



ADC® 2200 Advantage™ Fingertip Pulse Oximeter

Instructions for Use



ADC Fingertip Pulse Oximeter

Thank you for purchasing an ADC Advantage Fingertip Pulse Oximeter. We're proud of the care and quality that goes into the manufacture of every product that bears our name. The ultra-portable Advantage 2200 will give you information about oxygen saturation (the amount of oxygen in the blood) and pulse rate at your fingertip. The 2200 is easy to use and needs no routine maintenance except battery replacement. This User's Guide explains how to use and care for your Advantage 2200.

Contents of this Package

- Advantage 2200
- Two AAA batteries
- Lanyard
- Instructions for Use

Intended Use

The Advantage 2200 is a handheld non-invasive device intended for spot-checking of oxygen saturation of arterial hemoglobin (SpO₂) and Pulse Rate of adult, adolescent and child patients in hospitals, hospital-type facilities and homecare.

Contraindications:

- The patient suffers from significant levels of dysfunctional hemoglobins (such as carboxyhemoglobin or methemoglobin).
- Intravascular dyes such as indocyanine green or methylene blue have been injected into the patient.
- Used in the presence of high ambient light (e.g., direct sunlight). Shield the sensor area with a surgical towel if necessary.
- There is excessive patient movement.
- The patient experiences venous pulsations.
- The patient has hypotension, severe vasoconstriction, severe anemia, or hypothermia.
- The patient is in cardiac arrest or is in shock.
- Fingernail polish or false fingernails as they may cause inaccurate SpO₂ readings.

Symbol Definitions

The following symbols are associated with your Advantage 2200

Symbol	Definition	Symbol	Definition
	The equipment type is BF		Meets essential requirements of European Medical Device Directive 93/42/EEC
	Refer to user manual before use		Authorized European representative's information
%SpO2 icon"/>	Hemoglobin saturation		Not for continuous monitoring
	Pulse rate (BPM) beats per minute		Storage temperature and relative humidity
	Low power indication		Recyclable
	Serial number		Protected against dripping water
	Manufacturer's information		

General Warnings ⚠

WARNING: Keep the Advantage 2200 away from young children. Small items such as the battery cover, battery, and lanyard are choking hazards.

WARNING: Certain activities may pose a risk of injury, including strangulation if the lanyard should become wrapped around your neck. Use the lanyard with caution.

WARNING: Explosion hazard: Do not use the pulse oximeter in an explosive, oxygen enriched, environment.

CAUTION: Only a healthcare professional is qualified to interpret SpO₂ measurements. This device is NOT intended to replace regular medical checkups.

CAUTION: It is recommended that your physician review your procedure for using this device.

CAUTION: SpO₂ readings obtained by this device should be verified before prescribing or making adjustments to any medications. Under no circumstances should YOU alter the dosages of any drugs prescribed by your doctor.

CAUTION: Excessive movement of the pulse oximeter during measurement may cause inaccurate readings. Limit finger movement as much as possible when using the device.

CAUTION: The pulse oximeter is not intended for continuous monitoring.

CAUTION: Do not place the pulse oximeter on the same hand/arm when using a blood pressure monitor.

CAUTION: This pulse oximeter has no alarms. It will not sound if the amount of oxygen in your blood is low or if the pulse rate is too high or too low.

CAUTION: This pulse oximeter readings may be adversely affected in the presence of high ambient light. Shield the device if necessary.

CAUTION: Do not immerse the pulse oximeter in liquid or clean with agents that are not listed in this User's Guide.

CAUTION: Any of the following conditions may reduce the performance of the pulse oximeter:

- **Very bright or flickering light**
- **Weak pulse**
- **Low hemoglobin**
- **Arterial catheters**
- **Nail polish and/or artificial nails**
- **Any tests recently performed on you that required the injection of intravascular dyes**

CAUTION: The pulse oximeter may not function if you have poor circulation. Rub your fingers to increase circulation or try an alternate finger if you are having trouble obtaining readings.

CAUTION: Batteries can leak or explode if used or disposed of improperly. Remove the battery if the pulse oximeter will not be used for more than 30 days.

CAUTION: Do not use the pulse oximeter outside the specified operating and storage temperature ranges.

CAUTION: Do not use the pulse oximeter for more than 30 minutes without relocating the device to another finger.

CAUTION: Do not tamper with the pulse oximeter.

CAUTION: Radios, cell phones, or other similar devices may affect the pulse oximeter and should be kept at least 7 feet away from the device.

CAUTION: Use in emergency vehicles with communication systems may affect the accuracy of the pulse oximeter.

