CE

PULSE AR III

Metal Detector on the basis of pulse induction

Instruction Manual

KTS-Electronic
Germany

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I. Introduction

Dear customer,

Congratulations to your purchase of PULSE AR III, a professionally-built metal detector with discrimination and a depth location up to 6 m and most efficient to search after precious metals (gold, silver, platinum).

To avoid possible operating errors please read this instruction manual carefully.

We wish you much success with your new PULSE AR III and will be at your disposal, if any questions should arise.

II. Volume of delivery

- Electronic unit with built-in storage battery, leather bag and shoulder strap
- Mobile microprocessor-controlled quick-charger with car-recharger (connection at cigarette lighter) and 110 Volt adapter
- Stereo headphones
- 25cm searchcoil incl. telescope bar (depending on equipment version)
- 45cm searchcoil (depending on equipment version)
- Cylindric coil (depending on equipment version)
- 1x1m searchcoil, 8-fold fragmented incl. transport bag (depending on equipment version)
- Carrying case

III. Installation

1. Assemble the telescope bar. For that purpose the central rod (aluminum tube adjustable in length) has to be positioned into the aluminum tube of the arm-rest.
2. Afterwards connect the telescope bar with the aluminum tube of the searchcoil.
3. Wrap the searchcoil cable around the aluminum tube.
4. The electronic unit is protected by a bag; through the lower opening in the bag the jack of the search coil must be plugged into the panel jack.

IV. Appropriate handling

Operate the searchcoil approx. 2 to 5cm parallel to the soil. Due to the pulse induction method a swiveling of the searchcoil is not necessary.

Dictate your own speed during the search. To search a large area within a very short time we recommend a speedy pace (no jogging).

V. Adjustment

The metal detector PULSE AR III can be adjusted in no time.

1. By using the turning knob “MODE” you activate the metal detector.

2. Briefly press the RESET-button in order to obtain a zero balance which is necessary for a failure-free search.

3. Adjust the FREQ.-regulator until a slow ticking signal is hearable. This signal is acoustically similar to a seconds counter.

VI. Application of the RESET-button

The function of the RESET-button is very important; the button should be implemented after every modification.

- After every turn-on procedure,
- after every change of MODE-function,
- after every swap of the searchcoil
- during the search if sound gets unstable due to poor soil conditions or earth magnetism.

While searching it must be observed that the sound is constant. If this not should be the case, it is possible that a magnetic field caused a misadjustment.

It also must be ensured that during zero balance no metal objects are located in the immediate vicinity of the metal detector. This can produce a false calibration and unwanted indication effects.

VII. Indication of metal

The indication of a metal will be shown through the left-hand LED and the pulse tone.

Your device has a sound location system. With the approach of the searchcoil at a metal object the tone frequency will rise. Once the soil is exactly over the object, the highest tone is reached.

This method not only helps to locate the exact spot of discovery but it also detects – based on the duration of the sound –the object's shape.

Examples:

- A long-lasting high tone in longitudinal direction stands for a narrow object (e.g. a tube),
- a high tone in any direction calls for a circular object.

During search it often happens that side noises appear to be disruptive. Therefore we recommend the use of the provided headphones.

VIII. Search process

To make the search result-oriented and for this reason successful, the following facts should be kept in mind:

- modification of the tone (frequency)
- intensity of the tone
- continuity of the tone
- level of value (display)

The modification of the sound is the first sign for the location of a metal object. The more intensive the tone, the larger the metal object and the nearer it is located to earth's surface. While the tone is hearable, the searchcoil should be moved in the near vicinity to find out the possible shape of the metal object.

The concurrent adherence to sound and display value leads to a better analysis of the discovered object.

IX. Electronic unit (front side)

The electronic unit is installed in a high-quality box. Besides the display there are 4 control elements attached to the front side.

1. MODE:

The MODE-knob can be switched to 4 positions:

DISC:
In this search mode the discriminator comes into operation. Thereby an optical and acoustical discrimination takes place. The different metals will be signaled through varying tones and conductivity values.

Examples for different conductivity values:

- light metals (e.g. aluminum) 20
- copper 40
- gold, silver, platinum 100 and over.

ALLM.:
This search mode shows all metals without discrimination. Here the metals will not be tested for their conductivity. Without discrimination they will be shown acoustically and optically through needle deflection.

