GOLD HUNTER

Gold metal detector that visualizes buried metals on your smatphone

User manual

TREASUREHUNTER3D
Makes underground treasures visible

Table of contents

Welcome

We would like to congratulate and thank you that you decided for GoldHunter metal detector and joined people around the globe that enjoy this fun and rewarding hobby.

GoldHunter was designed as first metal detector on the market that uses advanced smartphone technologies that enables users to not only find gold nuggets, coins and treasure, but also visualize them on screen before digging.

Here at TreasureHunter3D we are constantly focusing on innovating in order to provide high quality, affordable & easy to use products that incorporate high technology to our customers, by purchasing this device you are helping us to push metal detecting to the next level.

TreasureHunter3D team wishes you successful treasure hunting.

The latest product instruction manuals and detector software updates are available at:

https://www.treasurehunter3d.com

Felix Wilkins USA

I loved the idea of GoldHunter from the first place. Augmented reality 3D scan preforms so smooth that it is hard to believe such technology is available for such an affordable price. Device performs great in all soil conditions even in highly mineralized areas.

Viviano Dellucci Italy

GoldHunter is most advanced metal detector I have ever own. It is very helpful to observe shape of the objects, this gives me more insight into buried WWII relics before I dig.

Read before use - important notes

Metal detector safety warnings

Any piece of equipment can be dangerous if not operated properly. It is YOU who is responsible for the safe operation of this equipment. Any metal detector may discover explosives, underground power lines, sharp objects or other items that could cause personal injury.

The company or the manufacturer of the metal detector device DOES NOT ACCEPT responsibility for any personal injury or personal property damage!

To make your search more secure, please follow this precautions:

- never treasure hunt in a zone where bombs or other explosives may be buried,
- never treasure hunt in an area where there might be underground electric lines or pipes buried at a shallow depth,
- never treasure hunt in an area with flammable gas or liquid pipelines,
- always use reasonable caution in digging, especially in areas where you are uncertain of underground conditions,
- for safety reasons do not use headphones near traffic or other dangers like rattlesnakes.

Treasure hunter's code of ethics

- Respect the rights and property of others. Do not enter private property without the owner's permission.
- Always check Federal, State, County and local laws before searching
- Never destroy historical or archaeological treasures.
- Take care to refill all holes and leave the land and vegetation undamaged
- Always Appreciate and protect our inheritance of natural resources, wildlife and private property.
- Remove and dispose of any and all trash and litter found. Be extremely careful while probing, picking up, or discarding trash items.
- Keep in mind that all treasure hunters may be judged by the example you set

Safety precaution for use

- In order to prolong metal detector device life it is important to follow these precautions:
- Do not modify, disassemble, or open this product.
- When device is not used for a longer period of time always remove the battery
- Do not expose your detector to extreme temperatures, particularly inside a car in full sun.
- Use and store the metal detector only in normal temperature environments. Temperature extremes can shorten the life of electronic devices and distort or melt plastic parts.
- The metal detector device is not waterproof. Make sure that you protect it in wet weather.
- Do not use solvents or alcohol to clean the detector. Soapy water is sufficient.
- Handle the metal detector gently and carefully. Dropping it can damage electronic components.
- avoid strong magnetic fields generated by large magnets, loudspeakers or motors
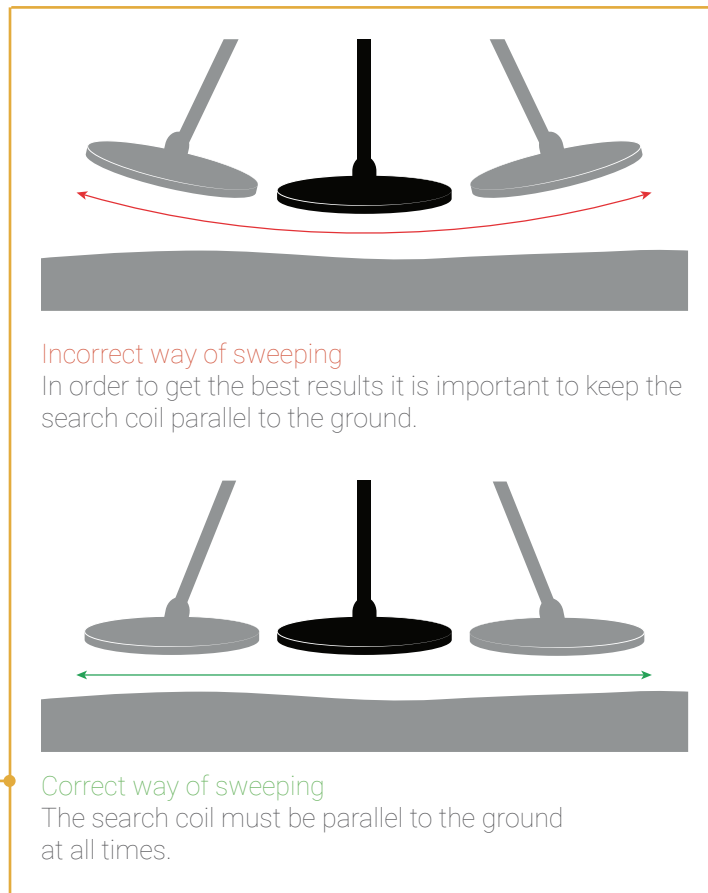
Assembly & getting started

Assembly

1. Attach coil to lower shaft.

2. Connect coil.

3. Fix smart control unit and make sure the batteries are inserted.

4. Mount smartphone.
   Make sure home button is on right side and that the path between smartphone camera and searchcoil is clear.

5. Adjust the height of the shaft.
   Your arm should be relaxed and the search coil position approximately 5 cm above the ground.

6. Learn to sweep properly.

Incorrect way of sweeping
In order to get the best results it is important to keep the search coil parallel to the ground.

Correct way of sweeping
The search coil must be parallel to the ground at all times.

Battery

The detector requires a single 9-volt ALKALINE or rechargeable Lithium-Ion or nickel-metal hydride battery.

The battery is located on the back side of the smart control unit.

Battery Status Indicator

The battery status indicator shows the current battery level.

🔋	70% − 100%
🔋	30% − 70%
🔋	<30%
🔋	<5% (Battery is empty)

When battery is empty, LED indicator on the smart control unit will start to blink.

