

ibiomedi Electronic Stethoscope Instruction Manual

ES-2020



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ibiomedi Electronic Stethoscope

MHW Medical Device Manufacturing No. XXXXXX

Before use, please read the Instruction Manual of the original manufacturer and follow the instructions.

Model : ES-2020

Product Application

After selecting a specific frequency response mode, the ES-2020 electronic stethoscope can be used to detect and amplify sound from the heart, arteries, veins, breathing sound from the anterior/posterior/lateral chest cavity, and throat sound in the neck. The electronic stethoscope is designed specifically for professional medical personnel. This product can be used in any medical clinics or hospitals to perform auscultation for children, teenagers and adults.

Functions

The ES-2020 electronic stethoscope is an amplifying device that can detect sound from the heart, arteries, veins, breathing sound from the anterior/posterior/lateral chest, and throat sound in the neck. After amplifying and filtering the sound, the sound will be transmitted to the user through earphones or headphones, providing high-quality sound. The ES-2020 electronic stethoscope provides users with additional functions, such as wireless transmission and playing auscultation sound through speakers, to increase the convenience in diagnosis.

Product Introduction

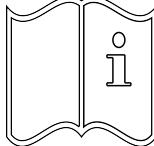
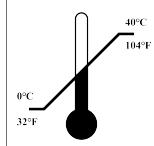
The ES-2020 electronic stethoscope has simple operation interface, allowing medical personnel to perform auscultation for patients with one hand. The three frequency response mode selection button and volume adjustment button can be used for quick adjustment according to the needs of patients, helping users to quickly perform diagnosis.

The ES-2020 electronic stethoscope uses two AAA alkaline batteries. The sound detected by the electronic stethoscope can be recorded through wireless transmission by using external devices such as notebook computers.

Headphones that are comfortable to wear and be used to reduce ambient noise, providing users with high-quality sound.

Safety Information

Before using the ES-2020 electronic stethoscope, please read, understand, and follow all the safety related information and instructions in this Instruction Manual. Please keep this Instruction Manual for future reference.

Description of safety related labels and signs	
	Warning.
	Please refer to the instruction manual.
	Type BF (Body Floating) instrument label: This instrument provides protection against electric shock and leakage. The applied part is a complete chestpiece with diaphragm.
	This product has limitation on the ambient temperature for operation.
	This product contains electrical and electronic parts, and must not be discarded as general waste. Please refer to the local regulations on the disposal of electrical and electronic equipment for its disposal.
	This product uses wireless transmission.
	Please try to avoid contacting this product with object that contains static electricity.

Description of word signs	
NOTICE	It suggests to pay attention to the situation. If not avoided, it may cause property loss or damage.
WARNING	It suggests that the situation is dangerous. If not avoided, it may cause minor injuries and/or property loss or damage.

Precautions

- ◎ To reduce environmental pollution related risks, please follow the local regulations to discard this product and the used batteries should be properly disposed of or recycled.
- ◎ Un authorized modification of this product is forbidden. This product should be repaired by authorized service personnel. Users who carry out any improper modification or repair of this product shall be held responsible for the resulted loss.
- ◎ It is not safe to use the ES-2020 electronic stethoscope in a magnetic resonance imaging environment. Do not use the ES-2020 electronic stethoscope in a magnetic resonance imaging environment.
- ◎ Before using AAA alkaline batteries, please make sure that both ends of the battery electrodes are clean. Put them in the battery holder correctly.
- ◎ To extend the battery life, remember to turn off the power of the instrument when it is not in use.

