Borehole Detector VXB2

Compact Difference Magnetometer for the location of deeply buried unexploded ordnances in the ground

- Rigid design
- High detection sensitivity
- Quick setting-up
- Ease of operation
- Lightweight
- No sensor adjustment required

All maps can be exported (dxf). The automatic algorithm calculates the position of the object. Object position and object depth are indicated on the object list. Filter functions facilitate the evaluation.

Many import functions allow to process strange data formats as well.

Additional accessories
- Spare rechargeable battery

Technical Data

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Outputs:
- USB connection VFC2 for data transfer
- SEPPOS® borehole

Dimensions case:
- VFC2: 102 x 43 x 17 cm, weight approx. 12 kg
- Dimensions case electronics: 52 x 44 x 20 cm, weight approx. 7 kg

All technical data are subject to change without prior notice.
Measuring Principle

The magnetic field of the earth is homogeneous with regards to the field strength and the direction of the field strength. If a ferromagnetic object is brought into this homogeneous field, the own field of the object is superposing the local homogeneous field of the earth.

With increasing distance of the object, the field distortion is decreasing.

The extent of the distortion depends on several factors. The most important ones are the size of the object to be detected and its magnetism. The larger the object to be detected, the larger the detection distance.

Each sensor passing a ferrous object is differently affected. The LEDs of the indication meter deflect to plus or minus depending on the position of the object.

The measuring accuracy is guaranteed over long time under normal field operation and all weather conditions.

The borehole detector VXB2 with its single components is a modern detection system for the detection of ferromagnetic objects in the ground. The obtained measurement data can be examined immediately on site as a curve or colored map and later evaluated on a PC by using the software Vallon EVA2000®. The wireless data transfer enables a time-saving detection work as only one operator is necessary for operation.

The north pole of the object displaces the field lines of the earth, whereby the south pole of the object attracts the field lines. In general, the total disturbance of magnetized objects is larger than the disturbance of objects having no own field. But very rarely the total disturbance might even be smaller depending on the position of the object.

The VSM2 is a differential magnetometer, i.e. two sensors are arranged in a geometrically true alignment with a distance of 500 mm and are connected in a way that they measure the value zero in a homogeneous field.

Sensor adjustment is not necessary. Each sensor passing a ferrous object is differently affected. The LEDs of the indication meter deflect to plus or minus depending on the position of the object.

The measuring principle enables a time-saving detection, i.e. it has an own magnetic field, the field lines are reacting according to the polarity of the object.

Main Components

The VXB2 comes with two splash-waterproof hard cases housing the complete set:

- Sensor VSM2
- Sensor cable for VCU2
- Additional weight
- Ring screw
- Central electronics VCU2
- VCU2 carrying belt
- Connection cable VFC2-VCU2
- SEPOS®-detector (optional)
- Field computer VFC2
- VFC2 wrist band
- Battery chargers
- Operation manual VXB2

2. VSM2

The sensor is a maintenance-free gradiometer tube, which is build in a watertight protection tube with only 32 mm diameter. The sensor cable (standard length 15 m, 12 mm SEPOS®-marks), which is connectable at both ends connects the sensor with the central electronics VCU2.

Magnetic field of the earth

3. Central electronics VCU2

Data are transmitted via Bluetooth® or via connection cable (RS232). The automatic compensation of the VSM2 is started by briefly pressing the “COMP” push button. It is indicated acoustically and visually. The functional test started by pressing the button “TEST”, which checks the whole measuring chain.

4. VFC2

Realtime display of the measuring graphs, storage and calculation of the survey data. Connection of SEPOS®. Data recording can also be made without SEPOS®, however, not as accurate.

Optional accessories for computer-aided detection

1. SEPOS®-for depth evaluation

For an exact determination of the position and depth of objects with software VALLON EVA2000® the data acquisition must be as accurate as possible.

This includes a constant survey speed which is very difficult in practise. The results are wrong entries of the track length, wrong object depths and positions, that means increasing costs and risks for explosive ordnance disposal. But these disadvantages are things of the past if you use SEPOS®. The SEPOS® navigation system consists of a SEPOS® detector and SEPOS®-marks, which are integrated in the sensor cable in a distance of 25 cm each.

The SEPOS®-detector is fixed at the lower end of the sensor tube. Whilst walking along the tracks, the data acquisition is started automatically when the SEPOS®-detector passes the first SEPOS®-mark respectively is stopped at the last SEPOS®-mark.

Thus the depth of the borehole is automatically determined, even if the sensor tube has been lifted with different speeds.

During normal operation 40 measuring points per second are recorded, this corresponds to a measuring point distance of approx. 2.5 cm with normal lifting speed.

The SEPOS®-marks correct the lifting speed each 25 cm, that means 4 times per meter.