beurer **PO 80**
**Pulsoximeter**

Beurer GmbH • Söflinger Str. 218 • 89077 Ulm, Germany
www.beurer.com • www.beurer-healthguide.com

CE 0483

# ENGLISH

**Dear customer,**
Thank you for choosing one of our products. Our name stands for high-quality, thoroughly tested products for applications in the areas of heat, weight, blood pressure, body temperature, pulse, gentle therapy, massage, beauty, baby and air. Please read these instructions for use carefully and keep them for later use, be sure to make them accessible to other users and observe the information they contain.

With kind regards,
Your Beurer team

## 1. Included in delivery
1 PO 80 pulse oximeter
1 Lanyard
1 Data cable
1 USB charger
1 Belt bag
1 These instructions for use

## 2. Intended use
Only use the Beurer PO 80 pulse oximeter on humans to measure the arterial oxygen saturation ($SpO_2$) of haemoglobin and the heart rate (pulse rate). The pulse oximeter is suitable for private use (at home) as well as for use in the medical sector (hospitals, medical establishments).

## 3. Getting to know your device
The Beurer PO 80 pulse oximeter provides a non-invasive measurement of the arterial oxygen saturation ($SpO_2$) and the heart rate (pulse rate). Oxygen saturation indicates the percentage of haemoglobin in arterial blood that is loaded with oxygen. Therefore it is an important parameter for assessing the respiratory function. If the values fall below or exceed your individually set alarm limits, you receive an acoustic warning. Thanks to the integrated memory, it is possible to record data continuously for up to 24 hours. The pulse oximeter can be connected to a PC using the integrated USB connection. The "$SpO_2$ Assistant" software enables you to carry out a detailed evaluation of your records.
To take a measurement, the pulse oximeter uses two rays of light with differing wavelengths, which strike the finger inserted inside the housing.
A low oxygen saturation value generally indicates underlying illnesses (respiratory diseases, asthma, heart failure etc.). People with a low oxygen saturation value are more likely to experience the following symptoms: shortness of breath, increased heart rate, weakness, nervousness and outbreaks of sweating. If oxygen saturation is known to be chronically diminished, it requires monitoring using the pulse oximeter under medical supervision. If you have acutely diminished oxygen saturation, with or without the accompanying symptoms, you must consult a doctor immediately as it could lead to a life-threatening situation. The pulse oximeter is particularly suitable for patients at risk such as people with heart disease or asthma, but also for athletes and healthy people who exercise at high altitude (e.g. mountaineers, skiers or amateur pilots).

## 4. Signs and symbols
The following symbols are used in these instructions for use, on the packaging and on the type plate for the device:

| | | | |
|---|---|---|---|
| ⚠ | **WARNING** Warning instruction indicating a risk of injury or damage to health | | Manufacturer |
| ⚠ | **IMPORTANT** Safety note regarding potential for damage to the device/accessories | | Application part, type BF |
| ⓘ | **Note** Note on important information | SN | Serial number |
| | Observe the instructions for use | CE 0483 | **CE labelling** This product satisfies the requirements of the applicable European and national directives. |
| **%$SpO_2$** | Arterial oxygen saturation of haemoglobin (in percent) | IP22 | Device protected against foreign objects ≥ 12.5 mm and against falling drops of water |
| **PR bpm** | Pulse rate (beats per minute) | Storage/Transport | Permissible storage and transport temperature and humidity |
| | Disposal in accordance with EC Directive WEEE (Waste Electrical and Electronic Equipment) | Operating | Permissible operating temperature and humidity |

## 5. Warnings and safety notes
Read these instructions for use carefully. Non-observance of the following information may result in personal injury or material damage. Store these instructions for use and make them accessible to other users. Make sure you include these instructions for use when handing over the device to third parties.

⚠ **WARNING**
- Check to ensure that the package contains all the parts that should be included in the delivery.
- Before use, ensure that there is no visible damage to the unit or accessories. When in doubt, do not use the unit and contact your dealer or the customer service address provided.
- Do not use any additional parts that are not recommended by the manufacturer or offered as equipment.
- Under no circumstances should you open or repair the device yourself, as faultless functionality could no longer be guaranteed thereafter. Failure to comply will result in voiding of the warranty. For repairs, please contact Beurer customer services or an authorised retailer.

