



DIGGER 800 - ULTRA

User Manual



DIGGER 800-ULTRA User Manual
The latest GROUNDWATER detector



Index	page 1
Important Nots	page 2
Technical specifications	page 3
Device Parts	page 5
Main Unit	page 6
Main Unit Setup	page 7
Search System	page 11
Charging	page 18
Notes.....	page 19



The operating in high voltage areas would limit the results and performance



It's better to turn off mobile while using the device.



Don't operate two devices with same method of search at the same place



Don't store in high temperature or high humidity



Any attempt to tamper the device or unapproved maintenance would void the warranty



The operator Must remove any metals that might affect the operation eg: Rings, watch, belt...



- ❖ The user must practice before starting the detecting operations and discoveries
- ❖ Store in Cool and dry place 15-40 C 5%-75% humidity



Read & Understand
The User's manual
before using this device

Detect for:	Search for Groundwater Under ground.
Detection System:	Long Range Locator System, the system detects the energy levels around the target (LRL SYSTEM)
Operating processor:	MICROCONTLLER PIC18 & ARM 7
Processing procedures:	LRL treatment for energy levels formed around the target's ground area LRL
Depth of search program:	650 m
Distance of search program:	1250 m
Automatic and intelligent guidance system:	Yes, through the graphical interface indicating the locations and direction of the target
Voice alerts:	Yes
Vibration alerts:	Yes
Power :	3 Li-IoN 3.7v Cells equal 11.1 v
Battery working hours:	12 working hours
Charger:	UNIVERSAL SMART CHARGE 1A
Display Type:	TFT Color Monitor 3.5" INCH , 48Mhz , CDMA GPU

Operating temperature:

From °15 C to °60 C

Storing temperature:

From °15 C to °40 C

Humidity:

It can be stored and operated at the average air humidity level of %5 to %80.

Device weight

3 KG with the case

Device dimensions

19 x 12 x 5.5 cm

case dimensions

40 x 33 x 21 cm

Main unit

It is the unit responsible for leading the research and processing the data extracted from the ground and displaying it on the screen using the latest and most advanced interactive programs and systems.



Transceiver antennas

Two antennas to send and receive the waves returned from the target as a result of the transmitted waves of high sensitivity.



Grip

The free-moving handle allows the device to rotate axial movement. With the feature of direct installation and disassembly, it is easy and practical.



Battery charger

Plugs into the charging socket on the side of the unit.



Main unit



- 1 Connect the antennas to their respective places on the front of the device as shown in the drawing.
- 2 charging socket
- 3 Connect the Grip

- 4 On and off button
- 5 Laser button
- 6 Laser to determine the direction of the target with high accuracy

Note: It only works while searching. In the case of the interface (SEARCH STARTING)

Set up and work on the device

- ❖ To turn on the device, press the Power key located on the left side of the device, and the boot screen shown in the attached image will appear.



- ❖ When the device is first turned on, the language selection screen appears. You can switch between languages through the navigation button, and the desired language is selected by pressing the confirmation button, so the device moves to the main interface.
- ❖ Then the device will automatically go to the main interface shown in the attached picture.



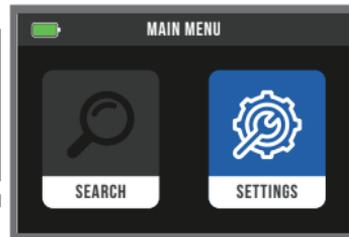
- ❖ The main interface contains two search icons to enter the search system and start searching and settings to adjust the device settings in addition to an indicator indicating the level of battery charge present in all interfaces, the transition between the icons is done by pressing the MOVE button, to confirm one of the two options we press the confirmation button OK.



- ❖ When selecting the search icon.



- ❖ When selecting the settings icon.



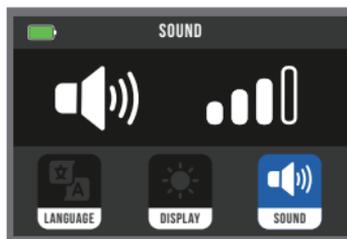
- ❖ When we choose the settings icon and press the enter button, a settings interface appears that enables us to reset the device. So that the settings interface contains options for adjusting both sound and brightness, in addition to the device's language.



- ❖ **Brightness Adjustment:** When selecting on the brightness icon, the screen brightness value is changed by pressing the OK button to change the brightness value from %10 to %100



- Adjust the volume: when selecting the volume icon, the volume is changed by pressing the OK button to change the volume levels in addition to the silent mode.



