion or turn colors or abnormal phenomena, which will lead to the leakage, explosion or fire;
14. Do stop the charge and pull out the battery from the charger at once if any abnormal phenomenon happens to the battery, such as particular smell or abnormal heat or distortion or turn colors. Otherwise, each of above will lead to the leakage, explosion or fire;
15. Do remove the battery from the near fire if any leakage or particular smell happens, which will lead to the leakage, explosion or fire;
16. If any leakage splash into eye, do not wipe the eye, instead of washing it and get help from the doctor as soon as possible. Otherwise, the eye will be injured;
17. Do not use the battery in the extremely hot environment, such as hot sunshine or in the car when it is too hot, because these will catch fire, even worsen its performance and shorten its life;
18. If use the battery beyond the listed environment on the manual, it will worsen its performance or shorten its life, even lead to extreme heat or explosion or fire.

11.2 Replace the fuse

Replace the fuse is to replace the power adapter.

⚠Attention:

1. The fuse is inside the power adapter. Fuse shall be replaced by qualified service personnel who get KAIXIN approval.
2. Before replacing the fuse, please contact KAIXIN, replace the fuse under the guidance of KAIXIN.
3. Before replacing the fuse, you must disconnect the mains supply.
4. Fuse Type: T3.15AH250VAC

11.3 Replacement of power supply cord

Before replacing the power supply cord, please contact Kaixin Company; replace the power supply cord under the guidance of Kaixin Company. Please use the power supply cord provided by Kaixin Company.

11.4 Troubleshooting

To ensure normal operation, users are recommended to prepare a proper maintenance and regular examination plan to regularly check on product safety performance. If any abnormality occur, timely contact International Trade Dept of Kaixin for support.

If the following problems occur on starting up the machine, try to make corrections following the method in the table. If the problem remains unsolved, contact International Trade Dept of Kaixin for support.

Trouble	Correction
Power supply indicator is off and no screen display is present when starting the machine.	1. Check power supply. 2. Check power cable and plug. 3. Check power adapter.
Character and gray scale are displayed, but no ultrasonic image on the screen.	Probe is not properly connected. Turn off the power and reconnect the probe.
Intermittent stripe, snow, or far-field interference appears on screen.	1. Check power supply.(spark interference present) 2. Check environment.(source of interference around the machine, such as electric motor, ultrasonic atomizer, automobile, computer or other interference) 3. Check power plug/socket of the instrument or probe connectors. They shall be properly contacted.
Image display is not clear.	1. Adjust the total gain, near field gain, far field gain. 2. Adjust the backlight, brightness and contrast level.
Control panel malfunction	Restart the system by turning off the main unit power.

11.5 Periodic Safety Checks

To ensure the system performance and safety, it must be checked after using 1 year. When check the instrument, please consult the International Trade Dept of Kaixin or its dealers, as they need to have professional technology engineers.

Inspect sorts	Inspect items
Cleaning	System inside Peripheral equipment
Electrical safety	Earth leakage current Touch current Patient leakage current Dielectric strength
Mechanical safety	Check the control panel Peripheral equipment installation agencies Other mechanical parts Probe appearance
Image recording	Images in each mode Images recorded using a standard probe

Chapter Twelve Storage and Transportation

Storage and Transportation

1. If the instrument is stored over 3 months, take out the instrument from the packing case, connect it to power supply for 4 hours, and then disconnect the power and place it in the case again following the direction indicated by arrows on the package. Store the case in the warehouse. Do not pile the case. The instrument case should have adequate space from ground, walls and ceiling of the warehouse.
2. Environment requirement
Ambient temperature: $-20^{\circ}\text{C} - 55^{\circ}\text{C}$; Relative humidity: 30% — 93% (without condensation);
Atmospheric pressure: 700hPa-1060hPa. The warehouse should be well ventilated and free of direct sunlight and corrosive gas.
3. Shockproof measures have been taken inside the packing case to allow for transport by air, railway, land and sea. The goods shall not be exposed to poor weather conditions like rain and snow, nor shall the goods be placed upside down, bumped, knocked or over-stacked.

Chapter Thirteen Safety Classification

1. **Classified according to electric shock protection type:**
Class I, internally powered equipment
2. **Classified according to electric shock protection degree:**
Type B applied part
3. **Classified according to the degree of protection against ingress of liquid:**
Main unit belong to IPX4 equipment
4. **Classified according to operation safety in condition of existence of flammable anesthetic mixture with air or oxygen or nitrous oxide:**
It is neither of category AP equipment nor of category APG equipment
5. **Classified according to mode of operation:**
Continuous operation equipment
6. **Classified according to the protection of radio services:**
Group I Class A equipment

Chapter Fourteen Guidance and Manufacturer's Declaration

This product complies with EMC test standard IEC 60601-1-2.