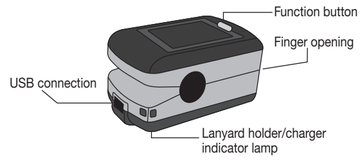
Do NOT use the pulse oximeter
– if you are allergic to rubber products.
– if the device or the finger you are using is damp.
– on small children or babies.
– during an MRI or CT scan.
– whilst taking a blood pressure measurement on the same arm using a cuff.
– on fingers that have nail varnish on, are dirty or have a plaster or other dressing on them.
– on large fingers that do not fit into the device easily (fingertip: width approx. > 20 mm, thickness >15 mm).
– on fingers with anatomical changes, oedemas, scars or burns.
– on fingers that are too small, as with small children for example (width approx. < 10 mm, thickness < 5 mm).
– on patients who are not steady at the site of application (e.g. trembling).
– near flammable or explosive gas mixtures.

- Using the device for long periods may cause discomfort or pain for people with circulatory disorders. Therefore do not use the pulse oximeter for longer than 2 hours on one finger.
- Do not self-diagnose or self-medicate on the basis of the measurements without consulting your doctor. In particular, do not start taking any new medication or change the type and/or dosage of any existing medication without prior approval.
- Do not look directly inside the housing during the measurement. The red light and the invisible infra-red light in the pulse oximeter are harmful to your eyes.
- This device is not intended for use by people (including children) with restricted physical, sensory or mental skills or a lack of experience and/or a lack of knowledge, unless they are supervised by a person who has responsibility for their safety or they receive instructions from this person on how to use the device. Children should be supervised around the device to ensure they do not play with it.
- Neither of the displays for the pulse wave and pulse bar allows the strength of the pulse or circulation to be evaluated at the measurement site. Rather, they are exclusively used to display the current visual signal variation at the measurement site and do not enable reliable diagnostics for the pulse.

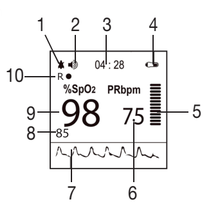
Non-observance of the following instructions can lead to inaccurate or incorrect measurements.
- There must not be any nail varnish, artificial nails or other cosmetics on the finger to be measured.
- Ensure that the finger nail on the finger to be measured is short enough that the fingertip covers the sensor element in the housing.
- Keep your hand, finger and body steady during the measurement.
- For people with cardiac arrhythmia, the measurement values of $SpO_2$ and the heart rate may be incorrect or the measurement may not be possible at all.
- In cases of carbon monoxide poisoning, the pulse oximeter displays a measurement value that is too high.
- To avoid falsifying the measuring result, there should not be any strong light sources (e.g. fluorescent lamps or direct sunlight) in the immediate vicinity of the pulse oximeter.
- People with low blood pressure, who suffer from jaundice or take medication for vascular contraction, may experience incorrect or falsified measurements.
- Incorrect measurements are likely for patients who have been administered medical dye in the past or for those who have abnormal haemoglobin levels. This applies in particular for cases of carbon monoxide poisoning and methaemoglobin poisoning, which can occur for example from the administration of local anaesthetics or from an existing methaemoglobin reductase deficiency.
- Protect the pulse oximeter from dust, shocks, moisture, extreme temperatures and explosive materials.

**Notes on handling rechargeable batteries**
- If your skin or eyes come into contact with fluid from the battery cell, flush out the affected areas with water and seek medical assistance.
- ⚠ **Choking hazard!** Small children may swallow and choke on rechargeable batteries. Store rechargeable batteries out of the reach of small children.
- Observe the plus (+) and minus (-) polarity signs.
- If a battery has leaked, put on protective gloves and clean the battery compartment with a dry cloth.
- Protect batteries from excessive heat.
- ⚠ **Risk of explosion!** Never throw batteries into a fire.
- Do not disassemble, split or crush the rechargeable batteries.
- Only use chargers specified in the instructions for use.
- Batteries must be charged correctly prior to use. The instructions from the manufacturer and the specifications in these instructions for use regarding correct charging must be observed at all times.
- Fully charge the battery prior to initial use.
- In order to achieve as long a battery service life as possible, fully charge the battery at least twice per year.

