TROUBLESHOOTING

Problem	Possible causes	Solutions
An alarm is sounding, indicating an abnormal oxygen saturation or heart rate.	Your finger is not inserted correctly into the device.	Insert your finger until the tip of your finger touches the end of the device and try measuring again.
	Your oxygen saturation is abnormal (under 94%).	Try measuring again a couple of times. If the alarm keeps beeping, get in contact with your doctor for further advice.
	Your heart rate is abnormal (under 50 or above 130).	Try measuring again a couple of times. If the alarm keeps beeping, get in contact with your doctor for further advice.
The oximeter does not power on after pressing the button.	The batteries are depleted.	Replace the old batteries with a fresh pair of AAA batteries.
	The batteries are installed incorrectly.	Make sure the batteries are installed correctly, with the plus-sides of both batteries facing down.
	The device is broken.	Contact the iProven service center at iproven.com/pages/support for help.
The screen suddenly turns off.	The automatic shutoff feature turns off the device after 16 seconds of inactivity.	No need to do anything.
	The batteries are depleted.	Replace the old batteries with a fresh pair of AAA batteries.

EXTRA NOTES ON THE DEVICE

DO NOT REPAIR OR MODIFY THIS DEVICE YOURSELF. PLEASE CONTACT IPROVEN CUSTOMER SUPPORT IF THERE IS A PROBLEM WITH THIS DEVICE.

EXPLOSION HAZARD — DO NOT USE THE FINGERTIP PULSE OXIMETER IN A FLAMMABLE ATMOSPHERE WHERE CONCENTRATIONS OF FLAMMABLE ANESTHETICS OR OTHER MATERIALS MAY OCCUR.

DO NOT THROW BATTERIES IN A FIRE AS THIS MAY CAUSE THEM TO EXPLODE.

DO NOT ATTEMPT TO RECHARGE NORMAL DRY-CELL BATTERIES, THEY MAY LEAK. AND MAY CAUSE A FIRE OR EVEN EXPLODE.

THE BATTERIES MUST BE TAKEN OUT FROM THE BATTERY COMPARTMENT IF THE DEVICE WILL NOT BE USED FOR A LONG TIME.

DO NOT USE THIS DEVICE IF THE BATTERY COVER IS OPEN.

THE BATTERIES MUST BE PROPERLY DISPOSED OF ACCORDING TO LOCAL REGULATION AFTER THEIR USE.

KEEP THE OPERATING ENVIRONMENT FREE OF DUST, VIBRATIONS, CORROSIVE, OR FLAMMABLE MATERIALS, AND EXTREMES OF TEMPERATURE AND HUMIDITY.

DO NOT OPERATE THE UNIT IF IT IS DAMP OR WET BECAUSE OF CONDENSATION OR SPILLS. AVOID USING THE EQUIPMENT IMMEDIATELY AFTER MOVING IT FROM A COLD ENVIRONMENT TO A WARM, HUMID LOCATION.

NEVER USE SHARP OR POINTED OBJECTS TO OPERATE THE FRONT-PANEL SWITCHES.

THE DEVICE SHOULD BE KEPT AWAY FROM CHILDREN AND PETS TO AVOID SWALLOWING.

SPECIFICATIONS

The Fingertip Pulse Oximeter Specifications:

Physical Characteristics

Machine:

Dimensions :74 mm (L) x 37mm (W) x 38mm (D)

Weight -approx: 70g±2g（including 2 x AAA battery）

Classification ：

Anti-electric Shock Type： Internally powered equipment

Anti-electric Shock Degree： Type BF equipment

EMC： Type B

Mode of operation: Continuous Operation

Enclosure Degree of ingress protection: IP22

IP22 means shell of this product can withstand the water from any select dropping to the surface.

Power

Internal:	2xAAA 1.5v alkaline battery
Power Consumption	Smaller than 45mA(Normal)

Environmental:

Operating Temperature:	5°C to 40°C

SPECIFICATIONS

Storage Temperature:	–25°C to 55°C
Relative Humidity:	15% to 93% non-condensing
Air Pressure	70Kpa-106Kpa

Sound Reminder Limit default value:

Parameter	Value
Hemoglobin saturation:	Upper limit: 100/ bottom limit:94
Pulse rate:	Upper limit: 130 /bottom limit:50

Electronics Parameters:

Parameter		Value
Hemoglobin saturation display		35-100%
Pulse rate Display		30-250 BPM
Resolution	Hemoglobin Saturation	1%
	Pulse rate	1 BPM
Measure Accuracy:	Hemoglobin Saturation	±2% (90%-100%) ±3% (70%-90%), Unspecified (<70%)
	Pulse rate	±1 BPM

SPECIFICATIONS

PI	Display	0-20%
	Resolution	0.1%
	Measure Accuracy	0-1%: 0.1% 1-20%: 1%

Probe LED Specification;

	Wave Length	Radiant Power
RED	660±2 nm	1.8 mW
Infra RED	905±2 nm	2.0 mW

SYMBOLS ON THE MONITOR, LABELING OR PACKAGING

Symbol	Description
	Type BF Equipment
LOT	Batch code*
	Date of manufacture*
SN	Serial NO*
	Information of manufacture, including name and address
	Temperature limitation
	When the end-user wishes to discard this product, it must be sent to separate collection facilities for recovery and recycling
	Follow instruction for use
IP22	Anti-dust & Anti-water class

*Batch code, Date of manufacturer and Serial No are printed on the label on the battery cover.