Smart control unit

GREEN
device
turned ON

BLUE
smartphone
connected

Headphones connector

Sensitivity / gain knob

Volume buttons

Pin-point / Ground grab button

Threshold knob

Discrimination /
ground balance
buttons

Power button:
Holding this button for
3 seconds turns device
ON / OFF

Smartphone application

GoldHunter uses iOS application to display detector information as well as 3D object scans.

In order to use all GoldHunter features, iPhone 6s or later model must be used.

1. Install GoldHunter application
   Applications can be downloaded from
   http://www.treasurehunter3d.com/downloads
   or installed from AppStore.

2. Make sure bluetooth is turned on.

3. Turn metal detector ON & run the application.
   LED indicator will turn blue indicating smartphone is connected with metal detector device.

4. **Congratulations, metal detector is now ready to be used!**
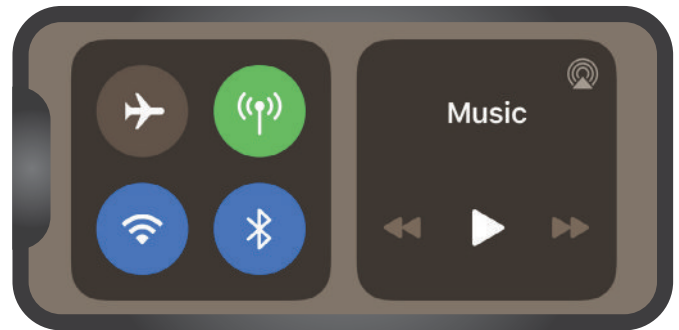
Quick start guide

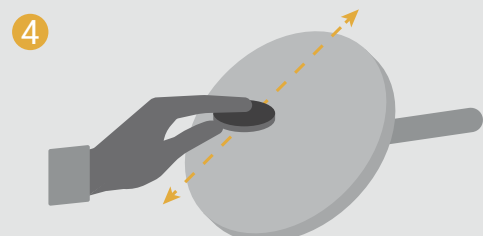1. From the main menu select Discriminator mode.
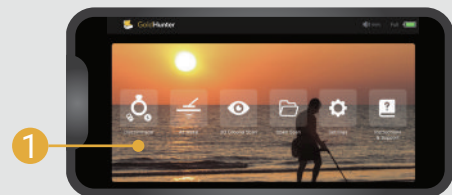
2. Turn Sensitivity knob to middle position (12:00).

3. Set volume to 50%.

4. Use test sample that was included, move it above the coil, gold icon indicator should lit and you should hear sound from the speaker.
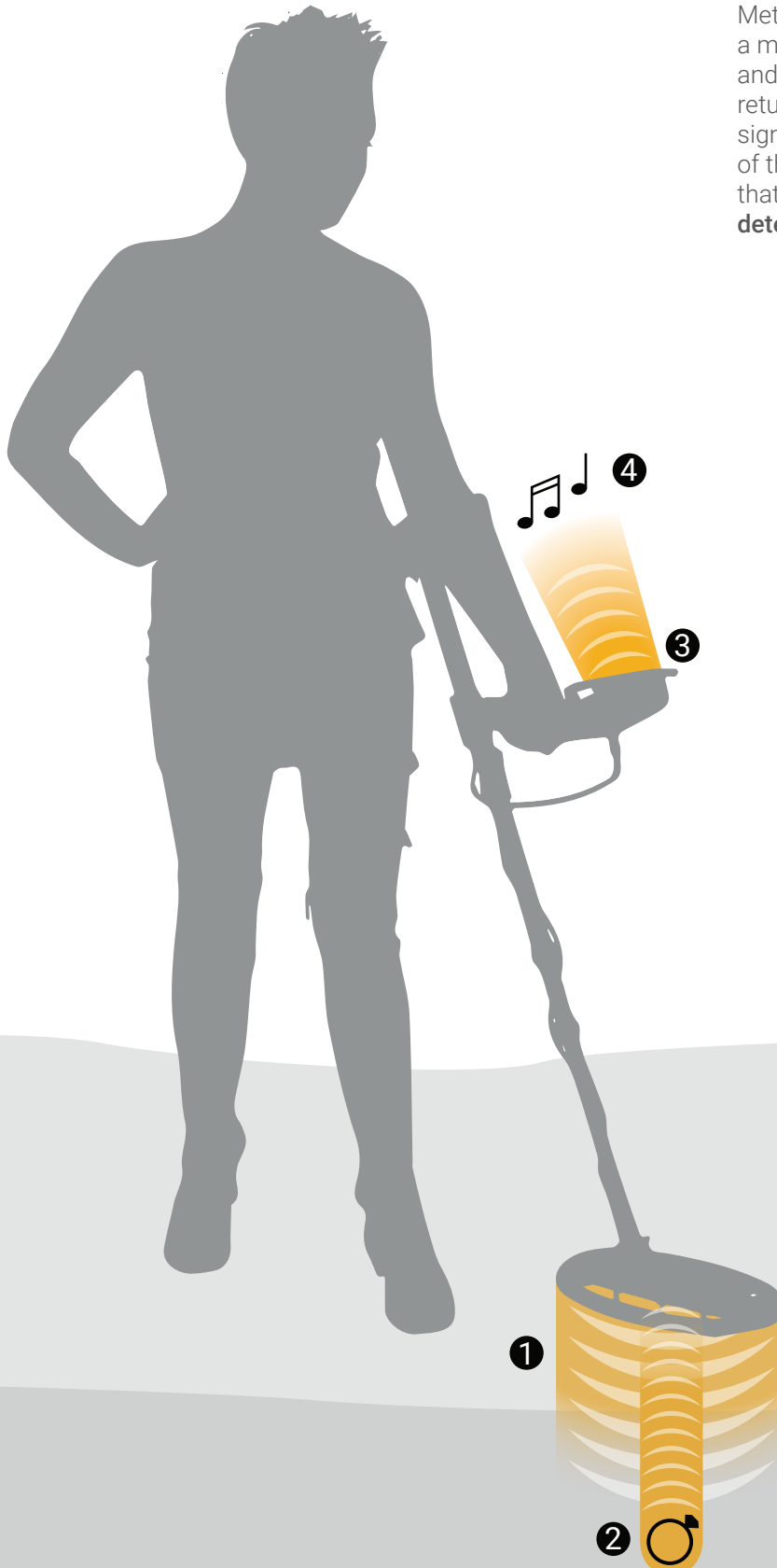
Detector basics &
operating modes

How does detector work?

Metal detectors work by **1**. **transmitting** a magnetic field generated by coil and then **2. analyzing** that field as it returns from the environment that the signal was transmitted. **3. Processing** of the signal is done by control unit that **4. generates** audio tones when it **detects** that return signal has changed.

