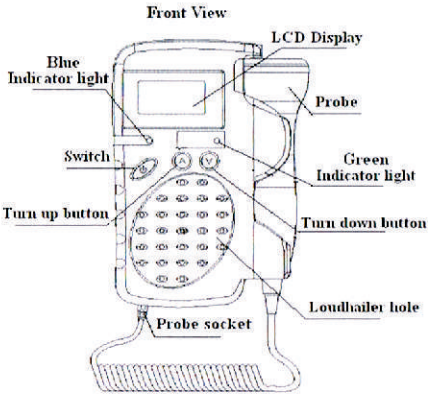


Western Surgical®

FETAL DOPPLER OPERATE

JPD-100B
USER MANUAL

www.westernsurgical.in
Email : westernsurgical@gmail.com
Email : info@westernsurgical.in
Ph. : +91-281-2232871 / 2243159

Product Information

Product Name: Fetal Doppler

Model: JPD-100B

Manufacturer: Shenzhen Jumper Medical Equipment Co., Ltd

Address: 6th Floor, No.6 Bldg., Nanshui Industry Village, 5th Industry Rd.,Shenzhen 518067 P.R.China

Copyright

Precaution Labels Definition

The signal words shown below, left, identify the potential hazard categories. The definition of each category is as follows:

DANGER: This alert identifies hazards that **will** cause serious personal injury or death.

WARNING: This alert identifies hazards that **may** cause serious personal injury or death.

CAUTION: This alert identifies hazards that may cause minor personal injury, product damage, or property damage.

NOTE: The label indicates what you should attention.

Due to constant upgradation design, price and features are subject to change without prior notice.

CONTENT

Due to constant upgradation design, price and features are subject to change without prior notice.

Section 1 : Introduction

Become familiar with the controls and how to use the PRODUCT properly before operating the product.

CAUTION: Federal law restricts this device to be sold by or on the order of a physician or practitioner licensed by state law in which he/she practices to use or order the use of the device.

CAUTION: It should not be used in life supporting or life sustaining applications

1.1 Contact Information

Manufacturer:Shenzhen Jumper Medical Equipment Co., Limited;
Manufacturer Address: 6th Floor, No.6 Bldg., Nanshui Industry Village, 5th Industry Rd. Shenzhen P.R. China
Telephone Number: +86-755-26696279 Fax:+86-755-26852025
Web site: http://www.jumper-medical.com

Manufacturing:

Shenzhen Jumper Medical Equipment Co., Limited; 6th Floor, No.6 Bldg., Nanshui Industry Village, 5th Industry Rd. Shenzhen P.R. China

Authorized European Representative:

EC REP

Wellkang Ltd
Suite B, 29Harley Street , LONDON,W1G9QR,u.k.

1.2 Product Description

The Product is a lightweight, portable, detector. It is designed to meet your detecting and hearing needs by providing advanced detecting functions and a full range of sound of the fetal heartbeat.

Due to constant upgradation design, price and features are subject to change without prior notice.

The product is mainly used to detect the fetal heartbeat rate (FHR) and the sound of the fetal heartbeat (SFH).

The growth and development of a fetus can be found out through examination of these indices. It is applicable for department of gynaecology and obstetrics and clinic daily.

In accordance with classification criteria in Annex IX on "Medical Device Directive 93/42/EEC", the product is class IIa based on rule 10, "Devices for Direct Diagnosis or Detection on physiological process".

The Product is powered by 9.6V NI-MH. And the battery is can't replace.

1.3 Operating Principle

Fetal Doppler consists of probe (transmitter and receiver) and signal process unit.

Ultrasonic wave is transmitted from one piezoelectric ceramic at the front of the probe to the uterus of the pregnant women. Echo is received by the other piezoelectric ceramic at the front of the probe when ultrasonic wave reaches the fatal heart. Then it is converted into voltage. This Doppler signal is detected and demodulated from the received signal. And the Doppler frequency is consistent with the rhythm of the fetal systole and diastole. Once cardiac valves vibrate and a Doppler frequency excursion is formed. It is transmitted an output signal of cardiac valves vibrating, and it is sent to the loudspeaker for getting a rhythmical sound with the fetal heartbeat. Simultaneously, it is sent to a counter which calculate periods of heartbeat that is fetal heartbeat rate (bpm=beat per minute).

