

VE EL ELECTRONICS LTD.

INSTRUCTIONS FOR USE

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# **GOLDEN MASK METALDETECTOR**

**MODELS: 4/4PRO/4WD**



# CONTENT

1. Qualities.....	3
2. Specifications.....	3
3. Features.....	3
4. Assembly/ Disassembly .....	4
5. Control Panel and Devices .....	5
6. How to Use the Metaldetector .....	6
- Setting the metaldetector in a “manual ground balance” mode (GB MAN).....	6
- Setting the metaldetector in an “automatic ground balance” mode (GB AUTO).....	7
7. Audio Discriminators.....	7
8. Charging the batteries.....	8
9. Warranty and Service.....	10

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Golden Mask 4 is specifically designed to provide maximum effectiveness on all types of soils. The major advantage is its **recovery speed**, which places it in the premium position to operate in areas heavily contaminated with iron pollutants. The metal detector works with search coils with a wide scanning range (Double D) which greatly improve the machine's performance on mineralized soils\*, while the geometry of the search coil allows for a much better ground penetration.

Golden Mask 4 is produced from high-quality components and materials to ensure maximum product life of the metal detector.

\* mineralized soils – a term used to describe a type of soil which possesses natural magnetic properties or has acquired them as a result of human activity (contamination with iron and ceramics). The term excludes sea sand which, albeit a conductor, is not magnetic.

## 1. Qualities

- Golden Mask 4 is available with a basic search coil **10.5"** (27 cm) made of **ABS** and a special design providing better mechanical and thermal stability;
- A special cable, made of high-quality materials and with a common shield, designed to provide for greater mechanical strength and extended product life of the coil
- Light and strong boxes of ABS
- Lightweight metal detector with a perfect balance
- Strong handle
- A three-piece rod
- Lower and upper rod made of carbon

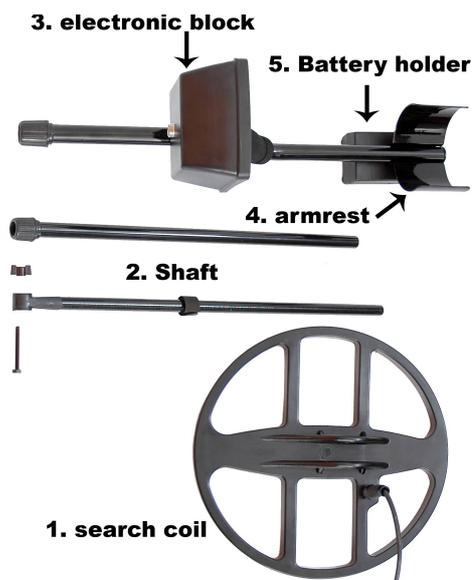
- Smart automatic charger, especially designed for the Golden Mask
- 5-year warranty of the electronics

## 2. Specifications

- Operating frequency – 18kHz /4 , 4 Pro , 4W Pro/
- Operating frequency – 8 - 18kHz / 4WD , 4WD Pro/
- Operation mode – motion
- Automatic ground balance
- Manual ground balance
- Multi-tone discrimination
- Audio discrimination
- Adjustable scale of metal discrimination
- Adjustable search depth
- Adjustable audio tone
- Adjustable audio volume
- Innovative, completely redesigned electronics, combining productivity and enhanced sensitivity
- Charger – a pack of 10 rechargeable batteries 1.2 V AA/ 1000 mAh
- Single charge operating time: minimum 20 hours
- LED low battery indicator
- Wireless headphones/ 4WD Pro, 4W Pro/

## 3. Features

The metal detector consists of five parts: 1. search coil; 2. shaft, connecting the coil with the electronic block; 3. electronic block; 4. armrest and 5. battery holder.



### 1. Standard coil

Golden Mask 4 features a standard **10.5"** (27 cm) DD search coil. The coil is made from ABS plastic and its lower end is covered with epoxide resin which adds strength and hermetic seal to the whole construction. The search coil has good sensitivity to both small and large objects.

#### Optional coils

5",7", SEF6x8", 8",9", 10.5", 12", 12.5", 9x10", 10x12",

SEF10x12", 12.5x15" .

