Cobra SMARTsense Blood Pressure

12944-00

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Fig. 1: 12944-00 Cobra SMARTsense Blood Pressure

Operating instructions

CE The unit complies with the applicable EC-guidelines

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1 SAFETY PRECAUTIONS

Caution!

- Carefully read these operating instructions completely before operating this instrument. This is necessary to avoid damage to it, as well as for user-safety.
- Only use the instrument for the purpose for which it was designed.
- Only use the instrument in dry rooms in which there is no risk of explosion.
- Protect the instrument from dust, moisture and vapours. Use a slightly moist lint-free cloth to clean the instrument. Do not use aggressive cleaning agents or solvents.
- Take care that no liquid penetrates in through the housing openings, as such penetration would result in damage to Sensor.
- Do not open the unit.

2 PURPOSE AND CHARACTERISTICS

The sensor is used to measure blood pressure.

The measured values are transmitted via Bluetooth or USB to any terminal devices such as tablets, smart phones, etc.

The sensor is neither suitable nor approved for medical purposes. It is intended solely for didactic purposes. This device must not be used for defined measurements on humans in order to diagnose an illness or disease, i.e. it is not intended for monitoring, treating or alleviating illnesses or diseases. As a consequence, it is not subject to the strict constraints of the Medical Devices Act.

3 FUNCTIONAL AND OPERATING ELEMENTS

3.1 Operating elements

The sensor has an on-button and two LEDs for indicating the Bluetooth and battery charge status.

On-Button

Pressed for longer 3s	Switch sensor on/off
Pressed 3x quickly	Start offline measurement
Pressed 2x quickly	Stop offline measurement

If the sensor is to be connected via USB, it is not necessary to press the power button longer 3s.

Bluetooth-LED

Flashing red every 2 seconds	Not connected
Flashing green every 2 seconds	Connected to the terminal device
Flashing green every 4 seconds	Running measurement

Battery charge LED

Flashing red every 2 seconds	Low battery
Illuminated red	Active charging process
Illuminated green	Charging process completed

3.2 Function elements

There is a Luer-Lock connector on the front of the sensor, to which the supplied cuff must be connected.

3.3 USB port

The battery, which is permanently installed in the sensor, is charged via the type C USB port. Furthermore, communication with a computer takes place via this interface.

4 NOTES ON OPERATION

This device fulfils all of the technical requirements that are compiled in current EC guidelines. The characteristics of this product qualify it for the CE mark.
This instrument is only to be put into operation under specialist supervision in a controlled electromagnetic environment in research, educational and training facilities (schools, universities, institutes and laboratories).
The individual connecting leads are each not to be longer than 2 m.
The instrument can be so influenced by electrostatic charges and other electromagnetic phenomena (HF, bursts, indirect lightning discharges) that it no longer works within the given specifications. Carry out the following measures to reduce or eliminate the effect of such disturbance: Ensure potential equalization at the PC (especially with Laptops). Use screening. When a total failure of the instrument occurs, unplug it and plug it back in again for a reset.

5 HANDLING

This section describes the start-up of the sensor and the recording of measurement data. Please read this section thoroughly in order to avoid failures or operating errors.

5.1 Charging process

Use a USB-C cable to connect the sensor to a computer or USB charger (not included).

During the charging process, the battery charge LED lights up red. When the charging process is complete, the battery charge LED lights up green. The charging time for a completely discharged battery is 3 hours maximum.

Disconnect the charger at the latest four hours after the completion of the charging process. Otherwise, the service life of the battery may be negatively affected.

5.2 Putting on the blood pressure cuff

The enclosed blood pressure cuff must be connected to the sensor unit with the open hose end (1)
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Fig. 2 *Fig. 3*

Slide the cuff over the upper arm until the lower edge of the cuff is 2-3 cm above the crook of the arm.

When used on the left arm, the air hose runs to the device in the middle of the crook of the arm. This automatically marks the 4 cm long artery is placed icentrally above the pulse point.

Fig. 4

When using the device on the right arm, the cuff must be turned to the left until the artery marking is positioned on the pulse point. The air hose then runs along the inside of the upper arm.
The cuff should be tight enough to allow 2 fingers to fit between the arm and the cuff. Now pull the free end of the cuff tight and close the Velcro fastener.

Check that the measuring arrow on the cuff is within the "arm circumference mark" on the edge of the cuff.

Fig. 5

Place the arm with the cuff loosely stretched out on a table surface and keep it still during the measurement. The palm of the hand points upwards.

5.3 Start-up

Switch the sensor on by pressing the on-button for more than 3 seconds. The Bluetooth LED lights up red. Start the software and select the sensor.

A 9-digit code is printed on the back of the sensor (Fig.6). The last 4 digits of the code are displayed as sensor designation in the software (Fig.7). This enables an exact assignment of the sensors with the software.

Fig. 6

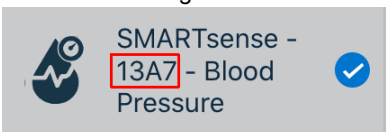

Fig. 7

Selection of the sensor via the Bluetooth interface

Make sure that the Bluetooth interface is activated on the terminal device (PC/Tablet/Smartphone) and that the software is allowed to access the interface.