GOLDHUNTER DETECTOR OPERATES IN THREE MODES

① DISCRIMINATION MODE

This mode is recommended for starters and beginners, it is simple and easy to use, it provides quick information of type and depth of buried object and good performance.

② ALL METAL MODE

This mode provides even better performance since it enables user to eliminate false signals caused by soil mineralization and achieve more depth and higher sensitivity. We recommend to start using it when you are already familiar with Discrimination mode.

③ 3D GROUND SCAN MODE

This mode enables user to scan the ground and visualize targets on the screen. Before start using this mode, we recommend to first learn about basics of metal detecting get familiar with Discrimination mode.

Discrimination mode

How to identify buried objects or what is Target ID?

Target ID is used to distinguish one type of metal target from other. GoldHunter detector offers three Target ID presentations for beginners and also for advanced / experienced users.

TARGET ID SCALE helps user to which group of metal types target belongs to.

When search coil is moved over the target, dot on the Target ID scale classifies metallic object as ferrous (iron) or targets with lower conductivity, nonferrous (gold) targets with higher conductivity.
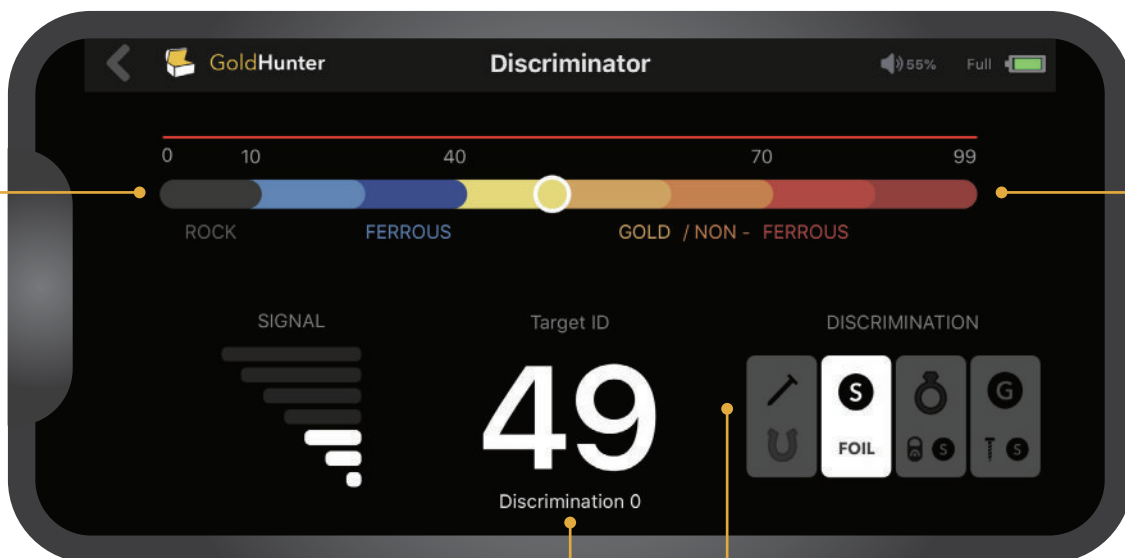
TARGET ID VALUE - numeric presentation of target ID.

When search coil is moved over the target, target ID will be updated with number form 0-100.

TARGET ID ICONS are most simple way of expressing metal target type.
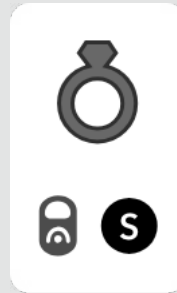
When search coil is moved over the target icon presenting type of metal will be highlighted.
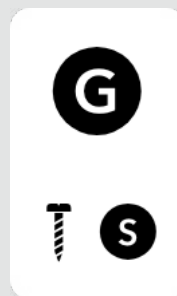
TARGET ID ICONS

E.g. Iron objects, nails and horseshoes.

E.g. Rings, pull tabs and lower value coins.

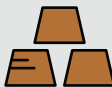E.g. Aluminium foil and lower value coins.

E.g. Low and high value coins and screwcaps.

Target ID accuracy

There are many factors that influence on Target ID accuracy, like soil mineralisation or angle between target and coil, by gaining experienced in the field, you should be able to recognised many types of targets by Target ID value.

TO GET SOME FILLING ABOUT TARGET ID VALUES, HERE IS A TABLE WITH SOME COMMON VALUES:

GOLD	TARGET ID
Small Gold Earring 14k	28
Thin Gold Ring 14k	45-46
Gold 10k Ladies Classic Ring	65
Gold ring with Gem Stone, Large	72-74
Heavy gold ring 14k	80-81
Gold Band	80-86

COPPER	TARGET ID
3-Cent, copper/nickel 1865-1889	61-62
Big flat Copper Button	79-80
Large Copper/Bronze Ring	81-83
Large Copper/Bronze Ring next to nail	76-78
Large flat Copper button d=21mm	83-84
Large flat copper button d=35mm	85-86
Copper Half cent	88-89
Copper – King George III panny	94
Connecticut copper	94

SILVER

SILVER	TARGET ID
Silver engagement ring	82
Silver Sterling stud earrings	83-85
Silver engagement Ring with Gem stone	83-86
Silver shamble	84-89
.925 Silver Ring	92
Silver Love/Friendship ring	91-92
Silver signet ring	95-97
Silver signet ring next to nail	69-71
Silver ring with small diamond	95-96
Silver ring with small diamond next to nail	82-85

WAR ARTIFACTS

WAR ARTIFACTS	TARGET ID
.22 Bullet casing	39
Civil War button	49
Cuff Button	74-76
7.62 Bullet casing	82
Iron Musket ball	90

TRASH

TRASH	TARGET ID
Foil	34
Can	65-70
Small size Ring Tab	71-72
Medium size Ring tab	73-74
Large size Ring Tab	75-76
Screw Cap	88-89
Beer bottle cap	89-96
Rusty sheet Iron	91-96
Rock	0-8
Hot rock	97-100
Salt	0-2

OTHER MATERIALS

OTHER MATERIALS	TARGET ID
Brass head of gun shell	53-55
Platinum Ring	64
Lead bale Seal	72-74
Wedding band	75
30x30 Brass casing	78
Lead coat weight	82-83

OTHER COINS

OTHER COINS	TARGET ID
Jefferson nickel 2004	63
Jefferson nickel next to nail	43-45
Flying Eagle cent	74-75
Indian Head cent (1859)	75-76
Indian head cent (1864-1909)	84-85
Zinc Memorial cent (1982-2008)	85-86
Memorial cent	91-93
Larg cent classic head	94
Half dime, Seated Liberty	84-85
Dime Rosevelt	91-93
Dime Barber	91-93
Dime Seated liberty	91-93
Quarter stand liberty	95
Quarter Washington	95
Quarter Barber	95
Half dollar kennedy	96
Half dollar walking liberty	96
Half dollar Franklin	96
Dollar Eisenhower (1971-1978)	96-99
Dollar Peace (1921-1935)	96-99
Dollar Morgan (1878-1921)	96-99

What does gain knob do?

