

Indication lamp are suddenly off	1. The product is automatically powered off when no signal is detected longer than 8 seconds.	1. Normal.
	2. Finger quantity of the batteries is start being inadequate.	2. Replace the batteries.

Electromagnetic Interference

As a result of radio frequency transmission devices and noise of electrical source, the machine may stop working, interfered by strong radio frequency, or because of close distance. Medical places may have the following EMI pollution sources:




1. Electronic surgical instruments
2. Mobile phones
3. Automotive two-way wireless communications equipment
4. Electronic apparatus
5. High-definition television

In the designed oxygen using environment, EMI may make the pulse not obvious. In this interference, the measurement values may become too large, or oximeter does not work. Performance under interference: unstable reading, interruption, other function errors. As to the above mentioned cases, please check the places to find out the interferences, and take the following measures:

1. Turn off the nearby equipment, and restart, to find out interference equipment.
2. Change the direction and location of interference equipment.
3. Keep a distance between our equipment and interference equipment.

Oximeter and radiation generates radio frequency energy and if we do not press the "Manual" use, may also be other devices in the vicinity of harmful interference.

Symbol Definitions

Symbol	Definitions
	BF Application Part
	Refer to user's manual before application
SpO ₂ %	Hemoglobin saturation
PRbpm	Pulse rate(per minute)
	No alarm indication
IPX1	Low power indication

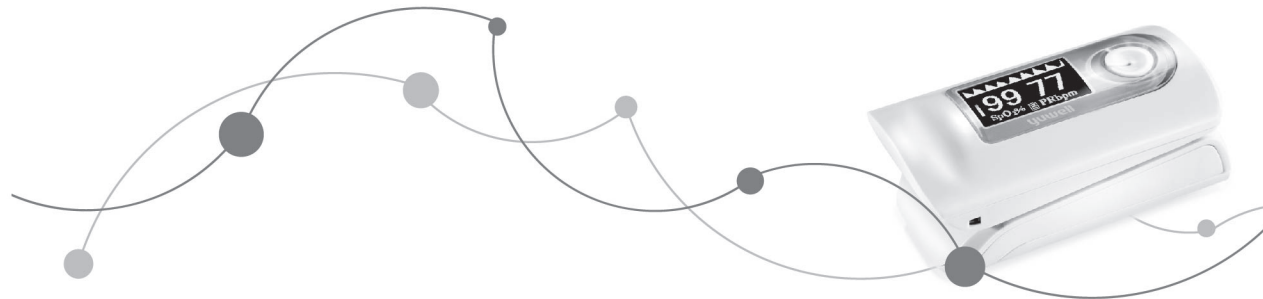
Waste, residue from processing

- Of waste, waste handling should be consistent with the corresponding national laws and regulations.

Product Accessories

No.	ITEM	QTY
1	Fingertip Pulse Oximeter	1pc
2	Lanyard	1pc
3	AAA batteries	2pcs
4	User's Manual, Warranty card	1pc

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YX3 Series Fingertip Pulse Oximeter

730600-0A 

All specifications and product configurations are subject to change without notification.

Please read the user's manual closely before using!

General Description

- Haemoglobin saturation is percentage of Oxyhemoglobin (HbO₂) capacity, compounded with oxygen, by all combinative Haemoglobin (Hb) Oxyhemoglobin (HbO₂) capacity in blood. In other words, it is consistence of Oxyhemoglobin in blood. It is a very important ecological parameter for Respiratory circulation System. Many respiratory diseases can result in haemoglobin Saturation lower in human blood. Moreover, the following factors can also lead to problems in oxygen supply, so that human haemoglobin saturation might be reduced: Automatic Organic Regulation Malfunction caused by Anesthesia, intensive postoperative trauma, hurts resulted in by some medical examination and etc. In the situation, illnesses, such as light head, asthenia, vomitory and etc, might happen to patients and even endanger the patient's life. Therefore, it is very important to know hemoglobin saturation of patient timely in clinical medical aspects. So that doctors can find problems in time.
- The fingertip pulse oximeter features in small volume, low power consumption, convenient operation and being portable. It is only necessary for patient to put one of his fingers into a fingertip photoelectric sensor for diagnosis, and a display screen will directly show measured value of hemoglobin saturation. It has been proved in clinical experiments that it features in rather high precise and repeatability.