- ❖ **Language setting:** Press the OK key to choose one of the available languages
English - German - Farsi - Arabic

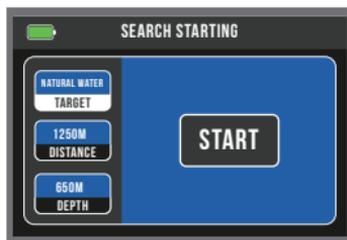


To return to the settings interface, press the back button.

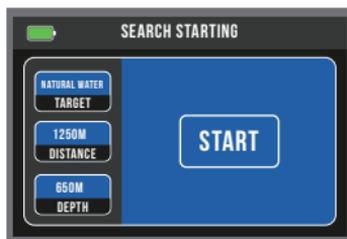


When selecting the search icon and pressing the OK button, search system interface appears where it is moved to specify the search parameters using the MOVE button, at the beginning, the type of target to be searched is selected from among the following 4 available multiple targets:

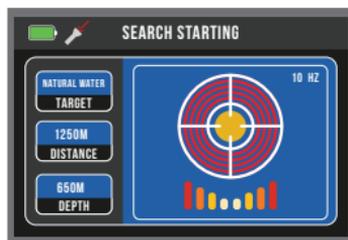
(**Natural water - Mineral water - Salt water - All types of water**) By pressing the OK button, in the same way, both the distance parameter, which reaches **1250m**, and the depth, which reaches **650m**, is determined.



Click start search after install and prepare the device attachments



How the search system works



❖ When we press start search, the search interface appears, which contains search options previously identified.

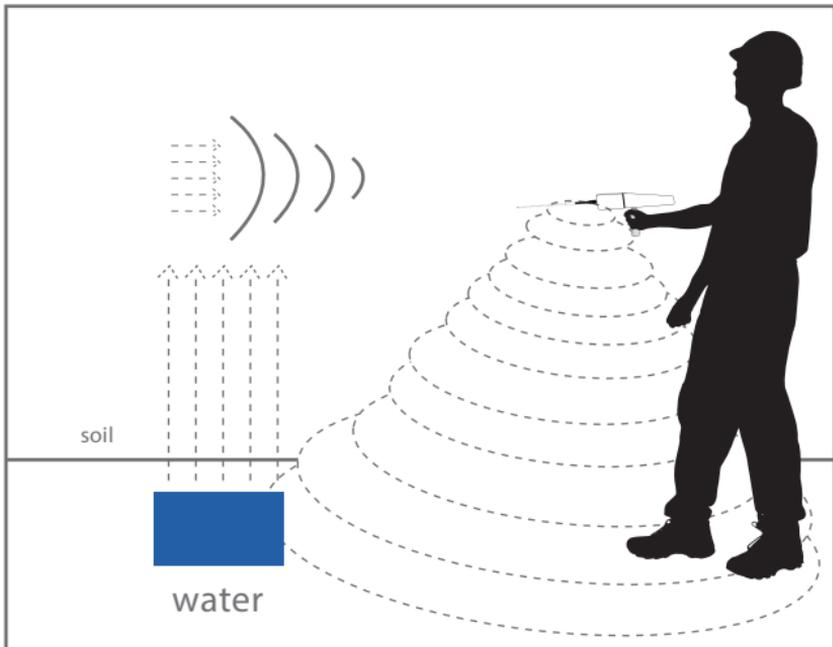
❖ Note:

Frequency 0 is an indicator that symbolizes the feature of modification to the basic frequency of each target. It gives the ability to modify the search frequency from 0 to 100 Hz and from 0 to -100 Hz, in order to verify the nature of the buried targets and their quality, as the buried target maintains the signal even if we changed the value of the search frequency.

We can control the frequency of long-range radar waves, increasing and decreasing by repeatedly pressing the (Move) button during the search.

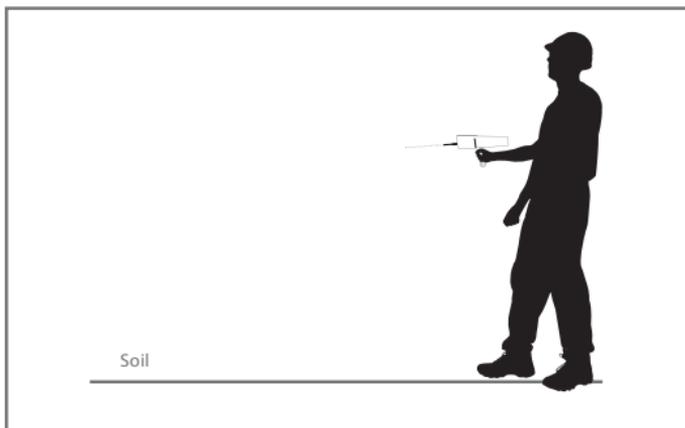
This system works on the technology of transmitting and receiving integrated with radar sensing, it sends and receives waves at the same time, it searches for the water according to its types by sending a signal with a frequency corresponding to the resonant frequency of the buried metal. A static magnetic field is formed around the water buried underground, which is affected by the magnetic field formed around the transmitted electrical signal

