Pulse Oximeter

USER MANUAL
Instructions to User

Dear users, thank you very much for purchasing the Pulse Oximeter.

This Manual is written and compiled in accordance with the council directive MDD93/42/EEC for medical devices and harmonized standards. In case of modifications and software upgrades, the information contained in this document is subject to change without notice.

The Manual describes, in accordance with the Pulse Oximeter’s features and requirements, main structure, functions, specifications, correct methods for transportation, installation, usage, operation, repair, maintenance and storage, etc. as well as the safety procedures to protect both the user and equipment. Refer to the respective chapters for details.

Please read the User Manual carefully before using this product. The User Manual which describes the operating procedures should be followed strictly. Failure to follow the User Manual may cause measuring abnormality, equipment damage and human injury. The manufacturer is NOT responsible for the safety, reliability and performance issues and any monitoring abnormality, human injury and equipment damage due to users' negligence of the operation instructions. The manufacturer's warranty service does not cover such faults.

Owing to the forthcoming renovation, the specific products you received may not be totally in accordance with the description of this User Manual. We would sincerely regret for that.

This product is a medical device, which can be used repeatedly.

WARNING:

❖ Uncomfortable or painful feeling may appear if using the device ceaselessly, especially for the microcirculation barrier patients. It is recommended that the sensor should not be applied to the same finger for over 2 hours.

❖ For the special patients, there should be a more prudent inspecting in the placing process. The device can not be clipped on the edema and tender tissue.

❖ The light (the infrared is invisible) emitted from the device is harmful to the eyes, so the user and the maintenance man should not stare at the light.

❖ Testee can not use enamel or other makeup.

❖ Testee’s fingernail can not be too long.

❖ Please refer to the correlative literature about the clinical restrictions and caution.

❖ This device is not intended for treatment.

The User Manual is published by our company. All rights reserved.
CONTENTS

1. Safety .............................................................................................................................. 1
   1.1. Instructions for safe operations ................................................................................. 1
   1.2. Warning ..................................................................................................................... 1
   1.3. Attention ................................................................................................................... 1

2. Overview .......................................................................................................................... 2
   2.1. Features .................................................................................................................... 3
   2.2. Major applications and scope of application ............................................................. 3
   2.3. Environment requirements ....................................................................................... 3

3. Principle .......................................................................................................................... 3

4. Technical specifications ................................................................................................. 4
   4.1. Main performance ...................................................................................................... 4
   4.2. Main Parameters ...................................................................................................... 4

5. Installation ....................................................................................................................... 5
   5.1. View of the front panel ............................................................................................. 5
   5.2. Installing the hanging rope ...................................................................................... 5
   5.3. Accessories .............................................................................................................. 5

6. Operating Guide ............................................................................................................ 5
   6.1. Application method ................................................................................................... 5
   6.2. Attention for operation .......................................................................................... 10
   6.3. Clinical restrictions .................................................................................................. 10

7. Maintain, transportation and storage............................................................................ 11
   7.1. Cleaning and disinfecting ....................................................................................... 11
   7.2. Maintain .................................................................................................................. 11
   7.3. Transportation and storage ..................................................................................... 11

8. Trouble shooting ............................................................................................................. 11

9. Key of Symbols .............................................................................................................. 12

10. Function Specification ................................................................................................. 13
1. Safety

1.1. Instructions for safe operations

✧ Check the main unit and all accessories periodically to make sure that there is no visible damage that may affect patient’s safety and monitoring performance about cables and transducers. It is recommended that the device should be inspected at least once a week. Please stop using the monitor if there is obvious damage to the device.

✧ Necessary maintenance must be performed by qualified service engineers ONLY. There are no user serviceable parts and users are not permitted to service the device by themselves.

✧ The oximeter cannot be used together with devices not specified in User’s Manual. Only the accessory that appointed or recommendatory by manufacture can be used with this device.

✧ This product is calibrated before leaving factory.

1.2. Warning

✧ Explosive hazard—DO NOT use the oximeter in environment with inflammable gas such as some ignitable anesthetic agents.

✧ DO NOT use the oximeter while the testee measured by MRI and CT.

✧ Be careful with the use of the lanyard cord. Improper use of the lanyard cord will cause device damage not covered under the manufacturer’s warranty. Swinging the device by the lanyard cord will void the warranty. Please do not use lanyard cord if allergic to lanyard cord.