WARNING

- ◎ **To reduce the risk of incorrect results, personal injury, and equipment damage**, please follow the instructions provided in this Manual to operate this product.
- ◎ **To reduce the risk of damaging the chestpiece**, please do not place the chestpiece near an intense sound.
- ◎ **To reduce the risk of infection**, please follow the cleaning and sterilization instructions provided in this Manual, establishing and implementing a cleaning and sterilization plan.
- ◎ **To reduce the risk of ear damage**, please hold the instrument firmly to avoid sudden drop that may pull the earphones to damage the user's ears.
- ◎ **To reduce the risk of strong magnetic fields**, please avoid using this product near strong radio frequency signals or portable and/or mobile radio frequency equipment. If a sudden or unexpected sound is noticed, stay away from any radio frequency antennas.
- ◎ **To reduce the risk of electric shock**, please do not use an electronic stethoscope without a covering film on patient.
- ◎ **Do not immerse the stethoscope in liquid or any sterilizing solution**, which may damage the instrument.
- ◎ **This product is not suitable for children under two years old because its chestpiece is designed for children who are over two years old, teenagers and adults.**
- ◎ **To avoid battery electrolyte leakage to damage the product**, please follow the battery usage instructions carefully.
- ◎ **If the battery electrolyte solution gets into your eyes**, please rinse them with clean, cold running water immediately and seek medical assistance right away.
- ◎ **Please do not use this product near or together with other instruments.**

(1) Product Introduction



Product model : ES-2020

● Features

This product can detect sound from the heart, arteries, veins, breathing sound from the anterior/posterior/lateral chest, and throat sound in the neck. The auscultation sounds can be played through earphones/speakers. The product has three frequency response modes to perform auscultation depending on the parts of the patient.

In addition, the auscultation sound can be recorded by a notebook computer or wireless device through wireless transmission and remote auscultation can also be performed.

● Product description

The ES-2020 electronic stethoscope detects sound from the heart, arteries, veins, breathing sound from the anterior/posterior/lateral chest, and throat sound in the neck of patients. The sound is transmitted to the user's ears through accessories such as earphones.

User interface includes

A: power button, frequency response mode button, volume button

B: Power indicator, wireless transmission indicator, frequency response mode indicator, volume indicator.

Turn on the ES-2020 electronic stethoscope and connect to the wireless device via Bluetooth to transmit and record sound. When there are barriers such as walls, people, etc. between the ES-2020 electronic stethoscope and the connected wireless device, the effective range of Bluetooth transmission will be affected. It is recommended to reduce the distance between the ES-2020 electronic stethoscope and the connected wireless device to improve Bluetooth connection.

The ES-2020 electronic stethoscope only requires two AAA 1.5V alkaline batteries.

● Purpose of use

The ES-2020 electronic stethoscope is used to detect sound from the heart, arteries, veins, breathing sound from the anterior/posterior/lateral chest, and throat sound in the neck.

The chestpiece is designed for children who are over two years old, teenagers and adults.

It can be applied to any body type and can only be used for the purpose of medical diagnosis in clinics or hospitals.

(2) Operation Instruction

Please read the Instruction Manual carefully before using this product, and operate according to the Manual.

It is recommended that you keep this Instruction Manual for future reference.

● Battery replacement

As shown in Figure 1, open the battery compartment cover by pushing down the cover and remove the old batteries. Replace the old batteries with two new AAA alkaline batteries.

Follow the signs in the battery compartment as shown in Figure 2 to insert the new batteries in the correct direction. After replacing the batteries, close the battery compartment cover.

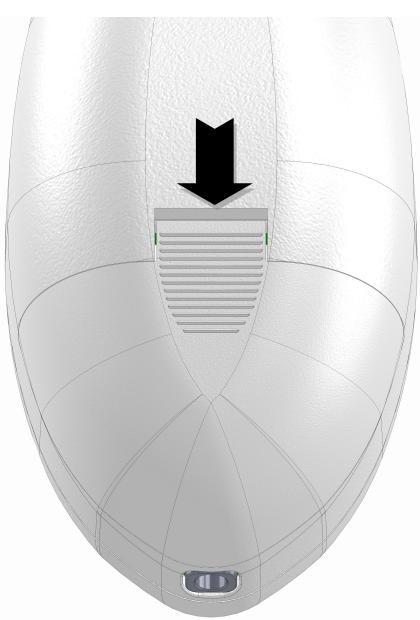


Figure 1

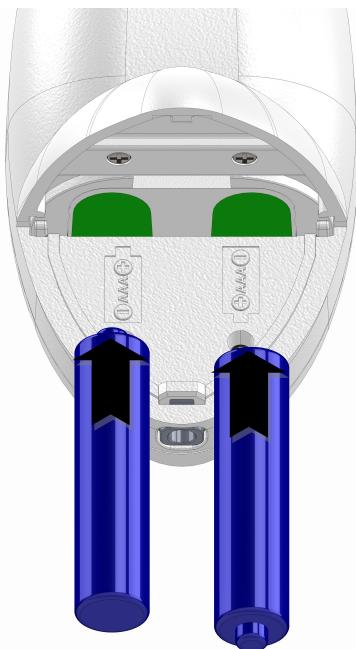


Figure 2

NOTICE : Please turn off the instrument before removing the batteries.

