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Zacurate 500C

Zacurate 500C Elite Fingertip Pulse Oximeter User Manual

Model: 500C

1. INTRODUCTION

The Zacurate 500C Elite Fingertip Pulse Oximeter is designed for non-invasive spot-check measurement of functional oxygen saturation of arterial hemoglobin (SpO₂) and pulse rate. This device is intended for sports and aviation use only and is not a medical device. It is suitable for use at home, during sports activities, and high-altitude activities.

2. SAFETY INFORMATION

Please read all instructions carefully before using the device. Failure to follow instructions may result in inaccurate readings or device damage.

- This device is for sports and aviation use only. It is not intended for medical diagnosis or treatment.
- Do not use the pulse oximeter in an MRI or CT environment.
- Do not use the device on the same finger for more than 5 minutes continuously to avoid discomfort or swelling.
- Keep the device away from young children. Small parts may pose a choking hazard.
- Avoid using the device in direct sunlight or in areas with high humidity.
- Do not immerse the device in water or other liquids.

3. PRODUCT OVERVIEW

The Zacurate 500C Elite Fingertip Pulse Oximeter features an OLED display and a compact design for easy use.



Figure 1: Zacurate 500C Elite Pulse Oximeter. This image shows the overall design of the Zacurate 500C Fingertip Pulse Oximeter with its OLED display.



Figure 2: Device Components. This image shows the Zaccurate 500C Elite Pulse Oximeter with various parts labeled, including the Lanyard Loop Hole, Battery Cover, Blood Oxygen Saturation Level display, Pulse Rate display, Plethysmograph, One-Button Operation, and Finger Opening.

3.1 Components

- **OLED Display:** Shows SpO₂, Pulse Rate, Plethysmograph, and battery indicator.
- **Power Button:** For turning the device on/off and changing display modes.
- **Finger Opening:** Where the finger is inserted for measurement.
- **Battery Compartment:** Located at the rear of the device.
- **Lanyard Loop Hole:** For attaching the included lanyard.

4. SETUP

4.1 Package Contents

The package includes:

- Zaccurate 500C Elite Fingertip Pulse Oximeter
- 2 x AAA Batteries
- Silicone Cover
- Lanyard
- User Manual



Figure 3: Package Contents. This image displays the Zacurate 500C Elite Pulse Oximeter, its packaging box, a user manual, two AAA batteries, a silicone protective cover, and a lanyard.

4.2 Battery Installation

1. Open the battery cover on the back of the device.
2. Insert the two AAA batteries according to the polarity indicators (+/-) inside the compartment.
3. Close the battery cover securely.