⚠Warning: The use of inappropriate accessory will reduce the performance of the product.

⚠Attention:

- 1. 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.**
- 2. 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.**
- 3. 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 equipment, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.**
- 4. The system needs to be specifically for EMC protection, and need to be installed and maintenance in the environment meeting the following provided EMC information.**
- 5. The system may be interfered with by other equipment, even if that other equipment complies with CISPR emission requirements.**
- 6. Strong electromagnetic disturbance may cause interference on the ultrasonic image of this equipment. It is recommended to stop using the device and keep it away from the interference source or the source to be eliminated, then use the equipment.**
- 7. Operation of the system below minimum amplitude or value of patient physiological signal may cause inaccurate results.**
- 8. Portable and mobile communications equipment can affect the performance of the system. See the following tables 1, 2, 3.**

1. Equipment Under Test cables

No.	Name	Cable lengths (m)	Cable Shielded
1	AC Mains cable	≤2m	unshielded
2	Probe cable	≤2m	shielded

Electromagnetic interference may appear on the system in a variety of ways, depending on the system's cables, transducers and accessories. Use the cables, transducers and other accessories specified by the manufacturer of this equipment, so that the possibility of degradation of the performance of this equipment should be minimized.

Table 1:

Compliance level for electromagnetic emission	
Emission test	Compliance
RF emissions CISPR 11	Group 1
RF emissions CISPR 11	Class A
Harmonic emissions IEC 61000-3-2	Class A
Voltage fluctuations/flicker emissions IEC 61000-3-3	Complies
<p>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.</p>	

Table 2:

Compliance level for electromagnetic immunity	
Immunity test	Compliance level
Electrostatic discharge (ESD) IEC 61000-4-2	± 8 kV contact ± 15 kV air
Radiated RF IEC 61000-4-3	80MHz-2.7GHz 3V/m 80%AM at 1kHz
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth
Conducted RF IEC 61000-4-6	0.15MHz-80MHz 3 V _{rms} 6 V _{rms} in ISM bands between 0,15 MHz and 80 MHz 1) 80%AM at 1kHz
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0%U _T (>95% dip in U _T) ₂ for 0.5 cycle 0%U _T (>95% dip in U _T) for 1 cycles

	<p>70%U_T (30% dip in U_T) for 25 (50Hz) cycles</p> <p>0%U_T (>95% dip in U_T) for 300 (60Hz) cycles</p>
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30(A/m)
<p>Note 1: The ISM (industrial, scientific and medical) bands between 0,15 MHz and 80 MHz are 6,765 MHz to 6,795 MHz; 13,553 MHz to 13,567 MHz; 26,957 MHz to 27,283 MHz; and 40,66 MHz to 40,70 MHz.</p> <p>Note 2: U_T is the a.c. mains voltage prior to application of the test level.</p>	

Table 3:

Compliance level for enclosure port immunity to RF wireless communications equipment

Test frequency (MHz)	Modulation	Immunity test level (V/m)
385	Pulse modulation 18 Hz	27
450	FM ±5 kHz deviation 1 kHz sine	28
710	Pulse modulation 217 Hz	9
745		
780		
810	Pulse modulation 18 Hz	28
870		
930		
1720	Pulse modulation 217 Hz	28
1845		
1970		
2450	Pulse modulation 217 Hz	28
5240	Pulse modulation 217 Hz	9
5500		
5785		

KAIXIN ELECTRONIC
XUZHOU KAIXIN ELECTRONIC INSTRUMENT CO., LTD.



Kaixin Mansion, C-01. Economic Development Zone,
Xuzhou, Jiangsu, China

Zip Code: 221004

Tel: +86-516-87732932/87733758

Fax: +86-516-87732932/87792848

Website: www.kxele.com

E-mail: info@kxele.com



Shanghai International Holding Corp. GmbH (Europe)
Eiffestrasse 80, 20537 Hamburg, Germany



AISON
INTERNATIONAL

Authorized Distributor
AISON INTERNATIOANL
Stigs Center 2B, 42246, Hisings Backa, Sweden
Tel:0046-73-5543108
Email: info@autoclave.se www.autoclave.se

Information contained in this manual is subject to change without further notice.