WARNING : Please do not use the battery if it is broken or damaged.

- **Chestpiece replacement**

The position of the chestpiece is shown in Figure 3. Please hold the instrument body tightly when replacing the chestpiece. Rotate counterclockwise to remove the chestpiece and place it in a safe place to avoid falling and damage.



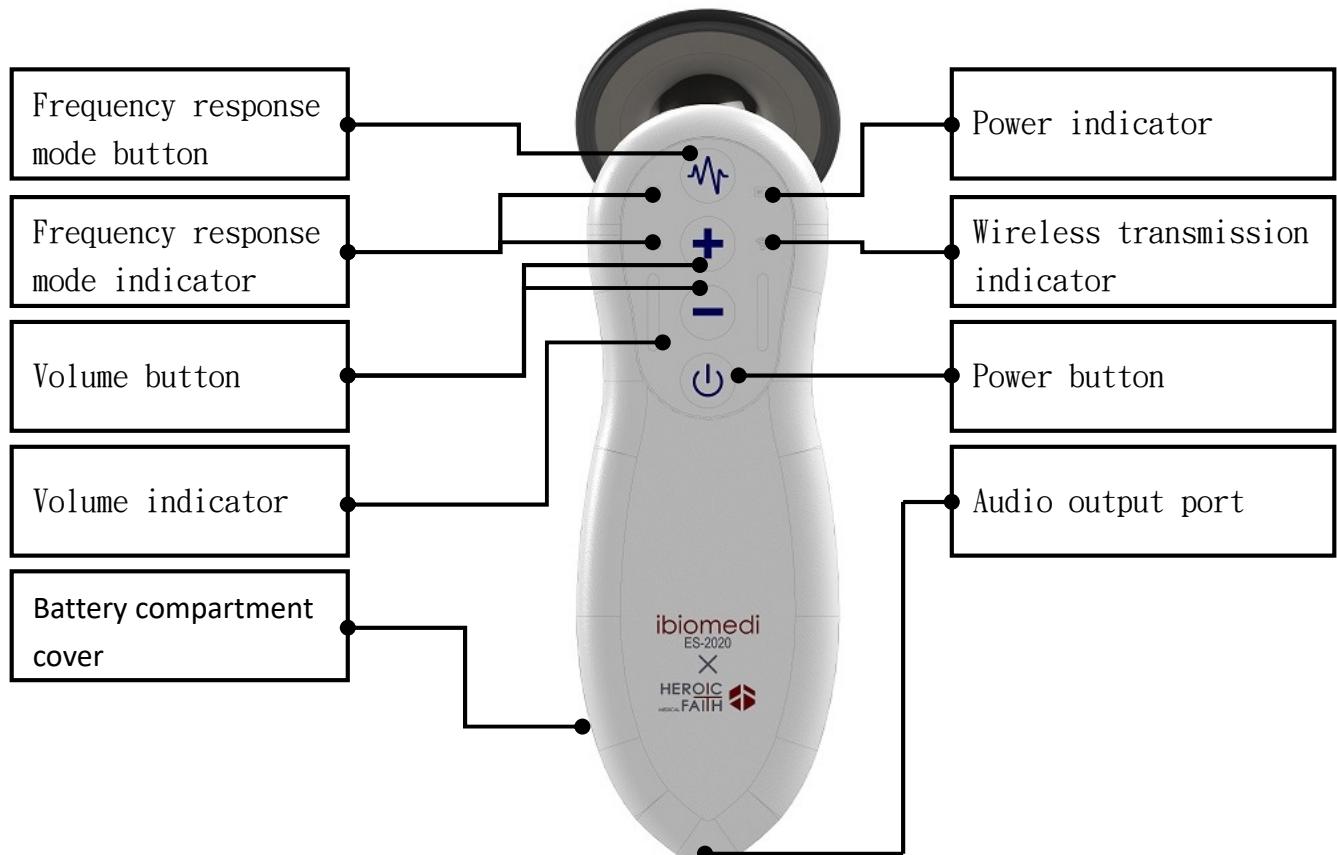
Figure 3

As shown in Figure 4, insert the new chestpiece into the main unit and rotate it clockwise until the arrow on the chestpiece reaches the marked line on the main unit.



Figure 4

(3) Stethoscope Interface



Power button

Long press for three seconds to turn on/off the instrument.

Volume button

The "+" and "-" keys are used to increase/decrease the volume, and the volume indicator will change according to the volume adjustment.

Frequency response mode button

In "heart sound mode", the heart sound indicator will show green light; in the "lung sound mode", the lung sound indicator will show green light; in the "full frequency mode", both indicators are off

Audio output port

Auscultation sounds can be played through earphones/speakers.

Wireless transmission