✧ The disposal of scrap instrument and its accessories and packings (including battery, plastic bags, foams and paper boxes) should follow the local laws and regulations. Please check the packing before use to make sure the device and accessories are totally in accordance with the packing list, or else the device may have the possibility of working abnormally.

✧ Please choose the accessories and probe (optional) which are approved or manufactured by the manufacturer, or else it may damage the device.

✧ The device can only be matched with the compatible probe (optional).

✧ Please don’t measure this device with function test paper for the device's related information.

1.3. Hazards

✧ Keep the oximeter away from dust, vibration, corrosive substances, explosive materials, high temperature and moisture.

✧ If the oximeter gets wet, please stop using it immediately.

✧ When it is carried from cold environment to warm or humid environment, please do not use it immediately

✧ DO NOT operate keys on front panel with sharp materials.
High temperature or high pressure steam disinfection of the oximeter is not permitted. Refer to User Manual in the relative chapter (7.1) for instructions of cleaning and disinfection.

Do not immerse the oximeter in liquid. When it needs cleaning, please wipe its surface with disinfectant solution using a soft cloth. Do not spray any liquid directly onto the device.

When cleaning the device with water, the temperature should be lower than 60℃.

As to the fingers which are too thin or too cold, it would probably affect the normal measure of the patients' SpO2 and pulse rate, please clip the thick finger such as thumb and middle finger deeply enough into the probe.

Whether the device is used to adult or infant, it depends on the probe selected.

The update period of data is less than 5 seconds, which is changeable according to different individual pulse rate.

Please read the measured value when the waveform on screen is equably and steady-going. This measured value is optimal value. And the waveform at the moment is the standard one.

If some abnormal conditions appear on the screen during test process, pull out the finger and reinsert to restore normal use.

The device has normal useful life for three years since the first electrified use.

The hanging rope attached to the device is made from Non-allergy material, if particular group are sensitive to the hanging rope, stop using it. In addition, pay attention to the use of the hanging rope, do not wear it around the neck on the purpose of avoiding harm to the patient.

This device has the function of alarming, users can check on this function according to chapter 5.1 as a reference.

The device has the function of limits alarming, when the measured data is beyond the highest or lowest limit, the device would start alarming automatically on the premise of the alarming function is on.

The device has the function of alarming, this function can either be paused, or closed for good, please check the chapter 6.1 as a reference.

The device may not work for all patients. If you are unable to achieve stable readings, discontinue use.

A flexible circuit connects the two parts of the device. Do not twist or pull on the connection.

2. Overview

The pulse oxygen saturation is the percentage of HbO2 in the total Hb in the blood, so-called the O2 concentration in the blood. It is an important bio-parameter for the respiration. A number of diseases relating to respiratory system may cause the decrease of SpO2 in the blood, furthermore, some other causes such as the malfunction of human body's self-adjustment, damages during surgery, and the injuries caused by some medical checkup would also lead to the difficulty of oxygen supply in human body, and the corresponding symptoms would appear as a consequence, such as vertigo,
impotence, vomit etc. Serious symptoms might bring danger to human's life. Therefore, prompt information of patients' SpO₂ is of great help for the doctor to discover the potential danger, and is of great importance in the clinical medical field. The Pulse Oximeter features in small volume, low power consumption, convenient operation and being portable. It is only necessary for patients to put one of his fingers into a probe for diagnosis, and a display screen will directly show the measured value of pulse oxygen saturation with the high veracity and repetition.

2.1. Features

A. Operation of the product is simple and convenient.
B. The product is small in volume, light in weight and convenient in carrying.
C. Low power consumption

2.2. Major applications and scope of application

The Pulse Oximeter can be used in measuring the pulse oxygen saturation and pulse rate through finger. The product is suitable for being used in family, hospital, oxygen bar, community healthcare, physical care in sports (It can be used before or after doing sports, and it is not recommended to use the device during the process of having sport) and etc.

⚠️ The problem of overrating would emerge when the patient is suffering from toxicosis which caused by carbon monoxide, the device is not recommended to be used under this circumstance.

