



“Pulse Master Pro”
pulse induction metal detector

User's guide



www.mikronbg.com

Made in Bulgaria

In order to use the device for a maximum long time and without problems, as well as to be able to use all of its options, please read carefully the whole instruction manual and observe the directions in it.

The standard set of **Pulse Master Pro** comprises:

- searching frame of 1x1m. /1,20x1,20m/
- control unit with built in accumulator;
- automatic charger for 220 V;
- detailed instruction manual for operation.

If any of these items are missing, immediately inform us, or our authorized dealer where you purchased your detector.

Pulse Master Pro has the following parts for control:

- “**ON / VOLUME**” – switches on the detector and volume control.
- “**SENSISTIVITY**” – used to adjust the sensitivity. Rotate the controller clockwise to have a high sensitivity. Rotate it counter-clockwise to lower the sensitivity.
- “**THERESHOLD**” – used to adjust threshold level. Rotate the controller counter-clockwise to low position to avoid interference. Clockwise rotate the controller to have high hum level.
- “**SAMPLING DELAY**” – sampling delay control knob.
- “**DISC**” – discrimination control knob
- Button “**DISC**” – switch on and switch off **DISC** mode
- Button “**FAST / SLOW**” – toggling between **FAST** and **SLOW** modes
- Button “**VCO**” - switch on and switch off **VCO** mode
- Button “**AUTO TUNE**” – serves for automatic setting of the device to ground conditions of terrain where it works in **SLOW** mode.
- Button “**LIGHT**” – switch on and switch off LCD back light.
- Jack **PHONE** – to connect a headphones
- Jack **CHARGE** – to charging storage batteries
- **LCD** for graphic display pointing level of signal and discrimination, selected modes and the batteries status.

1. Assembling of the device:

Assembling the **Pulse Master Pro** is simple and you don't need any special tools.

When use the round coil 14" (36cm.): The bearing rod is assembled by inserting of the lower part into the upper one. Choose the desired length of the whole construction and the fixing clamp is tightened between both parts of the bearing rod. The lower part of the bearing rod is put with the opening between the ears of the coil and the plastic bolt is tightened by choosing the position of the coil to be parallel to the ground surface. Don't over-tighten the plastic bolt and nut to not damage the threading of the bolt! The coil cable is wind up tightly around the bearing rod and is switched to the terminal of the monitor unit. Upon switching of the cable of the coil to the monitor unit, tighten the well the metal nut of the coupling to the terminal of the box. Upon switching off, unscrew the nut completely and pull out the coupling without pulling or twisting the cable of the coil. This way, you will prevent the cable and the conductors in it from breakdown or short circuit. Finally adjust search coil angle to your preference and you are ready.

NOTE: Do not allow the cable to flop loosely over the search coil. Since the detector is sensitive enough to „see“ the tiny wires in the cable, a floppy cable can cause false signals as the search coil senses the moving wires.

When use the search frames 1x1m. or bigger: The search frame should be held **approximately 4 to 6 inch (10 to 15cm.) to ground surface** while searching. Do not allow one end of the frame to be higher than the other. Make sure that no large metal objects are close to the search frame for initial adjustment. Also, check your shoes or boots since most of them contain metal parts and you would receive a signal response any time you step near to the coil.

In order to avoid interference of the metal parts of the electronic unit, be sure to carry the **Pulse Master Pro** on the side of your body that is away from the search frame.

1. Setting and use Pulse Master Pro:

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

Turn on the detector by rotating "**VOLUME**" knob clockwise to "**ON**" position

The cable is sub - connected to the device. The display shows on the 2nd row – probably size of the metal object and state of the battery.

1st 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 in ALL METAL mode:

Increase "**THRESHOLD**" until you hear audible pulse warning (pop). Click for 2-4 sec **AUTO TUNE** button and then relax. The sound disappears and graphic indicator of the first row is returned to zero position in **ALL METAL** mode, or in middle position in **DISC** mode. Hold for a few seconds the coil / frame above the ground. If the sound signal is changed (increased), lower values of **THRESHOLD** carefully, until the sound signal disappears or stays to hear the sound "pop" with a low frequency. **Pulse Master Pro** is tuned and ready to use.

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. This is a very convenient mode for precise localization of the location of an object.

To more precisely fix the location of the metal object in a strong and continuous signal can be raised searching frame greater height above the ground. This will reduce the second reflected signal from the metal object.

At a presence of de-balance, one has to press "**AUTO TUNE**", as at this, the searching coil has to be close to the ground, at the distance of search to be.

By changing the value of **SAMPLING DELAY** can be eliminated and unwanted signals from highly mineralized soil, ceramics, stones and active slag.

When **SAMPLING DELAY** knob is in high positions (6-10), detector will give you the greatest sensitivity of any object detected. In low positions (1-4), you can minimize the effects due to highly mineralized soils. Holding the coil higher will help to reduce ground effects as well.

