User Guide

Thank you for buying the GO₂ Achieve Fingertip Pulse Oximeter.

Introduction

This small, portable device will give you important information about your oxygen saturation (the amount of oxygen in your blood) and pulse rate at your fingertip. The GO₂ Achieve is easy to use and needs no routine maintenance except battery replacement. This User Guide explains how to use and care for your GO₂ Achieve.

Contents of Package

- GO₂ Achieve
- One AAA Alkaline Battery
- User Guide

Intended Use

GO₂ Achieve is intended to measure blood oxygen saturation (\%SpO₂) (the amount of oxygen in your blood) and pulse rate (the number of times your heart beats per minute) of both adults and children. It is designed for fingers (not the thumb) between 0.3 and 1.0 inch (0.8 – 2.5 cm) thick. The index finger (pointer finger) is most recommended.

Cautions

- Keep the oximeter away from young children. Small items such as the battery door, battery, and lanyard are choking hazards.
- Certain activities may pose a risk of injury, including strangulation, if the lanyard should become wrapped around your neck. Use the lanyard with caution.
- Before changing batteries, make sure the GO₂ Achieve is off and is not applied to a digit.

Cautions

- The GO₂ Achieve might misinterpret excessive movement as good pulse strength. Limit finger movement as much as possible when using the device.
- The GO₂ Achieve must be able to measure your pulse properly to give you an accurate reading. Do not put the device on the same hand/arm when using a blood pressure cuff or monitor.
- The GO₂ Achieve has no alarms. It will not sound if the amount of oxygen in your blood is low or if your pulse rate is too high or too low.
- Do not sterilize, autoclave, or place the GO₂ Achieve in liquid or clean it with agents containing ammonium chloride, isopropyl alcohol, or products that are not listed in this User’s Guide. Do not pour or spray any liquids onto the GO₂ Achieve.
- Any of the following conditions may reduce the performance of the GO₂ Achieve:
  - Flickering or very bright light;
  - weak pulse quality (low perfusion);
  - low hemoglobin;
  - arterial catheters;
  - nail polish, and/or artificial nails; and
  - any tests recently performed on you that required an injection of intravascular dyes.
- The GO₂ Achieve may not work if you have poor circulation. Rub your finger to increase circulation, or place the device on another finger.
- The GO₂ Achieve measures oxygen saturation of functional hemoglobin. High levels of dysfunctional hemoglobin (caused by sickle cell anemia, carbon monoxide, etc.) could affect the accuracy of the measurements.

Symbols

The following symbols are associated with your GO₂ Achieve.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Definition of Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follow Instructions for Use</td>
<td></td>
</tr>
<tr>
<td>Caution!</td>
<td></td>
</tr>
<tr>
<td>Type BF Applied Part (patient isolation from electrical shock).</td>
<td></td>
</tr>
<tr>
<td>Battery</td>
<td></td>
</tr>
<tr>
<td>IP33 Protected against spraying water and against access to hazardous parts with a tool, per IEC 60529.</td>
<td></td>
</tr>
<tr>
<td>SN Sensor disconnect; the pulse signal is not detected or there is excessive motion</td>
<td></td>
</tr>
<tr>
<td>Temperature Limitation for storage/shipping</td>
<td></td>
</tr>
<tr>
<td>Keep dry</td>
<td></td>
</tr>
</tbody>
</table>

Installing the Battery

One 1.5 volt AAA-size (LR03) battery powers the GO₂ Achieve for approximately 2400 measurements. Nonin recommends using alkaline batteries (one is included with each new GO₂ Achieve). NOTE: You may use rechargeable batteries; however, they may require more frequent replacement.

1. Remove the battery door located on the left side of the GO₂ Achieve and slide it towards you.
2. Insert one new 1.5 volt AAA-size battery. Follow the plus (+) and minus (-) markings for battery direction (as shown inside of the battery compartment).

When battery is low, the battery indicator symbol on the display will flash. Remove battery if the device will be stored for more than 30 days. Replace low battery as soon as possible.

Activating the Device

The GO₂ Achieve automatically turns on when a finger is inserted. When a finger is inserted, the GO₂ Achieve performs a brief self test, as shown at right. Verify that all segments of the LCD (Liquid Crystal Display) appear during the startup sequence.

Verifying Operation

The GO₂ Achieve LCD has an integrated backlight that turns on automatically in low light conditions. This allows the display to be visible in dark spaces. If the GO₂ Achieve does not turn on or if it shuts off unexpectedly, remove the GO₂ Achieve from your finger, remove the battery and see the Troubleshooting section. Continuously verify operations.