This has the advantage that the search will be carried out with the highest sensitivity.

At the same time a depth measurement takes place which is visualized by needle deflection. The shorter the needle deflects, the deeper the metal is located. Furthermore shape and size of the located object can be determinated through needle deflection.

BATT.:
Scale to control the battery condition. The battery is charged if the needle points to 100 or higher.

OFF:
The metal detector is switched off.

2. RESET:
Automatic zero balance. By pressing the RESET-button the device will be adjusted unto the respective ground.

3. FREQ.:
Frequency setting controller – the smaller the object you are searching for, the smoother the adjustment must be.

4. VOLUME:
Volume control.

5. RIGHT-HAND LED:
The right-hand LED serves the purpose of discrimination in DISC mode; the left-hand LED flashes when the optical indicator appears in the ALLM and DISC mode.

X. Electronic unit (back)

There are 2 connection sockets at the back side:

1. Socket for coils: The connector for the coil is on the left-hand side. The connector plug of the search coil has to be plugged into the socket. Before removing the plug, the jack must be pressed, then the plug can be pulled out. The connector is compatible with all searchcoils.

2. Headphone socket: Any commercial headphones with 6.3mm jack can be plugged in. If you use the headphones, the speaker is turned off. Matching, light-weight headphones are provided with this device.

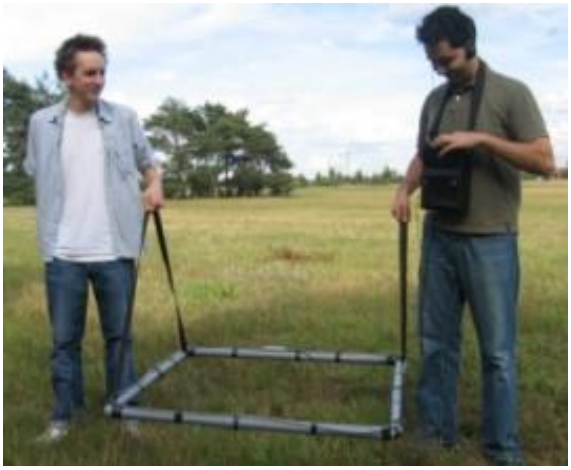
XI. Usage of appropriate searchcoils

According to the purpose PULSE AR III is applicable with various searchcoils.

25 cm searchcoil
The 25 cm searchcoil is the standard tube of PULSE AR III and is particularly suitable for the search after small metal objects.

45 cm searchcoil
Very convenient for the search after small, medium-sized and large metal objects. Furthermore it has the benefit of a speedy uninterrupted search process.

Cylindric coil:
Through its dimensions of 5x20cm appropriate for the search in wells, narrow excavations and underwater. At the same time it can be helpful to find micro-objects.



1x1m searchframe

Preferably used for the deep sounding after medium-sized and large metal objects.

During the search you should hold the searchcoil between 20 to 50cm over the ground. The higher the distance to the soil the less small and medium-sized metal objects are displayed.

Assembly of the 1x1m searchframe

1. Connect the pipes (8 pieces) in numeric order. Please note that the numbers should be readable on the upper side.
2. Arrange the searchframe on a flat surface and be sure that the frame is straight.
3. Afterwards the cable has to be placed on the pipe and fixed at the corners through the provided tape. Please be sure that the cable and searchframe are firmly connected to each other.

Turn off the metal detector in case you want to switch to another searchcoil, then connect the selected searchcoil. Please press the RESET-button after you have started the detector again.

XII. Accumulator and battery charger

Your detector is equipped with 12V (2400 mA) nickel-cadmium battery. With the help of the BATT.-mode you can check the current battery condition.

Through the mobile microprocessor-controlled quick-charger the metal detector is fully loaded within a very short time. Due to the connectivity at the cigarette lighter this is also possible while you are on the move. The loaded accumulator allows a operating time of approx. 8 hours.

Loading process:

1. Attach the battery charger to the connection socket which is to be found at the backside of the electronic housing (the same connection socket as mentioned under **X. Electronic unit (back)**).
2. The red LED displays the loading process. Please note that this LED has to be active during the whole loading time.
3. The green LED signalizes the end of the loading process. The charging time normally takes 2-3 hours.
4. After the loading process is completed, remove the charging cable plug by pressing the lever under the connection socket. The plug should be pulled out after every loading.

