



DETECTOR

UPEX® 745 DF

Applications

Handheld
Push-cart

Types

Metal detectors (MD)

Last update

01/01/1970

General description

The UPEX® 745 DF is a deep active search system, based on the electromagnetic pulse induction principle designed and produced by us in Germany. The system is used to detect ferromagnetic and non-ferrous metal objects, primarily in unexploded ordnance clearance and subsurface geophysical surveys. With the UPEX® 745 DF, Ebinger completes its traditional range of pulse induction-biased measuring systems as far as resolution and detection depth are concerned. "German innovation from the Ebinger ideas laboratory".

Working characteristics

The circular coil arrangement substantially better the signal-noise ratio (S/N) up to 50 % and thus allowing a significant increase in detection depth. The 5 time gates and a decoupling of the receiver coils substantially ameliorate detection and resolution. The dimensioning and the geometric arrangement of the inner receiver coils in conjunction with an early measurement also contribute to the enhanced performance and boost the resolution of small, near surface objects. The size and arrangement of the external receiver coils are adapted to the detection of larger and deeper buried targets. The geometric dimensioning of the system implies a significant increase in productivity due to the large scan area covered. One of the basic requirements when using electromagnetic methods to detect metallic anomaly masses is a high contrast in the electric parameters of the objects to be detected compared to the natural subsurface conductivity. Iron has an extremely high conductivity of 107 S/m respectively an electrical resistance of 10-7 Ω m. This corresponds to a difference of 7 orders in magnitude compared to the best conducting soils / rocks. The same applies to its magnetic permeability (magnetite $\mu_r=5$, iron $\mu_r=120$). This extremely high contrast with regard to electric conductivity and magnetic permeability relative to naturally occurring soils/rocks forms the basic requirement for detection when using electromagnetic methods. This method of measurement belongs to the family of transient electromagnetic methods (TEM), which operate within the time range. A source field is used, which induces current systems into the subsoil, whose propagation depends on the conductivity distribution in the subsoil. In the case of inductive transmitter coupling a constant direct current flows in a horizontal transmitter coil. The constant transmitter current is switched off or over as abruptly as possible and causes the constant primary magnetic field to collapse, which has almost the geometry of a vertical magnetic dipole (VMD). At the same time the time-independent primary magnetic field generates a current system according to Ampere's law and Faraday's induction law. Depending on the subsoil, it propagates both vertically and laterally (diffusion) as time progresses inducing eddy currents into the conductive subsoil in accordance with Maxwell's equations. This current system decays due to ohmic losses, which in turn produces a secondary magnetic field, which also decays with time. The time depending changes in the magnetic field components induces a decay voltage (transient), which will be measured in the receiver coils (here the change in the vertical magnetic component over time).

Radio, audio, visual, sensitivity data

Audio output	Yes, also indicating low battery
Visual display	Yes
Sensitive adjustment	1
Ground balance	1
Connectivity	The system comes with a data output for recording the detection signals with the EBINGER EPAD® data logger.

Power supply data

Battery	System-integrated or external; internal lithium battery 24 V
Low battery alert	1
Low battery alert information	Audio alarm
Operating time	8 hours
Operating time information	2 x 4 h operating time with 2 batteries
Battery charger provided	1
Battery charger information	Charging time approx. 4 h for the internal batteries

Dimensional data

Length	486 mm
Weight	392 kg
Search head size	1000 mm
Shape	Circular coil on cart
Transport case provided	1
Transport case information	Several transport solutions for the different components (e.g. electronics box, batteries, data logger, etc)
Transport case weight	14 kg
Transport case weight info	Weight of transmitter case with integrated batteries

Factory support data

Factory support	A worldwide service network ensures permanent availability of spare parts. Operation and maintenance training is provided at Ebinger facilities or on site. Additional factory support by specially trained staff is provided on request.
Warranty	1 year warranty included. Ebinger offers prolongation

Price

Reduction for higher quantity	Please get in contact for a personalized offer.
Possible to rent	1
Price for training	Please get in contact for a personalized offer.

Other

Additional equipment	Different sets of wheels for the cart are available for use in different terrains.
Other models	The UPEX® features a variety of active search technology detectors for professional work in different environments and diversified search requirements in terms of search objects or depth. The modular philosophy enables multiple choices for carrying the l

Other information

Images