The higher sensitivity, the deeper or smaller objects can be detected.

In **DISCRIMINATION** mode, sensitivity can be adjusted using **GAIN** knob.

For beginners it is recommended to start with gain at middle position or lower, so that you don't hear any sound when sweeping with search coil over clear ground where no metal is present.

How to determine depth and exact location of buried objects?

Press and hold pin-point button will help to narrow down the location of buried object.

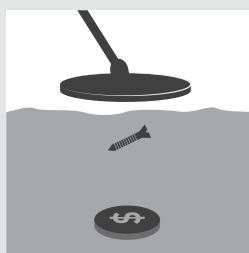During the pin-point mode approximate target depth will be displayed on the screen in inches.

Relative depth is always displayed on the display as **SIGNAL** bars. Strong signal indicates that target is large and massive or it is small but very close to the surface.

Notice that depth estimation is always approximation & works well only under ideal conditions, but in reality there are many factors that can affect depth estimation and also how deep

BEEP!

Move 90° and repeat
The intersection of the two lines marks the exact location of the target
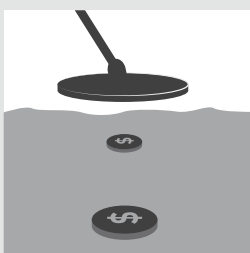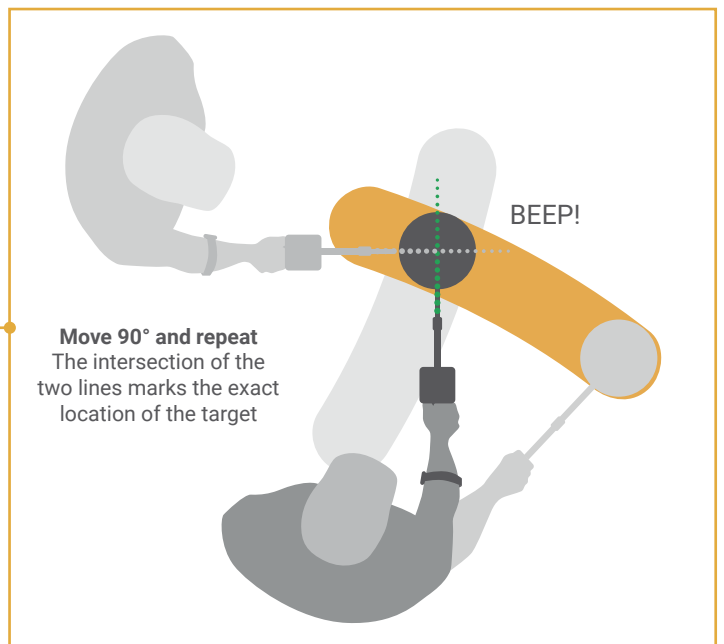
Target Size

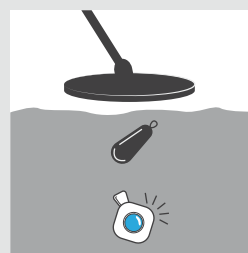Large targets can be detected deeper than small targets.

Target Shape

Circular shapes (e.g. coins and rings) can be detected deeper than long thin shapes (e.g. nails or screws).
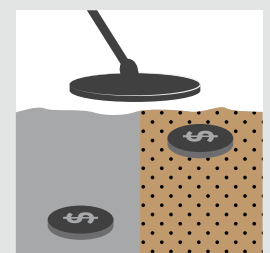
Target Orientation

A horizontal coin (e.g. lying flat) can be detected deeper than a vertical coin (e.g. standing on its edge).

Target Composition

Highly conductive metals (e.g. silver) can be detected deeper than less conductive metals (e.g. lead).

Ground Mineralisation

A target in benign (unmineralized) ground can be detected deeper than a target in heavily mineralised ground.

How to setup detector to ignore items like nails, cans & aluminium foil?

Discrimination is ability of metal detector device to eliminate unwanted targets like trash & metal objects from detection.

When GoldHunter operates in **DISCRIMINATOR** mode, user is able to set discrimination level using + - buttons on the control box.

BLUE and **RED** line on top of Target ID scale indicates weather certain target types will only generate lower tone sound or they will be completely discriminated - this means detector will not generate any sound for them.