## 6. Unit description




**Display description**




| | |
|---|---|
| 1. Alarm symbol (crossed out = alarm is deactivated) | 2. Pulse tone symbol (crossed out = pulse tone is deactivated) |
| 3. Time | 4. Battery indicator |
| 5. Pulse bar | 6. Pulse rate (value in bpm) |
| 7. Pulse wave | 8. $SpO_2$ alarm (lower limit) |
| 9. Oxygen saturation (value in %) | 10. Record |

## 7. Initial use
### 7.1 Charging the pulse oximeter
If the battery indicator on the display shows a low battery charge state, the pulse oximeter must be charged. There are two ways to charge the pulse oximeter.

**Option 1:** connect the supplied data cable to the pulse oximeter's USB connection. Insert the other (large) end of the data cable into the supplied charger. Insert the charger into the socket.

**Option 2:** connect the supplied data cable to the pulse oximeter's USB connection. Insert the other (large) end of the data cable into your computer's USB port.

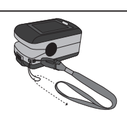
ⓘ **Note**
When the device is charging, the blue charger indicator lamp on the pulse oximeter lights up. The blue charger indicator lamp goes out as soon as the battery is fully charged.

### 7.2 Installing the "$SpO_2$ Assistant" software
You can transfer the measurement data from the pulse oximeter to your computer using the "$SpO_2$ Assistant" software. Using "$SpO_2$ Assistant" you can display your values in real time on the computer screen during the recording. Moreover you can transfer previously stored measurement data to your computer and manage the data.

To install the software, follow these steps:
- Download the free "$SpO_2$ Assistant" software from our homepage (www.beurer.com) under Service > Download Center > Software.
- Run the "SpO2Setup.exe" installation file.
- Follow the instructions during the installation process.

### 7.3 Attaching the lanyard
To transport the pulse oximeter more easily you can attach a lanyard to the device.


1. Insert the narrow end of the lanyard through the holder as shown.


2. Draw the other end of the lanyard through the loop at the narrow end and tighten.

## 8. Operation


1. Insert one suitable finger into the finger opening of the pulse oximeter as shown and hold it steady.


2. Press the function button. The pulse oximeter begins its measurement. Do not move during the measurement.


3. Your measurement values will appear on the screen after a few seconds.

ⓘ **Note**
When you remove your finger from the pulse oximeter, the device will automatically switch off after approx. five seconds.

### 8.1 Function button
The function button on the pulse oximeter has two functions in total:
- **Switch-on function**: When the pulse oximeter is switched off you can hold down the function button to switch it on.
- **Settings menu function:** To access the settings menu, first hold the pulse oximeter so that the display appears in horizontal format. To call up the settings menu, press and hold down the function button during operation. You can set the following parameters in the settings menu: display brightness, alarm settings, time, and data recording.

ⓘ **Note**
The display orients automatically (vertical format, horizontal format). This ensures that the values are easy to read on the display at all times, regardless of how you hold the pulse oximeter.

### 8.2 Display brightness
- To set the display brightness, switch on the pulse oximeter and press and hold down the function button. In the settings menu, the menu item "Brightness" is deactivated. Press and hold down the function button to confirm your selection. In the menu item "System", select "Brightness" again. You can switch between the various brightness levels by pressing and holding down the function button.
- To exit the settings menu, use the function button to select the "Exit" menu item and confirm by pressing and holding down the function button.

### 8.3 Alarm settings
- Switch on the pulse oximeter and press and hold down the function button. The settings menu appears on the display.
- In the settings menu, use the function button to select the "Sound" menu item and confirm by pressing and holding down the function button.
- Use the function button to select the desired parameter and set the desired value by pressing and holding down the function button.