4.3 Attaching the Lanyard

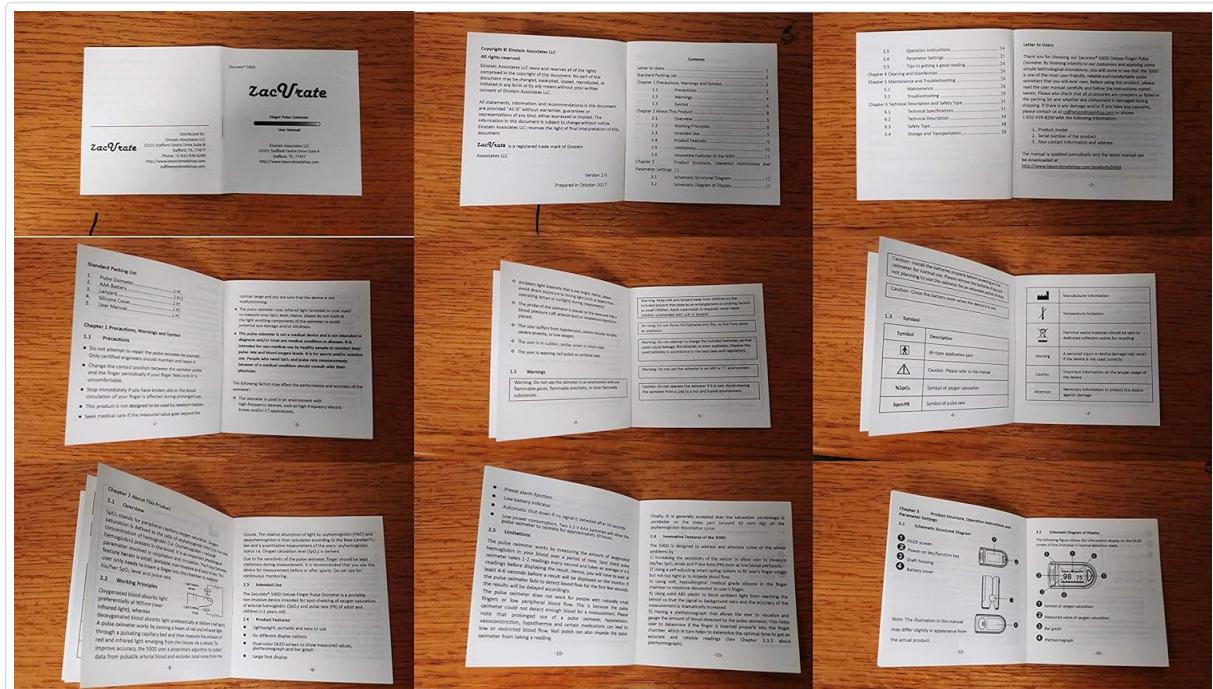


Figure 4: Lanyard Attachment Steps. This image illustrates a three-step process for attaching the lanyard: 1. Insert the lanyard into the lanyard slot on the back of the pulse oximeter. 2. Pull the lanyard through the slot. 3. Tighten the knot to secure the lanyard.

loop into the lanyard holes. 2. Thread the lanyard strap through the loop. 3. Pull the lanyard strap until it is tight and secured.

1. Insert the thin end of the lanyard loop into the lanyard hole on the device.
2. Thread the thicker part of the lanyard through the loop.
3. Pull gently to secure the lanyard.

5. OPERATING INSTRUCTIONS

5.1 Taking a Measurement

1. Ensure batteries are correctly installed.
2. Open the clamp of the oximeter.
3. Insert one finger (preferably the index finger) into the rubber opening of the oximeter, ensuring the fingernail is facing upwards towards the display.
4. Release the clamp.
5. Press the power button once to turn on the oximeter.
6. Keep your hand still during the measurement. Readings will appear on the display within a few seconds.
7. The device will automatically power off after 8 seconds of inactivity.



Figure 5: Proper Finger Placement. This image demonstrates a finger correctly inserted into the Zacurate 500C Elite Pulse Oximeter for measurement.

5.2 Display Information

The OLED display shows the following information:

- **SpO₂:** Blood Oxygen Saturation Level (%).
- **PRbpm:** Pulse Rate (beats per minute).
- **Plethysmograph:** A waveform graph indicating pulse strength.
- **Battery Indicator:** Shows remaining battery life.

5.3 Display Modes and Brightness

Press the power button briefly while the device is on to cycle through 6 different display orientations. To adjust display brightness, press and hold the power button for approximately 1 second while the device is on.



Figure 6: Multiple Display Orientations. This image shows six different ways the information can be displayed on the oximeter screen, allowing for convenient viewing from various angles.

6. FEATURES

- **Auditory Alarm:** Alerts the user when SpO2 and Pulse Rate values fall outside preset limits.
- **Auditory Pulse Beeps:** Provides an audible beep for each detected pulse.
- **Adjustable Display Brightness:** Allows customization of screen intensity.
- **OLED Display with Plethysmograph:** High-quality display showing both numerical values and a visual representation of pulse strength.

7. MAINTENANCE AND STORAGE

7.1 Cleaning

- Clean the surface of the oximeter with a soft cloth dampened with medical alcohol (70% isopropyl alcohol).
- Do not use abrasive cleaners or immerse the device in liquid.
- Ensure the device is dry before reuse.