Class II Bluetooth wireless transmission is adopted. By connecting to a wireless device through Bluetooth, the sounds detected by the electronic stethoscope can be recorded in the device.

(4) Operation Instruction

● Power button (turn on/off the instrument)

Power on/off: The position of the power button is shown in Figure 5. Long press the power button for three seconds to turn on/off the electronic stethoscope. When the power indicator shows green light, it means that the power is on. When the instrument is turned off, the indicator will not light up.

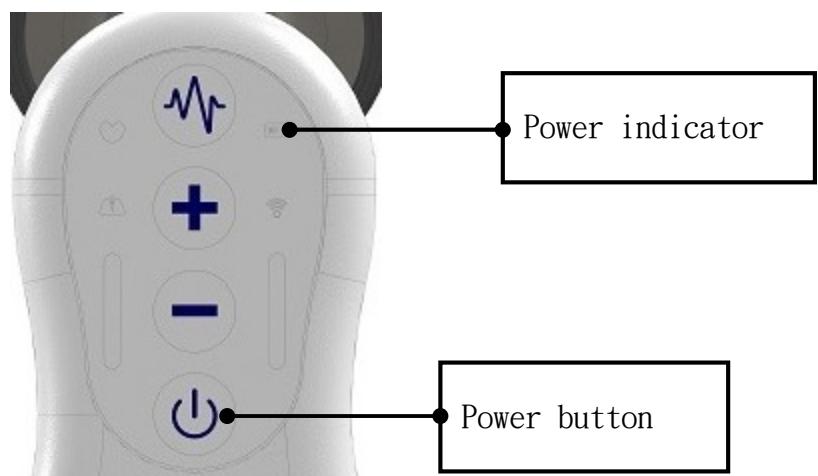


Figure 5

● Frequency response mode

The frequency response mode button is shown in Figure 6. Press the button to change the frequency response mode. The switching sequence is: heart sound mode → lung sound mode → full frequency mode. Users can choose three different frequency response modes.

Heart sound mode: the sound in the frequency range of 20~200 Hz will be emphasized and amplified. The heart sound indicator will show green light.

Lung sound mode: the sound in the frequency range of 100~1000 Hz will be emphasized and amplified. The lung sound indicator will show green light.

Full frequency mode: the sound within the frequency of 1200 Hz will be amplified. Both indicators are off.