You can set the following parameters in the alarm menu:

| | |
|---|---|
| **"Direction"** | Here you can set whether the setting value runs up or down when setting the alarm limits in the alarm menu. It is necessary to change the setting direction if you would like to move the limits up or down. |
| **"SPO2 ALM HI"** | Here you can set an upper limit for oxygen saturation. If, during a measurement, the set limit is exceeded, the saturation value appears yellow and a signal sounds (if the alarm is activated). |
| **"SPO2 ALM LO"** | Here you can set a lower limit for oxygen saturation. If, during a measurement, the set limit is undercut, the saturation value appears yellow and a signal sounds (if the alarm is activated). |
| **"PR ALM HI"** | Here you can set an upper limit for the pulse rate. If, during a measurement, the set limit is exceeded, the pulse rate appears yellow and a signal sounds (if the alarm is activated). |
| **"PR ALM LO"** | Here you can set a lower limit for the pulse rate. If, during a measurement, the set limit is undercut, the pulse rate appears yellow and a signal sounds (if the alarm is activated). |
| **"Alarm"** | Here you can activate ("on") or deactivate ("off") the alarm. If you have activated the alarm and the set upper or lower limit is exceeded or undercut, a signal sounds. |
| **"Pulse Sound"** | Here you can activate ("on") or deactivate ("off") the pulse tone. If you have activated the pulse tone, a signal sounds at every beat during the measurement. |

- To exit the alarm menu, use the function button to select the "Exit" menu item and confirm by pressing and holding down the function button.

### 8.4 Setting the time
There are two ways to set the time
**Option 1: Connect to PC Software to synchronize device time**
After connecting device to „SpO2 Assistant" software accoding to Chapter „PC Software" select "Options"-"Synchronize Device Time" on PC software interface to synchronize the device time.

**Option 2: Set device time manually**
Under main menu, short press the button to select "Clock", long press the button to enter its sub-menu.
Short press the button to select the option to be adjusted, then long press the button to change the value.
"Set Time": set the time, "yes": allow, "no": prohibit
"Set Year": set the year
"Set Month": set the month
"Set Day": set the day
"Set Hour": set the hour
"Set Minute": set the minute
After setting, short press the button to select "Exit", then long press the button to exit time setting interface and return to main menu.

### 8.5 System settings
In the main menu, press the function button until system is selected, then press and hold it to access the system menu.
Short press the button to select the option to be adjusted, then long press the button to change the value.
"Hard.Ver.": hardware version
"Soft.Ver.": software version
"ID": user name
"Demo": set the Demo mode, "on": turn on the Demo mode, "off": turn off the Demo mode.
"Sound Volume": set the sound volume, adjustable range: 1 ~ 3
After setting, short press the button to select "Exit", then long press the button to exit the system menu and return to main menu.

### 8.6 Recording measurement data
With the pulse oximeter PO 80, you can record your measurement data over a period of up to 24 hours. If required, the measurement data can be stored on your computer or printed out as a report.
Under the main menu, short press the button to select "Record", then long press the button to enter the "Record Menu" interface. It indicates that the device is storing when the red dot "R•" in measurement interface flickers.
Short press the button to select the option to be adjusted, then long press the button to change the value.
"Mode": record mode selection, including: "Auto" and "Manual" mode. Under "Manual" mode, select to turn on / off memory by "Record".
Auto record: start recording after stable data appear, pull out the finger to finish recording a group of data (99 group of data at most), the total duration does not exceed 72 hours.
Manual record: store up to 24-hour data.
When the memory is full, it will display "Memory is full!", then it will enter the standby mode after several seconds. When exiting the standby mode next time, it will display "Memory is full!" to prompt user that the memory has been full, press the button again to enter the measurement interface.

ⓘ **Note**
If you start a new recording, the previous recording is automatically **overwritten and cannot be recalled**. The maximum recording duration is 24 hours.

### 8.7 PC software ("$SpO_2$ Assistant")
You can use the "$SpO_2$ Assistant" software to not only transfer the data you have saved, but also display and record an ongoing measurement.
To do so, connect the pulse oximeter to your PC using the supplied USB data cable. Start the program on your PC.
You can download the "$SpO_2$ Assistant" software from connect.beurer.com/download.
The relevant system requirements are available at: https://www.beurer.com/web/gb/in-focus/connect/system-requirements.php
Other details on using the software can be found in the software on the "Manual" tab.

