



## **NRG100**

User's operating manual



**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.**

**Your NRG100 was shipped with these parts:**

- Upper Pole Assembly – fully assembled, including upper pole stem with handle grip
- Middle pole assembly with pole lock;
- lower pole - made of plastic in order to not disturb the work of the coil;
- 27cm DD search coil;
- electrical set box – made of extremely strong plastic;
- battery box including 8 AA alkaline or 10 AA batteries 1,2V/2800mAh;
- 220V automatic charger;
- Operation instruction manual.

**Warranty card**

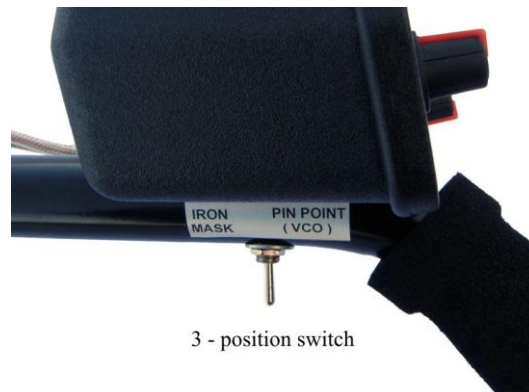
If any of these items are missing, immediately inform us, or authorized dealer where you purchased your detector.

**CONTROLS:** The NRG100 control panel:



- “**ON / VOLUME**” – switches on the detector and adjust sound level
- “**GND BALANCE**” – eliminates influence of the soil
- “**DISCR**” – regulates degree of elimination of iron objects. User can adjust the controller to reject undesired metal.

- “**THRESHOLD**” – used for adjusting sound level and regulates depth of. Rotate the controller counter-clockwise to low position to avoid interference. Clockwise rotate the controller to have high sensitivity
- “**MINERALIZATION**” - used for regulation of depth of mineralized regions
- “**Toggle switch**” - Three operation modes are set by the Toggle switch on the handle. Front position is for “**IRON MASK**” mode; middle (neutral) position is for “**Two Tone**” mode; back position is for “**VCO Pin Point**”. For this setting, user has to hold the toggle by hand.



- “**Battery low**” – blinking red light indicator. Indicates lower tension of batteries. When the battery voltage is below 10.5V, “**Battery low**” indicator will light. At this time user has to charge the battery.
- Jack “**Phones**” – used for head phones

### 1. Assembling of the device:

Assembling the **NRG100** is simple and you don't need any special tools. 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. 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.

The searching coil is approached to the surface of earth by paying attention to avoid presence of metals within its range.

**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.

## **2. Switch on and work with NRG100.**

2.1. Turn the “**ON / VOLUME**” knob to “**ON**” and adjust preferences volume of sound.

2.2. Setting the “**THRESHOLD**” - While holding the detector a few feet above ground and away from any metal object, slowly turn the “**THRESHOLD**” knob until you hear a very slight audio tone through the speaker or headphones. This is the optimum set-point for the “**THRESHOLD**”. A light “buzz” adjustment is recommended to insure optimum depth and maximum performance.

As “**THRESHOLD**” is in low position, as low is sensitivity. Too low of a threshold setting may cause very weak signals to not be heard. Too high of a threshold setting may cause operating instability.

2.3. You can work in manual or in automatic “**GND BALANCE**” regime:

- When you switch on your detector from “**ON / VOLUME**”, the detector start **in manual ground balance regime.**

Search for and select a clear piece of ground or sand that does not contain any metallic targets. With the coil elevated at least waist high and away from any metallic target, slowly adjust the **THRESHOLD** control until a very faint audio threshold signal is heard.

Lower the search coil to within one-inch of the ground surface while listening to the threshold audio signal. If the threshold signal is high tone, the “**GND BALANCE**” control needs to be decreased (rotate counter clockwise). If the threshold signal is low tone, the “**GND BALANCE**” control needs to be increased (rotate clockwise). Keep repeating this step until threshold signal is

the same within one-inch of the ground as it is in the air. Once this is accomplished, the detector is properly ground balanced.

Also, you can use the “**MINERALIZATION**” knob for easy balancing and eliminate of the ground interference.

When the ground mineralization is rejected, the detector can see deeper targets, and is less susceptible to ground interference.

While balancing the detector, you have to be sure there are no metal objects around the search coil. If it seems difficult or impossible to get little change in the steady threshold as the coil is lowered, you may be attempting to tune on top of a piece of metal. Move to a different spot on the ground and repeat balancing.