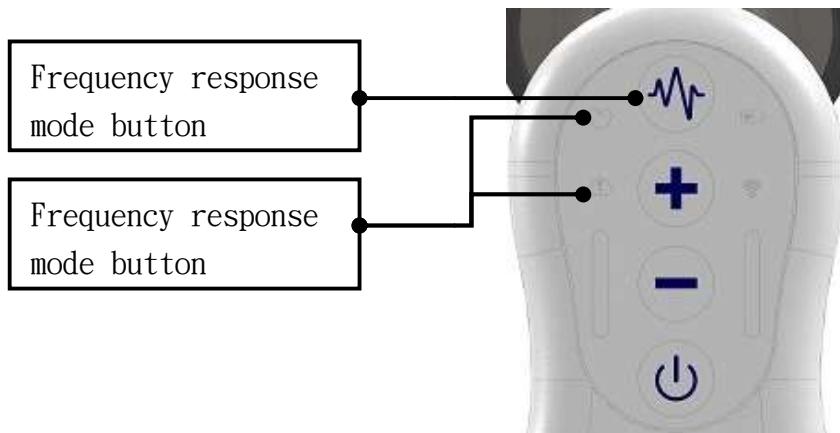


Figure 6

● Volume adjustment

As shown in Figure 7, press the "+" key to increase the volume, and press the "-" key to decrease the volume. There is a limit to the volume level; the maximum volume is level 8, and the minimum volume is to mute the sound. Please adjust to proper volume for auscultation.

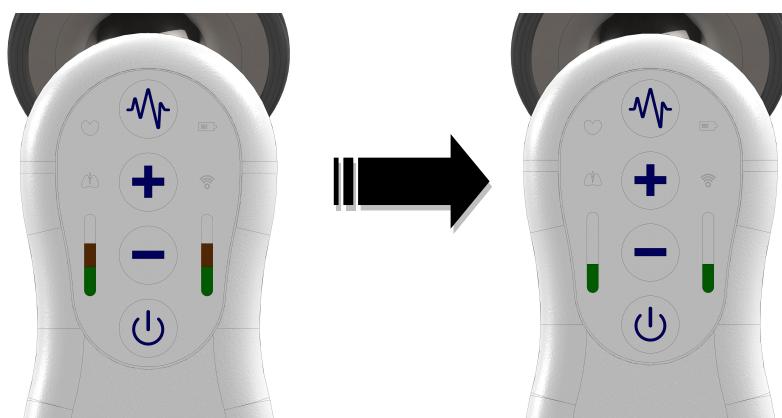


Figure 7

● Bluetooth connection

As shown in Figure 8, when the ES-2020 electronic stethoscope is connected to a notebook computer or wireless device, the wireless transmission indicator will show blue light.

After Bluetooth pairing is successful, the ES-2020 electronic stethoscope can support auscultation sound recording via notebook computer, or perform direct auscultation via communication software.

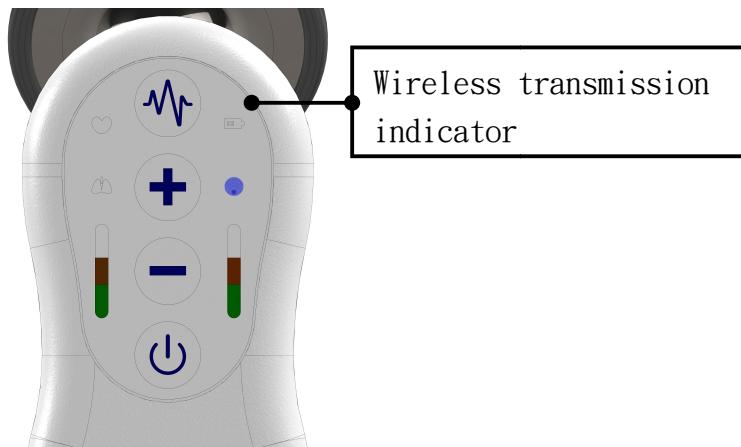


Figure 8

● Audio output

As shown in Figure 9, insert the earphone plug into the audio output port and place the earbud into your ear canal. It is recommended to replace the earbud tip if you feel uncomfortable. Auscultation can be performed by using earphones.

Plug the audio line into the audio output port, and then connect the other end of the audio line to the microphone port of the computer. Users can then perform auscultation by using communication software.