EXAMPLE:
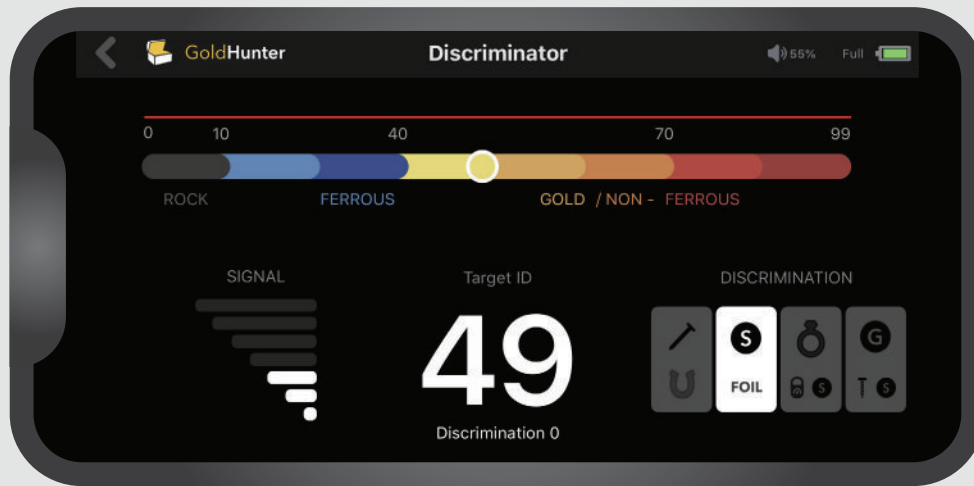
When discrimination is set to zero (default setting), all targets will generate high tone, indicated by red line.
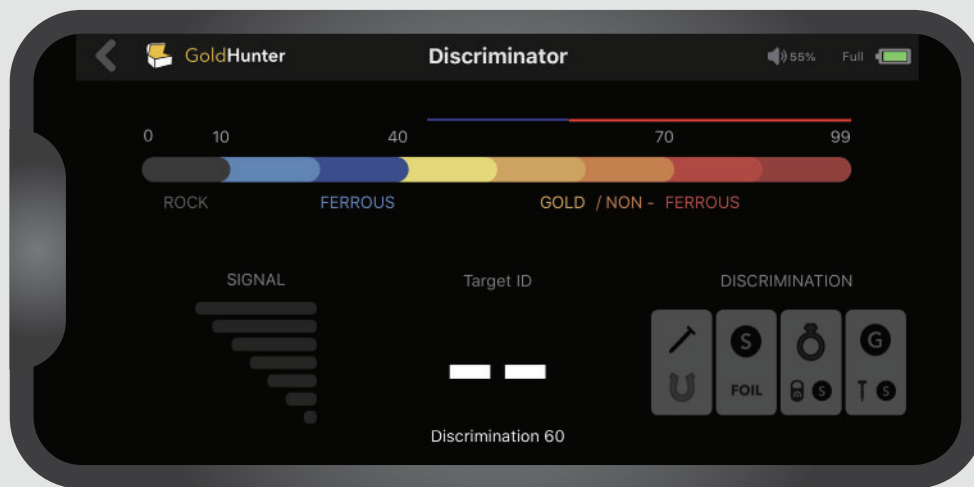
From the above screen we can see that discrimination level is set to 60, all items with Target ID <45 will not be detected and will not generate any tone, LOW tone will be generated for targets with ID between 45 and 60 (blue line) while all others above 60 will generate HIGH tone (red line).

All-metal mode

How to eliminate interference of ground minerals?

Soil contains iron minerals that can cause much higher signals than buried targets we are interested in. With ground balancing we calibrate detector device to local ground, this eliminates false signals from minerals , enabling detector to detect deeper and provide more accurate Target ID results.

TO GROUND BALANCE GOLDHUNTER FOLLOW THIS PROCEDURE:

1. Enter **ALL METAL** mode from the main menu.

2. Set Gain to middle position.

3. Rotate Threshold know to the point where you hear background hum.

4. Sweep search coil across the ground. Make sure you have found a clear place with no metal present.

5. Press & Hold GG button & raise and lower the coil repeatedly over clear patch of soil.

6. Observe GND PHASE value, when is settles down to 1 or 2 numbers in variation, release GG button, while still pumping the coil.
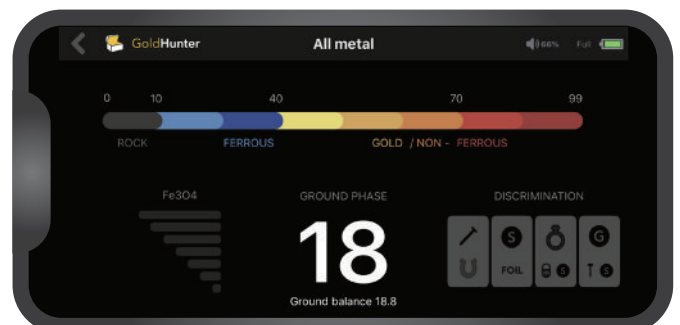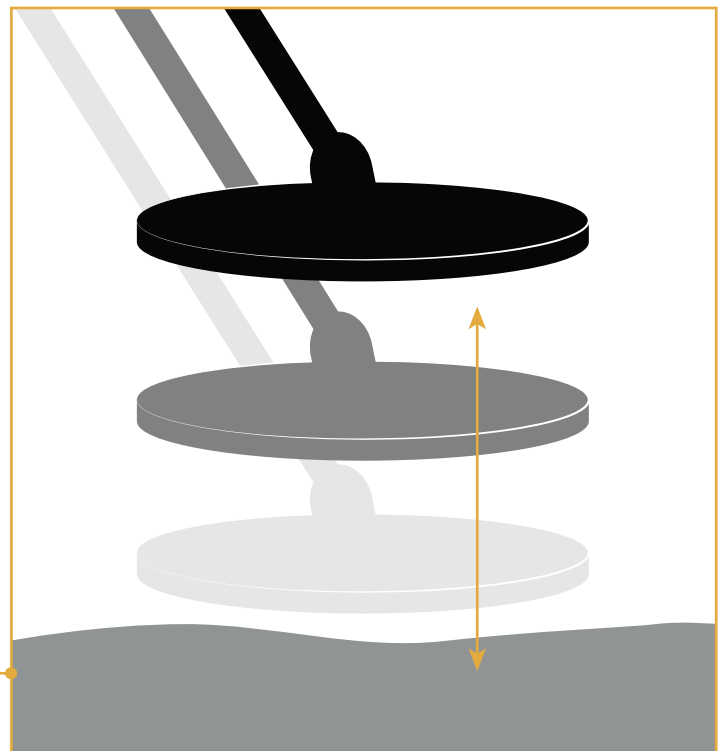
Manual adjust

User is also able to manually set or adjust Ground Balance values by + an - button on the control box.

For fine adjustment user should continue to raise and lower the coil repeatedly over clear patch of soil, if the sound is louder as you rise search coil, user should increase ground balance, if sound is louder while lowering search coil, ground balance should be decreased.

Notice that in the ALL-METAL mode value in the middle presents GND PHASE or type of ground mineralization and not Target ID as in DISCRIMINATION mode.

Fe_3O_4 indicates amount of ground mineralization. If amount of mineralization is too high detector will not be able be usable anymore in this scenario try to keep the coil higher above the ground.

SOME TYPICAL GROUND MINERALIYATION TYPES ARE:

Wet salt and alkali	0 - 10
Metallic iron. Very few soils in this range. You are probably over metal.	5 - 25
Very few soils in this range - occasionally some saltwater beaches	26 - 39
Red, yellow and brown iron bearing clay minerals	40 - 75
Magnetite and other black iron minerals	75 - 95

What is best adjustment of Gain & Threshold?

In order to achieve best performance in ALL METAL mode, user must learn how to properly set Gain & Threshold.