7.2 Storage

- Store the device in a cool, dry place, away from direct sunlight and extreme temperatures.
- Remove batteries if the device will not be used for an extended period to prevent battery leakage.

8. TROUBLESHOOTING

Problem	Possible Cause	Solution
No display after power on	Batteries are dead or incorrectly installed.	Replace batteries or reinstall them correctly, observing polarity.
Display shows "Finger Out" or "Error"	Finger not inserted properly or movement during measurement.	Reinsert finger correctly and keep still. Ensure fingernail is facing upwards.

Problem	Possible Cause	Solution
Inaccurate readings	Excessive movement, cold fingers, nail polish, or strong ambient light.	Ensure finger is warm and still. Remove nail polish. Avoid strong light.
Device powers off unexpectedly	Low battery or automatic shutdown after inactivity.	Replace batteries. This is normal if no finger is detected for 8 seconds.

9. SPECIFICATIONS

Parameter	Value
Model Number	500C
Product Dimensions	2.25 x 1.25 x 1.25 inches
Weight	3.12 ounces (with batteries)
Measurement Accuracy (SpO2)	+/-2%
Measuring Range (SpO2)	0-100%
Measuring Range (Pulse Rate)	30-250 BPM
Display Type	OLED
Power Requirements	2 x AAA batteries
Automatic Shut-off	After 8 seconds of inactivity

10. WARRANTY AND SUPPORT

The Zaccurate 500C Elite Fingertip Pulse Oximeter comes with a **12-month warranty**. For technical support or warranty claims, please contact our USA-based support team.

11. CONTACT INFORMATION

For any questions or further assistance regarding your Zaccurate 500C Elite Pulse Oximeter, please use the following contact details:

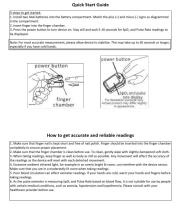
Phone: 832-939-8290

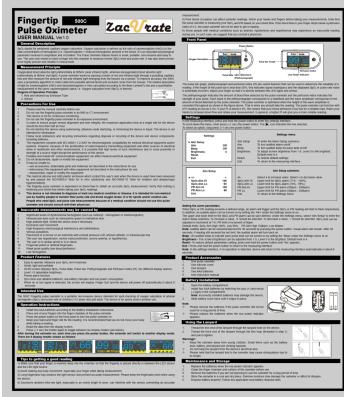
Email: cs@beyondmedshop.com

Website: zaccurate.com

12. VIDEO RESOURCES

No official product videos from the seller were available with specific embeddable URLs and metadata for inclusion in this manual.