The smaller coils have better sensitivity to small objects (coins) and are preferably used on heavily polluted terrains. The larger coils have better sensitivity to larger objects and are suitable for deep underground search, having 10-20 % better sensitivity than DD 27 cm.

### 2. Shaft

The shaft is made of aluminum tube and features a carbon lower rod (not metal) to avoid interference with the coil performance.

### 3. Control box with electronics

The control box is made of extremely robust **ABS** plastic.

### 4. Armrest

The armrest is made of aluminum for greater strength and its diameter is adjustable for a better grip. The foam hand grip is attached at the front end of the armrest.

### 5. Battery holder

The battery holder is made of plastic and contains a pack of 10 batteries AA NiMH 1,2 V/ 1000 mAh.

## **4. Assembly/ Disassembly**

Take the lower rod (the carbon part), place the rubber sealing in the openings of the stem and align them with the openings of the mounting ears on the search coil. Insert the plastic bolt into the openings and press it until it comes out of the opposite end, then screw the plastic nut and tighten it gently.



### Warning:

It is essential to replace the rubber sealing when it wears off to avoid over-tightening of the screw nut which may cause deformation of the mounting ears of the search coil and overall distortion of the coil. Deformation of the search coil leads to severe deterioration of the metal detector parameters!

Take the middle rod, unscrew plastic nut No.6 and mount the lower (carbon) rod. This telescopic connection allows adjusting the total length of the shaft according to your height. Make sure that the distance

between the aluminum part and the search coil is **at least 30 cm**. To fix the length, tighten the plastic nut.

Take the electronics component, unscrew the big plastic screw nut No. 7 and mount the shaft with the search coil. Then screw the nut back on until the movement of the coil against the shaft is restricted. Wind the cable tightly upwards around the shaft and make sure to leave the cable loose at the lower end near the search coil to avoid damage to the cable while the metal detector is folded for transportation.

**Warning:**

90 % of metal detector failures are caused by damaged cables as a result of negligent use!

Afterwards, plug the cable jack into the socket of the detector and tighten it gently. After this step, the detector is ready to use.

To disassemble the detector, follow the instructions in reversed order.

**5. Control Panel and Devices**



**Control features**

- “POWER LEVEL” potentiometer – sets the audio threshold and adjusts the search depth of the metal detector;

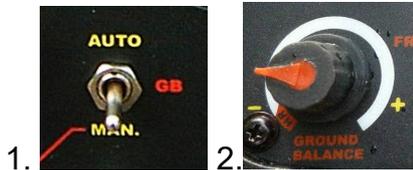


- “AUDIO FREQ.” potentiometer – adjust the audio tone;



- “GB” switch – switches between the operation modes (manual/ automatic ground balance pic.1). GM WD

(pic.2) has only ground balance potentiometer. Turning it on the left red half of scale you are switching GM metal detector to automatic ground balance.



- **“GROUND BALANCE”** potentiometer – eliminates the ground interference on the operation of the metal detector while in manual ground balance mode;



- **“DISC”** switch – selects between the two types of discrimination – multi-tone discrimination or audio discrimination;



- **“DISC. LEVEL”** potentiometer – sets the rejection level of iron objects;



- **“VOLUME”** potentiometer – switches on the metal detector and sets the audio volume;



- **“HEADPHONES”** jack – mono headphones could be connected if needed; GM 4WD Pro or GM 4W Pro have button on the battery holder. Switching it on you connect the wireless headphones to your metal detector.



- **“LOWBATTERY”** LED indicator – indicates that the battery is low.



- **8-18kHz** switch – selects between the two frequencies – 8 kHz or 18 kHz



## 6. How to Use the Metal detector

The “VOLUME” potentiometer is used to switch the metal detector on and to adjust the audio volume.

1. **Setting the metal detector in a “manual ground balance” mode (GB MAN)**

- The **“GB”** switch is set to **“MAN.”** and the **“DISC”** switch is set to **“MULTI TONE”**

- The **“POWER LEVEL”** potentiometer is positioned so that the detector makes a faint buzzing sound

- Use the **“AUDIO FREQ.”** potentiometer to choose the preferred audio tone

Start moving the search coil slowly up and down (**Figure 1**) and slowly turning the **“GROUND BALANCE”** potentiometer.