1.4 Indication for Use

The device is ultrasonic fetal heart beat detector, which can detect the Fetal Heart Rate. The built in speaker of the device allows for listening of the fetal heartbeat. It can play music, record and playback fetal heartbeat sound, and can display values of fetal heart rate.

The Product normally is applied to fetus of above 9~12 weeks growth, difference in pregnant mater

1.5 Contraindications for Use

Normally none, as a particular case, please consult your doctor.

Section 2 : Safety Guidance

2.1 Safety Terms And Conditions

The signal words shown below, left, identify the potential hazard categories. The definition of each category is as follows:

DANGER: This alert identifies hazards that will cause serious personal injury or death.

WARNING: This alert identifies hazards that may cause serious personal injury or death.

CAUTION: This alert identifies hazards that may cause minor personal injury, product damage, or property damage.

2.2 Safety Alter Descriptions

This unit is internally powered equipment, and the degree of protection against electric shock is type B:

The following is a list of Product safety alerts that appear in this section and throughout this manual. You must read, understand, and heed these safety alerts before attempting to operate the Product.

DANGER: Fire and Explosion Hazard
Do not operate the Product in the presence of flammable gases to avoid possible explosion or fire hazard.

CAUTION: Temperature/Humidity/Pressure Extremes
Exposing the Product to extreme environmental conditions outside of its operating parameters may compromise the ability of the Product to function properly.

CAUTION: Battery Disposal
Recycle or dispose of the battery in accordance with all federal, state and local laws. To avoid fire and explosion hazard, do not burn or incinerate the battery.

WARNING: Use only Approved Equipment

Do not use batteries, gel, cables, or optional equipment other than those approved by Shenzhen Jumper Medical Ultrasonic Instrument Co., Ltd. which may cause the Product to function improperly during a rescue.

CAUTION: Possible Radio Frequency (RF) Susceptibility
RF susceptibility from cellular phones, CB radios and FM 2-way radio may cause interference with the Product. Do not operate wireless radiotelephones in the vicinity of the Product – turn power OFF to the radiotelephone and other like equipment near the Product.

WARNING: Adjacent and/or Stacked Equipment
The Product should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the Product should be observed to verify normal operation in the configuration in which it will be used.

CAUTION: Systems Statement
Equipment connected to the Product must be certified to the respective IEC Standards (i.e. IEC 950 for data processing equipment and IEC 601-1 for medical equipment). Furthermore, all configurations shall comply with the system standard IEC 601-1-1. Anybody who connects additional equipment to the signal input part or signal output part configures a medical system, and is therefore, responsible that the system complies with the requirements of the system standard IEC 601-1-1. The Product Service Port is only intended for use during maintenance by authorized service personnel.

CAUTION: Case Cleaning Solutions
When disinfecting the case, use a non-oxidizing disinfectant, such as ammonium salts or a glutaraldehyde based cleaning solution, to avoid damage to the metal connectors.

CAUTION: Environment of use
The Product is designed for indoor use. Operator must confirm that the environment of use meets the required operating environmental specifications before using.

CAUTION: Cold Environments

If the Product is stored in an environment with a temperature below the operating temperature, the unit should be allowed to warm up to the needed operating temperature before using.

2.1 Symbols

The following symbols may appear in this manual, on the Product, or on its accessories. Some of the symbols represent standards and compliances associated with the Product and its use.

Consult instructions for use of the Product and/or it's accessories.

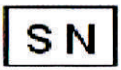
Warning Information

Authorized Representative in the European Community

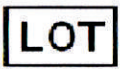
CE Mark: The Product system conforms to essential requirements of the Medical Device Directive 93/42/EEC.

Date of manufacture.