Reading Your Results

When you put your finger in the GO₂ Achieve, you’ll notice an LCD display come on. The numbers you see include:

- the amount of oxygen in your blood, displayed as %SpO₂;
- and your Pulse Rate, displayed as a 2 or 3 digit number, measuring the number of times your heart beats per minute.

The Pulse Quality Indicator ( ) displays the strength of the pulse rate signal. Bars will display after ( ), indicating pulse signal strength ( ); the greater the number of bars indicates a greater pulse quality signal strength.

If you are not getting a pulse rate reading and your pulse quality indicator is weak, warm the finger or reposition to another finger.

While the GO₂ Achieve is calculating its reading immediately after activating the device, the sensor disconnect indicator ( ) may appear. The sensor disconnect indicator also appears when you remove your finger to indicate the pulse signal is not detected or when there is excessive motion. If this symbol does not turn off while your finger is in the device, reposition your finger or switch to a different finger.

Have your forearm parallel to the floor when you use the GO₂ Achieve. Make sure your finger is centered within the finger guide and the GO₂ Achieve is at heart or chest level.

NOTE: Correct positioning of the device on your finger is critical for accurate measurements. While on the finger, do not move the GO₂ Achieve against any surface and do not squeeze or hold it together. The internal spring provides the correct pressure; additional pressure may cause inaccurate readings.

- Percent Oxygen Saturation
- Pulse Quality indicator
- Sensor Disconnect Indicator
- Battery Indicator

The Battery indicator symbol ( ) shows the battery strength (the less the symbol is filled – see chart below). Replace the battery when this symbol begins to flash.

<table>
<thead>
<tr>
<th>Battery Strength</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>– = full capacity</td>
<td></td>
</tr>
<tr>
<td>□ = half capacity</td>
<td></td>
</tr>
<tr>
<td>(flashing) = empty, replace</td>
<td></td>
</tr>
</tbody>
</table>

3. Carefully reposition the battery door. NOTE: Do not force it into place; it fits only when positioned correctly.

Follow Instructions for Use

Type BF Applied Part (patient isolation from electrical shock).

UL Mark for Canada and the United States with respect to electric shock, fire, and mechanical hazards only in accordance with:


Battery

IP33 Protected against spraying water and against access to hazardous parts with a tool, per IEC 60529.

SN Sensor disconnect; the pulse signal is not detected or there is excessive motion

Temperature Limitation for storage/shipping

Keep dry

Follow Instructions for Use

Correct positioning of the device on your finger is critical for accurate measurements. While on the finger, do not move the GO₂ Achieve against any surface and do not squeeze or hold it together. The internal spring provides the correct pressure; additional pressure may cause inaccurate readings.

Activating the Device

The GO₂ Achieve automatically turns on when a finger is inserted. When a finger is inserted, the GO₂ Achieve performs a brief self test, as shown at right. Verify that all segments of the LCD (Liquid Crystal Display) appear during the startup sequence.

Verifying Operation

The GO₂ Achieve LCD has an integrated backlit display that turns on automatically in low light conditions. This allows the display to be visible in dark spaces. If the GO₂ Achieve does not turn on or if it shuts off unexpectedly, remove the GO₂ Achieve from your finger, remove the battery and see the Troubleshooting section. Continuously verify operations.
Care and Maintenance

The GO2 Achieve requires no calibration or periodic maintenance other than battery replacement. Wipe the device with a soft cloth dampened with a mild detergent or 10% bleach solution. Do not use undiluted bleach or any cleaning solution other than those recommended here, as permanent damage could result. Dry with a soft cloth, or allow to air dry. Clean once per week or more frequently if handled by multiple users.

**Caution:** Do not sterilize, autoclave, or place the GO2 Achieve in liquid or clean it with agents containing ammonium chloride, isopropyl alcohol, or products that are not listed in this User’s Guide. Do not pour or spray any liquids onto the GO2 Achieve.

**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.

For more information about Nonin parts and accessories, contact your distributor, or contact Nonin at (877) 577-2635 (USA and Canada) or (763) 553-9968.

### Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Possible Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display lookup</td>
<td>Display does not appear to change (you should see a Change to the pulse indicator if the device is on the finger).</td>
<td>Reposition finger or change fingers. Remove and replace battery. If the problem persists, contact Nonin Technical Service.</td>
</tr>
<tr>
<td>Display blank</td>
<td>Finger not properly inserted.</td>
<td>Reposition finger to activate the device.</td>
</tr>
<tr>
<td>Battery</td>
<td></td>
<td>Verify battery is correctly installed. Note: If battery is installed backwards, the unit will not function. Dead battery. Replace battery. If the problem persists, remove the battery and contact Nonin Technical Service.</td>
</tr>
<tr>
<td>Device may be too cold to operate.</td>
<td></td>
<td>Allow device to sit at room temperature for at least 10 minutes.</td>
</tr>
<tr>
<td>Missing segments on LCD display</td>
<td>Faulty display.</td>
<td>Contact Nonin Technical Service.</td>
</tr>
<tr>
<td>No readings</td>
<td>Low pulse quality (no reading).</td>
<td>If the indicator is visible and the pulse quality bar graph does not show more than 2 bars, try the following: 1. Reposition finger. 2. Warm finger by rubbing. 3. Select a different finger. For more information, please see Reading Your Results.</td>
</tr>
</tbody>
</table>

### Parts and Accessories

- **GO2R:** Clip on retractable holder
- **GO2CC:** Black neoprene carrying case with belt loop
- **GO2L:** Black 20” lanyard

### Specifications

#### Oxygen Saturation Display Range: 0% to 100%

- Pulse Rate Display Range: 18 to 321 beats per minute (BPM)
- SpO₂ Declared Accuracy Range: 70% to 100%
- SpO₂ ±2 digits
- Low Pulsation Oxygen Saturation Declared Accuracy Range (Anorm): 70% to 100% SpO₂ ±2 digits
- Pulse Rate Declared Accuracy Range (Anorm): 20 to 250 BPM ±3 digits
- Low Pulsation Pulse Rate Declared Accuracy Range (Anorm): 40 to 240 BPM ±3 digits
- Measurement Wavelengths and Output Power:
  - Red: 660 nanometers @ 0.8 mW Max. Average Infrared: 910 nanometers @ 1.2 mW Max. Average
- Temperature:
  - Operating: +41 °F to +104 °F (5 °C to +40 °C)
  - Storage/Transportation: -22 °F to +158 °F (-30 °C to +70 °C)
- Humidity:
  - Operating: 10% to 90% relative humidity, non-condensing
  - Storage/Transportation: 10% to 95% relative humidity, non-condensing
- Operating Altitude: Up to 13,123 feet / 4,000 meters
- Battery Life:
  - Continuous: Approximately 3400 spot checks based on ~21 hours of operation using one AAA-size alkaline battery, calculated at 30 seconds per use.
  - Storage: 6 months minimum
- Classifications per ANSI/AAMI ES60601-1 and CAN/CSA-C22.2 No. 60601-1:
  - Degree of Protection: Type BF-Applied Part
  - Enclosure Degree of Ingress Protection: IP33
  - Mode of Operation: Continuous
- This device is not made with natural rubber latex.

### Testing Summary

**GO2 Achieve** accuracy and low perfusion testing were conducted by Nonin Medical, Inc., as described below:

**GO2 Achieve Accuracy Testing:**

During no-motion conditions at an independent research laboratory, SpO₂ accuracy testing is conducted during induced hypoxia studies on healthy, male and female, non-smoking, light- to dark-skinned subjects that are 18 years of age and older. The measured arterial hemoglobin saturation value (SpO₂) of the sensors is compared to arterial hemoglobin oxygen (SaO₂) value, determined from blood samples with a laboratory co-oximeter. The accuracy of the sensors in comparison to the co-oximeter samples measured over the SpO₂ range of 70 - 100%.

**Low Perfusion Testing:**

This test uses a SpO₂ Simulator to provide a simulated pulse rate, with adjustable amplitude settings at various SpO₂ levels for the oximeter to read.

### Warranty

Nonin warrants to the purchaser, for 2 years from the date of purchase, each GO2 Achieve exclusive of the battery. Nonin will repair or replace any GO2 Achieve found to be defective in accordance with this warranty, free of charge, for which Nonin has been notified by the purchaser by serial number that there is a defect, provided notification occurs within the applicable warranty period. Nonin reserves the right to replace the device with a suitable alternative.

This warranty excludes cost of delivery to and from Nonin. Nonin reserves the right to charge a fee for a warranty repair request on any GO2 Achieve found to be within specifications. GO2 Achieve is a precision electronic instrument and must be repaired by Nonin Technical Service. Any sign or evidence of opening the GO2 Achieve, field service by non-Nonin personnel, tampering, or any kind of misuse of the GO2 Achieve, shall void the warranty. The GO2 Achieve is warranted for consumer use only. All non-warranty work shall be done at Nonin’s standard rates and charges in effect at the time of delivery to Nonin.

Please take a moment to find and record the 9-digit serial number on the back of your GO2 Achieve. You’ll need this number if you have to contact Nonin with technical service issues or if you have any questions regarding the use or performance of your pulse oximeter. Nonin’s technical service department can be reached at (877) 577-2635.

**My Serial Number:**

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