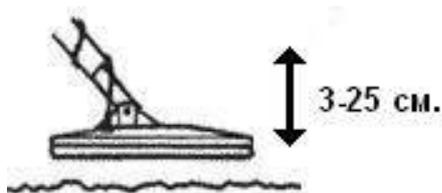


fig.1

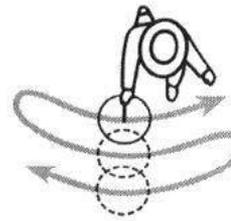
When the potentiometer is turned far to the left, you hear a low tone when the search coil approaches the ground surface, while in a far-right position, when the coil moves away from the ground – a high tone. Turn the potentiometer until the tone does not change or changes only slightly.

This mode is suitable for using the metal detector on low mineralized soils.

**Warning:**

Keep the metal detector away from metal objects while setting up the balance!  
In a manual ground balance mode, the metal detector has higher search depth than in automatic mode!

To search for metal objects, you need to move the search coil against the ground surface (**Fig. 2, Fig. 3**). Always move the search coil in close proximity to the ground since lifting it up reduces its search depth. The sweeps must be as smooth as possible. Faster coil sweeps (**Fig. 2**) help detect shallow targets (metals buried near the surface), while slower sweeps allow searching for metal objects deep underground.



движение на бобината при търсене fig. 2

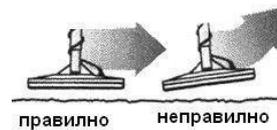


fig.3

The precise location of the detected metal is determined by moving the search coil along two perpendicular axes (**Fig. 4**).

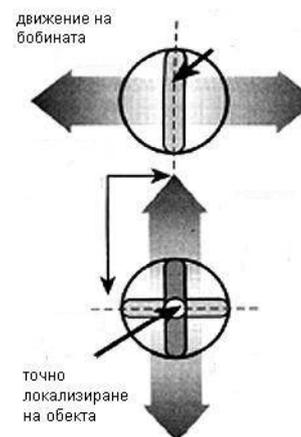


fig.4

**2. Setting the metal detector in an “automatic ground balance” mode (GB AUTO)**

Set the **“GB”** switch to **“AUTO”**.

In this mode, the **“GROUND BALANCE”** potentiometer does not work!

This mode is used on strongly mineralized soils when the detector is unstable in manual ground balance.

This is a suitable metal detecting mode for beginners.

## 7. Audio Discriminators

Metal discrimination is obtained through two audio discriminators.

### 1. Operation of the Audio Discriminator.

Set the “**DISC**” key to position “**AUDIO**” and the “**DISC LEVEL**” potentiometer to position **2-3**. Setting “**DISC LEVEL**” to a higher position improves metal discrimination, but at the expense of the search depth! If you want to discriminate most non-ferrous metals on the surface (modern pollutants), the potentiometer must be set to a position above **7**.

When a non-ferrous metal is detected (gold, silver, copper, bronze) the sound is deep-toned. When detecting a ferrous metal (iron), the sound is crackling and interrupted.

If the “**DISC LEVEL**” potentiometer is set to its maximum left position, the metal detector starts working in “**ALL METALL**” mode without metal discrimination!

### 2. Operation of the Multi-tone Discriminator.

Set the “**DISC**” key to position “**MULTI TONE**” and the “**DISC LEVEL**” potentiometer to position **2-3**. Setting “**DISC LEVEL**” to a higher position improves metal discrimination, but at the expense of the search depth! If you want to discriminate most non-ferrous metals on the surface (modern pollutants), the potentiometer must be set to a position above **7**.

When a non-ferrous metal is detected (gold, silver, copper, bronze) the tone is high. When detecting a ferrous metal (iron), the tone is low.

If the “**DISC LEVEL**” potentiometer is set to its maximum left position, the

metal detector starts working in “**ALL METAL**” mode without metal discrimination!

### Recovery Speed of the Metal detector

Golden Mask 4 incorporates electronics, specifically designed to provide high recovery speed to enhance the productivity of the metal detector on highly iron-contaminated terrains. To attain maximum recovery speed of Golden Mask 4, set the “**DISC LEVEL**” potentiometer to position **2** and the “**DISC**” switch to “**MULTI TONE**”.