Manufacturer



Specifies serial number of the Product



Production batch

It indicates that the equipment should be sent to the special agencies according to local regulation for separate collection after its useful life.

Due to constant upgradation design, price and features are subject to change without prior notice.

Section 3 : Getting Started

This section presents information on unpacking and setting up the Product

3.1 Unpacking an Inspecting

Every attempt is made to ensure your order is accurate and complete. However, to be sure that your order is correct, verify the contents of the box against your packing slip.

The Product is designed for simplicity of operation and set-up and requires minimal assembly.

The accessories for normal use supplied or approved by Jumper medical can be used with JPD-100B.

The following item is packing list:

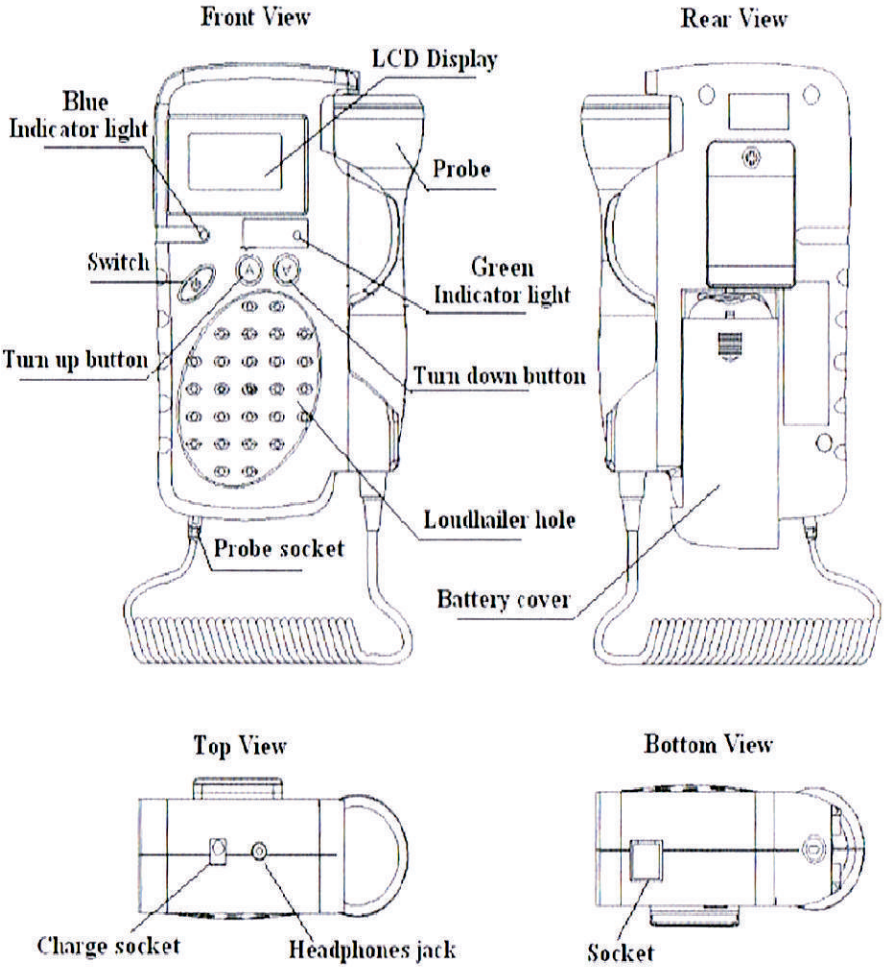
No.	Item	Quantity	Packed or Unpacked
1	Packing List	1	√
2	Instruction Manual	1	√
3	mainframe(including Probe)	1	√
4	adapter	1	√

Carefully inspect each item as it is unpacked for any signs of damage which may have occurred during shipment.

- Check the components according to the packing list.
- Check for any damage or defects. Do not attempt to setup the Product if anything is damaged or defective. Contact Shenzhen Jumper Medical Equipment Co., Limited Ultrasonic Instrument Customer Service immediately if anything is damaged or defective.