FOR BEST PERFORMANCE & MAXIMUM SENSITIVITY:

1. Set Gain at low level.

2. Set Threshold to positive value >0, so that you will hear some background hum.

3. Then increase Gain to a comfortable level.

FOR MORE COMFORTABLE SILENT SEARCHING:

1. Set Threshold to zero or negative value.

2. Reduce gain if necessary.

3D ground scan mode

Performing 3D ground scanning

3D ground scan mode enables user to visualize buried objects. In order to perform 3D scan of an object user should do the following:

1. Enter 3D ground scan mode.

2. Hold finger on the circle and align it with the metal - detector coil, so that the circle will be right in the middle of the coil.

3. Press Pin-point/Ground Grab button to start scanning process.

4. Move device left and right in order to calibrate positioning sensor. Once the sensor is calibrated, "Scan in progress" message will appear on screen.

5. Move detector coil slowly from left to right over the area you would like to scan.

6. Once area is scanned, press Pin-point/Ground Grab button to stop scanning.
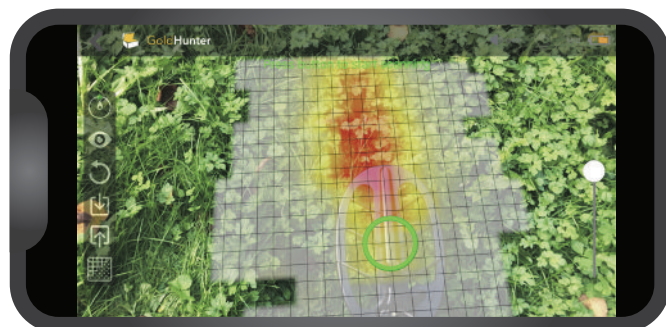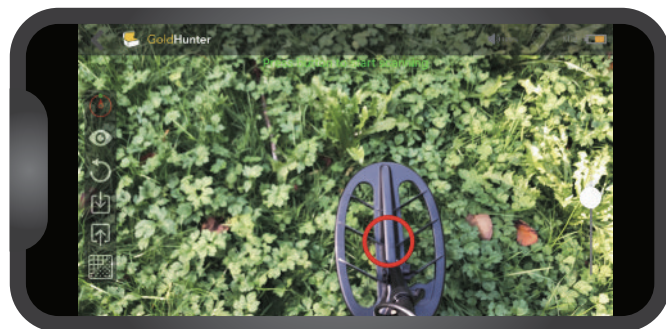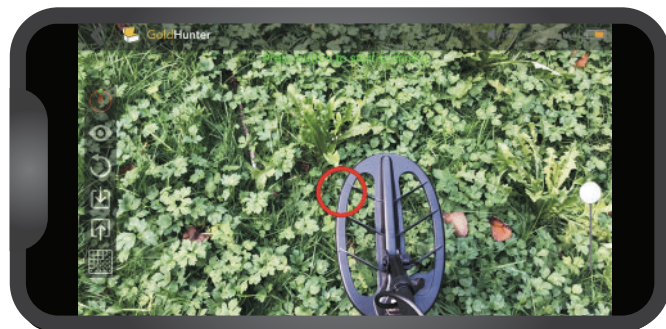
Observing & processing scan results

1. Press 👁 button in order to observe & process scanned results in 3D ground scan viewer.

2. Use iOS native touch functions to rotate, zoom or move 3D scan.

3. Press 🔄 to enable smart 3d scan processing.

4. Use sliders to adjust processing parameters and then press ⊘ to apply them and enhance target shape.
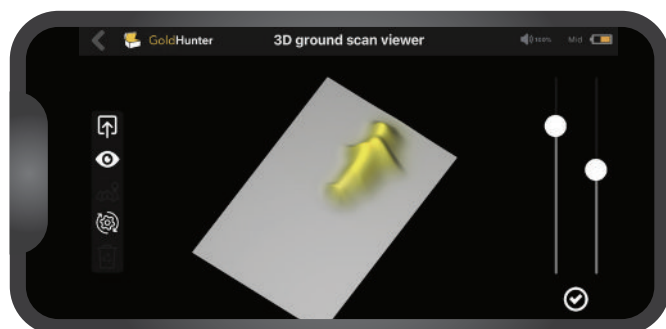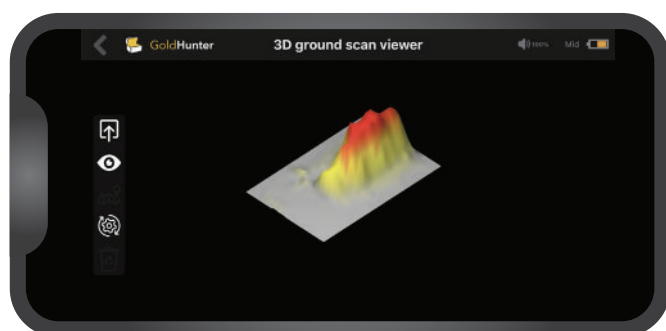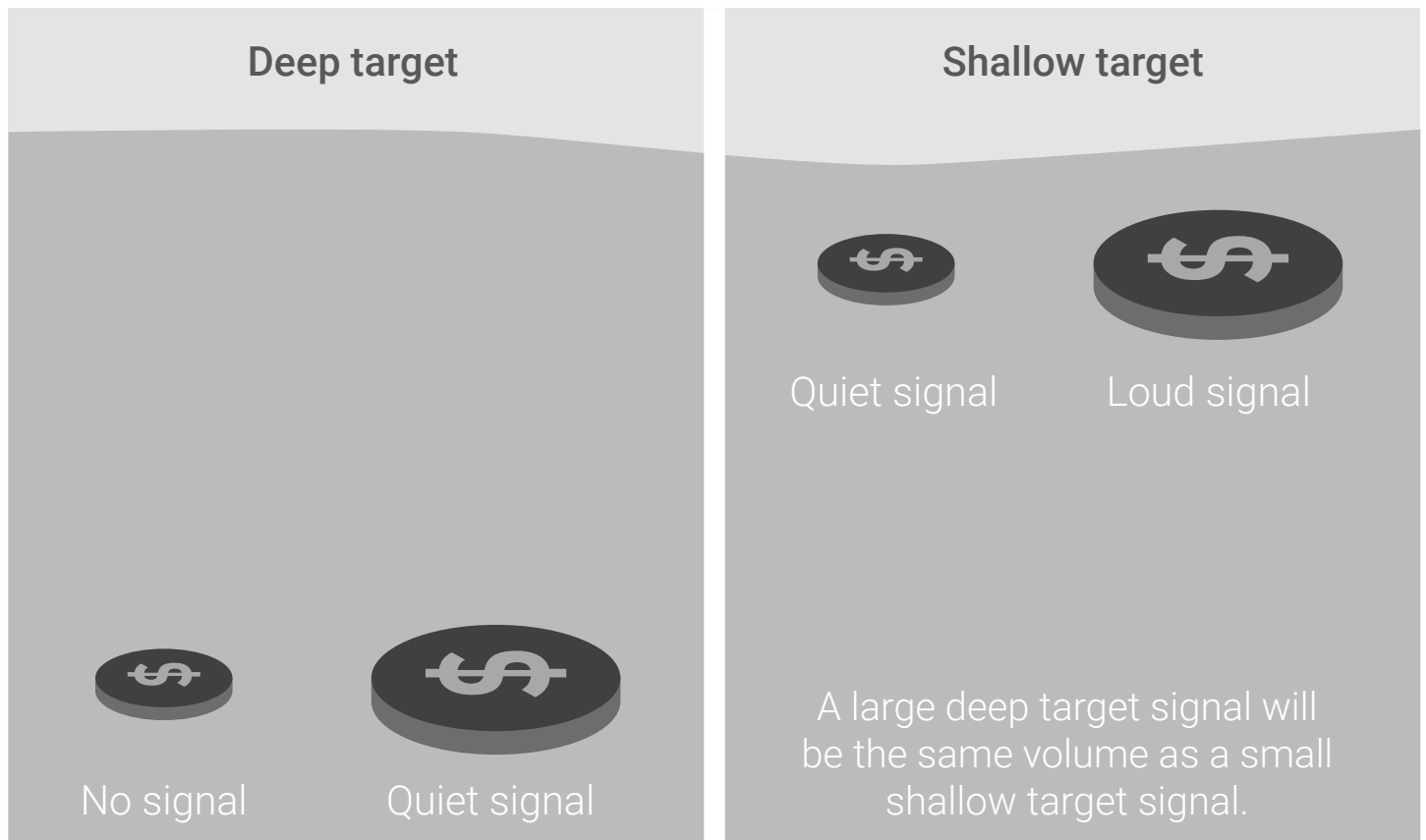
Detector sounds and environmental interferences