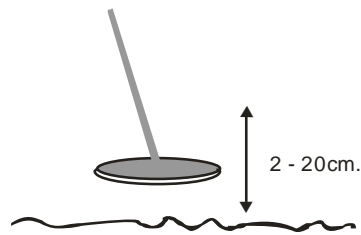


Fig. 1

**In automatic ground balance regime:** push the button “**Auto GEB**” and you will hear a single sound.

- The, ”**GND BALANCE**” knob do not have to be turned on at that time!! If you come upon non-ferrous metals /gold, silver, copper, bronze/ a low-toned sound can be heard; and if you come upon ferrous metals a high sound is heard. Without the ability to cancel ground mineralization, a metal detector could respond to mineralization as if it where a good target.

Always try to balance in “**MANUAL**” regime, and if it seems difficult or impossible to get little change in a steady threshold as coil is lowered, we recommend use “**Auto GEB**” regime. Use “**Auto GEB**” when you find yourself in a situation that does not allow “**Auto GEB**” to be adjusted correctly.

**NOTE:** When searching in highly mineralized area, the unit will sound even if there’s no metal. In this case, you can lower the sensitivity and set the “**THRESHOLD**“ to low position, increase the height between the search coil and the ground until the false signal disappears. The ground conditions are really bad with mineralized ground, hot rocks and iron trash, so your sweep

speed must be reduced for best results. The best result you will get if searching when the soil is dry.

“**Auto GEB**” is recommended when searching in wet salt sand too.

Also, if there are interference from other instruments or electrical cable or TV or radio in your searching area, lower the **THRESHOLD**, or to change the current searching area.

In areas with complicate soil condition, try to set the **MINERALIZATION** to proper position. Don't set the **MINERALIZATION** to “**LOW**” position. Or you'll get a false result.

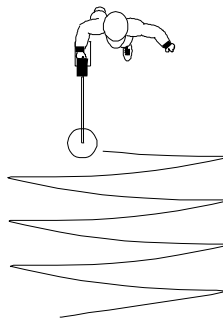


Fig.2

**NRG100** working in dynamic regime - searching metal objects is made by moving search coil toward ground surface – fig.2, fig.3

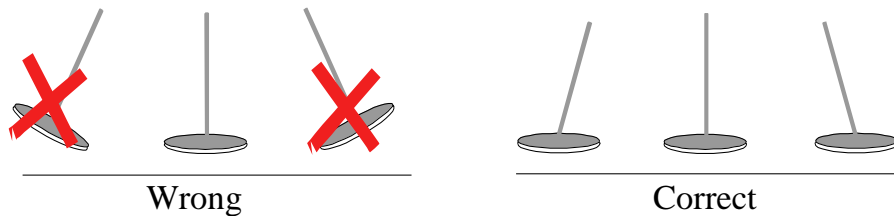


Fig.3

The search coil should not touch the ground during your sweep. The pole length should be adjusted to allow this without having to lift the detector with your elbow or shoulder. The search coil should rest about one inch above the ground while you are standing erect. The angle of the search coil should allow the bottom to be parallel to the ground.

3. “**DISCR**” is used to eliminate any target that you do not want the detector to audibly respond to.

The “**FOIL**” position is recommended for most general purpose searching. In this position, the detector will provide a reject response to most iron and small foil and respond to most valuables including jewelry.

If you need to eliminate foil over the ground, the “**DISCR**” control must be set in a position over “**Rings**”. Positions “**Rings**” will reject more trash metals including aluminum pull tabs.

In “**Coins**” position nickels and some gold jewelry will be rejected.

If you come upon non-ferrous metals /gold, silver, copper, bronze/ a high sound can be heard; and if you come upon ferrous metal a low sound is heard. If the “**DISCR**” control is in “**Iron**” position, every ferrous object will be signaled with high tone (like non – ferrous).

If the soil is too mineralized we recommend the “**Bottle cap**” position.

#### **4. Pinpointing a Target**

A good method for pinpointing is "X-ing" the target with the search coil. Squeezing and holding in the trigger on the grip accesses a “**Pinpoint**” mode that makes it much easier to sweep the search coil slowly and center directly above the target. Use loudest tone, to indicate targets exact center. To "X" a target, sweep the search coil over the target from side to side and nothing the side to side center. Then turn 90 degrees and sweep the coil side to side noting the center from this new direction. "X" marks the spot that you need to dig. You can practice with a coin on top of the ground to become acquainted with this technique. The center of the X— the spot on the ground where the target response sound is the greatest. Pinpointing a target is probably best done by "X-ing" as well. Remember that the detector will beep just as the target passes under the center of the search coil. Slowing the sweep speed down will help you pick out the center of the X, but remember that the search coil must always be moving slightly for target detection.