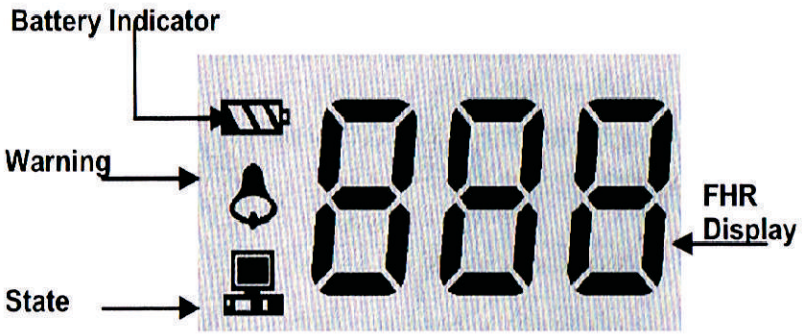
Section 4 : Appearance and Structure

4.1 Appearance



Due to constant upgradation design, price and features are subject to change without prior notice.

4.2 *Display Panel*



FHR Display :

Here displays the fetal heart rate value, whose unit is bpm (beat per minute)

Warning:

When the FHR is in the restrict scope, the symbol will display, And the State symbol will display in a few moment.

Battery Indicator:

When the Battery is low, the Battery Indicator and State symbol will twinkling.

4.3 Buttons

① **Switch**  :

Function: switch on or off the Doppler

② **Turn up button**  :

Function: increase the volume.

③ **Turn down button**  :

Function: reduce the volume.

4.4 Battery

Power of the Doppler is a 9.6 V NI-MH which is supplied from Jumper Medical. And the battery is can't replace.

WARNING: Don't throw batteries in fire because this may cause it explode.

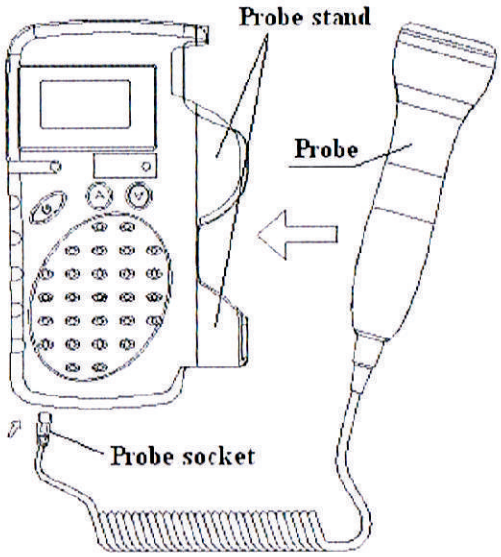
CAUTION: The battery must be proper disposed according to local regulation after their use

Section 5 : Operation

This section provides the description for operation

5.1 Installation

5.1.1 **Installing probe**



① Insert the Probe socket into the socket which is on the main unit.

② Place the Probe into the Probe stand.

5.1.2 **Replace probe**

Take out another probe , Repeat the **5.1.1 Installing battery**

CAUTION: You must shutdown the Doppler before Installing probe or Replace probe

5.2 Operation

1. **Turn on**

Press  key, the device will turn on and self check, then the Blue Indicator light will light. when the FHR display "000", the self-check is finished and get into use.

2. **Detect FHR**

Put the gel on the detect position of the pregnant woman abdomen, then press the probe softly and ensure it has a good touch surface. When the probe is on the right position, you can hear the fetal heart beat rate (FHR). Wait until the sounds is clear and consecutive seconds later, the LCD screen will display the right FHR.

3. **Volume Control**

Under the FHR display state, you can control the volume by "  " or "  " button louder or down.

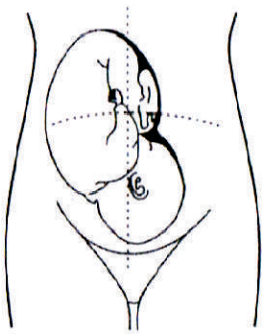
4. **Turn off**

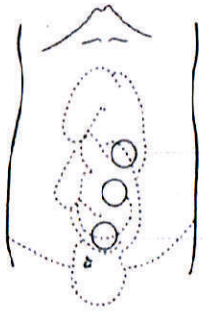
After detecting, please press  button, the device will power off, the Blue Indicator light also closed.