### Search Depth for Metal Objects

The detection depth for metal objects depends on the position of the “**POWER LEVEL**” potentiometer. For maximum depth, turn the potentiometer to the right until you reach the audio threshold.

The detection depth for metal objects depends on a few factors.

#### 1. Size of the object

The greater the surface area of the object, the higher the detection depth!

#### 2. Orientation of the object with respect to the search coil

Horizontally positioned coins (objects) are more easily detectable at greater depths!

#### 3. Soil type

The detection depth is reduced in mineralized soils and, respectively, the depth is increased in homogeneous sandy soils.

#### 4. Discrimination level

Each metal detector, regardless of its brand and model, obtains maximum depth in a non-discrimination mode (“**ALL METALL**” mode). The higher is the metal discrimination; the lower is the detection depth. On low mineralized soils the level of discrimination has the smallest impact on

the detection depth and the parameters are close to those in “**ALL METALL**” mode.

### 5. Search coil size

Smaller search coils localize and detect small metal objects (coins). Larger search coils (>32 cm) have a greater search depth and are more suitable for detecting larger objects.

### 6. Time of the object buried underground

Metal objects which have been buried more than 5-6 months underground emit a stronger signal than at the time of being buried.

### 7. The experience and the skills of the operator

## 8. Charging the batteries

Rechargeable batteries have a life-span of about 500-600 charge/discharge cycles before they need replacement. However, these values are attainable under perfect laboratory conditions.

The metal detector is equipped with NiMh batteries **1000 mAh**. Prior to using the detector, the batteries must be charged with the automatic charger included in the set. The single charge operating time is minimum 20 hours (**using headphones significantly extends the operating time**).

During operation, the “**Low battery**” indicator will signal when the batteries need a recharge and you need to stop working. Plug the charger jack into the “**CHARGE**” socket and connect the device to an electric network of 220 V. The LED light of the charger turns red to indicate that there is electric supply. Charging takes about 4 hours, depending on the discharge level and capacity of the battery. The LED light

turns green when charging is completed. You do not need to supervise the charging process as the charger switches off automatically and the battery cannot be damaged regardless of the time spent in charge mode.

In reverse order, disconnect the device from the 220 V network and unplug the jack from the “**CHARGE**” socket.

The rechargeable battery could also be charged using your car cigarette lighter via a special charging device. Follow the instructions for use of the specific charging device.

To ensure maximum battery life:

- do not interrupt the battery charging before the process is completed;
- recharge the battery when it fully discharges;
- use only the chargers included in your metal detector set.

The charger has the following additional capabilities:

Indication of reverse polarity or short circuit in the cable by blinking red light of the LED.

### Practical Advice

Keep your metal detector away from water – rain or snow can penetrate the electronic block and the battery holder, and this can damage your detector!. It is safe to use it on wet grass because of the hermetical sealing of the search coil.

### Warning:

Do not leave your metal detector on wet grass or snow to avoid moisture penetrating the electronic block and especially the battery holder! **During assembly of the detector in wet or snowy conditions, avoid moistening the cable plug!**

Operating the metal detector in residential and industrial areas may be hampered by electromagnetic interference or the presence of modern iron pollutants. For a steady operation of the detector, you need to decrease the power (**POWER LEVEL**) and increase the discrimination level (**DISC LEVEL**) which, respectively, decreases the search depth.

Use only quality headphones, preferably with an in-built potentiometer for audio adjustment.

After continuous work with the detector and multiple plugging/ unplugging of the cable jack into/from the socket of the control box, it is possible that the connection between the two deteriorate (when gently touching the cable jack, the metal detector makes a sound as if detecting metal). You should carefully clean the contact surface of the cable plug with a needle or a fine file. For a better result, slightly bend inwards all openings of the cable plug.

Do not switch on the detector when the outside temperature significantly differs from the temperature indoors (i.e. in a warm room). Wait for about **20-30** minutes until the detector adjusts to the temperature change before you switch it on.

Do not switch on the detector while the batteries are being recharged. This can damage the electronics.

To clean the metaldetector after use, remove the dust and sand, and wipe with a damp cloth. Do not use alcohol, petrol, koresilin and other solvents as they can damage or remove the symbols on the control panel. If you operate your metaldetector on terrains where it is possible to localize ammunition or other explosives, take special care while excavating, because the manufacturer is not liable for your actions.