## 9. Evaluating measurement results

⚠ **WARNING**
The following table for evaluating your measurements does NOT apply to people with certain pre-existing conditions (e.g. asthma, heart failure, respiratory diseases) or whilst staying at altitudes above 1500 metres. If you have a pre-existing condition, always consult your doctor to evaluate your measurements.

| $SpO_2$ (oxygen saturation) measurement in % | Classification/ measures to be taken |
|---|---|
| 99-94 | Normal range |
| 94-90 | Decreased range: visit to the doctor recommended |
| < 90 | Critical range: seek medical attention urgently |

Source: following "Windisch W et al. European consensus-based (S2k) Guideline: Non-Invasive and Invasive Home Mechanical Ventilation for Treatment of Chronic Respiratory Failure, Update 2017; Pneumologie 2017; 71: 722795"

**Decline in oxygen saturation depending on altitude**

ⓘ **Note**
The following table informs you of the effects of various altitudes on oxygen saturation value and its impact on the human body. The following table does NOT apply to people with certain pre-existing conditions (e.g. asthma, heart failure, respiratory diseases etc.). People with pre-existing conditions can show signs of illness (e.g. hypoxia) at lower altitudes.

| Altitude | Expected $SpO_2$ value (oxygen saturation) in % | Impact on human body |
|---|---|---|
| 1500-2500 m | > 90 | No altitude sickness (normally) |
| 2500-3500 m | ~90 | Altitude sickness, acclimatisation recommended |
| 3500-5800 m | <90 | Very frequent altitude sickness, acclimatisation absolutely essential |
| 5800-7500 m | <80 | Severe hypoxia, only limited length of stay possible |
| 7500-8850 m | <70 | Immediate, acute danger to life |

Source: Hackett PH, Roach RC: High-Altitude Medicine. In: Auerbach PS (ed): Wilderness Medicine, 3rd edition; Mosby, St.Louis, MO 1995; 1-37.

## 10. Maintenance/cleaning
⚠ **IMPORTANT:**
Do not use high-pressure sterilisation on the pulse oximeter!
Under no circumstances should you hold the pulse oximeter under water, as this can cause liquid to enter and damage the pulse oximeter.
- Clean the housing and the interior rubber surface with a soft cloth dampened with medical alcohol after each use.

## 11. Storage
⚠ **IMPORTANT:**
Store the pulse oximeter in a dry place (relative humidity ≤ 95 %). If the humidity is too high it may shorten the service life of the pulse oximeter or damage it. Store the pulse oximeter in a place where the ambient temperature is between -40 °C and 60 °C.

## 12. Disposal
**General disposal**
For environmental reasons, do not dispose of the device in the household waste at the end of its useful life. Dispose of the unit at a suitable local collection or recycling point. Dispose of the device in accordance with EC Directive – WEEE (Waste Electrical and Electronic Equipment). If you have any questions, please contact the local authorities responsible for waste disposal.

**Rechargeable battery disposal**
- The empty, completely flat rechargeable batteries must be disposed of using specially designated collection boxes, recycling points or electronics retailers. You are legally required to dispose of the rechargeable batteries.
- The codes below are printed on rechargeable batteries containing harmful substances:
  Pb = Battery contains lead,
  Cd = Battery contains cadmium,
  Hg = Battery contains mercury.

Pb Cd Hg

## 13. What if there are problems?

| Problem | Possible cause | Solution |
|---|---|---|
| The pulse oximeter is not displaying measurement values | The pulse oximeter has run out of battery | Charge the battery via the USB connection |
| The pulse oximeter is displaying measurement interruptions or high measurement value jumps | Insufficient circulation in the measurement finger | Observe the warnings and safety notes in section 5 |
| | Measurement finger is too large or too small | Fingertip must have the following measurements: Width between 10 and 22 mm Thickness between 5 and 15 mm |
| | Finger, hand or body is moving | Keep your finger, hand and body still during the measurement |
| | Cardiac arrhythmia | Seek medical attention |

## 14. Technical Data

| Model no. | PO 80 |
|---|---|
| Measurement method | Non-invasive measurement of arterial oxygen saturation of haemoglobin and pulse rate in finger |
| Measurement range | $SpO_2$ 0 – 100%, Pulse 30 – 250 beats/minute |
| Accuracy | $SpO_2$ 70 –100%, ±2%, Pulse 30 – 250 bpm, ±2 beats/minute |
| Dimensions | L 57 mm x W 32 mm x H 30 mm |
| Weight | Approx. 42 g |
| Sensor to measure $SpO_2$ | Red light (wave length 660 nm); infra-red (wave length 905 nm); silicon receiver diode |
| Permissible operating conditions | +10 °C to +40 °C, ≤ 75 % relative humidity, 700–1060 hPa ambient pressure |
| Permissible storage conditions | -40 °C to +60 °C, ≤ 95 % relative humidity, 500–1060 hPa ambient pressure |
| Power supply | Integrated, rechargeable lithium battery, 500 mAh / 3.7 V |
| Classification | IP22, application part, type BF |
| System requirements for software | Supported operating systems: from Windows 8.1 |

The serial number is located on the device or in the battery compartment.

