



PULSE INDUCTION METAL DETECTOR

"PROTON 2"

User's guide



**MADE IN BULGARIA
2006г.**

- "Proton2" is an Impulse Metal Detector with LCD display and a graphic display pointing level of signal, working frequencies, chosen impulse power and the state of batteries.
- Full microprocessor work control.
- Full automatic balance to earth conditions.
- Visual indication of the level of signal of metal objects.
- Two dynamic regimes of automation: fast – for continuous searching and slow – for proper localization of objects. When registering a metal object it turns from fast to slow regime automatically.
- Possibility to choose by 2 types of sound indication – constant sound or VCO (many frequencies) and silent sound of work.
- Common regime of work for all types of metals.
- Regulation of power of generated impulses.
- Regulation of level and power of sound.
- Automatic elimination of influence of magnetic field of earth.
- Light display.
- Memorizing of settings.
- Built in sto 12V/1,3Ah, providing 15-30 hours continuous work depending on chosen power (40 - 200W) and the type of used antenna (frame). Possibility to be plugged in outer feeding set (OFS), which can be carried around the waist or in a bag, and which can be charged by a charging device. Its working time is about 50-100 hours!
- Automatic charge of sto.
- Viewing of capacity of sto while working, automatic signalization and automatic switch off when reaches its critical minimum.
- Fast and easy approach to all settings of the menu.
- All mentioned advantages allows "Proton2" to work very steady in any kind of earth conditions, including heavy mineralized and dirty places!
- "Proton2" can work with search frames 1x1m., 2x2m., 3x3m, and a round coil 45cm. with handle.

„Proton 2“ has the following parts for control:

Switcher "ON – OFF" for turning on and turning off.

Buttons "MENU", "◀" and "▶" serve for work with the menu and the settings,

Button "Auto tune" – serves for automatic setting of the device to ground conditions of terrain where it works.

1. Setting and way of work:

Seeking frame is assembled and is placed on the ground paying attention to the range and there don't have to be any metal objects.

The cable is sub - connected to the device. The device is turned on by "ON – OFF" and you see „Auto tune“ on the display. Nullification starts and balancing to ground conditions. This lasts for some sec., then it is followed by a 4 short sound and the device is turned on in general mode. The display shows on the 1st row - impulse power in %, "Threshold", "Volume" and capacity of the battery in volts.

2nd row of the display is graphical indicator of the level for more comfortable tracking of the changes in the signal.



2. Working with the device

2.1 Change of working power - the device can work with impulse power from 40% to 200%.

The impulse power can be changed by pushing the "MENU" button, until the arrow points the power indication - 1st row on the display and through the buttons "◀" and "▶" desired value can be chosen.

It is necessary to have it in mind that at every changing of power, the device restarts, in order to define all working parameters in accordance with the power chosen. At the same time, the search coil should be close to the ground. Work is normal in 100%-150%, and more power usually

choosing when working with the bigger search coils – 2x2m. Low power (under 100%) usually used, when a large object is detected at a small depth in earth. Then the signal is continuous in order to determine the exact place of the object it is more convenient to use low power. Thus the signal from the detected object becomes much shorter.

2.2 Setting of the "Threshold" – this is the level of signal after passing of which a sound is heard. The device may be set at such strength of signal to react with sound. This is done with change in the parameter "Threshold ". For this purpose the arrow is moved through "MENU" button to be against „T_“ and through the buttons "◀" and "▶" desired value can be chosen between "1" and "9".

The lower the value of „ Threshold ", the greater the sensitivity of the device. Greater values of "Threshold " can be selected if the general signal from the background of soil changes within wider limits, in order the device to be calm, aiming a sound signal not to be produced which is not due to detected metal, but the greater the value of "Threshold", the more sensitivity of the device decreases!

In case of disbalance you should push "Auto tune" at the short time and the antenna should be close to the ground.

2.3 Setting of the "Volume" - you can adjust a comfortable sound level. This is done with change in the parameter "Volume". For this purpose the arrow is moved through "MENU" button to be against „V_“ and through the buttons "◀" and "▶" desired value can be chosen between "1" - "7". In "1" and "2" the device working with constant (one tone) sound signal, and in "3" to "7", the device working with VCO (multi frequency) sound signal. When "V0" is chosen, the device will work in silent mode – without sound.