Manufacturer's Declaration of the EMC

Guidance and manufacturer´s declaration – electromagnetic emission –for all EQUIPMENT AND SYSTEMS

1	**Guidance and manufacturer´s declaration – electromagnetic emission**		
2	The A330 Pulse Oximeter is intended for use in the electromagnetic environment specified below. The customer or the user of A330 Pulse Oximeter should assure that it is used in such an environment.		
3	**Emissions test**	**Compliance**	**Electromagnetic environment - guidance**
4	RF emissions CISPR 11	Group 1	The A330 Pulse Oximeteruses 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.
5	RF emissions CISPR 11	Class B	The A330 Pulse Oximeter is suitable for use in all establishments, including domestic establish ments and those directly connected to the public low-v oltage power supplynetwork t hat supplies buildings used fo r domestic purposes.
6	Harmonic emissions IEC 61000-3-2	N/A	
7	Voltage fluctuations / flicker emissions IEC 61000-3-3	N/A	

Guidance and manufacturer's declaration – electromagnetic immunity –for all EQUIPMENT and SYSTEMS

Guidance and manufacturer´s declaration – electromagnetic immunity
The A330 Pulse Oximeter is intended for use in the electromagnetic environment specified below. The customer or the user of the A330 Pulse Oximetershould 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	± 8 kV contact ± 15 kV air	± 8 kV contact ± 15 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 %.
Electrostatic transient / burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	N/A	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	N/A	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	0 % UT; 0,5 cycle g) At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0 % UT; 1 cycle and 70 % UT; 25/30 cycles at 0° 0 % UT; 250/300 cycle	N/A	Mains power quality should be that of a typical commercial or hospital environment. If the user of the A330 Pulse Oximeter requires continued operation during power mains interruptions, it is recommended that the A330 Pulse Oximeter be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE UT is the a. c. mains voltage prior to application of the test level.			

Guidance and manufacturer´s declaration – electromagnetic immunity –for EQUIPMENT and SYSTEM that are not LIFE-SUPPORTING

immunity			
The A330 Pulse Oximeter is intended for use in the electromagnetic environment specified below. The customer or the user of the A330 Pulse Oximeter 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 6Vrms in ISM banda between 150 kHz to 80 MHz 80 MHz to 2.7 GHz	N/A 10 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the A330 Pulse Oximeter, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d=[\frac{3.5}{V_1}]\sqrt{P}$ $d=[\frac{3.5}{E_1}]\sqrt{P}$ 80 MHz to 800 MHz $d=[\frac{7}{E_1}]\sqrt{P}$ 800 MHz 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).[b] 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] 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 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 A330 Pulse Oximeter is used exceeds the applicable RF compliance level above, the A330 Pulse Oximeter should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the A330 Pulse Oximeter.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.

Recommended separation distances between portable and mobile. RF communications equipment and the EQUIPMENT or SYSTEM -for EQUIPMENT and SYSTEMS that are not LIFE-SUPPORTING.

A330 Pulse Oximeter

The A330 Pulse Oximeter is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of theA330 Pulse Oximeter can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and theA330 Pulse Oximeter as recommended below, according to the maximum output power of the communications equipment

Rated maximum output of transmitter W	**Separation distance according to frequency of transmitter m**		
	150 kHz to 80 MHz $d=[\frac{3.5}{V_1}]\sqrt{P}$	80 MHz to 800 MHz $d=[\frac{3.5}{E_1}]\sqrt{P}$	800 MHz to 2.7 GHz $d=[\frac{7}{E_1}]\sqrt{P}$
0.01	/	0.12	0.23
0.1	/	0.38	0.73
1	/	1.2	2.3
10	/	3.8	7.3
100	/	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.

iProven
WAREHOUSE
Beaverton, Oregon
9450 SW Gemini Dr
Beaverton, OR 97008-7105

iProven

HOW TO USE THE OXI-33

Manual ver. 1.1 US

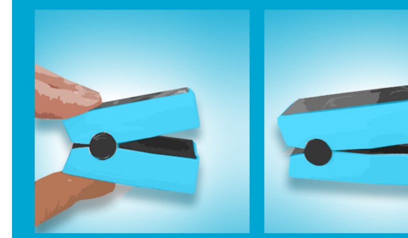
WHAT'S IN THE BOX?

