Metal and Water Finder

WF 303 GH

User Manual

WF 303 GH User manual, The newest device for detecting the locations of the different types of underground water .

Metal and Water Finder

Index ..... page 1

Important warnings ..... page 2

Technical specifications ..... page 3

Main Unit ..... page 5

Attached unit ..... page 6

Device Parts ..... page 7

Set up and work on the main unit ..... page 8

Geophysical system ..... page 14

Long range locator system ..... page 24

Charging ..... page 38

Nots ..... page 40

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

Disconnect the batteries before long time storage

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

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

For best power endurance and reliability. use heavy duty and high quality batteries thats for the devices which work on removable batteries

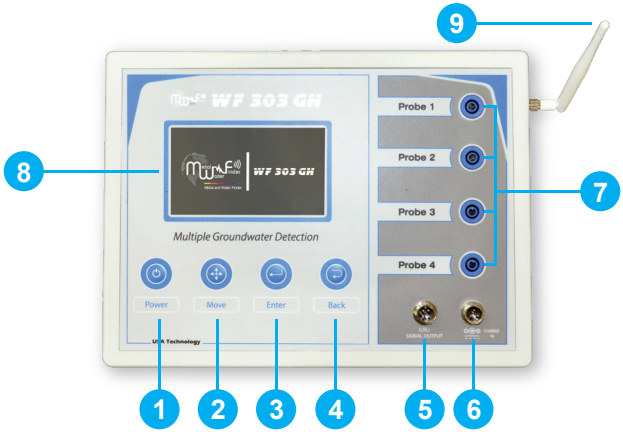
- The user must practice before starting the detecting operations and discoveries
- Store in Cool and dry place 15-40 C 5%-75% humidity

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

Search system :	Searching for underground water
Search principle :	Automatic measurement of soil electrical resistance levels for the determination of water locations -geophysical system and Long-range locator system to detect energy levels about the location of water
Operating processor :	ARM & MICROCONTLLER PIC18
Processing type :	System for measuring and processing electrical resistance levels And polar aggregations (IP) automatic scanning processing the energy levels formed around the area of water existence LRL
Max depth:	800 m
Max distance:	2000 m
Wireless:	yes
Automatic steering system:	Yes, through the pointers and alerts
sound alerts:	yes
vibration alerts:	yes
Power:	Three-cell lithium-ion 3.7v/3000mA Power Output 11.1 volts
Battery life:	6 work hours
Charge:	2000mA/13v 3 hours for full chrging
Display:	TFT screen 3.4 inch

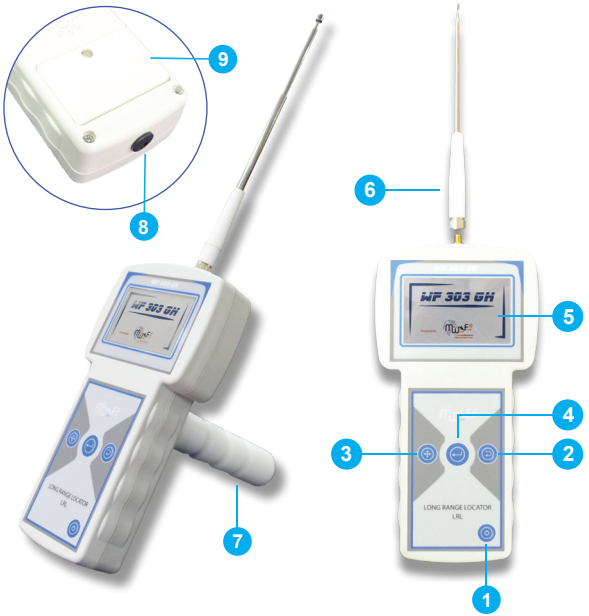
Storage temperature:	From -15° C to 40° C
Humidity:	%90 It can be stored and work in the degree rate of air humidity of level
Weight:	9.25KG withe case
Unite dimensions:	20x26.5x6cm
Case dimensions:	37x47x23cm

Main Unit



1. Power button
2. Move button
3. Enter button
4. Back button
5. Ground taransmitter
6. charger socket
7. probes sockets
8. display screen
9. Antenna for wireless connection