2.3. Environment requirements

Storage Environment
a) Temperature : -40°C ~ +60°C
b) Relative humidity : 5% ~ 95%
c) Atmospheric pressure : 500hPa ~ 1060hPa

Operating Environment
a) Temperature : 0°C ~ 50°C
b) Relative Humidity : 15% ~ 95%
c) Atmospheric pressure : 700hPa ~ 1060hPa

3. Principle

Principle of the Oximeter is as follows: An experience formula of data process is established taking use of Lambert Beer Law according to Spectrum Absorption Characteristics of Reductive Hemoglobin (Hb) and Oxyhemoglobin (HbO₂) in glow & near-infrared zones. Operation principle of the device is: Photoelectric Oxyhemoglobin Inspection Technology is adopted in accordance with Capacity Pulse Scanning & Recording Technology, so that two beams of different wavelength of lights can be focused onto human nail tip through perspective clamp finger-type sensor. Then measured signal can be obtained by a photosensitive element, information acquired through which will be shown on screen through treatment in electronic circuits and microprocessor.
4. Technical specifications

4.1. Main performance

A. SpO₂ value display
B. Pulse rate value display, bar graph display
C. Pulse waveform display
D. Low-voltage indication: low-voltage indicator appears before working abnormally which is due to low-voltage
E. Automatically power off function: when the device is under the state of measuring interface (without external probe), it will automatically power off within 5 seconds if the finger falls out of probe.
F. The display mode can be changed
G. Screen brightness can be changed
H. A pulse rate sound indication
I. With alarm function
J. With SpO₂ value and pulse rate value of storage, the storage data can be uploaded to computers
K. It can be connected with an external oximeter probe
L. Real-time data can be transmitted to computers

4.2. Main Parameters

A. Measurement of SpO₂
Measurement Range: 0~100%
Accuracy: 70~100%, ±2%; 0~69%, unspecified

B. Measurement of pulse rate
Measurement Range: 25~250bpm
Accuracy: ±2 bpm or ±2% (select larger)

C. Resolution
SpO₂: 1%, Pulse rate: 1 bpm.

D. Measurement Performance in Weak Filling Condition:
SpO₂ and pulse rate can be shown correctly when pulse-filling ratio is 0.4%. SpO₂ error is ±4%, pulse rate error is ±2 bpm or ±2% (select larger).

E. Resistance to surrounding light:
The deviation between the value measured in the condition of man-made light or indoor natural light
and that of darkroom is less than ±1%.

**F. Power supply requirement:** 3.6 V DC ~ 4.2V DC.

**5. Installation**

**5.1. View of the front panel**

![Figure 2. Front View](image)

**5.2. Installing the hanging rope**

A. Put the thinner side of the rope through the hole.

B. Put the wider side of the rope through the thinner side which has been put through the hole, then tighten it.

**5.3. Accessories**

A. a hanging rope
B. a user manual
C. a power adapter
D. a data line
E. a disk (PC software)
F. an oximeter probe (optional)

**6. Operating Guide**

**6.1. Application method**

A. **Squeeze the clamp, put a finger into the rubber hole, then release it.**

a) Press the Power Button on the front panel until the device turns on.

b) Do not shake the finger and keep the patient in a stable state during the process.

c) The data can be read directly from the screen on the measuring interface.

⚠️ **Fingernails and the luminescent tube should be on the same side.**

⚠️ **If the alarm function is on, the device will provide midium-priority alarm signal when**
finger is out and intermittent alarm will occur.

Figure 3

(Actual probe may be different with the probe as figure 3, please accept the actual probe with the device)

B. Change display direction:
On the measuring interface, you can change the display direction by pressing the button shortly.

C. Pause alarm:

a) Alarm including the alarm of measure data's going beyond the limits, the alarm of low-voltage, the alarm of finger's out of position.

b) On the measuring interface, if the alarm function is on, during the period of alarming, you can pause it by pressing the button shortly, but the function will be renewed in about 60 seconds.

c) If you want to turn off the alarm for good, you should enter the menu for operation.

D. Menu operations:
On the measuring interface, the display direction can be changed by pressing the power button with
a short push (click). There are four modes of data display that can be viewed.

Press the power button with a prolonged push (1 second) to enter the Settings Menu Interface (see Figure 4). **Please Note:** When the display direction on the screen is in the Portrait View, you cannot enter the Menu Interface, click the power button to switch to Landscape View.