- Oximeter iProven OXI-33
- Two AAA-batteries
- Lanyard
- Oximeter Pouch
- Instruction Manual

COMPONENTS OF THE DEVICE

HOW TO TAKE A MEASUREMENT

1. Open the clip and place your finger inside the oximeter. Make sure your nail touches the upper part of the clip.
2. Press the button and wait for 10 seconds.
3. Read your saturation level and heart rate from the display.
4. It can take up to 1 or 2 minutes before the Respiratory Rate is displayed.



Intended Use

The iProven Fingertip Pulse Oximeter is intended for non-invasive measuring and monitoring of the oxygen saturation and pulse rate. The digital device measures the oxygen saturation of your blood by checking the hemoglobin levels in your arterial blood.

The monitor detects signs of low levels of oxygen in the body. It measures the pulse rate in beats per minute, and displays a bar graph that illustrates the strength of the pulse signal.

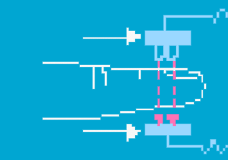
The monitor also displays the Perfusion Index (PI) in % and the Respiratory Rate (RR) per minute.

The OXI-33 is intended for use on children above four years old and adults whose weight is between 33-243 lbs (15kg and 110kg).

The device should be used in the home/domestic setting only and is not intended for continuous monitoring.

MEASUREMENT PRINCIPLE

The fingertip pulse oximeter contains a microprocessor and a display. The display shows the oxygen saturation, the pulse rate and the intensity of your heart beat.



The display continuously gives information about the level of oxygen in your body and your pulse rate per minute.

The monitor updates its calculations regularly during use to show immediate readings. The monitor starts to beep if the value of the oxygen saturation 94% or lower.

It will also beep when your heartbeat is below 50 or above 130.

PLEASE NOTE

Measurements may be inaccurate in the following situations:

- When you're moving your fingers
- In a very cold environment
- When your finger isn't placed properly into the device
- When using a Blood Pressure Monitor/Cuff on the same arm
- In case someone has hypotension, severe vasoconstriction, severe anemia or hypothermia
- In case someone has a cardiovascular arrest or is in shock
- In case you have enamel or acrylic fingernail polish, false fingernails or other fingernail applications

- Excessive ambient light, such as a fluorescent lamp or direct sunlight, may affect the result.
- When someone needs this oximeter for prolonged monitoring, do not forget to check blood flow and skin condition regularly, at least every 2 hours. If necessary, change the measuring site to a finger of the other hand.
- Do not use the Fingertip Pulse Oximeter in an MRI or CT environment
- For sport and aviation use only

WHAT IS OXYGEN SATURATION?

Oxygen saturation indicates how much oxygen the blood is carrying as a percentage of the maximum it could carry. Red blood cells contain iron-containing protein hemoglobin. Hemoglobin (hb) attaches oxygen to the red blood cell and carries it through the body. 1 hemoglobin molecule can attach up to 4 oxygen molecules. If all the hemoglobin molecules are carrying 4 oxygen molecules, it is said that you have a saturation of 100%. A healthy person with healthy lungs, breathing air at sea level, will have an oxygen saturation of between 95% and 100%.

WHAT IS PERFUSION INDEX?

Perfusion Index or PI indicates the strength of the blood flow in the extremity or body part where it is measured. A PI is considered healthy between 0.3-20%.

WHAT IS RESPIRATORY RATE?

Respiratory Rate or RR reflects the number of breaths a person takes per minute. The longer you measure, the more accurate the RR becomes.

FAQ

Q: HOW DO I CLEAN THE DEVICE?
A: YOU CAN USE MEDICAL ALCOHOL TO DISINFECT IT. PLEASE USE A SOFT CLOTH TO CLEAN THE WHOLE UNIT. DON'T USE ANY ABRASIVE OR VOLATILE CLEANERS.

Q: HOW CAN I REPLACE THE BATTERIES?
A: OPEN THE BATTERY COVER.
INSERT THE BATTERIES ACCORDING TO THE POLARITY INDICATIONS. CLOSE THE BATTERY COVER.

Q: WHEN DO I REPLACE THE BATTERIES?
A: - LOW BATTERY SIGN SHOWS ON THE DISPLAY.
- THE LED DISPLAY DIMS.
- WHEN POWERING ON THE MONITOR, THE LED DISPLAY DOESN'T LIGHT UP.

Q: HOW DO I ATTACH THE LANYARD?
A: PUT THE THIN END OF THE ROPE THROUGH THE HOLE. THEN PUT THE THICK END OF THE ROPE THROUGH THE LOOP, AND PULL THE END TO SECURE IT.