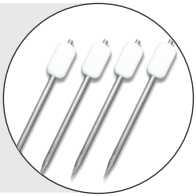
Attached Unit



1. Power button
2. Back button
3. Move button
4. Enter button
5. display screen
6. Transceiver antenna
7. Grip
8. Gharger socket
9. Battery box

Four Probes

Made of the best stainless steel Strong Power Connector, Stainless They are inserted into the soil and wired to read and analyze changes in soil resistance values for the measurement process in the research area between the four probes



Four coils of electrical wires

pulleys designed dynamically to facilitate work, and wires from the 4 best quality of power conductive , connecting these wires between each probe of the outputs of energy coming out of the device linked to a probe of the probes connected in the soil, to complete the scanning

Wires connecting geophysical system sensors

Electrical wiring

Wireless Antenna

To achieve communication with the attached unit

Main unit charger

Electric charger to recharge the device battery amps 0.4 / 60Hz-50 / 240VAC-100 :Values: Input Watt 15 / amp 2 / volts AC 13 :Output

Ground taransmitter

It is used and connected to the main device in its entrance
While choosing to work on the long-range search system (LRL)
Strengthens the signal issued to the soil
At the same time, it suppresses noise signals
In the search area to get accurate results

Transceiver antenna for attached unit

A telescopic antenna which is responsible for transmitting and receiving signals and search waves, of a special and unique natur

Handle for attached unit

The free-moving handle allows the device to have a pivotal circular motion

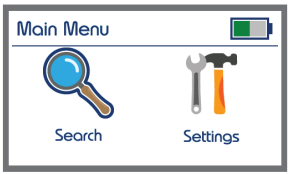
Attached unit charger

Electric charger to recharge the device battery
amps 0.4 / 60Hz-50 / 240VAC-100 :Values: Input
.Watt 15 / amp 2 / volts AC 9 :Output

Set up and work on the main unit

- Turn the device on by pressing long press on the Power switch
- Boot interface will show and then the language selection interface for the first use of the device

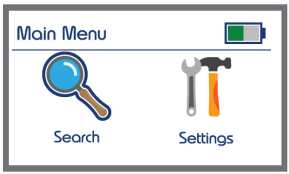
- When you select the language by switching between them through the move button and select the desired language by pressing the confirmation button the device moves to the main interface



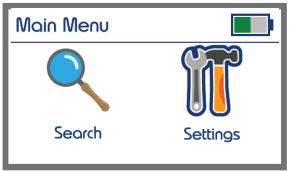
❖ The main interface has two icons

Search To select the search system and settings to adjust the settings of the device in addition to an indicator indicating the level of battery charge found in all interfaces, is switching between the icons by pressing the move button, to confirm one of the options we press the confirmation button Enter

❖ When we select the search icon

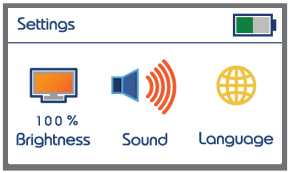


❖ When we select the setting icon

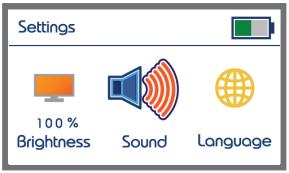


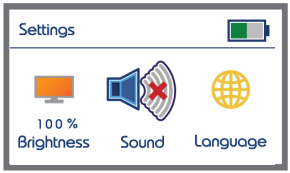
❖ When you select the settings icon and press the enter button, we have a settings interface that enables us to reset the device. The settings interface contains options for adjusting both brightness and sound as well as the language of the device

❖ Brightness adjustment: When selected on the brightness icon, the value of the screen brightness is changed by pressing the Enter button to change the brightness value according to ten brightness levels from 10% to 100%



❖ Volume Adjustment: When selected on the volume icon, the volume is changed by pressing the Enter button to change the volume according to five volume levels in addition to silent mode

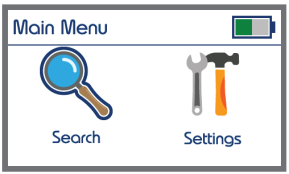




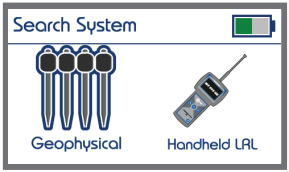
❖ Language settings: When selecting on the language icon to change the language we press the enter button to move to the interface of languages The device contains four languages English, Turkish, Persian and Arabic
Switching between these languages is done through the move button
To confirm a language, click the ENTER button