The user can setup the following parameters in the Settings Menu – Backlight Brightness, Alarm high-low limits, data transmission, data storage (recording), data upload to computer.  **Please note in the Settings Menu:**

\[ \text{CLICK} = \text{short press of power button} \quad \text{and} \quad \text{PRESS} = \text{prolonged push of power button (1sec)} \]

![Figure 4 Main Menu Interface](image)

a) **Backlight adjustment**

On the main menu interface, click the power button to select “Brightness”, Press the power button and hold to adjust the backlight brightness.

b) **Alarm setting**

On the main menu interface, click the power button to select “Alarm”, Press the power button (1sec) to enter the alarm setting interface as shown in Figure 5:

a. **Adjusting the high and low limits of alarms**

Click the power button to select “Dir”, then Press the button to choose Up or Down (this will be the direction the value of the high-low limits of SpO2 and pulse rate will be adjusted)

To raise the SpO2 and pulse rate limit, choose “Dir” as ‘Up’, then Click the power button to highlight the parameter to be adjusted: SpO2 high limit (SPO2 ALM HI), SpO2 low limit (SPO2 ALM LO), Pulse rate high limit (PR ALM HI), Pulse rate low limit (PR ALM LO), Press the power button and hold to adjust the selected limit to the desired higher value and release the power button once the higher limit has been reached.

To lower the SpO2 and pulse rate limit, choose “Dir” as ‘Down’, then Click the power button to choose the parameter to be adjusted. Press the power button and hold to adjust the selected limit to the desired lower value and release the power button once the lower limit has been reached.

⚠️ **If the alarm function is on, the device will provide medium-priority alarm signal when the data of SpO2 or pulse rate is beyond the limit and intermittent alarm will occur.**
b. **The alarm state setting**
Click the power button to select “Alarm”, then Press the power button to choose alarm on or off, press “on” to turn on the alarms and “off” to turn off the alarms.

![Figure 5 Alarm Setting Menu](image)

**c. Pulse sound indication setting**
Click the power button to select “Pulse Sound”, then Press the power button to choose to have the Pulse Sound (heart beat) alarm “on” or “off”.

**d. Exit the Alarm settings**
Click the power button to select “EXIT”, then Press the power button to exit the Alarm Settings Menu.

c) **Real-time data transmission setting**
Firstly, please install the affiliated software into the computer, and then two icons would appear on the desktop after installation. The icon of SpO2 is a program for receiving real-time data which is shown as figure 6; the icon of SpO2 Review is a program for receiving stored data which is shown as figure 7.

a. Please connect the device to computer with the affiliated data line, then double click the SpO2 icon to start the program  
b. On the main menu interface, Click the power button to select "Usb", then Press the power button to choose whether transmit the real-time data to computer which displays the data synchronously or not, choose “on” to permit transmission, choose “off” to forbid transmission  
c. When you unplug the data line from computer, there is a dialog box "Save data at view" appearing on the desktop, in which you can input some patient's basic information.

![Figure 6 SpO2 program](image)

![Figure 7 SpO2 Review program](image)

⚠️ If the users choose to turn on the synchronizing display function on computer, it would
probably take several seconds for the data to appear on the computer screen

d) Data storage setting

This instrument has the ability to store 24 hours worth of data. It can store the measured pulse rate and SpO₂ value accurately, transfer the data to the computer, display the data and print reports (with the included SpO₂ Software - Green Heart)

a. From the “Settings Menu” Click the power button to select “Record”, then Press the power button to enter the start time of data storage test (see figure 8).

b. Click the power button to move the underline to the time to be set (hours and minutes), then Press and hold the power button to adjust the time setting. After setting the time, Click the power button to move the underline to “Y”, Press the power button to exit the “time setting menu”, and recording will begin. If you move the underline to “n”, and Press the power button to quit the “time setting menu”, the recording will not begin and the data stored in memory will not be deleted.

c. If the data storage function is being turned on, when return to the measuring interface, a red "REC" sign and a flashing red dot would appear on screen, which means the device is in a state of storing

d. In the state of storing, whatever interface the device is on (measuring interface, menu interface), the sign "Recording" would appear on the screen in 30 seconds, then the screen will be automatically shut down. If press the button shortly at this moment, the sign "Recording" would appear on the screen, and then the screen will be automatically shut down again; if press the button long, the device would return to the former interface.

e. If turning on the data storage function, the former data storage will be automatically removed.

f. In the state of data storing, after the screen is automatically shut down, the pulse sound indication would be off for saving power.

g. When the storage space is full, it displays “Memory is full” on the screen, and then shut down in a few seconds. But it will still display “Memory is full” by the next time you turn on the device on the purpose of warning the user, if press the button again, it will enter the measuring interface.