After the sensor has been selected in the software, the LED flashes green to indicate that the connection has been established correctly. After the sensor has been coupled with the software, the sensor is no longer visible to other users in the software, and therefore can no longer be selected.

If the sensor is switched on and not connected, it switches off automatically after 5 minutes.

Selection of the sensor via the USB interface

For this purpose the sensor must be plugged into the USB port of the end device. It is not necessary to switch on the sensor. The sensor is automatically recognized and displayed. It can be selected and connected directly.

5.4 Recording of measurement data

Press the bellows (fig.2 no.2) quickly and repeatedly until a pressure of 150-170 mmHg is reached. Start the measurement in the software and now slowly open the release valve (fig.2 no.3) until the pressure is continuously reduced slightly. If the pressure has fallen below 50 mmHg stop the measurement and open the release valve completely

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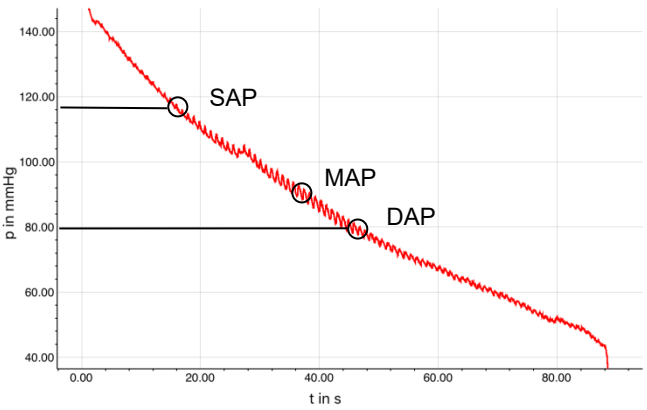

Fig. 8

The pulse pressure signal (Δp) superimposed on the falling pressure is normalised to 1.0 at its maximum amplitude (MAP).

The systolic pressure (SAP) is on the falling pressure curve at the point where Δp has an amplitude of 0.5 (before MAP).

Diastolic pressure (DAP) is normalised to 0.85 (after MAP) on the falling pressure curve at the point where Δp has fallen to the amplitude of 0.85 (after MAP).

5.3 Offline measurement

Switch on the sensor by pressing the power button for more than 3s. To start an offline measurement, press the power button 3 times in quick succession. The Bluetooth LED then flashes green 3 times in rapid succession to acknowledge the successful start. To stop a measurement, press the switch-on button 2x in quick succession. The Bluetooth LED also acknowledges this by flashing quickly.

Offline measurements can be read out via the measureAPP or measureLAB software. Furthermore, offline parameters such as data rate and measurement duration can be set. After the set measurement duration has elapsed, the offline measurement is automatically terminated. However, the measurement can always be ended prematurely by pressing the switch-on button.

6 TECHNICAL DATA

Operating temperature range: 5 - 40°C
Rel. humidity < 80%

Measuring range	0… 300 mmHg
Resolution	0.05 mmHg
Accuracy	± 3 mmHg
Max. date rate	500 Hz
Battery	LiPo 3.7 V / 250 mAh
Max. wireless range (open field)	30 m
Dimensions (length x width x height)	90 x 55 x 24 mm
Weight	205 g

7 SCOPE OF DELIVERY

The extent of delivery is as follows

- Cobra SMARTsense Blood Pressure 12944-00
- USB cable type C 07935-00
- Blood pressure cuff with double tube system and bellows
- Operating instructions

8 ACCESSORIES

The following accessories are available:

- Cobra SMARTlink 12998-99
- USB-charger 07934-99
- USB cable type C 07935-00
- USB-Bluetooth-Adapter 07936-00
- Software measureLAB 14580-61
- Free measureApp available from supplier portals

iOS | Android | Windows

9 CONFORMITY

PHYWE Systeme GmbH & Co.KG hereby declares that the radio system type 12944-00 complies with the 2014/53/EU directive. The complete text of the EC Declaration of Conformity is available at the following Internet address:

www.phywe.com/en/ec-declaration

10 DISPOSAL

The packaging mainly consists of environmentally-friendly materials that should be returned to the local recycling stations.

Do not dispose of this product with normal household waste. If this unit needs to be disposed of, please return it to the address that is stated below for proper disposal

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11 NOTES ON BATTERY AND RECHARGEABLE BATTERY DISPOSAL

As we sell batteries and rechargeable batteries or devices containing batteries and rechargeable batteries, we are obliged under the Battery Act to inform you of the following: Batteries and rechargeable batteries may not be disposed of with household waste, but you are legally obliged to return used batteries and rechargeable batteries. Used batteries may contain harmful substances that can damage the environment or your health if they are not stored or disposed of properly. Batteries also contain important raw materials such as iron, zinc, manganese or nickel and are recycled. You can either send the batteries back to us after use or return them free of charge in the immediate vicinity (e.g. in shops or at municipal collection centres). Batteries or rechargeable batteries that contain harmful substances

12 EXPLANATION OF THE SYMBOLS

Attention!
Potentially damaging situation (damage to property)
General danger area
Observe operating instructions

Note
Important information about the device
Observe operating instructions