❖ To return to the settings interface, press the Back button

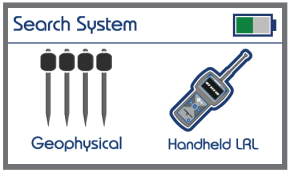
❖ When you select the search icon and press the confirmation button, we have the systems interface, the device contains two search systems
Geophysical search system - Handheld LRL searche system
Switching between the two systems by pressing the navigation button and to choose one of the two systems is selected on the system to be worked on and press the ENTER button



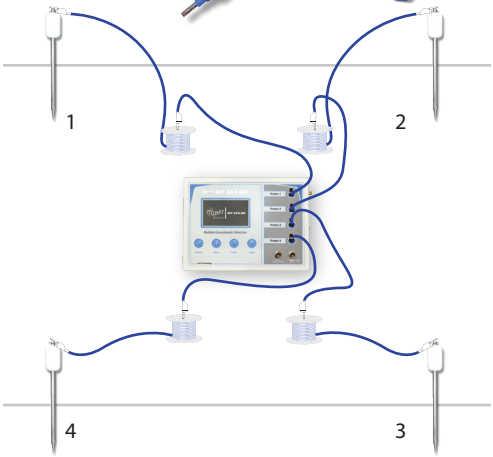
❖ When selected on the geophysical search system



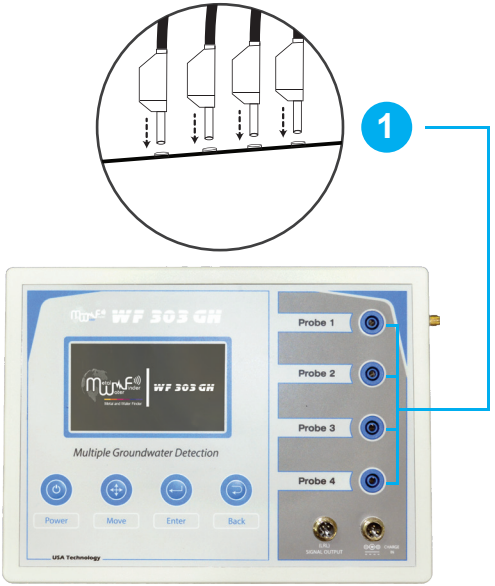
❖ When selected on the Long Range Locator system



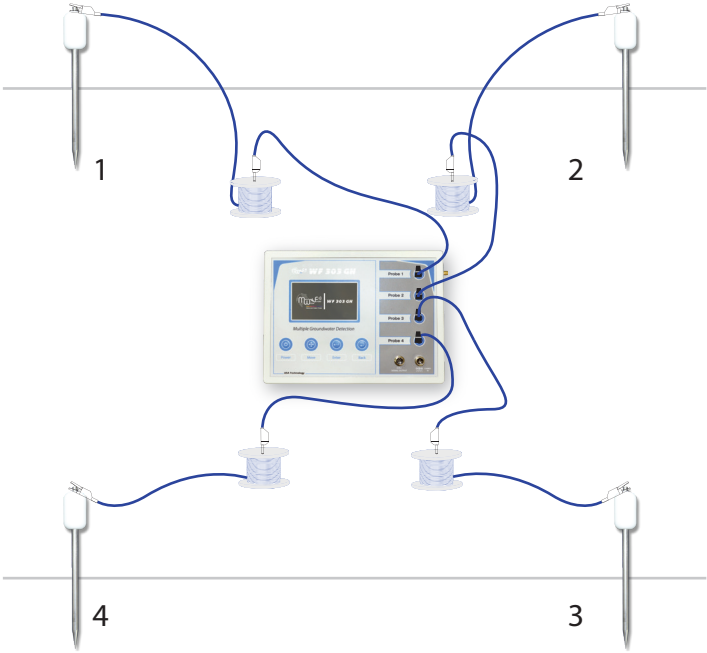
Geophysical System



Geophysical Research System



1 connect the connecting wires to the device as shown in the diagram and then connect them to ground connection sensors through the mesh tweezers