5.3 Detecting

Locate the position of the fetus by hand touching, firstly to find out the best direction to the fetal heart. Place the faceplate of probe at the best position for detecting fetal heartbeat. Adjust the probe to obtain an optimum audio signal ideally by angling the probe around. Generally, the site of heart of fetus is 1/3 below of navel line at its earlier stage, it then moves upward with increasing of gestational period, and the site of heart of fetus will be a little deviation to left or right with different fetus. Pls. make sure that the surface of probe should be contacted fully with the skin. After the sound become clear and stays stable for a few seconds, the FHR value will appear on the LCD in real time. If no coupling gel, water can be used.

Note: abnormal value of FHR may appear during the searching of fetal heart.





Gestation

Antepartum

Parturition

5.4 Changing the battery

When the battery is lower, Battery Indicator will flicker. You have to shut down the Doppler to charge the battery.

Insert the DC plug of the special charger supplied by Jumper medical in to the charge socket on the Doppler AND connecting the AC plug of it to the a.c. 100-240V,50/60 Hz power supply.

This process will spend 10 hours to charge the battery. When charging, the Green Indicator light will light.

WARNING: Charge the battery with the special charger supplied by Jumper medical

CAUTION: You must shutdown the Doppler before charging the battery or replace the battery

CAUTION: Don't use the Doppler for monitoring until the adapter disconnected with the Doppler

Section 6 : Maintenance and Services

6.1 Cleaning

Listed below are recommendations for cleaning the Product and its accessories.

Recommended cleaning product:
The following cleaning products may be used to clean the exterior surfaces of the Product as well as the batteries.

- Isopropyl alcohol (70% solution in water)
- Mild soap and water
- Sodium hypochlorite (chlorine bleach) (3% solution in water)
- Quaternary ammonium compounds (such as Lysol) (10% solution in water)

- Do not use abrasive cleaners or strong solvents such as acetone or acetone-based cleaners.
- Do not mix disinfecting solutions (such as bleach and ammonia) as hazardous gases may result.
- Do not clean electrical contacts or connectors with bleach.

Cleaning instructions:

1. Before cleaning the Product, turn the device off and disconnect the power cord.

2. Before cleaning, remove all adherent soil (tissue, fluids, etc.) and wipe thoroughly with a cloth dampened with water before applying the cleaning solution.

3. When cleaning, do not immerse. Keep the exterior surface of the device clean and free of dust and dirt ,clean exterior surface of the unit with a dry, soft cloth .if necessary, clean it with a soft cloth soaked in a solution of soap and wipe dry with a clean cloth immediately.
   Wipe the transducer body with soft cloth to remove any remaining coupling gel .Clean with soap only

4. Wring any excess moisture from the cloth before cleaning.

5. Avoid pouring fluids on the device, and do not allow fluids to penetrate the exterior surfaces of the device.

6. To prevent scratching the display, the use of a soft cloth is ecommended.

CAUTION: To prevent damage to equipment, do not clean any part of the Product or Accessories with phenolic compounds. Do not use abrasive or flammable cleaning agents. Do not steam, autoclave, or gas-sterilize the Product or accessories.

CAUTION: Cleaning liquids: DO NOT submerge the device in liquids or pour cleaning liquids over, into or onto the device.

* Don't use strong solvent, for example. Acetone.
* Never use an abrasive such as steel wool or metal polish.
* Do not allow any liquid to enter the product, and do not immerse any parts of the device into and liquids.
* Avoid pouring liquids on the device while cleaning.
* Don't remain any cleaning solution on the surface of the device.

Wipe the surface of sensor of transducer with 70% ethanol or alcohol, self-air dry or clean with a clean, dry cloth.