Q WHY DOES MY RESPIRATORY RATE (RR) NOT DISPLAY IMMEDIATELY?
A IT MAY TAKE UP TO 1 OR 2 MINUTES BEFORE YOUR RR CAN BE DISPLAYED. THE DEVICE NEEDS 1 OR 2 MINUTES TO GIVE AN ACCURATE INDICATION.

Q WHY DO THE VALUES OF MY OXYGEN SATURATION, RESPIRATORY RATE, PERFUSION INDEX AND HEART BEAT CHANGE?
A THIS DEVICE IS A CONTINUOUS MONITORING DEVICE. WHEN ONE OF THE MEASURED VALUES CHANGES, THIS WILL BE DISPLAYED ON THE SCREEN.

CHANGE PARAMETER SETTINGS

BY ENTERING THE MENU OF THIS OXIMETER, YOU CAN CHANGE SOME OF THE PARAMETER SETTINGS. TO ENTER THE PARAMETER SETTINGS, SWITCH ON THE DEVICE AND PRESS THE 'ON' BUTTON AGAIN.
THERE ARE 2 SUBMENU'S:

1.) REMINDER SETUP
2.) LIMIT SETUP

```
Remind Setup        *
Sound Reminder      on
Beep                off
Select mode         V
Restore             OK
Brightness          4
        Exit
```

```
Limit Setup         *
Sp02 Hi             100
Sp02 Lo             94
PR Hi               130
PR Lo               50
+/-                 +
        Exit
```

YOU CAN SCROLL THROUGH THE MENU BY PRESSING THE 'ON' BUTTON. THE * WILL INDICATE WHERE YOU ARE IN THE MENU. WHEN YOU WANT TO CHANGE A SETTING, YOU CAN PRESS THE 'ON' BUTTON A LITTLE LONGER, AND THE VALUE WILL CHANGE. WHEN YOU WANT TO SWITCH BETWEEN THE 'REMINDER' AND 'LIMIT' MENU, MAKE SURE THE * IS ON TOP OF THE MENU AND PRESS THE 'ON' BUTTON A LITTLE LONGER.

REMINDER MENU

SOUND REMINDER: STARTS TO BEEP IF YOUR SPO2 LEVELS OR HEART RATE ARE ABOVE THE HIGHEST INDICATED LEVEL, OR BELOW THE LOWEST INDICATED LEVEL.

BEEP: SWITCH THE BEEP ON OR OFF WHEN YOU START UP THE DEVICE.

SELECT MODE: SELECT IF YOU CLIP THE OXIMETER ON THE FINGER OF YOUR RIGHT (R) OR LEFT (L) HAND, OR IF YOU WANT TO USE IT VERTICALLY (V).

RESTORE: SELECT THIS IF YOU WANT TO RESET THE FACTORY SETTINGS.

BRIGHTNESS: ADAPT THE BRIGHTNESS OF THE DISPLAY, VALUES RANGE FROM 1-5.

LIMIT MENU

'SPO2 HI' AND 'LO' AND 'PR HI' AND 'LO' CAN BE USED TO SET THE UPPER AND LOWER LEVEL FOR YOUR SPO2 AND PULSE RATE. IF YOU SET 'SOUND REMINDER' TO 'ON' IN THE REMINDER MENU, THE OXIMETER WILL START TO BEEP IF IT MEASURES VALUES THAT ARE LOWER OR HIGHER THAN THE VALUES THAT ARE SET.

+/-: INCREASES (+) OR REDUCES (-) THE NUMBERS WHEN SETTING THE SPO2 OR PULSE RATE.

TROUBLESHOOTING

Problem	*Possible causes*	*Solutions*
Oxygen saturation or heart rate does not show up on screen.	Your finger is not inserted correctly into the device.	Insert your finger until the tip of your finger touches the end of the device and try measuring again.
Perfusion Index does not show up on screen.	Your finger is not inserted correctly into the device.	Insert your finger until the tip of your finger touches the end of the device and try measuring again.
	Your perfusion (strength of your blood flow) is too low to be measured.	Try measuring a couple more times. Insert your finger until your fingertip touches the end of the device. If it keeps happening and you feel other symptoms of poor blood circulation like numbness, tingling or pain, contact your doctor for advice.
Oxygen saturation or heart rate is unstable.	Your finger is not inserted correctly into the device.	Insert your finger until the tip of your finger touches the end of the device and try measuring again. Make sure the device is shut snugly against the top and bottom of your finger. Do not curl your finger in the device.
	Your finger is trembling or shaking.	Put your hand with the device on a flat surface, like a table, to avoid trembling hands and fingers.
	You are moving around too much.	Do not run or walk around while measuring. Hold your hands still when taking a measurement.