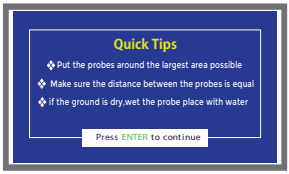


Connect the four ground conductivity probes to the soil and distribute them in a square shape and preferably evenly lengths depending on the distance and location you want to scan, as shown in the diagram

Note

It is preferable when the ground is dry
moistening the place where you want to put the probe in with water that facilitates the measurement process and increases its accuracy

❖ When choosing a geophysical search system we have an advices interface that is useful to the user in the search process to give accurate search results, please read it and adhere to

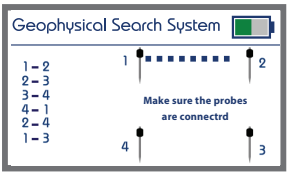


❖ After reading the advices , press Enter to go to the geophysical search interface

Notice:

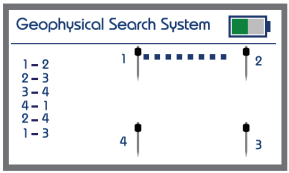
Ensure that all the probes are connected

❖ If the probes are not connected, a message appears in the middle of the search screen stating that the electrodes are not connected

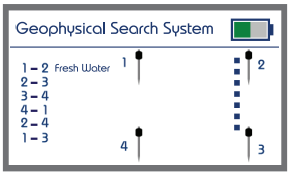


- If the probes are connected, the search process starts automatically by taking regular readings between the probes

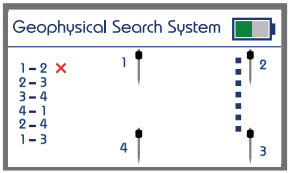
- Initially the soil resistance value is read between the first and second probes so that the device analyzes these readings according to advanced analysis algorithms to show the presence of water in addition to determining the type of water within the distance between the probes



- After reading and analyzing the values, you will see an indication of the completion of the first stage of the research process. on the left of the screen shows the type of water found in .the case of fresh water, salt water and mineral water

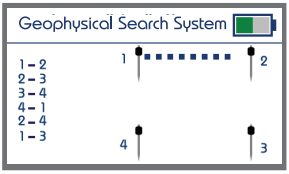


- If no groundwater is found, an X appears

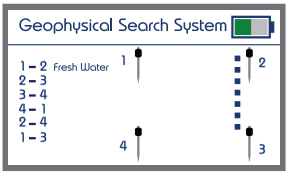


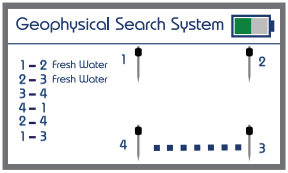
- The process of analyzing the results between each of the four probes will be repeated in the same way as before

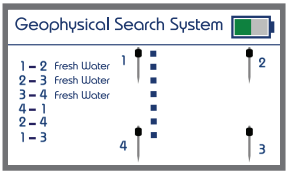
  Note: Please ensure that the electrodes are distributed around the main unit as it is distributed on the screen to ensure understanding of the results of the search process and to be clear

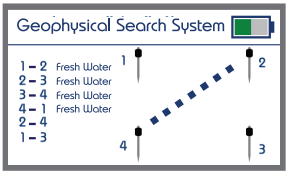


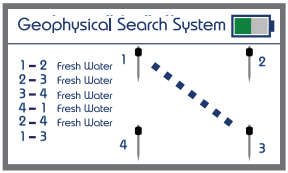
- The search between the probes will appear on the screen as shown in the diagram



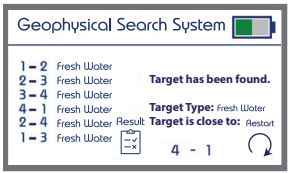





Geophysical Search System
1 – 2 Fresh Water
2 – 3 Fresh Water
3 – 4 Fresh Water
4 – 1 Fresh Water
2 – 4
1 – 3
1
2
4
3


Geophysical Search System
1 – 2 Fresh Water
2 – 3 Fresh Water
3 – 4 Fresh Water
4 – 1 Fresh Water
2 – 4 Fresh Water
1 – 3
1
2
4
3

❖ After the completion of the automatic search between the four search probes and show the final result directly on the screen in addition to indicate the presence of the target to any two probes closer, in the case of finding a target