Measurement Principle

- Principle of the Oximeter is as follows: An experience formula of data process is established making use of Lambert Beer law according to

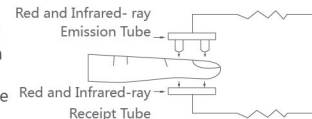
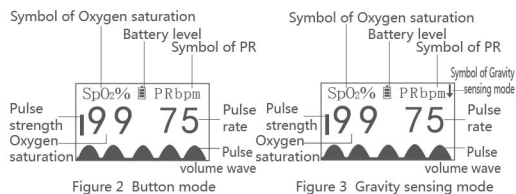


Figure 1: Work Principle

Spectrum Absorption Characteristics of Reductive Hemoglobin and Oxyhemoglobin (HbO₂) in glow and near-infrared zones. Operation principle of the instrument is Photoelectric Oxyhemoglobin Inspection Technology with Capacity Pulse Scanning and Recording Technology, so that two beams of

different wavelength of light (660nm glow and 940nm near infrared light) can be focused onto human nail tip through perspective clamp finger-type sensor. Then measurement signal can be obtained by a photosensitive element, the information acquired through which will be shown on two groups of LEDs through process in electronic circuits and microprocessor.

Display



Technical Parameters

- Display Type: OLED
SPO2 Measurement range: 70-100%, Accuracy: $\pm 2\%$.
Pulse Rate Measurement range: 25-250BPM,
Accuracy: $\pm 1\text{BPM}$ or $\pm 1\%$ (larger).
- Power: Two AAA 1.5V alkaline Batteries.
Voltage range: 2.3-3.0V.
- Working current: Less than 30mA.
- Measurement accuracy: SPO2, Accuracy: $\pm 2\%$ in the range of 70%-99% of SPO2. No definition for SPO2 under 70%. Pulse rate: $\pm 1\%$ or $\pm 1\text{BPM}$ (larger).
- Measurement Performance in Low Perfusion Condition: Correct SPO2 and pulse rate can be displayed when the simulation pulse wave amplitude is at 6%.
- Anti-interference ability of ambient light: Deviation in blood oxygen content is less than $\pm 1\%$ when measured under indoor natural light/ existing lighting and measured in the dark room.
- The product will automatically shut down when there is no finger entering for eight seconds.
- Dimension: 58mm*32mm*34mm(LWH), Weight: 54g approximately(including two AAA batteries).

9. Working Environments:

- Ambient Temperature: 5~40°C
- Relative humidity: <80%
- Atmospheric pressure: 860hPa~1060hPa.

10. Operation mode: Intermittent operation.

Product Properties

- Operation of the product is simple and convenient.
- The product is small in size, light in weight (total weight is about 54g including batteries) and portable.
- The power of two new AAA batteries can last for 45 hours.
- Low voltage warning will be indicated in visual window when battery voltage is too low that normal operation of the oximeter might be influenced.
- The product will automatically shut down when there is no finger entering for eight seconds.

Product Operation Scope

- The fingertip oximeter can be used to measure human Haemoglobin Saturation and heart rate through finger. The product is suitable for family, hospital (including clinical use in internist/surgery, Anaesthesia, paediatrics, intensive sports (It can be used before or after sport. Operation in sport is not recommended) and etc.
- The product is not suitable to monitor patient continuously.

Operation Instructions

- Installing two AAA batteries into battery cassette before closing the cover.
- Nip the clamp as diagram.
- Put one finger into rubber hole of the oximeter (it is best to put the finger thoroughly) before releasing the clamp.
- Press the switch button one time on the front panel.
- Do not tremble while the oximeter is working. It's better that the whole body be in silent status.
- Read corresponding data from display screen.