Also, the sensitivity to some ferrous and thin foils will be reduced, when using a high level of **DISC** knob – to **REJECT** positions.

If at work or in the initial setup, you hear irregular pulse sounds, they may be due to external electromagnetic interference. In this case, turn potentiometer **SAMPLING DELAY** in a position where this pulsation will disappear or detector will work considerably stable. Other metal detectors, land cables, railroad tracks, radio transmitters, electric motors, water pumps etc. produce strong magnetic fields that can interfere. If there are electromagnetic interference from your searching area, lower the **SENSITIVITY**, or change the current searching area. In areas with complicated soil condition, try to set the **SENSITIVITY** and **THRESHOLD** to proper position. Don't set the **SENSITIVITY** and **THRESHOLD** to high position. Or you'll get a false result.

Also, low sensitivity 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 sensitivity. Thus the signal from the detected object becomes much shorter.

“**Pulse Master Pro**” can sometimes react by small objects such as big coins or large caps, if they are on the earth surface and within just pass over them, but then hear a short sound of a double crossing of the two arms of the frame over the subject search!

“ **Pulse Master Pro**” work in switching mode with very low frequency - 240Hz, (same coil at one time broadcast, a recorded following the adoption of a secondary object signal) searching is necessary framework to move relatively slowly over the ground to enable to achieve good depth of search. Should not be run when searching with the detector or to go very quickly to prevent loss of depth!

2.1 Change of working speed - the device can work with **FAST** or **SLOW** speed of automatic. **FAST** speed we recommend when using small coils and make fast sweep over

the ground surface. Thus the signal from the detected object becomes much shorter. Also, fast mode is appropriate if there is much trash in the ground where you use detector.

SLOW speed we recommend when use search frame to detect a large object at big depth under the ground. Then the signal is continuous in order to determine the exact place of the object.

2.2 Operator can choose the type of sound indication - a constant sound or sound with variable frequency - VCO. This is done by pressing the **VCO** button. Accordingly, the display appears or disappears inscription VCO on the 2th row.

VCO indication is comfortable in slow search and to locate exactly the place of detected metal.

2.3 LIGHT button - night or when visibility is low, you can switch on the display light to see better and settings and indication. This is done by pressing the LIGHT button. When you do not need lights, switch off it to saving energy from the battery.

3. Working with the device in DISC mode:

If you want to work in **DISC** mode, push the button "**DISC**" and you will hear a single sound. Accordingly, the display appears **Disc:ON** on the 2th row. Set the **SAMPLING DELAY** in position "1" (to the **red segment**), and **DISC** also in the red sector, to REJECT.

Discrimination starts working at levels "6" of **DISC**, having retained the maximum depth of work. As more **DISC** increases, the more effective it discrimination of ferrous objects, but at the same time reduces the depth of search. In position of **DISC** - 10, it can be about 20-30 % less than the maximum depth, but at the same time can be eliminated large iron (ferrous) objects.

You can set your preference discrimination as to what extent be rejected iron (magnetic) objects. Recommended to work as **DISC** is "8". In this case, loss of depth is not as tangible, while successfully eliminating most magnetic objects.

When the frame moves over a ferrous object, the sound level does not change, and appears sound after the signal bypass the facility, which disappears gradually or disappears quickly if the frame back over the object. Once passed, in what direction the sound again

appears, and gradually disappears. This is so-called reverse sound effect that occurs only for ferrous objects especially if the subject is not deep under the surface.

One should bare in mind that the efficiency of the discrimination depends quite on the size of the metal object and the depth it is situated in the soil. It could be 100% accurate for small and middle-sized objects situated on the surface layer (with depth approximately 50-100 cm in the soil), up to 50% accurate for big metal utensil (1x1m for instance) buried at 2-3 m in the soil. That is to say the bigger the object the deeper it is buried in the soil and the harder it is to be discriminated. Smaller coils have better opportunities for discrimination.

4.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 coill 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.

5.Charging storage batteries and indications for their status.

“**Pulse Master Pro**” has a built-in accumulator battery **12V/1,3Ah**, which is able to provide 12-15 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 second row on the right. When the capacity decreases below **12,0V**, the indicator will be empty and you will see on the display "**Battery low!**".

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 that the 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!

6. Possible problems during exploitation of "Pulse Master Pro":

6.1. 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.

6.2. 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 low **SENSITIVITY**, charge the batteries with the automatic charger and increase **SENSITIVITY** at least **8**. If you can not solve the problem contact the service-station (office) of the company manufacturer or the local distributor.

6.3. 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.

6.4. 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.

6.5. 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.

In case that the "Pulse Master Pro" has been exposed to low temperatures, you should absolutey avoid an abrupt warming. The condensation humidity can provoke a disturbance of function.

7. Guarantee

The detector **Pulse Master Pro** is offered with 2 years of guarantee of electronics, labor and materials used, for harms which are not caused on purpose or irresponsibly.

We can upkeep your device after period of guarantee if it is necessary.

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!