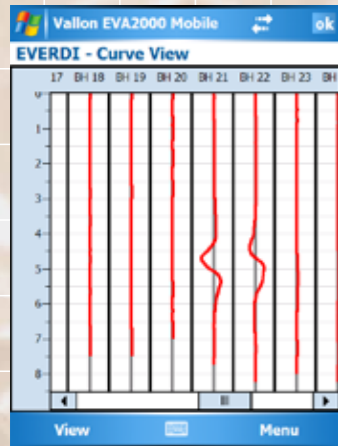


**Software VALLON EVA2000®**

The evaluation software VALLON EVA2000® allows the processing of the survey data. The magnetic interferences are displayed as



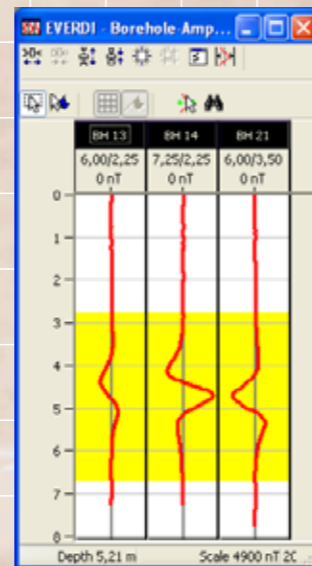
VFC2 display of the measured magnetic field values of different boreholes

All maps can be exported (dxf). The automatic algorithm calculates all objects in a field at the touch of a button. In case of borehole fields,

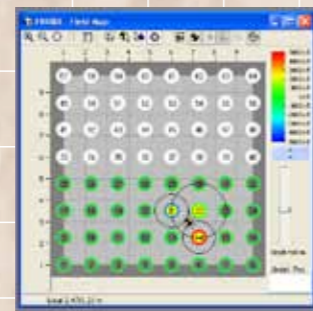


Borehole plan displayed on the PDA

the operator first selects suspicious boreholes, selects the depth range for the automatic search and VALLON EVA2000® automati-



colour field map. Topographic maps can be inserted true-to-scale (bmp, jpg, dxf etc.). With DGPS the local coordinates in meters and the GPS-coordinates are used. All common systems of coordinates can be displayed.



Evaluation of borehole measurements on the PC using VALLON EVA2000® 2.21

cally 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

# 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



**Technical Data**

Measuring range:	x1 = ±2 to ±2.000 nT, x10 = ±20 to ±20.000 nT
Sensitivity steps:	7 measuring ranges
Compensation range:	±500 nT, automatic ±3.500 nT coarse compensation in 500 nT steps
Power supply:	VCU2 and VFC2 with inbuilt rechargeable battery, VSM2 is powered via VCU2
Diameter sensor tube:	32 mm
Measuring basis:	500 mm distance between sensors
Battery life with Bluetooth® activated:	VCU2 approx. 15 h VFC2 approx. 8 h
Operation temperature:	VCU2 -20 °C to +50 °C VFC2 -20 °C to +55 °C VSM2 -31 °C to +63 °C

IP protection classes:	VCU2 IP64 VSM2 IP68 VFC2 IP65
Outputs:	USB connection VFC2 for data transfer
Signal inputs:	SEPOS® borehole
Dimensions case sensor:	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.  
Issue 07/2012

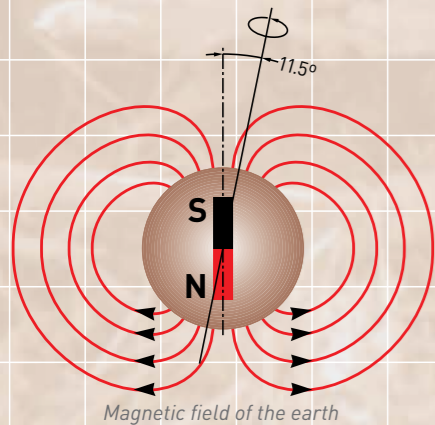
\* Technology after Bluetooth®



### General

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 coloured 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.

### 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 magnetic field of the earth.

With increasing distance from 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.

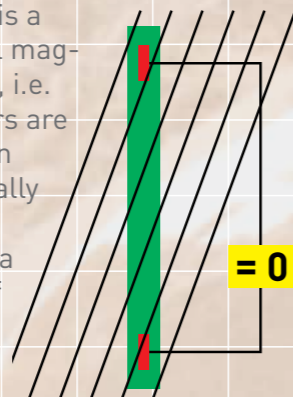
The larger the object to be detected, the larger the detection distance. If the buried object is magnetized, i.e. it has an own magnetic field, the field lines are reacting according to the polarity of the object.

The north pole of the object displaces the field lines of the earth, whereby the south pole of the ob-



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

### Main Components

The VXB2 comes with two splash-watertight 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 m SEPOS®-marks) which is connectable at both ends connects the sensor with the central electronics VCU2.



### 2. Vallon Field Computer VFC2

Realtime display of the measuring graphs, storage and calculation of the survey data.

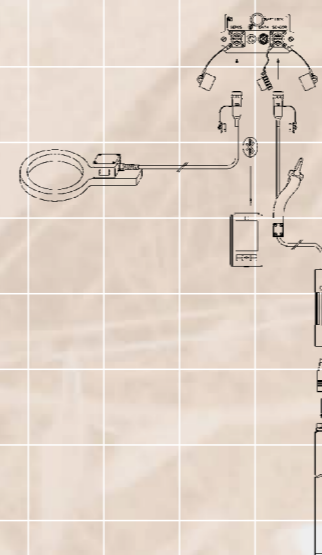
Connection of SEPOS®. Data recording can also be made without SEPOS®, however, not as accurate.



Standard PDA with Vallon software.  
Type of PDA is subject to change.

### 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 is



Wiring diagram of the VXB2 components

started by pressing the button "TEST", which checks the whole measuring chain.

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

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.

\*] Bluetooth® is a registered trademark of Bluetooth SIG, licensed to Vallon GmbH for use