![Time: 00:00 Y/n](image)

Figure 8

e) Uploading the data to the PC after recording

a. Please connect the device with computer by the data line which is affiliated with the device, then double click "SpO₂ Review" icon to open "SpO₂ Review" program, click the ‘New Session’ Icon in the software, enter the patient data and then click ‘ok’. The Software will then display “device connected, waiting for data”.

b. At this time, Press the power button to enter the “Settings Menu” and then Click the power button to select “Upload”. Press the power button to select “on” then the data will be transferred to your computer.

c. In the state of storing, it is not applicable for the users to upload the stored data to computer.

d. In the state of uploading, you cannot end it artificially, when the upload of stored data is finished, the menu choice bar will move to "Exit" automatically.

f) Exit the main menu

Click the power button to select “EXIT”, then Press the power button to exit the Main Menu.

E. External probe function (optional)
Plug the external probe into the USB socket which lies in the device, and the affiliated probe of the device would become invalidation immediately, the data which is shown on the screen is measured by the external probe, if unplug the external probe from the device, the affiliated probe will automatically become effective.

⚠️ **In the condition of external probe, even if the device cannot detect any signal, it would not power off.**

F. **Charge**
There are two kinds of charging methods:
- a) Connect the device with computer by data line, then the device should be under charging state.
- b) Connect the device with power supply by power adaptor, then the device should be under charging state.
- c) When the device is in the state of battery charging, the indication light is on, when the battery capacity is full, the indication light would be off accordingly.

⚠️ **If the alarm function is on, the device will provide high-priority alarm signal when the battery is in low power status and intermittent alarm will occur.**

6.2. **Attention for operation**

A. Please check the device before using, and confirm that it can work normally.

B. The finger should be in a proper position (see the attached illustration of figure 3 for reference), or else it may result in inaccurate measure.

C. The SpO₂ sensor and photoelectric receiving tube should be arranged in a way with the subject’s arteriole in a position there between.

D. The SpO₂ sensor should not be used at a location or limb tied with arterial canal or blood pressure cuff or receiving intravenous injection.

E. Do not fix the SpO₂ sensor with adhesive or else it may result in venous pulsation and inaccurate measure of SpO₂ and pulse rate.

F. Excessive ambient light may affect the measuring result. It includes fluorescent lamp, dual ruby light, infrared heater, direct sunlight and etc.

G. Strenuous action of the subject or extreme electrosurgical interference may also affect the accuracy.

H. Testee can not use enamel or other makeup.

I. Please clean and disinfect the device after operating according to the User Manual(6.1).

6.3. **Clinical restrictions**

A. As the measure is taken on the basis of arteriole pulse, substantial pulsating blood flow of subject is required. For a subject with weak pulse due to shock, low ambient/body temperature, major bleeding, or use of vascular contracting drug, the SpO₂ waveform (PLETH) will decrease. In this case, the measurement will be more sensitive to interference.

B. For those with a substantial amount of staining dilution drug (such as methylene blue, indigo green and acid indigo blue), or carbon monoxide hemoglobin (COHb), or methionine (Me+Hb) or thiosalicylic hemoglobin, and some with icterus problem, the SpO₂ determination by this monitor may be inaccurate.
C. The drugs like dopamine, procaine, prilocaine, lidocaine and butacaine may also be a major factor blamed for serious error of SpO2 measure.

D. As the SpO2 value serves as a reference value for judgement of anemic anoxia and toxic anoxia, some patients with serious anemia may also report good SpO2 measurement.

7. Maintain, transportation and storage

7.1. Cleaning and disinfecting

When using alcohol wipes to disinfect the device, please air dry or clean it with clean soft cloth.

7.2. Maintain

A. Please clean and disinfect the device before using according to the User Manual(6.1).
B. Please recharge the battery when the screen shows .
C. Recharge the battery soon after the over-discharge. The device should be recharged every six months when it is no regular used. It can extend the battery life following this guidance.
D. The device needs to be calibrated once a year (or according to the calibrating program of hospital). It also can be performed at the state-appointed agent or just contact us for calibration.