<p>FAQ</p> <p>What does the battery do in a test? Please note the test finding history, once the pulse oximeter has been turned on for the first time, the pulse oximeter will automatically perform a self-test. This self-test will check the pulse oximeter's internal components and the accuracy of the pulse sensor. The test will take approximately 10 seconds to complete.</p> <p>Can I charge the battery in the dark? Yes, the battery can be charged in the dark.</p> <p>What is the battery life of the pulse oximeter? The battery life of the pulse oximeter is approximately 10 hours.</p> <p>How long does the pulse oximeter last on a full charge? The battery life of the pulse oximeter is approximately 10 hours.</p> <p>How long does the pulse oximeter last on a full charge? The pulse oximeter has a battery life of approximately 10 hours.</p> <p>What is the real accuracy of the pulse oximeter? The pulse oximeter has an accuracy of +/- 2%.</p>	<p><u>Zacurate Pulse Oximeter FAQ and User Guide</u></p> <p>Frequently asked questions and answers about Zacurate fingertip pulse oximeters, covering battery life, usage, accuracy, and normal readings. Learn about SpO2 and pulse rate monitoring.</p>
<p>FAQ</p> <p>Can I charge the battery in the dark? Yes, the battery can be charged in the dark.</p> <p>What is the battery life of the pulse oximeter? The battery life of the pulse oximeter is approximately 10 hours.</p> <p>How long does the pulse oximeter last on a full charge? The pulse oximeter has a battery life of approximately 10 hours.</p> <p>What is the real accuracy of the pulse oximeter? The pulse oximeter has an accuracy of +/- 2%.</p>	<p><u>Zacurate Pulse Oximeter FAQ</u></p> <p>Frequently asked questions about the Zacurate fingertip pulse oximeter, covering its features, usage, battery life, accuracy, and suitability for different conditions and users.</p>
	<p><u>Zacurate 500CL Fingertip Pulse Oximeter User Manual - SpO2 and Pulse Rate Monitoring</u></p> <p>Comprehensive user manual for the Zacurate 500CL Fingertip Pulse Oximeter. Learn how to use, maintain, and understand SpO2 and pulse rate measurements for sports and aviation.</p>
	<p><u>Zacurate 500DL Fingertip Pulse Oximeter Quick Start Guide and Troubleshooting</u></p> <p>Quick start guide and troubleshooting solutions for the Zacurate Pro Series 500DL Fingertip Pulse Oximeter. Learn how to get accurate SpO2 and pulse rate readings, and resolve common issues.</p>
	<p><u>Zacurate 500BL Pulse Oximeter Battery Installation Guide</u></p> <p>Step-by-step instructions for installing AAA batteries in the Zacurate 500BL fingertip pulse oximeter, including important notes on battery orientation and a detailed description of the process.</p>
<p>FAQ</p> <p>What does the battery do in a test? Please note the test finding history, once the pulse oximeter has been turned on for the first time, the pulse oximeter will automatically perform a self-test. This self-test will check the pulse oximeter's internal components and the accuracy of the pulse sensor. The test will take approximately 10 seconds to complete.</p> <p>Can I charge the battery in the dark? Yes, the battery can be charged in the dark.</p> <p>What is the battery life of the pulse oximeter? The battery life of the pulse oximeter is approximately 10 hours.</p> <p>How long does the pulse oximeter last on a full charge? The battery life of the pulse oximeter is approximately 10 hours.</p> <p>What is the real accuracy of the pulse oximeter? The pulse oximeter has an accuracy of +/- 2%.</p>	<p><u>Zacurate Pulse Oximeter FAQ and User Guide</u></p> <p>Frequently asked questions and answers about Zacurate fingertip pulse oximeters, covering battery life, usage, accuracy, and normal readings. Learn about SpO2 and pulse rate monitoring.</p>



[pdf] User Manual

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Fingertip 500C Pulse Oximeter USER MANUAL Ver1.0 General Description SpO2 stands for peripheral capillary oxygen saturation. Oxygen saturation is defined as the ratio of oxyhemoglobin HbO₂ to the total concentration of hemoglobin i.e. Oxyhemoglobin reduced hemoglobin present in the blood. It...

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Choose Equity. Choose Change. Choose Better.

Not all pulse oximeters are created equal.

Recent studies show that some popular pulse oximeters are providing inaccurate readings outside of the FDA guidelines for accuracy. Specifically, oximeters with lower quality components or technology are providing inaccurate readings for patients with dark skin pigmentation.^{1,2,3}

This is an inequitable, unacceptable healthcare experience. Reject skin pigmentation bias, choose Nonin.

Why accuracy is important:

Accurate pulse oximeter readings provide crucial data for caretakers. When low blood oxygen levels are missed, it can result in increased hospital discharge, under-treatment of symptoms or misdiagnosis of health conditions.

Disparities in accuracy happening today are disproportionately affecting patients of color and can lead to significant health risks including a **mortality rate 40% higher than white patients.**⁴

With Pulse Oximetry, ACCURACY MATTERS.

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With Pulse Oximetry, ACCURACY MATTERS.