6.2 Maintenance

WARNING: Failure on the part of all responsible individuals, hospitals or institutions, employing the use of Product, to implement the recommended maintenance schedule may cause equipment failure and possible health hazards. The manufacturer does not, in any manner, assume the responsibility for performing the recommended maintenance schedule. The sole responsibility rests with the individuals, hospitals, or institutions utilizing the product.

1. The transducer acoustic surface is frangible and must be handle with care .Gel must be wiped off from the transducer after use. These precautions will prolong the life of the unit.

The user must check that the equipment does not have visible evidence of damage that may affect patient safety or product's capability before use .The recommended inspection interval is once per month or less. If damage is evident, replacement is recommended before use.

2. To ensure the product is always functional when required, the following maintenance shall be performed:

- Visual Inspection
- Cleaning the product and its accessories
- Check the battery fuel gauge
- Testing product Performance

Correction: manually calculate the FHR with hearing fetal heartbeat sound for qualification.

Recommended maintenance and care:

- It is important that the Product is stored at the operating temperature range if it is expected to be used. Optimal battery life will be obtained if stored and operated at room temperature. See Section 7 for Temperature Specifications.
- The Product requires no calibration.

6.3 Authorized Repair Service

The Product has no user-serviceable internal components. Try to resolve any maintenance issues with the Product by using the Troubleshooting Table presented in this chapter. If you are unable to resolve the problem, contact Shenzhen Jumper Medical Equipment Co., Limited Service.

NOTE: The warranty will be void upon unauthorized disassembly or service of the Product.

6.4 Disinfection

Cleaning the unit surface and the transducer as the above mentioned, then wipe the surface of transducer with 70% ethanol or alcohol, clean the transducer surface with a dry, soft cloth.

WARNING: Don't use low temperature steam sterilization or other way to sterilize

WARNING: Don't use high temperature sterilizing process

Section 7 : Technical Specifications

This section presents the specifications and safety standards of the product.

NOTE: The following specifications are subject to change and are only noted as a point of reference.

Product name: Fetal Doppler

Mode: JPD-100B
Safety: Complies with IEC 60601-1: 1990 + A1:1993 + A2:1995, EN 60601-1: 1990 + A1:1993 + A2:1995, EN60601-1-2:2007, IEC 61266:1996

Physical Demensions:

129mm W x 83mm D x 34 mm H, Wt: 0.24kg (not including battery)

Classification:

Anti-electric Shock Type: Internally powered equipment

Anti-electric Shock Degree: Type B equipment 

Due to constant upgradation design, price and features are subject to change without prior notice.

Degree of Protection against Harmful Ingress of Water:

Main Unit : Non-protected

Probe: IPX4 Water Ingress Protection Code

Degree of Safety IN Presence of Flammable Gases: Equipment not suitable for use in presence of flammable gases

Working Mode: Continuous operation

Technical parameters:

Ultrasound:

Ultrasonic emitting frequency: 2.5MHz

Overall sensitivity at the distances 200mm from the face of the probe (Doppler frequency: 500±50Hz, Target velocity: 10cm/s~40cm/s): 92.4dB

Spatial-peak temporal-peak acoustic pressure: 20.1kPa

Output power: 7.9mW

Effective area of the ultrasonic transducer active element: 3.07cm^2

The acoustic coupling medium for normal use: ph: 5.5~8, Acoustic impedance: ≤1.7*10^5g /cm^2·s

Working mode: Continuous wave Doppler

Audio output:

Audio output power: <0.5 W

Audio out Socket: Φ2.5mm

Recommended battery type:

9.6V NI-MH, which is supplied from Jumper Medical.

Stand-by Time: >8hours

Performance:

Sensitivity: 16 weeks gestation

FHR Measuring Range:50-210bpm (beat per minute)

Resolution: 1bpm

Accuracy: ±3bpm

Environmental Requirements:

Operating Conditions:
Temperature: 5°C to 40°C
Humidity: <80% RH, non-condensing
Atmospheric pressure: 860hPa to 1060hPa

Storage and Shipping Conditions:
Temperature: -10°C to 60°C
Humidity: 0 - 95% RH, non-condensing
Atmospheric pressure: 860hPa to 1060hPa

CAUTION: Environment of use
Product is designed for indoor use. Operator must confirm that the environment of use meets the required operating environmental specifications before using.

