Cobra SMARTsense ORP

12927-00

PHYWE Systeme GmbH & Co. KG
Robert-Bosch-Breite 10
D–37079 Göttingen

Telefon +49 (0) 551 604–0
Fax +49 (0) 551 604–107
E-mail info@phywe.de
Internet www.phywe.com

Fig. 1: 12927-00 Cobra SMARTsense ORP

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 measures the redox potential (ORP) of a solution and sends the measured values via Bluetooth to any terminal device, such as Tablets, smartphones, etc.
With the help of the sensor chemical reactions can be observed, the ion activity can be determined or the oxidizing or reducing properties of a solution can be determined.

3 FUNCTIONAL AND OPERATING ELEMENTS

3.1 Operating elements

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

On-Button

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

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 5 seconds	Low battery

3.2 Functional elements

The face of the sensor has a BNC connector to which the supplied ORP electrode can be connected.

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 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.2). The last 4 digits of the code are displayed as sensor designation in the software (Fig.3). This enables an exact assignment of the sensors with the software.

Fig. 2

Fig. 3

After the sensor has been selected in the software, the LED flashes green to indicate that the connection has been established correctly.

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

5.2 Recording measurement data

Connect the supplied ORP electrode to the BNC socket of the sensor and immerse the electrode completely in the liquid to be measured.

5.3 Offline measurement

Switch the sensor on by pressing the on-button for more than 3 seconds. 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.

5.4 Replacing the battery

Remove the battery

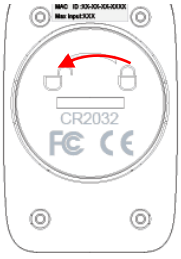

Fig. 4

Open the sensor by turning the screw cap on the back of the sensor counterclockwise e.g. with a coin.

Carefully lift the battery out of the socket, e.g. with the aid of a small screwdriver or small scissors. Insert the screwdriver as shown in Fig. 5.

Fig. 5

Insert new battery

Slide the battery under the golden metal nose (Fig.6-1). Make sure that the battery is completely under the metal nose and is pushed completely to the upper edge.

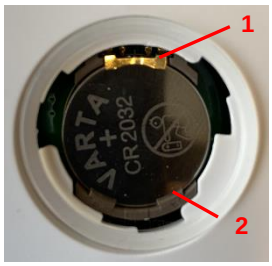

Fig. 6

Press the battery into the socket by applying light pressure on the opposite side.
The battery slides under the two plastic lugs (Fig. 6-2), which can also be noticed by a short "click"

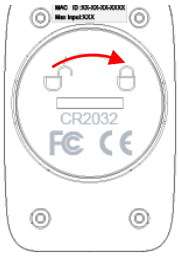

Fig. 7

Before closing the lid, make sure that the seal in the lid is not bent and lies cleanly on the edge of the lid. After closing, turn the lid clockwise to tighten it.
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5.5 Care and storage of the electrode

Fig. 8

The electrode is supplied with a protective cap filled with in a three molar solution of potassium chloride (3 molar KCl solution).
Always store the electrode in the liquid when not in use.

In case of slight soiling, clean carefully with a soft cloth with vinegar. In case of more severe contamination, place the electrode in vinegar presence for max. 20 min.

6 TECHNICAL DATA

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

Measuring range	±2000 mV
Resolution	1 mV
Accuracy	±20 mV
Max. data transfer rate	100 Hz
Battery type	CR2032
Max. wireless range (open field)	30 m
Dimensions (width x height x depth)	90 x 44 x 23 mm
Weight	98 g

Electrode:

Type:	Epoxy body, Ag/AgCl reference
ORP element:	Platinum
Storage solution:	pH-4/KCl-Solution (3 molar)
Outer diameter:	12mm

7 SCOPE OF DELIVERY

- The extent of delivery is as follows
- Cobra SMARTsense ORP 12927-00
- ORP Elektrode
- Operating instructions

8 ACCESSORIES

- Button Cell CR2032, 3V 07922-16
- Replacement ORP Elektrode 12927-10
- Cobra SMARTlink 12999-99
- 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 12927-00 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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