PHYWE	Cobra SMARTsense 3-Axis Magnetic Field	12947-00

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: 12947-00 Cobra SMARTsense 3-Axis Magnetic Field

Operating instructions

CE The unit complies with the applicable EC-guidelines

TABLE OF CONTENTS

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 for measuring the magnetic flux density moisture and for transferring the values to a terminal device, e.g. a tablet computer, smartphone, etc., via Bluetooth or USB.

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

To switch the sensor on and off in Bluetooth mode, the power button must be pressed for longer than 3s. If the sensor is to be connected via USB, it is not necessary to press the power button.

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 Functional elements

The measuring point is at the end of the carrier tube. The alignment of the sensor in x,y and z direction can be taken from the imprint on the front end of the carrier tube.

The arrow direction represents a positive measured value. Thus the magnetic field of the earth is registered as a positive field (x-axis) when the rod points to the magnetic north pole of the earth.

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 Start-up

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

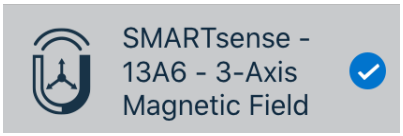

Fig. 3

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.

Measuring range selection
The sensor has 2 measuring ranges:
± 5mT
This measuring range is suitable for measuring the earth's magnetic field due to its high resolution.
+ 130mT
The measuring range is used to measure larger magnetic fields.

The measuring range is selected in the software. The measuring range can be selected after connection to the sensor or at a later time via the sensor settings.

6 TECHNICAL DATA

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

Sensor sheath	10 mm ∅
Range ± 5mT	
Resolution	1,5 µT
Accuracy	±1 µT
Range ± 130mT	
Resolution	0,1 mT
Accuracy	±1 mT
Max. date rate*	500 Hz
Battery capacity	150 mAh
Max. wireless range (open field))	30 m
Dimensions (length x width x height)	260 x 20 x 20 mm
Weight	32 g

*With Bluetooth only single-channel possible

7 SCOPE OF DELIVERY

- The extent of delivery is as follows
- Cobra SMARTsense 3-Axis Magnetic Field 12947-00
- USB-connecting cable type C 07922-15
- Operating instructions

8 ACCESSORIES

The following accessories are available:

- Adapter for magnetic field sensor 12947-01
- Cobra SMARTlink 12999-99
- USB charger 07934-99
- USB-connecting cable type C 07922-15
- 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 12947-00 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

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

Telefon +49 (0) 551 604-0
Fax +49 (0) 551 604-107