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Choose Equity. Choose Change. Choose Better. Not all pulse oximeters are created equal. Recent studi6 1.7 1.4 2.6 Choice Mmed MD300CN340 4.1 2.7 3.5 2.7 2.2 3.7 1.9 1 3.1 2.7 Zacurate **500C** 3.9 3.1 10.8 2.3 1.7 4.4 1.4 1.4 2.5 3.4 BodyMed BCMOXMTRBLK 6 5.3 2.8 3.3 3.3 ...

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The performance of 11 fingertip pulse oximeters during hypoxemia in healthy human participants with varied, quantified skin pigment

Nonin Onyx Vantage 9590® is the Only Pulse Oximeter Within FDA ARMS Guidelines Across All Skin Pigmentations and Oxygen Saturation Ranges

Summary

In a controlled study conducted by researchers at the University of California San Francisco and other institutions, the performance of 11 fingertip pulse oximeters was evaluated in 34 healthy human participants with varied skin pigmentation. The study found that the Nonin Onyx Vantage 9590 pulse oximeter provided accurate subjective measurements of skin pigmentation, addressing a historical lack of reliable standardization in how skin pigmentation is identified within pulse oximetry studies. The study sought to deliver a more accurate and reliable pulse oximeter performance, especially in people with dark skin pigmentation.

"Device performance is largely unregulated and poorly characterized, especially in people with dark skin pigmentation," the authors noted.

The study measured oxygen saturation (SpO₂) levels in participants with different skin pigmentation, ranging from 70–100% SpO₂. It compared the bias and absolute bias of the 11 pulse oximeters against a reference device (Nonin Onyx Vantage 9590) and found that the Nonin Onyx Vantage 9590 was the only device to meet FDA ARMS guidelines in dark skin pigmentation at both of the low-blood oxygen saturation (70–80%) and high-blood oxygen saturation range, where many clinicians are initially alerted to issues. Nonin has the only device to provide accurate pulse oximetry across all skin pigmentation levels, including cost and non-regulated devices reading inaccurately and potentially misleadingly hypoxemia in patients with darker skin pigmentation.

Reliable and accurate pulse oximetry has been a significant issue, which the COVID-19 pandemic highlighted. Nonin fingertip pulse oximeters outperform low-cost oximeters, especially in patients with darker skin pigmentation.

*Tested devices included the Nonin Onyx Vantage 9590, Masimo, Walgreens MD300CN350R, Choice MMed MD300CN340, Zaccurate CMS 500DL, Walgreens OxyWatch C20, Choice MMed MD300CN340, Zaccurate 500C, Bodimed BDMOXMTRBLK, Roscoe POX-ROS, CONTEC CMS50M and Biolight M70. Nonin.com Clinical Summary

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Clinical Summary

The performance of 11 finger tip pulse oximeters during hypoxemia in healthy human participants with varied, quantified skin pigment.

Nonin Onyx Vantage 9590® is the Only Pulse Oximeter Within FDA Arms Guidelines Across All Skin Pigmentations and Oxygen Saturation Ranges

Summary

In a double-blind, crossover, controlled study, the performance of 11 finger tip pulse oximeters was evaluated in 32 healthy human participants with varied skin pigmentation. This study was the first to incorporate both objective and subjective measurements of skin pigmentation, addressing a historical lack of reliable standardization of skin pigmentation. The results of this study provide a more objective and quantifiable measure of the more accurate picture of pulse oximeter performance, especially in people with dark skin pigmentation.

"Device performance is largely unregulated and poorly characterized, especially with in dark skin pigmentation," the authors note.

The study measured oxygen saturation (Sat) levels in 32 participants with different skin pigmentation, ranging from lightest (Fitzpatrick skin type I) to darkest (Fitzpatrick skin type VI). At an absolute base of the 11 pulse oximeters evaluated (RespirMed 10.0, Plus Prox, Hemocue), across the different skin pigmentation and SpO₂ ranges, only four of the devices had SpO_2 90% clearance (Intra-Optic, Masimo, MyShin, Contec, Bafight).