CAUTION: Cold Environments
If the Product is stored in an environment with a temperature below the operating temperature, the unit should be allowed to warm up to the needed operating temperature before using.

CAUTION:
Fetal Doppler needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided for in the ACCOMPANYING DOCUMENTS.

Portable and mobile RF communications equipment can affect **Fetal Doppler**.

the **Fetal Doppler** should not be used adjacent to or stacked with other equipment.

Guidance and manufacturer's declaration-electromagnetic emissions

The models JPD-100A, JPD-100B, JPD-200C are intended for use in the electromagnetic environment specified below. THE customer or the user of the models JPD-100A, JPD-100B, JPD-200C should assure that it is used in such an environment.

Emissions	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	The models JPD-100A, JPD-100B, JPD-200C use RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The models JPD-100A, JPD-100B, JPD-200C is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Not applicable	

Guidance & Declaration—electromagnetic immunity

The models JPD-100A, JPD-100B, JPD-200C are intended for use in the electromagnetic environment specified below. THE customer or the user of the models JPD-100A, JPD-100B, JPD-200C should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.

Due to constant upgradation design, price and features are subject to change without prior notice.

Electrical fast transient/burst IEC 61000-4-4	±2kV for power supply lines ±1kV for Input/output lines	±2kV for power supply lines	Mains power quality should be that of atypical commercial or hospital environment
Surge IEC 61000-4-5	±1kV line to line ±2kV line to earth	±2kV line to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5%U_T(>95 % dip in U_T)for 0.5 cycle 40% U_T (60% dip in U_T)for 5cycles 70% U_T (30% dip in U_T)for 25 cycles <5% U_T (>95% dip in U_T) for 5sec	<5%U_T(>95 % dip in U_T)for 0.5 cycle 40% U_T (60% dip in U_T)for 5cycles 70% U_T (30% dip in U_T)for 25 cycles <5% U_T (>95% dip in U_T) for 5sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the modelsJPD-100A, JPD-100B, JPD-200C requires continued operation during power mains interruptions, it is recommended that the models JPD-100A, JPD-100B, JPD-200C be powered from an uninterruptible power supply or a battery.
Power frequency(50/ 60 Hz)magnetic field IEC 61000-4-8	3 A/m	Not applicable	Not applicable
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

Due to constant upgradation design, price and features are subject to change without prior notice.

The modelsJPD-100A, JPD-100B, JPD-200C is intended for use in the electromagnetic environment specified below. The customer or the user of the Fetal Heart Rate Doppler Detector should assure that it is used in such an environment.

Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment – guidance**
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 Vrms 80 MHz to 2.5 GHz	3V 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the modelsJPD-100A, JPD-100B, JPD-200C including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** 3V $d=1.2\times P^{1/2}$ 80MHz to 800 MHz $d=1.2\times P^{1/2}$ 800MHz to 2.5 GHz Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey[a], should be less than the compliance level in each frequency range[b].

Due to constant upgradation design, price and features are subject to change without prior notice.

			Interference may occur in the vicinity of equipment marked with the following symbol: 

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the modelsJPD-100A, JPD-100B, JPD-200C is used exceeds the applicable RF compliance level above, the modelsJPD-100A, JPD-100B, JPD-200C should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the modelsJPD-100A, JPD-100B, JPD-200C.
b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the modelsJPD-100A, JPD-100B, JPD-200C.