This device relies on its detection of water through the effect of the waves emerging from the device in the fields of static electricity formed around the water as a result of its presence under the ground. , The device receives this amplification signal and directs it towards the water location directly and accurately, through the automatic guidance indicators on the screen

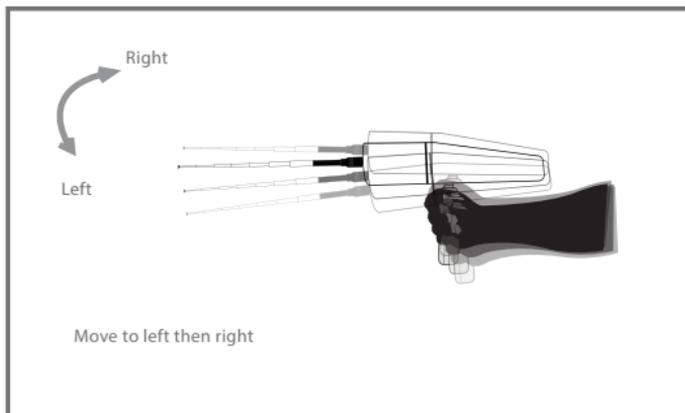


Start search in the site

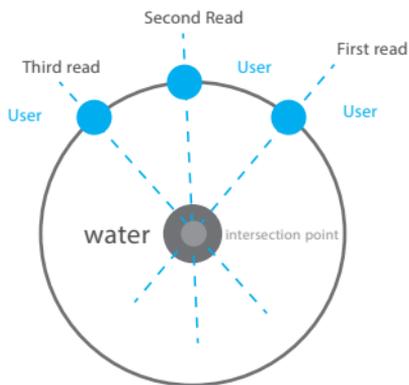
- ❖ The user must carry the device through the Grip so that the device is horizontal with the ground and slightly tilted towards the soil as shown in the drawing.



- ❖ Then we stimulate the waves and fields coming out of the device, where we move the device by hand to the right and then slowly left, and then the hand that holds the device is fixed



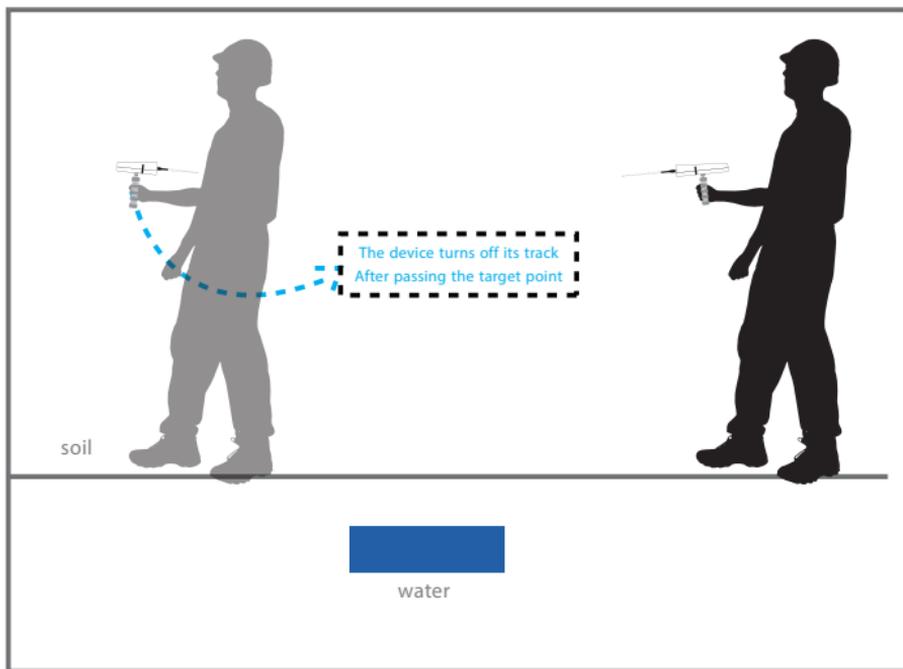
In the event that the water that has been searched for is present, the device will receive a reading and signal, and that is to change the device's path automatically from the normal path on which it was settled to another path. This direction is the direction of the target's location, and then the device is installed in the same direction. Install the water location by pressing the Move key, to notice that the device starts when the user deviates from the device from the water direction, and the correction signal appears for the search path towards the water by taking corrective indicators either to the right or left. With a sound alert sounded, after that we turn completely from the direction that the device is directed to, to an opposite stop point to notice that the device's path is changed again and direct it to the location of the water and the sound alert is continuously triggered, we press the move key again to finish the installation and we move away from the first reading point, we stand in another location 10 meters away from the first point on the side, and we stimulate the waves of the device again and install the device and wait for the reading. move, and we have made sure of the correctness of the water existence, and we can do this way more than once to make sure of the correctness of the target's direction, by taking more than one reading from the device from different points, and if we noticed theoretically that all the readings that we have made will be interrupted with one point, which is the place and point of the target.