To prevent damages at the accumulator (e.g. by overheating) always pay attention to the loading times. Close the loading process immediately after the accumulator is fully loaded.
Never load the metal detector without attendance or overnight.

XIII. Technical data

Search system:
Pulse indication (PI-technic)

Depth efficiency:
Maximum search capacity with 2x2m searchcoil: approx. 6 m

The metal indication is to be effected:

- auditorially through loudspeaker (headphone socket)
- visually through display and colored LEDs

Dimensions and weight:

Electronic unit: 18 x 22 x 7 cm (1450 g)
Carrying case: 42 x 36 x 9 cm (1550 g)
Aluminum telescope bar and searchcoil: 1250g

Smooth transportation:
The aluminum telescope bar is adjustable in hight and can also be demounted into 3 pieces. Therefore the transportation of PULSE AR III is exceptionally comfortable in the provided bags and in the carrying case.

Due to the leather bag with its shoulder straps the electronic unit can also be transported effortlessly.

Electronic power supply
There is a 12 V (2400 mA) nickel-cadmium battery attached to the metal detector, so that a 12 hour operating time is guaranteed. Through the mobile microprocessor-controlled quick-charger the metal detector is fully loaded within 2 hours. A external car recharger for the connection to the cigarette lighter is also enclosed.

XIV. Error signals

In line with the development of your PULSE AR III great emphasis was placed on stability and the avoidance of incidences. Despite the multiplicity of filters and modulators it is unfortunately possible that certain soil conditions cause disturbances, which can effect your measured values. Apart from a wrong soil balance attitude incorrect signals can occur by following effects.

1. Ferric oxide: Through magnetic ferric oxide soils the conductance of the located metal can comprehend falsified data.
2. Anomaly effects lead to the fact that large iron metals are indicated as precious metal.
3. Small parts of bronce partially may be indicated as iron, the accuracy of the measured values is therefore ensured starting from 5x5cm in dimension.

4. The measured values can be falsified, because in the proximity of the located metal object other metal parts are existent.
5. Strongly magnetic interference fields within residential areas and in the proximity of ground cables can influence the measured values especially during the utilization of the large search coil.
6. Disturbances often occur in the peripherals of radio stations.
7. Strongly magnetic fields, particularly in the proximity of high voltage masts, can cause disfunctions.

XV. Care

Your PULSE AR III does‘nt need much care, yet there are some points, which you should consider, in order to receive its optimal readiness for operation.

- Protect the electronic housing with a plastic bag in case you should get caught by rain, fog or dust.
- Always keep your equipment clean and dry and wipe off sand and dirt.

Avoid extreme temperatures, since it is not to be excluded, that electronic units are damaged thereby.

Note: Metal detectors produce magnetic fields in the searchcoil and can cause disturbances in the closer environment of certain industrial plants or electronic devices.

XVI. Legal notice

Before you start searching please note that the monument protection as well as other legal standards are relevant. KTS-ELECTRONIC assumes no responsibility for possible legal violations.

In case of doubts we recommend a comprehensive consultation with an attorney or national monument offices.

XVII. Warranty

According to the following conditions (see below) we remedy deficiencies free of charge, if they are evidently based on manufacturing errors or defects and are reported to us immediately after assessment of damage within **24 months** after delivery to the ultimate buyer.

Defective parts will be repaired gratuitous or will be replaced by efficient parts of our choice. KTS reserves the right to exchange a device by an equal valued replacement unit in case the returned product cannot be required in an appropriate budget time frame.

On-site repairs cannot be demanded. Replaced, resp. exchanged parts will merge into our property.

The guarantee claim expires in cases of improper handling, gross carelessness or when repairs, modifications, additionally installed parts or extentions are carried out from persons which are not authorized on our part to do so.

Guarantee claims will neither effect an extention of the term nor they will implement a new time limit.

Further requirements, in particular such through extraneous causes resulting damages are excluded, unless a commitment is not necessarily the case.

We therefore are not liable for any accidential, indirect or other subsequent damages of any kind, which lead to limited use, data loss, profit setbacks or operating failures.

After expiry of warranty

KTS can agree upon a service after expiry of guarantee. In this case repairing and shipment will be charged.

XVIII. Contact

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