The modelsJPD-100A, JPD-100B, JPD-200C is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the modelsJPD-100A, JPD-100B, JPD-200C can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the modelsJPD-100A, JPD-100B, JPD-200C as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power	Separation distance according to frequency of transmitter m

Due to constant upgradation design, price and features are subject to change without prior notice.

of transmitter W	150 kHz to 80 MHz $d=1.2\times P^{1/2}$	80 MHz to 800 MHz $d=1.2\times P^{1/2}$	800 MHz to 2,5 GHz $d=2.3\times P^{1/2}$
0,01	0.12	0.12	0.23
0,1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.
NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Overall sensitivity(2.5MHz Probe)	
Temperature: 24.9℃, Relative Humidity : 68%	
Distance for the probe face	50mm
Nominal acoustic working frequency	2.5MHz
Doppler frequency	293Hz
Target Velocity	12cm/s
A(d): Target reflection loss	44.5dB
B: two-way attenuation over the acoustic pathway	52.3dB
C: Signal-to-noise Ratio	Vs: 235mV Vn: 113mB C=20log(Vs/Vn)=6.4dB
S: Overall Sensitivity	S=A+B+C=103.2db
Supplementary information: --	

Distance for the probe face	75mm
Nominal acoustic working frequency	2.5MHz
Doppler frequency	293Hz
Target Velocity	12cm/s
A(d): Target reflection loss	44.5dB

Due to constant upgradation design, price and features are subject to change without prior notice.

B: two-way attenuation over the acoustic pathway	47.2dB
C: Signal-to-noise Ratio	Vs: 229mV Vn: 110mB C=20log(Vs/Vn)=6.4dB
S: Overall Sensitivity	S=A+B+C=97.1db
Supplementary information: --	

Distance for the probe face	100mm
Nominal acoustic working frequency	2.5MHz
Doppler frequency	293Hz
Target Velocity	12cm/s
A(d): Target reflection loss	44.5dB
B: two-way attenuation over the acoustic pathway	46.8dB
C: Signal-to-noise Ratio	Vs: 227mV Vn: 109mB C=20log(Vs/Vn)=6.4dB
S: Overall Sensitivity	S=A+B+C=97.7db
Supplementary information: --	

Distance for the probe face	200mm
Nominal acoustic working frequency	2.5MHz
Doppler frequency	293Hz
Target Velocity	12cm/s
A(d): Target reflection loss	44.5dB
B: two-way attenuation over the acoustic pathway	41.4dB
C: Signal-to-noise Ratio	Vs: 225mV Vn: 106mB C=20log(Vs/Vn)=6.5dB
S: Overall Sensitivity	S=A+B+C=92.4db
Supplementary information: --	

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Section 8 : Troubleshooting

What appearance to be a malfunction may not always serious, if your unit should not perform as expected, consult the table below to see if the problems can be corrected before seeking help from your dealer or service representative.

Symptom	Cause	Remedy
Audio scream	• Audio volume too high • Too much Gel on the probe surface • Battery is exhausted	• Turn down the volume • Use less Gel • Change or charging the battery
Weak sound output	• Audio volume too low • Insufficient Gel • Battery is exhausted	• Turn up the volume • Add Gel • Change or charging the battery
Low sensitivity	• Incorrect probe position • Insufficient Gel	• Locate the correct position • Add Gel

Date of Installation	Installed By
Model No.	Serial No.
Warranty Period	
Name of Doctor & Address :	

Customer Sign. With Stamps

Marketed By: Western Surgical
Sign. With Stamps

No Claim Warranty :

1) Any Defect Througut Power Supply

2) Any Physical Damage

3) Under Warranty Standby Unit Not Provide

4) Under Warranty When Company Send Parts or Machine we Imidiat send to Buyer.

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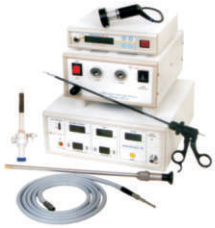
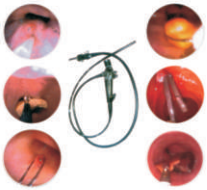
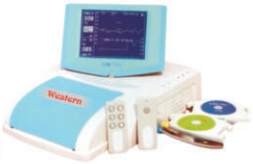
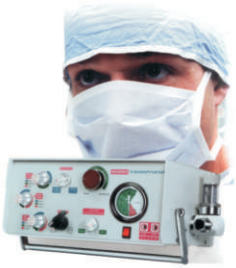
OUR OTHER PRODUCTS RANGE













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