Technical information is subject to change without notification to allow for updates.
- This device conforms with the European standards EN 60601-1 and EN 60601-1-2 (in accordance with CISPR 11, CISPR 22, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8 and IEC 61000-4-11) and is subject to particular precautions with regard to electromagnetic compatibility. Please note that portable and mobile HF communication systems may interfere with this device. For more details, please contact our Customer Services at the address indicated.
- The device meets the requirements of the European Medical Products Directive 93/42/EEC and the German Medical Products Act. In accordance with the Operators' Ordinance on Medical Products, regular measurement precision controls must be carried out if the device is used for commercial or economic purposes. Even in the case of private use, we recommend checking measurement precision at two-yearly intervals at the manufacturers.

**Notes on electromagnetic compatibility**

⚠ **WARNING**
- The device is suitable for use in all environments listed in these instructions for use, including domestic environments.
- The use of the device may be limited in the presence of electromagnetic disturbances. This could result in issues such as error messages or the failure of the display/device.
- Avoid using this device directly next to other devices or stacked on top of other devices, as this could lead to faulty operation. If, however, it is necessary to use the device in the manner stated, this device as well as the other devices must be monitored to ensure they are working properly.
- The use of accessories other than those specified or provided by the manufacturer of this device can lead to an increase in electromagnetic emissions or a decrease in the device's electromagnetic immunity; this can result in faulty operation.
- Keep portable RF communication devices (including peripheral equipment, such as antenna cables or external antennas) at least 30 cm away from all device parts, including all cables included in delivery. Failure to comply with the above can impair the performance of the device.
- Failure to comply with the above can impair the performance of the device.

## 15. Warranty / service
Beurer GmbH, Söflinger Straße 218, 89077 Ulm, Germany (hereinafter referred to as "Beurer") provides a warranty for this product, subject to the requirements below and to the extent described as follows.

**The warranty conditions below shall not affect the seller's statutory warranty obligations which ensue from the sales agreement with the buyer.**
**The warranty shall apply without prejudice to any mandatory statutory provisions on liability.**

Beurer guarantees the perfect functionality and completeness of this product.

The worldwide warranty period is 5 years, commencing from the purchase of the new, unused product from the seller.

The warranty only applies to products purchased by the buyer as a consumer and used exclusively for personal purposes in the context of domestic use. German law shall apply.

During the warranty period, should this product prove to be incomplete or defective in functionality in accordance with the following provisions, Beurer shall carry out a repair or a replacement delivery free of charge, in accordance with these warranty conditions.

**If the buyer wishes to make a warranty claim, they should approach their local retailer in the first instance: see the attached "International Service" list of service addresses.**

The buyer will then receive further information about the processing of the warranty claim, e.g. where they can send the product and what documentation is required.

A warranty claim shall only be considered if the buyer can provide Beurer, or an authorised Beurer partner, with
- a copy of the invoice/purchase receipt, and
- the original product.

The following are explicitly excluded from this warranty:
- deterioration due to normal use or consumption of the product;
- accessories supplied with this product which are worn out or used up through proper use (e.g. batteries, rechargeable batteries, cuffs, seals, electrodes, light sources, attachments and nebuliser accessories);
- products that are used, cleaned, stored or maintained improperly and/or contrary to the provisions of the instructions for use, as well as products that have been opened, repaired or modified by the buyer or by a service centre not authorised by Beurer;
- damage that arises during transport between manufacturer and customer, or between service centre and customer;
- products purchased as seconds or as used goods;
- consequential damage arising from a fault in this product (however, in this case, claims may exist arising from product liability or other compulsory statutory liability provisions).

Repairs or an exchange in full do not extend the warranty period under any circumstances.

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