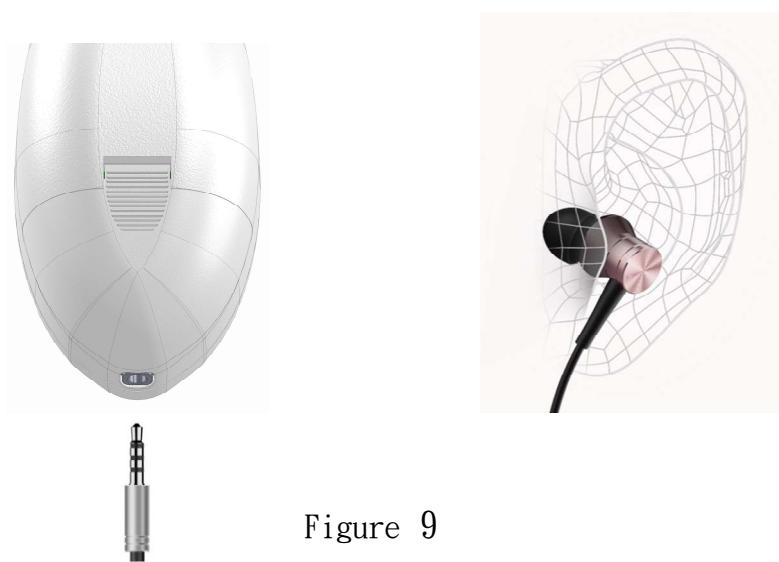


Figure 9

WARNING : To avoid ear damage, do not hit the chestpiece or rub the chestpiece diaphragm when operating the electronic stethoscope with earphones, while the power is turned on.

● Recommendation about speakers

Computer by default usually is not equipped with a subwoofer or a low-tone audio.

Heart sounds contain very low audio frequencies, about 20 Hz. Only speakers or subwoofers with corresponding audio capabilities can reproduce true heart sounds.

The sound collected by the electronic stethoscope may be different from the reference sound mostly due to the differences in recording conditions or recording equipment such as personal computers.

NOTICE : For personal use, please use earphones.

For public demonstration, it is recommended to use speakers with a subwoofer.

(5) Other Operational Precautions

- ◆ During operation, the temperature must be between 41°F to 104°F (5°C to 40°C), and the relative humidity should be between 15% to 93%.
- ◆ The storage and transportation temperature must be between -4°F to 158°F (-20°C to 70°C), and the relative humidity must be between 0% to 93%.
- ◆ To extend the lifetime of the electronic stethoscope, avoid operating in extremely cold or hot environment, and contacting with solvents or oil.
- ◆ If the electronic stethoscope will not be operated for several months, please remove its batteries.
- ◆ Failure to follow the instructions on maintaining the ES-2020 electronic stethoscope may cause damage to its internal parts. Internal damage may lead to product failure, ranging from decrease of auscultation performance to total damage.
- ◆ If you encounter any problems while using the electronic stethoscope, please do not try to fix it by yourself. Please contact the customer service center for consultation or repair.

(6) List of Accessories

Name of accessory	Specification	Quantity
Small chestpiece	For children with diaphragm	1
Large chestpiece	For adult with diaphragm	1
Audio line	1 meter	1
Earphones	1 more	1
Battery	1.5V Alkaline AAA battery	2
Instruction Manual		1

WARNING : Do not use unauthorized accessories to avoid accidents.

(7) Cleaning Method

- ◆ Before cleaning, please check whether the structure of the battery compartment cover and the chestpiece is stable to avoid liquid infiltration.
- ◆ Cleaning chestpiece
Under normal conditions, there is no need to remove the diaphragm for cleaning. The diaphragm can be sterilized with 75% alcohol. If it is required or the diaphragm is damaged, or the diaphragm is used on patients who need to be quarantined, please replace the diaphragm with a new one. Please operate carefully following the instructions given below.
Remove the chestpiece: turn off the power and remove the chestpiece.
Remove the diaphragm: use your thumb to lift the lower part of the diaphragm from the chestpiece groove, and then pull it away from the chestpiece. After removing the diaphragm, the edge of the chestpiece groove can be cleaned with alcohol, and the entire chestpiece can be wiped with alcohol.
Diaphragm installation: When the diaphragm is completely dry, insert it into the chestpiece groove. Starting from a single point, move your finger around the chestpiece groove until the diaphragm fits into the groove.
- ◆ Earphones: Alcohol-containing cloth can be used to wipe the earphones. For more thorough cleaning, please remove the earbud tip for deep cleaning and sterilization.
- ◆ ES-2020: We strongly recommend spraying 75% alcohol onto a cotton cloth, and then use it to wipe the instrument.