Another easy method is to sweep the coil from side to side across the target in very short sweeps as you slowly move forward and backward across the target. Slow down the sweep rate and shorten the sweeps until you just barely get a response at one spot. The target will be directly below the coil center at this response time – fig.4

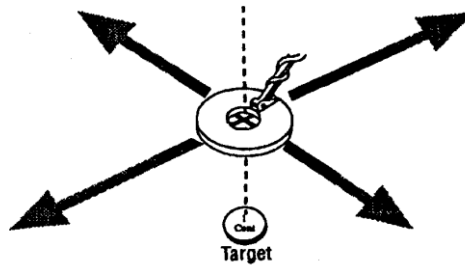


fig.4

### 5. 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.
- 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.

To reduce false signals when searching in a very trashy ground, scan only a small area at a time using slow, short overlapping sweeps.

Keep the searching coil moving at a comfortable rate. If you walk too fast, you can't overlap yours sweeps and you will miss a lot of ground. Also if you sweep too fast, you will lose sensitivity and miss the deep targets

### 6. Using a headphone

You should always use a headphone whenever you search with your metal detector. Headphone is especially useful in noisy area, such us the beach and rear city area. It enhances audio perception by bringing the sound directly to



your to your ears while masking “outside” noise interferences. You shall be amazed at how much better you can hear the detector signals with the headphone than you can with the speaker alone. Using head phones also save battery power.

To connect a headphone to the detector, insert the headphone jack into the “**Phones**” on the front panel.

**NOTE:** The detector internal speaker will be disconnected when you connect a headphone.

### **7. Charging storage batteries and indications for their status.**

If a light “**Low battery**” appears while using the detector that means you have to stop using it and recharge the batteries as follows: put the jack of the charge device into “**CHARGE**” nest and place the device into electric net of 220V.

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 “+”.

Charging depend on the level of discharge of the batteries. It’s not necessary to keep eyes on charge device, because it is supplied with automatic turn off and batteries couldn’t be damaged no matter how long they will stay in the charge device. The charging continues till the moment when the batteries reach their maximum capacity. When reach their full capacity the red light on the charger will not light any more.

When they are ready pull the device out of the electric net and unplug the jack out of the “**CHARGE**”

**NOTE: Don’t unplug the charger if charge process is not finished. 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!**

## **8. Possible problems during exploitation of “NRG 100”:**

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

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

- the accumulator block consists of 10 elements **1,2V / 2800mAh** connected in series. If just one of them is damaged the connection between them will be destroyed and practically the device will be left without power supply.

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

- storage batteries could be dead – charge the batteries with the automatic charger. If you can not solve the problem contact the service-station (office) of the company manufacturer or the local distributor.

**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 sight holes in the jack of the back panel of the device. Put something sharp like a knife or a screwdriver in the sight holes 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.

**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. Batteries charge quickly and after that during the working process they go dead quickly. Usually that happens when the batteries are 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!*

## **9. GUARANTEE**

The detector **NRG100** is offered with 3 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.

## **10. Protecting your investment**

Often detectorists are disappointed when their new detector slowly becomes less and less responsive and seems to have lost some of its original peak performance. You can help avoid this from happening to your detector by following these basic care and protection guidelines:

⇒ Operate your detector exactly as recommended in this Operator Instruction Manual.

⇒ The search coil cable is hard-wired to the search coil and protected by a strain relief. It is very important that the strain relief remains intact and should *never* be adjusted or tampered with.

⇒ Keep cables properly wound around the pole stems and protect them during use. Floppy, pinched, or cables that become snagged during use may short, causing erratic noises or unnecessary replacement of the search coil.

⇒ Sweep the search coil carefully, especially when using around rocks and building foundations. Avoid hitting the search coil against hard, solid objects and surfaces.

- ⇒ Keep your search coil slightly off of the ground during the sweep, especially when using in gravel or hard, rocky dirt.
- ⇒ Remove and clean out scuff covers periodically to avoid buildup of mineralized dirt particles which will affect performance.
- ⇒ The search coil is waterproof and can be submerged in either fresh or salt water. After the search coil is used in salt water, rinse it and the lower stem assembly well with fresh water to prevent corrosion of the metal parts.
- ⇒ The search coil is waterproof but *the electronics are not*, so always prevent any moisture or water from entering the control housing and never allow the cable connector to become submerged in water.
- ⇒ If working in or near water, or if there is a possibility of rain, use a protective weather resistant pouch or plastic bag to cover the control housing. Make sure it can "breathe" in order to ensure against condensation buildup inside.
- ⇒ After each use, clean the detector with a soft cloth to remove dust, moisture, or other contaminants.
- ⇒ When transporting the detector in a car during hot weather, store it on the floor of the passenger compartment if possible. Using a carry bag gives additional protection. In any case, never allow the detector to roll around unprotected in the trunk or back of a pickup truck.
- ⇒ Protect your detector from dust, moisture, and extreme temperatures during storage.
- ⇒ Treat your detector as you would any sensitive electronic instrument. Though ruggedly constructed and designed to withstand the demands of normal treasure hunting, proper care is essential.