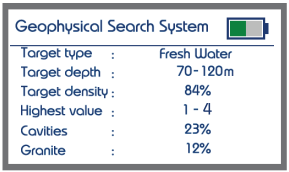


❖ The target is closer to 1- 4 . 3-1 . 2-1 etc., meaning that in this area the highest value of water and the highest density of groundwater within the scan area

Note

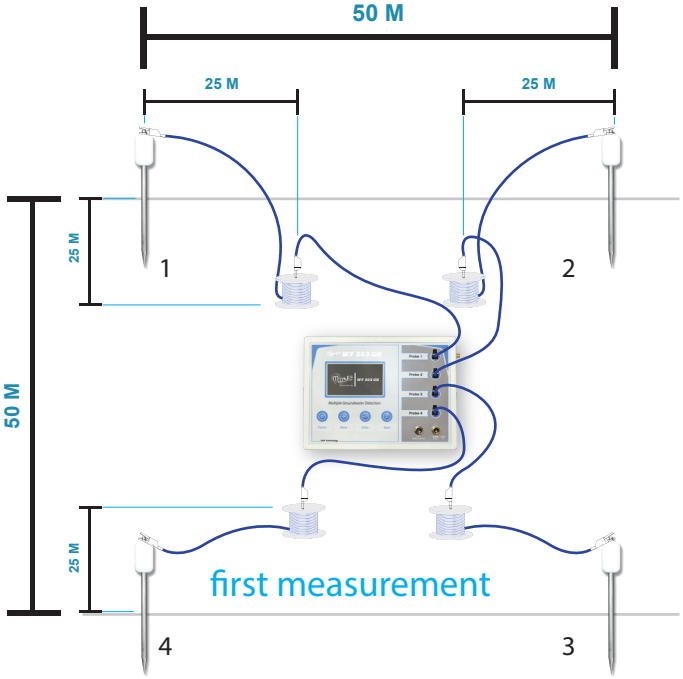
To rescan, press the Back key to return to the systems interface

❖ To get a full report of the search process press the Enter key to show the device a detailed report of the search contains: target type in addition to the depth of the target and the device also determines the target density through the percentage of the target density after analyzing the resulting signal and shows the probability The location of the water between the four probes and the device also according to accurate processing algorithms calculate the probability of the presence of cavities within the research area and the type of rock and esoteric rocks as shown in the attached image of a test sample of a search



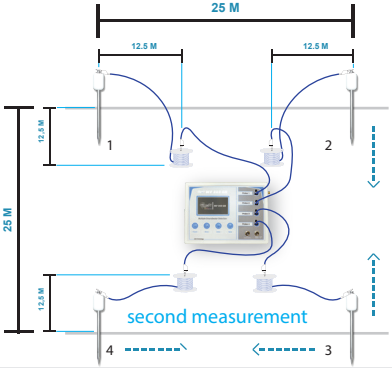
During the first reading the distance between the probes in maximum. m50

When the device gives a result of finding water between any two probes , we gradually dicreas the distance between probes to detect the location of the water

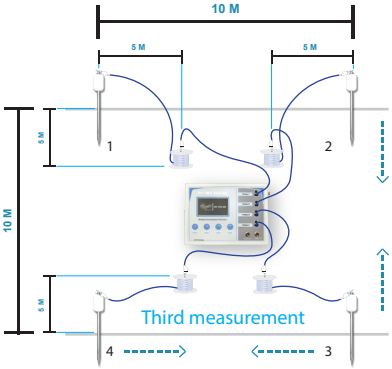


The device analyzes the results of the soil and the area between the probes so we do several tests of different dimensions until we reach a stage where the device does not give the location of the target between the electrodes then we return to the distance preceding it, which the device gave the location of the target in order to accurately calculate the location of the target

meters between the 25 We repeat the process by rounding the distance between the probes to probes in order to determine the location of the water