When target is detected metal detector device produces sound through internal speaker or headphones when it those are connected. User is able to adjust volume by +- buttons on the control box at any time.

VOLUME & TARGET PROXIMITY

Deep target	Shallow target
	Quiet signal Loud signal
No signal Quiet signal	A large deep target signal will be the same volume as a small shallow target signal.

NOISE AND FALSE SIGNALS

The detector may pick up unwanted noise signals through air or from the ground and start generating false sound indications, loose sensitivity, display wrong Target IDs and produce uncomfortable sound even when there is no real target detected.

Possible sources of such noise are:

- EMI (electromagnetic interference) near electrical power lines (both overhead and underground) or other electrical devices (fences, computer systems, fluorescent lights, electric motors or even other metal detector devices)
.
- Ground noise caused by high levels of mineralization.

Recommendations:

- try to avoid using detector indoor or near other electrical devices

- keep detector 15m away from other metal detectors

- learn how to ground balance detector to minimize noise of soil mineralization (see chapter ALL METAL mode)

- in bad conditions try to lower Sensitivity/Gain and Threshold, even if you lose some sensitivity you will at least be able to continue with search

- When used in Discrimination mode - adjust discrimination level between 60-70

Smartphone
application features

Connectivity splash screen

Connectivity splash screen will appear when device is not connected or connection with device was lost. In such situation user must make sure:

- that battery is installed in metal detector and is full
- detector is turned on (LED indicator is green or blue)
- bluetooth on the smartphone device is turned ON
- smartphone is installed on device holder

Main menu

From the main menu user is able to:

- enter Discriminator mode (described in Discriminator mode chapter)
- enter All metal mode (described in All metal chapter)
- enter 3d Ground scan mode (described in All metal chapter)
- enter stored 3d scans browser
- enter settings menu
- access GoldHunter instructions & support information
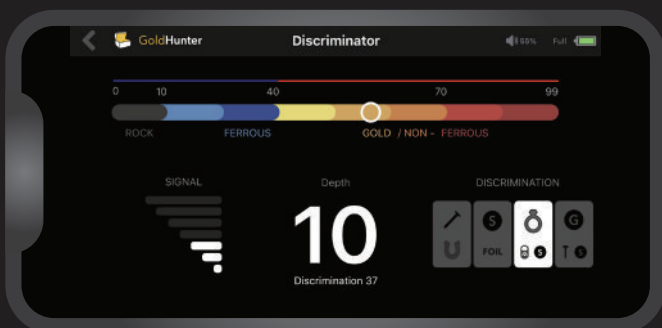
Discriminator mode

When device is operating in discriminator mode user is able to:

- observe Target ID icons
- observe Target ID value
- observe Target ID scale
- adjust device sensitivity by knob
- adjust discrimination level by +- buttons
- adjust volume by +- buttons
- enter pin-point mode and observe buried target depth, by pressing and holding pin-point button
- observe relative depth or size by observing signal strength
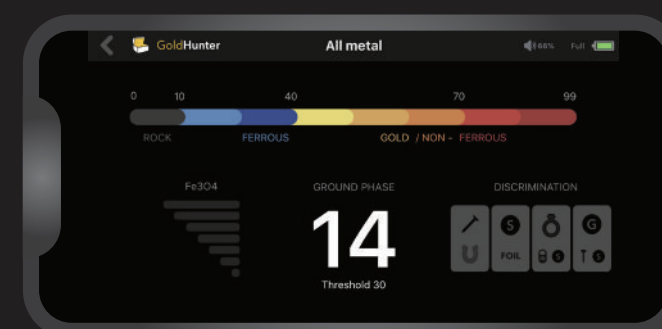
All metal mode

When device is operating in discriminator mode user is able to:

- observe Target ID value on scale
- adjust device Gain by knob
- adjust device Threshold by knob
- ground balance metal detector by Ground Grab button
- observe Ground phase of mineralized soil
- observe Fe3O4 level
- adjust volume by +- buttons
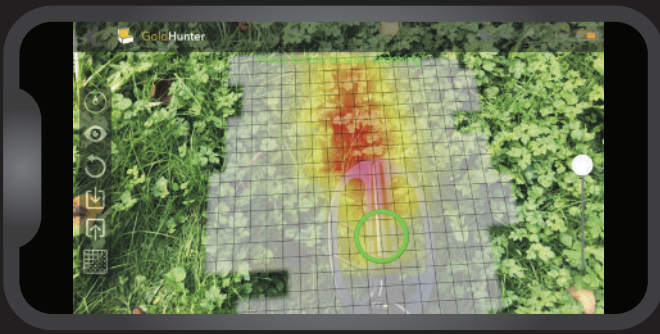
3D ground scan mode