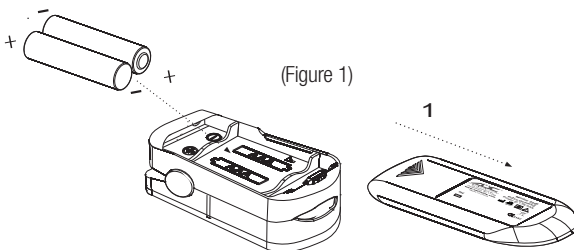
CAUTION: Field strengths from fixed transmitters (radio, phone base stations, AM/FM radio or TV broadcast towers) may affect the accuracy of the pulse oximeter.

CAUTION: Follow local ordinances and recycling instructions regarding disposal or recycling of the Advantage 2200 including batteries.

CAUTION: The Advantage 2200 is a precision electronic instrument and must be serviced by ADC's service department.

Battery Installation (Figure 1)

1. Slide off battery cover in direction of arrow.
2. Put the two AAA batteries into battery compartment, observing correct polarity.
3. Slide the battery cover on by reversing Step #1.

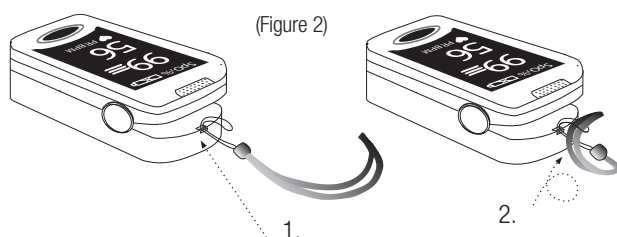


Note:

- Battery polarity should be observed to prevent damage to the device.
- When battery is low, the battery indicator symbol on the display will flash. Replace low battery as soon as possible. Remove battery if the device will not be used for more than 30 days.

Strap Installation (Figure 2)

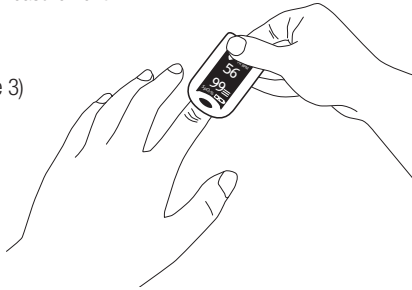
1. Thread thinner end of the strap through the loop.
2. Thread thicker end of the strap through the threaded end and pull tightly.



Operation Instructions (Figure 3)

1. Hold the Advantage 2200 with the display screen facing toward you as shown in Figure 3. Gently squeeze the hinged end and insert one finger into the device fully. Release hinged end to allow device to clamp down onto finger. Be sure finger is fully inserted. *(When your finger is inserted into the device, your nail surface must be facing the same side as the display.)*
2. Press the power button on the front panel once.
3. Remain still while taking a measurement and avoid applying pressure to the clamped device while in use.
4. The device will display a reading once it has had a moment to begin measurement.

(Figure 3)



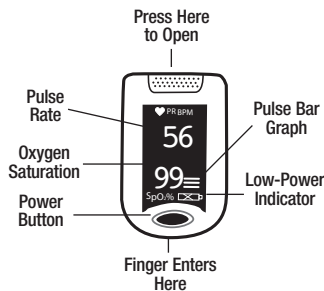
Note:

- The rubber inside the oximeter that touches the finger may be cleaned with alcohol.
- For best results, keep the Advantage 2200 at heart or chest level.
- The index (pointer) finger is recommended.
- While on the finger, do not press the Advantage 2200 against any surface and do not squeeze it or hold the device.
- The internal spring provides the correct pressure. Additional pressure may affect readings.

Reading Your Results

After measurement begins, you will see three pieces of information displayed on your pulse oximeter:

- A pulse bar graph display corresponding with your pulse beat will be shown. The height of the bar graph shows your pulse strength.
- Your pulse rate will be displayed as **BPM** or beats per minute.
- The amount of oxygen in your blood will be displayed as **SpO₂%**.



Changing Directions of the Display

When you first power on the unit, the display will orient it with the numbers facing the person wearing the device. The display can be re-orientated to face the other direction, if desired.

1. To change the direction of the display, press the power button while the unit is displaying a reading.

Note: By default, the unit will always display the readout facing the wearer.

Maintenance and Storage

1. When the low-power indicator comes on, you must replace the batteries.
2. The surface of the pulse oximeter that comes into contact with your finger should be kept clean.
3. When storing the pulse oximeter for more than 30 days, remove the batteries.
4. When storing the pulse oximeter, ensure that the temperature is between -13°F to 158°F (-25°C to 70°C) with a relative humidity less than or equal to 93%.
5. Store the pulse oximeter in a dry environment. Exposure to moisture may decrease the lifespan of your device.
6. Batteries should be disposed of in accordance with local and state laws.