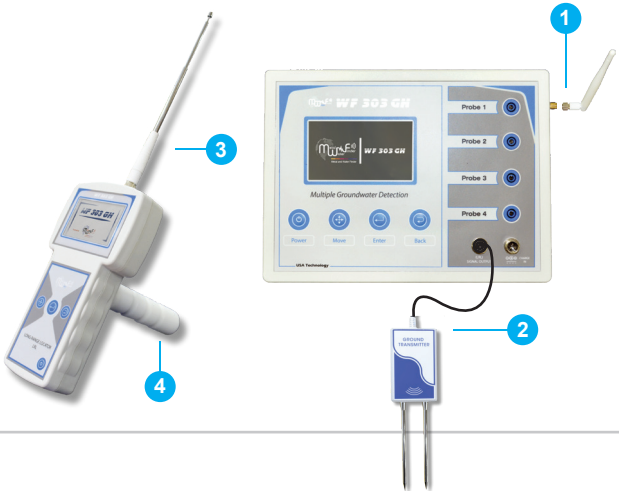


meters between the probes ١٠ We repeat the process by rounding the distance between the probes to for greater accuracy to the probability of the location of the water



Repeat the process by bringing the electrodes closer to the distance where the device does not give a water position and the water position is confined to the area preceding it

Long Range Locator System



Connect the wireless antenna to the main unit 1

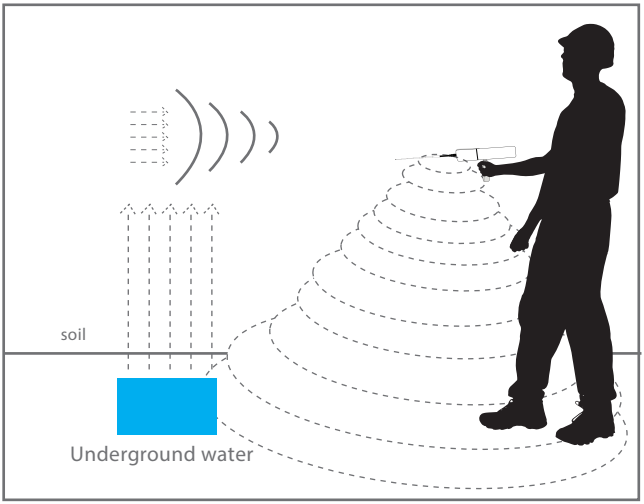
Connect the ground transmitter to the main unit 2

Connect the telescopic antenna to the attached unit 3

Connect the grip to the attached unit 4

This system works on the technology of transmitting and receiving, sends waves and receives at the same time, it searches for groundwater according to its types by detecting its frequencies, each type has its own frequency according to the electrolytes and salts in it, in the case of underground they are affected by the magnetic fields of the earth, It also acquires static electric currents from the soil through the impact of the soil by different currents such as power stations, broadcasting stations, radio, satellites, lightning, and many things generating electric power, and static energy

This device relies on the detection of underground water through the impact of waves out of the device static electricity fields formed around the water as a result of its presence under the ground, waves of the device to amplify the size of these fields and escalate to the surface of the soil, which helps the device in locating water from long distances, The device amplifies this signal and directs the target location directly and accurately to the destination through the automatic pointers on the screen

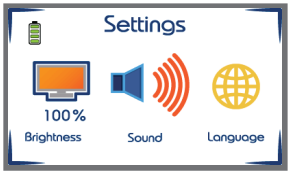


- Turn the device on by pressing and holding the Power Button
- We have the boot screen then the main interface

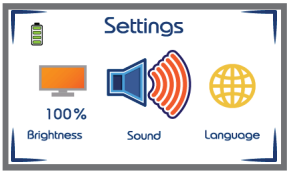
- The main interface contains two search icons to select the search system and settings to adjust the settings of the device, and is switching between the icons by pressing the Move button, to confirm one of the options we press the confirmation button ENTER

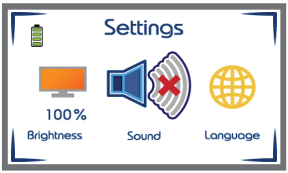
- When you select the settings icon and press the enter button, we have a settings interface that enables us to reset the device. The settings interface contains options for adjusting both brightness and sound as well as the language of the device

- Brightness adjustment: When selected on the brightness icon, the value of the screen brightness is changed by pressing the Enter button to change the brightness value according to ten brightness levels from 10 % to 100 %