7.3. Transportation and storage

A. The packed device can be transported by ordinary conveyance or according to transport contract. The device can not be transported mixed with toxic, harmful, corrosive material .
B. The best storage environment of the device is -20°C~55°C (4°F~131°F) ambient temperature and not higher than 95% relative humidity.

8. Troubleshooting

<table>
<thead>
<tr>
<th>Trouble</th>
<th>Possible Reason</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The SpO2 and Pulse Rate can not be displayed normally</td>
<td>1. The finger is not properly positioned. 2. The patient’s SpO2 is too low to be detected.</td>
<td>1. Place the finger properly and try again. 2. Try again; Go to a hospital for a diagnosis if you are sure the device works all right.</td>
</tr>
<tr>
<td>The SpO2 and Pulse Rate are not displayed stably</td>
<td>1. The finger is not placed inside deep enough. 2. The finger is shaking or the patient is moving.</td>
<td>1. Place the finger properly and try again. 2. Let the patient keep calm</td>
</tr>
<tr>
<td>The device can not be turned on</td>
<td>1. The batteries are drained or almost drained. 2. The device’s malfunction</td>
<td>1. Please recharge the battery 2. Please contact the local service center.</td>
</tr>
<tr>
<td>The display is off suddenly</td>
<td>1. This device is set to be automatically power off within 5 seconds when it cannot detect any signal (without external probe)</td>
<td>1. Normal 2. Please recharge the battery</td>
</tr>
<tr>
<td>Signal</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>🚨</td>
<td>Warning – See User Manual</td>
<td></td>
</tr>
<tr>
<td>%Sp2</td>
<td>The pulse oxygen saturation(%)</td>
<td></td>
</tr>
<tr>
<td>PR</td>
<td>Pulse rate (bpm)</td>
<td></td>
</tr>
<tr>
<td>🍃</td>
<td>Full-voltage</td>
<td></td>
</tr>
<tr>
<td>🍃</td>
<td>Low-voltage</td>
<td></td>
</tr>
<tr>
<td>🎉</td>
<td>Close the alarm sound indication</td>
<td></td>
</tr>
<tr>
<td>🎉</td>
<td>Open the alarm sound indication</td>
<td></td>
</tr>
<tr>
<td>🎉</td>
<td>Close the pulse sound indication</td>
<td></td>
</tr>
<tr>
<td>🎉</td>
<td>Open the pulse sound indication</td>
<td></td>
</tr>
<tr>
<td>🛠️</td>
<td>menu button/power button/function button</td>
<td></td>
</tr>
<tr>
<td>🍣</td>
<td>Type BF</td>
<td></td>
</tr>
<tr>
<td>SN</td>
<td>Serial number</td>
<td></td>
</tr>
</tbody>
</table>
| 🛑 — — | 1. the finger clip falls off (no finger inserted)]
| | 2. Probe error |
| | 3. Signal inadequacy indicator |
| IPX1 | Ingress of liquids rank |
| 🧩 | WEEE (2002/96/EC) |
## 10. Function Specification

<table>
<thead>
<tr>
<th>Information</th>
<th>Display Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Pulse Oxygen Saturation (%SpO₂)</td>
<td>2-digit digital</td>
</tr>
<tr>
<td>Pulse Rate (PR)</td>
<td>OLED display</td>
</tr>
<tr>
<td>Pulse Intensity (bar-graph)</td>
<td>3-digit digital</td>
</tr>
<tr>
<td></td>
<td>OLED display</td>
</tr>
<tr>
<td></td>
<td>bar-graph</td>
</tr>
<tr>
<td></td>
<td>OLED display</td>
</tr>
</tbody>
</table>

### SpO₂ Parameter Specification

- **Measuring range**: 0% ~ 100%, (the resolution is 1%).
- **Accuracy**: 70% ~ 100%: ±2%, Below 70% unspecified.

### Pulse Parameter Specification

- **Measuring range**: 25bpm ~ 250bpm, (the resolution is 1bpm)
- **Accuracy**: ±2bpm or ±2% (select larger)

### Safety Type

- Interior Battery, B F Type

### Pulse Intensity

- **Range**: Continuous bar-graph display, the higher display indicate the stronger pulse.

### Battery Requirement

- Voltage 3.7 rechargeable lithium battery × 1

### Battery working life

- Charge and discharge no less than 500 times.

### Dimensions and Weight

- **Dimensions**: 57(L) × 32(W) × 30 (H) mm
- **Weight**: About 50g (with the lithium battery*1)