Figure 4 Testing sketch diagram

Battery Installation

- Put the two AAA batteries into battery cassette in right direction.
 - Put the battery cover horizontally.
- ⚠Notes: Battery polarities must be correctly installed. Otherwise, damage might occur to device.
Please put or remove batteries in right order, or it will damage the device bracket.
Please remove the battery if the oximeter will not be used for long time.
- Install as the figures show. (See Figure 5~9)

Open the battery cover



Figure 5: Along the direction of the arrow to open the battery cover

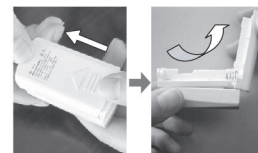


Figure 6: Open the battery cover

Close the battery cover

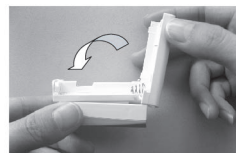


Figure 7: Close the battery cover

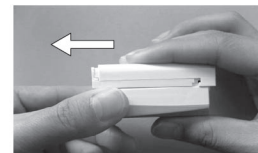


Figure 8: Along the direction of the arrow to close the battery cover

Lanyard Installation

- Thread thinner end of the lanyard through the hanging hole.
- Thread thicker end of the lanyard through the threaded end before pulling it tightly.
- Install as the figures show. (See Figure 9, 10, 11)

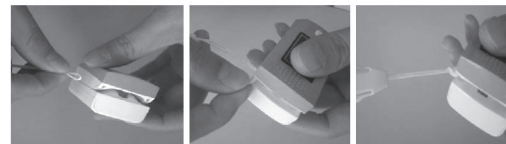


Figure 9

Figure 10

Figure 11

Maintenance and Storage

- Clean the surface of the fingertip oximeter before it is used in diagnosis for patients.
- The most commonly used hospital cleaning and non-corrosive liquid detergent can be used to clear the oximeter. Pay attention to diluting cleaning detergent cleaning before use, by following the manufacturer's instructions.
- Avoid the use of ethanol-based, amino-or acetone-based cleaning agent.
- Oximeter shell should be maintained from dust pollution, using a soft cloth or lint-free cleaning agent with the sponge to wipe infiltration. Make sure no liquid inside the equipment.
- Avoid the use of metals such as steel wire brush or polishing agent abrasive material which will damage the oximeter panel.
- Under normal conditions there is no need for special protection and maintenance when using, please pay attention to the following points:
 - Using oximeter in required environment.
 - Avoid direct sunlight exposure.
 - Avoid extreme infrared radiation or ultraviolet radiation.
 - Avoid organic solvent vapors, dust, and corrosive gas exposure.
- Warning: Do not put oximeter in disinfection or in liquid.
- Please remove the battery if the oximeter will not be used for long time.
Transportation and storage conditions :
Temperature range: -40°C ~ +55°C
Relative humidity: $\leq 93\%$, no condensation

Atmosphere pressure: 500hPa ~ 1060hPa

- It is recommended that the product should be kept in a dry environment anytime. Moisture might affect its lifetime and even might damage the product.
- Electrical schematics and component list is only available to the professional manufacturer or qualified repair station personnel.

Possible cases and solutions

Warning:

- Oximeter cover can only be opened by a professional maintenance staff. No internal parts require opening by end users.
- If you are not sure about the measurement precision, please use other methods to check patient's pulse, to determine whether oximeter works.

Note: Do not splash, dump any liquid into the oximeter and attachments, switch and connections which may damage the oximeter.

Problems	Possible reason	Solution
SPO2 or PR can not be shown normally	1. Do not put finger correctly.	1. Try again.
	2. Patient Oxyhemoglobin value is too low to be measured.	2. Try some more times, if you can make sure about no problem exiting in the product, please go to a hospital timely for exact diagnosis.
	3. Nail polish or paste Manicure.	3. When measuring the nail polish remover or discharge Manicure.
SPO2 or PR is shown unstably	1. Finger might not be plugged deep enough.	1. Retry by plugging the finger.
	2. Finger is trembling or patients body is in movement status.	2. Try not to move.
The Oxyhemoglobin can not be power on	1. Power of batteries might be inadequate or not be there at all.	1. Please replace batteries.
	2. Batteries might be installed incorrectly.	2. Please reinstall the batteries.
	3. The Oxyhemoglobin might be damage.	3. Please contact with local customer service center.