The data found that five of the 11 devices resulted in greater than 3% total mean square error (Avast, Avast Pro, Bafight, Bafight Pro, and MyShin). The remaining six devices (Contec, Intra-Optic, Masimo, MyShin, ResMed, and RespirMed) had no significant error. All of these six devices are part of the ubiquitous low-cost device flooding the market. None of the low-cost devices met FDA, ANSI guidelines in dark skin pigmentation at both of the low oxygen saturation levels (70-80% and 80-90%). The results of this study also found that the Nonin Onyx Vantage 9590® had the lowest error, was the only device to perform under 2% SpO_2 in the darkest skin pigmentation. The risk of low cost pulse oximeters being inaccurate, unreliable and potentially misleading diagnosis in patients of color continues to be a problem.

Equivalent and accurate pulse oximetry has been a significant issue, which the COVID-19 pandemic highlighted. Nonin's finger tip pulse oximeters surpass low-cost devices, especially in patients with darker skin pigmentation.

*Tested devices included: Intra-Optic, Masimo, MyShin, ResMed, RespirMed, Avast, Avast Pro, Bafight, Bafight Pro, Contec, Intra-Optic 220, Contec 120, Contec 1200, Masimo 5000, Satbox 8000, Bafight 175, MyShin 1000, MyShin 1000 Pro, MyShin 1000 Pro Pro.

meeting FDA guidelines across all tones oxygen levels outperforming others skinOpen Yknonin AfmBOoofYqRpkmD4zKAliOIAm3NPWJ Fv45vnKc5o9lgfBsZRyNSWqOk skinIn controlled study conducted by researchers at University California San Francisco other institutions performance pulse Open Fv45vnKc5o9lgfBsZRyNSWqOknonin AfmBOooBzBfLqlVx9InOLfiB lpxrU1htzJeAXXTRk4hXTXA8cwkQIL ||| Clinical Summary The performance of 11 fingertip pulse oximeters during hypoxemia in healthy human participants with varied, quantified skin pigment Nonin Onyx Vantage 9590 is the Only Pulse Oximeter Within FDA ARMS Guidelines Across All Sk ||| Clinical Summary The performance of 11 fingertip pulse oximeters during hypoxemia in healthy human participants with varied, quantified skin pigment Nonin Onyx Vantage 9590 is the Only Pulse Oximeter Within FDA ARMS Guidelines Across All Sk ||| Clinical Summary The performance of 11 fingertip pulse oximeters during hypoxemia in healthy human participants with varied, quantified skin pigment Nonin Onyx Vantage 9590 is the Only Pulse Oximeter Within FDA ARMS Guidelines Across All Sk ||| Clinical Summary The performance of 11 fingertip pulse oximeters during hypoxemia in healthy human participants with varied, quantified skin pigment Nonin Onyx Vantage 9590 is the Only Pulse Oximeter Within FDA ARMS Guidelines Across All Sk ||| Clinical Summary The performance of 11 fingertip pulse oximeters during hypoxemia in healthy human participants with varied, quantified skin pigment Nonin Onyx Vantage 9590 is the Only Pulse Oximeter Within FDA ARMS Guidelines Across All Sk ||| Clinical Summary The performance of 11 fingertip pulse oximeters during hypoxemia in healthy human participants with varied, quantified skin pigment Nonin Onyx Vantage 9590 is the Only Pulse Oximeter Within FDA ARMS Guidelines Across All Sk ||| Clinical Summary The performance of 11 fingertip pulse oximeters during hypoxemia in healthy human ... Walgreens MD300CN350R, Zaccurate CMS 500DL, Walgreens OxyWatch C20, Choice MMed MD300CN340, Zaccurate **500C**, Bodymed BDMOXMTRBLK, Roscoe POX-ROS, CONTEC CMS50M and Biolight M70. nonin.com Clinical Sum...

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