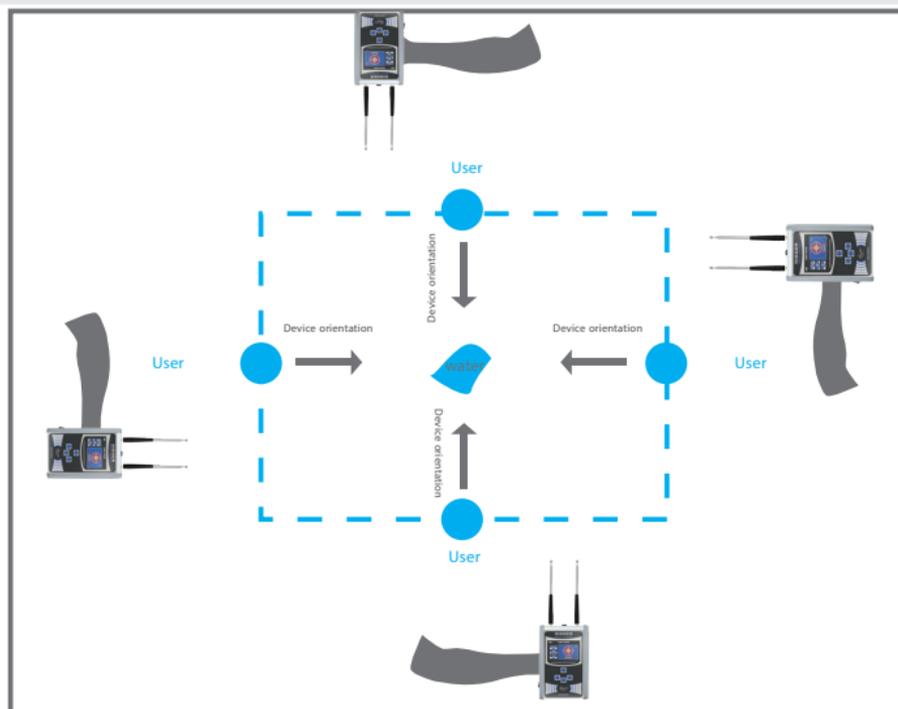
The user can know and estimate the distance of the target from the starting point of the search, and to do this we change the distance level, and we choose a distance from the list of distances. For example, if we had chosen at the beginning of the search a search distance of 500 meters, we reduce the distance to 250 meters and then start the search once Others and do the previous steps, and at this time . carry the device and wait for a reading. To estimate the distance of the target better, and then we move to the stage of locating the water location.

How to locate the target

- ❖ First, the user should point the scanning antennas slightly down to the ground
- ❖ After confirming more than one reading of the direction of the presence of a target, until we reach a point where it exceeds the location of the water, and we will notice that the device has changed its direction automatically from its normal path to turn back to the location and point of the water presence, here we also rotate with the device to the location of the water and we walk slowly while we are Directly above the water location, we will notice that the device will start rotating right and left, and this indicates that we have identified the water location.