WARNING : To reduce the risk of infection, the electronic stethoscope must be cleaned and sterilized after each use.

WARNING : Please do not immerse the electronic stethoscope in liquid or perform any high temperature autoclave sterilization process. It may damage the instrument.

(8) Warranty

The ES-2020 electronic stethoscope has one-year warranty. If damages other than man-made or accidental damages are found in the instrument during the warranty period, it can be repaired free of charge.

(9) Troubleshooting

Q : Unable to turn on the power

A :

1. Please check whether the batteries are placed correctly, and try again after re-placing the batteries.
2. Please place new batteries and then check again.

Q : There is no auscultation sound or abnormal sound is noticed after power on.

A :

1. Please check whether the chestpiece is installed correctly, and check again after adjustment is made.
2. Please use the "volume button" to adjust to an appropriate volume level.
3. Please ensure that the earphone cable is completely plugged into the audio output port.

Q : The instrument is not working and the indicator flashes abnormally.

A :

1. Please remove the batteries from the battery compartment and placing them into the battery compartment again. Press the power button to restart.
2. Please place new batteries and then check again.

Q : Bluetooth connection fails.

A :

1. Please restart the instrument and then check again.

NOTICE : If you have tried all the solutions but still unable to solve the problem, please call your local customer service center for help.

(10) Maintenance and Repair

If you need maintenance or repair services, or have any questions or comments, please feel free to contact the customer service center. We will do our best to provide you with assistance and solve your problems.

NOTICE : Please do not disassemble this instrument without authorization. The ES-2020 electronic stethoscope can only be repaired by authorized maintenance personnel; if unauthorized modification of the instrument is carried out by the user, the user will take full responsibility for any damage.

Name of producer : Sound Land Corp.

Producer address : No. 32, Keji 1st Rd., Guishan Township, Taoyuan County, 33383 Taiwan R.O.C.

Name of manufacturer : Sound Land Corp.

Manufacturer address : No. 32, Keji 1st Rd., Guishan Township, Taoyuan County, 33383 Taiwan R.O.C.

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Website : <https://soundland.com.tw/>

(11) Transportation, Storage and Disposal

Transportation and storage

The transportation and storage of the instrument should comply with the conditions described in the "Other Operational Precautions" section of this Manual.

The ES-2020 electronic stethoscope should be delivered to an authorized customer service center for inspection and repair. The storage must comply with the conditions described in the "Other Operational Precautions" section of this Manual.

Disposal

You should properly dispose of the electronic stethoscope in accordance with local regulations. Alkaline batteries must be disposed of or recycled separately from general waste.

Note: To reduce the risks associated with environmental pollution, we follow the applicable local regulations when disposing of the electronic stethoscope. Alkaline batteries must be disposed of and recycled separately from general waste.

(12) Specifications

ibiomedi Electronic Stethoscope (ES-2020)

Product specification

Color :	White
Battery :	AAA 1.5V alkaline battery * 2
Operation current :	90mA
Chestpiece :	Replaceable chestpiece (child/adult)
Dimension :	139 X 48 X 34 mm
Weight :	180g
Clinical application :	For auscultation
Ingress Protection (IP) Rating :	IPX2
Frequency response mode :	heart sound / breathing (lung) sound / full frequency
Frequency range of frequency response mode :	heart sound (20~200Hz) lung sound (100~1000Hz) full frequency (20~1200Hz)
Volume adjustment :	+ / -
Volume level :	8 levels
Digital wireless transmission :	Bluetooth
Audio output :	earphones / speakers

FCC Part 15.19 This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation. FCC Part 15.21 information for user. You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment. FCC Section 15.105 Information to the user. NOTE: This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: - Reorient or relocate the receiving antenna. - Increase the separation between the equipment and receiver. - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. - Consult the dealer or an experienced radio/TV technician for help. IMPORTANT NOTE: FCC Radiation Exposure Statement: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.