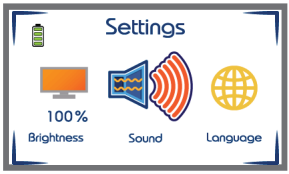


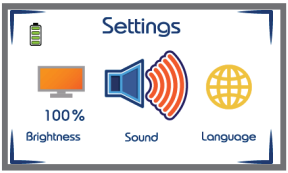
- Volume Adjustment: When selected on the volume icon, the volume is changed by pressing the Enter button to change the volume according to five volume levels in addition to silent mode





❖ When the sound icon is selected, the vibrating alarm can be turned on or off by long pressing the enter button to make the vibrating alarm image visible within the sound icon or disappear when canceled



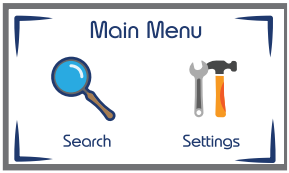


❖ Language settings: When selecting on the language icon to change the language we press the enter button to move to the interface of languages The device contains four languages English, Turkish, Persian and Arabic

Switching between these languages is done through the move button and to confirm one of the languages we click on the confirmation

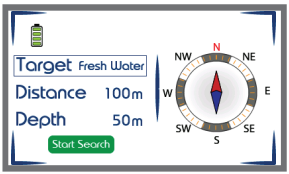
❖ To return to the settings interface, press the Back button

Method to use Long Range Locator System



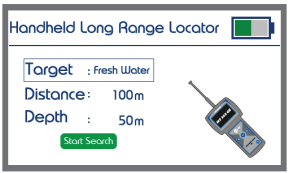
Attached unit interface

- When selecting the LRL system the interfaceof LRL system will show. You must enter the search interface in the attached unit from the main interface of the attached unit by pressing the enter button as in the attached image



Attached unit interface

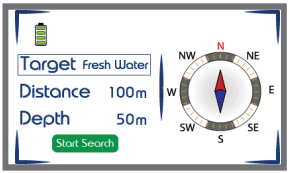
- Then go back to the main unit and choose from the search system menu. Hand held LRL system to show us the interface of long-range search settings as shown in pictures



Main unit interface

- Here we note that the main unit has been linked to the attached unit and changes in the available options that we make in the main unit such as (target-distance-depth) appear directly on the screen of the attached unit

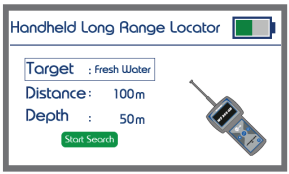
Main unit interface



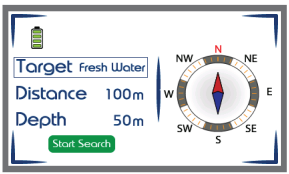
Attached unit interface

- The LRL system interface contains setting of searching parameters
  Target type to be sought : fresh water - mineral water - salt water - all types of water
  (m 2000 - m 1500 - m 1000 - m 750 - m 500 - m 250 - m 100) :Distance: Search distance in all directions
  (m 800 - m 600 - m 450 - m 250 - m 100 - m 50) :Depth: depth of the target to be searched

- Switching between these settings by pressing the move button and to change the value of one of the settings we press the enter button after selecting the option to change the value in both the main unit and the attached unit

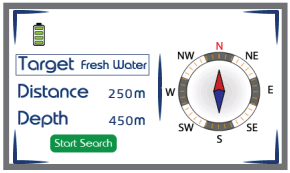


Main unit interface



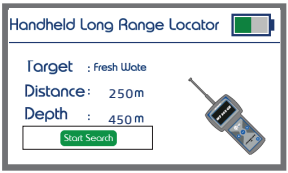
Attached unit interface

Main unit interface



Attached unit interface

- Once you have selected search settings, go to the Start Search icon by pressing the move button to draw a frame around the Start Search icon



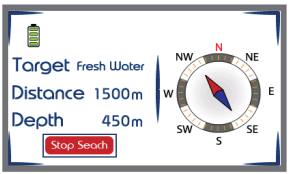
- Then we press the enter button to start the serch process

Main unit interface

Attached unit interface

❖ Then hold the attached unit and begin the search process

❖ Note the compass's movement indicating the direction of movement



❖ When the device detects the location of the presence of groundwater we will note the direction of the device towards this path of the impact of water to start a process of accurate tracking of the location and path of water we press the MOVE key