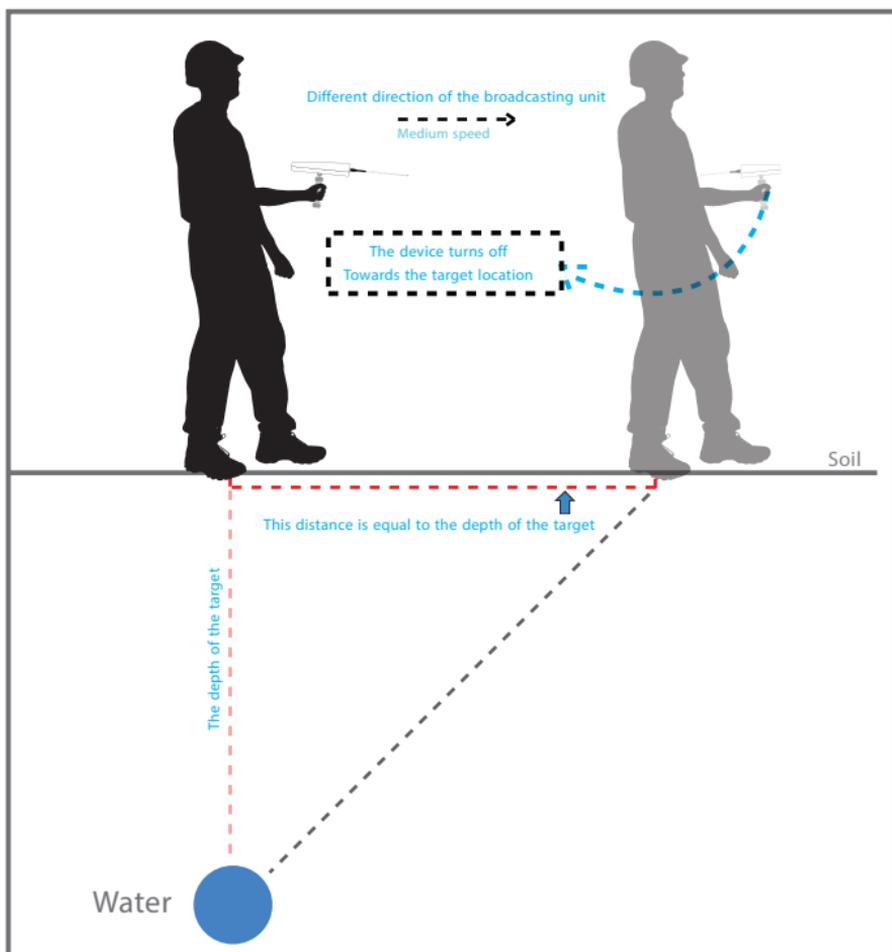
- There is another way in order to be able to determine the water's location more accurately, we do the process of squaring the water location by taking readings of the water point from four corners in a square shape from a distance of three meters from the water site, we will notice the intersection point of the direction of the four readings theoretically, it will be the midpoint of the water.



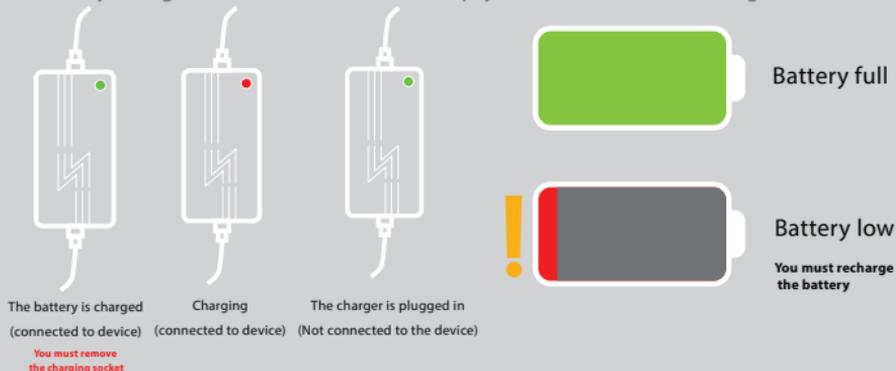
The user can know the approximate depth of the water by going back to the main menu and selecting the search settings again completely and changing the depth level through the depths menu, that is, for example, if the depth that was specified for the first time was **200** meters, we reduce the depth level to **100** meters and we enter the information, and move away About the target site **20** meters and we carry the device and wait for a reading of the water site, if there is a reading of the water site here we know that the depth may be within **10** meters, and we do this process to reduce the depth level until we know the approximate depth of the water.

- Second method for determining depth:

After I find a point in determining the location, determining the location of the search, determining the level and standing, determining the location directly above the water location and a process in the direction opposite the water, until the unit by the unit directs to the water location and we measure determining the resulting distance from the location. This point to the location of the water in the depth of the water.



❖ We note the conditions of the battery during work as it expresses how full the battery charge is in order from full to empty as shown in the drawing.



Alert

- Turn off the device while charging (the device is automatically turned off during charging if it is not turned off before charging).
- Use only the charger that came with the device and do not use anything else.
- Store the device and the charger in a safe place away from flammable materials.
- Make sure to turn off the device after using it or before storing it.
- Do not keep the charger plugged into the device after the charging process is over.
- During charging, you cannot turn on the device. If you want to turn on the device, you must disconnect the charging socket.