When device is operating in 3d ground scan mode user is able to:

· Adjust transparency of scanned data
· Enter 3d scan viewer to observe scanned data
· restart 3d ground scan system in order to start new scan
· adjust scanning circle position
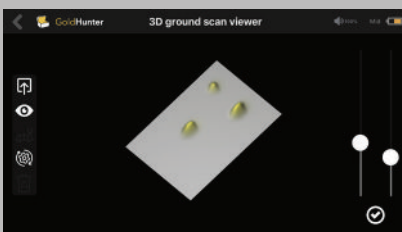· observe proper device handling indicator
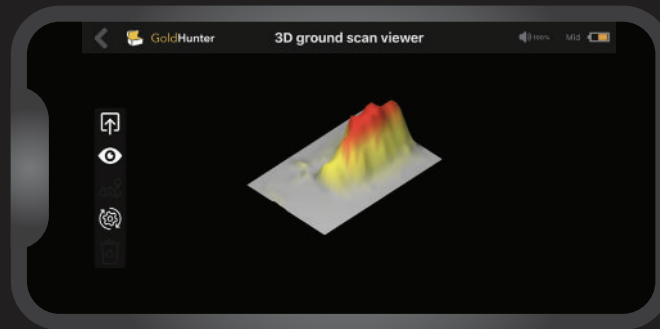
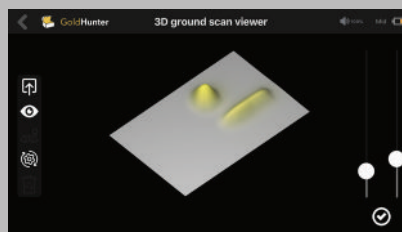# Observe & process scan results

3D scan viewer enables user to:

· observe scan results in 2D or 3D
· rotate, zoom or move 3D scan
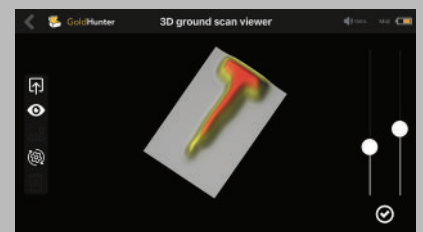· adjust processing parameters to enhance target scan/ shape

3D scan examples

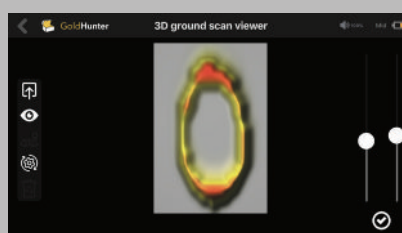
Three gold coins

Gold nugget and ferrous metal / nail

A piece of T shape ancient dagger
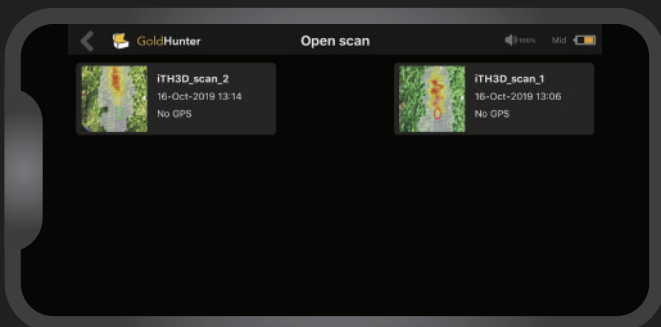

Metal frame of bunker entrance


Shield round shaped frame

Share/save 3D scans / open scan

- share screen as image or as comma separated values format (csv. data) that can be imported into other 3d mapping softwares
- save 3d scan

Browse stored scans / open scan

In the 3d scan browser user can browse stored scans. Each scan is stored under unique name and also with GPS location where it was taken. Notice that GPS location is stored if this feature is enabled in settings.
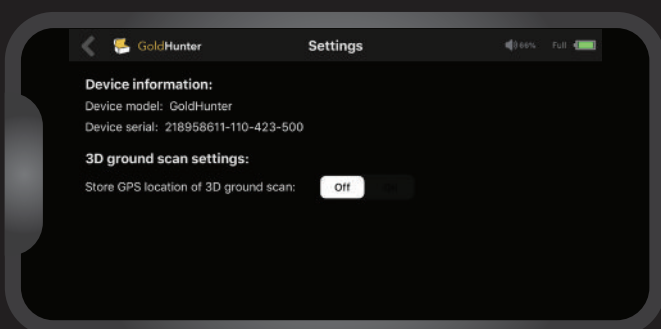
Device info & settings

In setting menu user is able to:

- see device serial number and device model information
- enable location information for stored scans

Using detector without smartphone application

For basic use, GoldHunter can be also used without smartphone application. All controls will behave the same, switching between Discriminator and All-metal mode can be done by short pressing PWR button.

Technical spec. & warranty

Technical specification

Weight:	1.2kg
Material:	Carbon & plastic
Batteries:	single 9V
Searchcoil:	• 11" DD elliptical waterproof search coil for deep penetration • 5" DD Round Closed Waterproof Search Coil
Operating principle:	VLF induction balance
Operating frequency:	19kHz
Battery life:	5h
Operating temperature range:	-10 to 50 *C
Operating humidity:	0-90%
Bluetooth connectivity:	Bluetooth 4.0 low energy radio
Connectors:	Audio jack for headphones connection

Warranty

1 YEAR LIMITED WARRANTY

The metal detector device is warranted against defects in materials and workmanship under normal use for one year from the date of purchase. Damage due to neglect, accidental damage or misuse of this product is not covered under this warranty. Decisions regarding abuse or misuse of the detector are made solely at the discretion of the manufacturer. Proof of Purchase is required to make a claim under this warranty. Liability under this Warranty is limited to replacing or repairing, at manufacturer choice. Warranty does not cover shipping costs.

According to FCC part 15.21 Changes or Modifications made to this device not expressly approved by the party responsible for compliance could void the users authority to operate this equipment.

TREASUREHUNTER3D

Makes underground treasures visible

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