The search coil should be held approximately 10 to 15sm. from the ground while searching.

In order to avoid interference of the metal parts of the electronic unit, be sure to carry the "Proton 2" on the side of your body that is away from the coil.

Should within the coil range there falls in a metal object, it provokes a signal which is depicted on the level of the graphical indicator. At the same time a sound is heard with a frequency which depends on the level of the signal. The more louder the signal, the more higher the sound frequency.

3.The detection depth depends on the following:

-size, shape and location of the object in the soil. The bigger the reflecting surface of the object the deeper it is to be found;

-soil composition and mineralization level – the drier and more homogeneous the soil the easier it will be to adapt the device and for the device to detect deeper. Under stones, dry sand or in clay utensil, metals are easier to be found than in freshly dug out or damp soil.

-the longer the object has been in the soil the easier it will be to be found as a result of the good contact with the soil. The longer the object has been in the ground the bigger the field is and imitates bigger object!

-type of detecting coil. The bigger the diameter of the coil the deeper it will be able to detect metals.

-operator's experience and skills.

You can do field tests by yourself using the device if you bury different metal objects in different depth but you should leave them in the ground for at least 3 months. Thus the test results will be more reliable. You should mind the soil type and the moisture composition in it. Best results are received when the soil is dry.

4.Charging storage batteries and indications for their status.

“Proton 2” has a built-in accumulator battery 12V/1,3Ah, which is able to provide 15-30 hours of working process without any interruption depending on the chosen power and the type of the used search coil. Bigger coils consume more power and thus the working time is shorter. The battery's status is shown on the first row on the right. When the capacity decreases below 11,0V on the display it will say “Battery low, please recharge” for a few seconds and the device will turn off.

The charging is automatic and begins when the device is **SWITCHED OFF** and you plug the charger into the charging jack of the back panel of the device. The jack cage is "+" and the middle terminal is "-". The red LED on the charger indicates that the battery is charging. The charging continues till the moment when the batteries reach their maximum capacity. Then the charging automatically stopped and red LED on the charger turn off and indicates the has been battery is fully charged.

Always charge device's storage batteries ONLY with the paired chargers to it. Thus you will prevent damages or confusion between "+" and "-" because the use of other chargers or adaptors may lead to irretrievable damages in the batteries!

5. Possible problems during exploitation of "Proton 2":

5.1. When switching it on you can not hear a sound, there is no information on the display, no indication that the device is switched on. It might indicate for:

- Accumulator battery is dead (usually after a long period of time). Charge the battery with the charger. If the problem is not solved contact the service-station (office) of the company manufacturer or the local distributor.

5.2. The working depth is significantly shallower than the normal. It might indicate for:

- Accumulator battery could be discharged – pay attention to the shown for the capacity of the battery. If it is under 12V, and if you choose impulse power under 100%, charge the batteries with the automatic charger and increase power at least 100% . If you can not solve the problem contact the service-station (office) of the company manufacturer or the local distributor.

5.3. During detection the device does not work stable, makes strange sounds which are not due to a metal detection. It might indicate for:

- irregular electromagnetic external interruptions.
- problems with the aerial cable – disconnected conductor, a short circuit or bad connection in the coupling.

It is possible after continuance work and many times of switching on and off the cable's coupling to the jack box the contact between them to be destroyed. There are 2 terminals with sightholes in the jack of the back panel of the device. Put something sharp like a knife or a screwdriver in the sightholes and make them wider. Thus the coupling will fit better into the jack which will improve the contact between them. It is possible in the presence of some kind of dirty like dust or moisture to clean the terminals with cotton-wool and alcohol. If you can not solve the problem contact the service-station (office) of the company manufacturer or the local distributor.

5.4. The device works only with headset and when working with amplifier you can not hear a sound. Usually that happens when the headset jack is damaged. In that case contact the service-station (office) of the company manufacturer or the local distributor to change the jack.

5.5. The battery charge quickly and after that during the working process they go dead quickly. Usually that happens when the battery is really old and need replacement. Contact the service-station (office) of the company manufacturer or the local distributor for change of the storage batteries.

The Manufacturer (trader) does not bear any responsibility if you use the device in violation of the law, on archeological or forbidden for search places as well as on private property without the knowledge or the permission of the owner.

Protect the environment and always fill back in the holes you have dugged out!