Cleaning the Pulse Oximeter

Clean the rubber touching the finger inside of the device with a soft dampened cloth with 70% isopropyl alcohol, and clean the test finger using alcohol before and after each test. Do not pour or spray any liquids onto the pulse oximeter, and do not allow any liquids to enter any openings in the device. Allow the device to dry thoroughly before reusing.

Detailed Description of Product Functions

1. Display Type: LED	Low-Power Indication: Battery Life: Two AAA 1.5V, 1200mAh alkaline. Could continuously operate for 18 hrs.
2. SpO₂: Measurement Range: 70-100% Accuracy: 70%-100%, ±2%; 0-69% no definition	5. Dimensions: Length: 2.19" (5.5cm) Width: 1.13" (2.9cm) Height: 1" (2.5cm) Weight: 1.76oz. (50g) (including two AAA batteries)
3. Pulse Rate: Measurement Range: 30bpm~250bpm Accuracy: 30~99BPM, ±2BPM; 100bpm~250bpm, ±2% Pulse Intensity: Bar Graph Indicator	6. Environment Requirements: Operation Temperature: 41°F to 104°F (5°C to 40°C) Storage Temperature: -13°F to 158°F (-25°C to 70°C) Ambient Humidity: Operation: 15%~93% no condensation in operation Storage: ≤93% no condensation in storage/transport
4. Power Requirements: <input checked="" type="checkbox"/> P Two AAA alkaline batteries Power Consumption: Less than 40mA	

Troubleshooting

Problems	Possible reason(s)	Solution(s)
SpO₂ or pulse rate cannot be shown normally	1. Finger is not inserted correctly 2. Oxyhemoglobin value is too low to be measured	1. Reinsert / reposition finger 2. Ensure that sensor is clean and not blocked 3. Try taking a reading on a different finger or warm your finger by rubbing
SpO₂ or pulse rate is shown unstably	1. Finger might not be inserted deep enough 2. Excessive movement during measurement	1. Reinsert / reposition finger 2. Remain still during measurement
The pulse oximeter cannot be powered on	1. Low battery strength 2. Batteries installed incorrectly 3. The pulse oximeter might be damaged	1. Replace batteries 2. Reinstall the batteries 3. Contact warranty center for service
Display suddenly powers off.	1. The product is automatically powered off when no signal is detected for longer than 8 seconds 2. Low battery strength	1. Reinsert / reposition finger 2. Replace the batteries
"Error7"	1. Low power 2. Pulse oximeter is damaged	1. Replace batteries 2. Contact warranty center for service

Limited Warranty

ADC warrants its products against defects in materials and workmanship under normal use and service as follows:

1. Warranty service extends to the original retail purchaser only and commences with the date of delivery.
2. Your pulse oximeter is warranted for one year from date of purchase (all parts).

What is Covered: Replacement of parts, and labor.

What is Not Covered: Batteries where supplied. Transportation charges to and from ADC. Damages caused by abuse, misuse, accident, or negligence. Incidental, special, or consequential damages. Some states do not allow the exclusion or limitation of incidental, special, or consequential damages, so this limitation may not apply to you.

To Obtain Warranty Service: Send item(s) postage paid to ADC, Attn: Repair Dept., 55 Commerce Dr., Hauppauge, NY 11788. Please include your name and address, phone no., proof of purchase, and a brief note explaining the problem.

Implied Warranty: Any implied warranty shall be limited in duration to the terms of this warranty and in no case beyond the original selling price (except where prohibited by law). This warranty gives you specific legal rights and you may have other rights which vary from state to state.

Declaration: This product complies with the IEC60601-1-2 standard. The user-contacting materials are non-toxic and comply with ISO10993-1, ISO10993-5 and ISO10993-10.

Guidance and manufacturer's declaration - electromagnetic emissions for all EQUIPMENT and SYSTEMS

Guidance and manufacturer's declaration - electromagnetic emission

The *Pulse Oximeter* is intended for use in the electromagnetic environment specified below. The customer or the user of the *Pulse Oximeter* should assure that it is used in such an environment

Emission Test	Compliance	Electromagnetic Environment Guidance
RF emissions CISPR 11	Group 1	The Pulse Oximeter uses 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 Pulse Oximeter 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.

To register your product visit us at www.adctoday.com/support/warranty-registration

FOR QUESTIONS, COMMENTS, OR SUGGESTIONS CALL TOLL FREE: **1-800-ADC-2670** OR VISIT www.adctoday.com/feedback



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