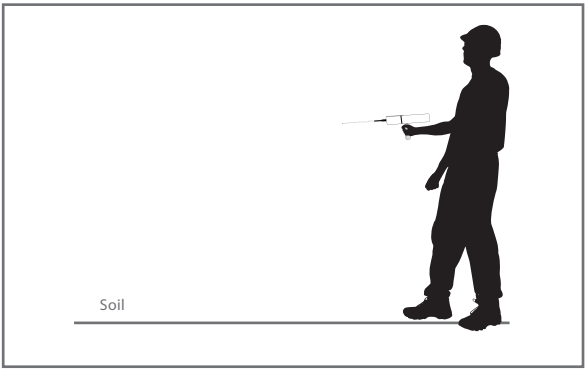
❖ Right track

❖ When the user drifts the device to the left, the correction of the search path towards the water is shown by taking corrective indicators either right or left

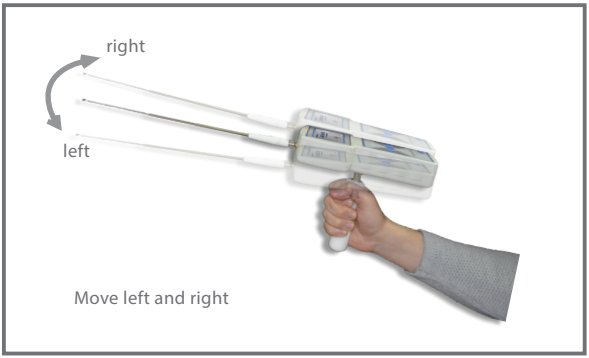
❖ You can pause and resume the search as well as modify the search settings in the attached module

❖ You can work on the attached unit separately from the main unit, by selecting the options to be searched directly from the attached unit and start searching without reference to the main unit But preferably working in conjunction with the main unit for more effective and accurate results

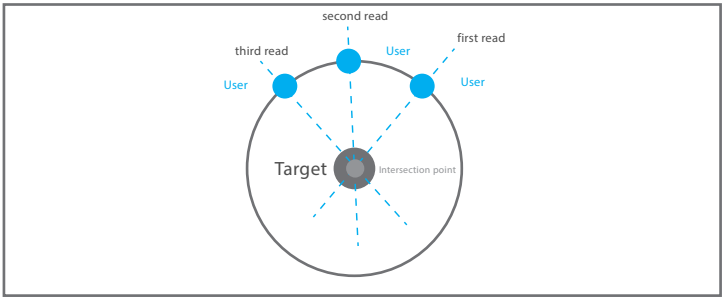
- The user should carry the face through the handle in a horizontal with the ground and slightly tilted towards the soil as shown in the drawing



- We then stimulate the waves and fields out of the device where we move the device by hand to right and left slowly and then install the hand that holds the device



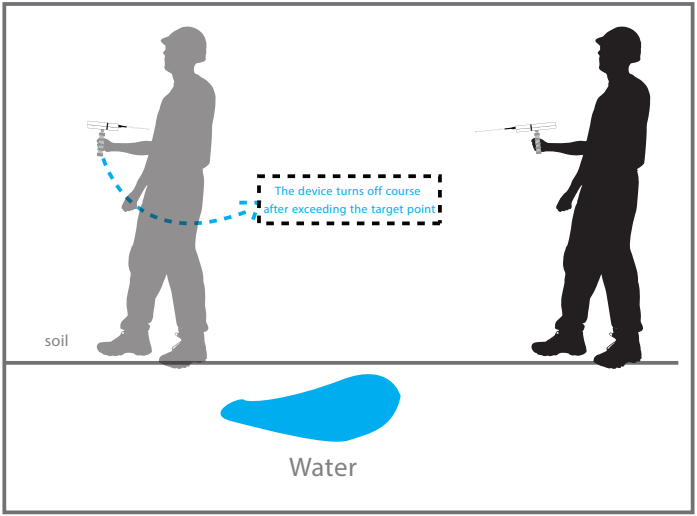
If the target is found, the device will receive a read and signal by automatically changing the device from the normal path to which the target was located. This direction is the direction of the target's location, and then the device is installed in the same direction. Scan the target location and install it by pressing again on the (Move) key to note that the device starts when the user deviates the device from the direction of the target and shows the correction of the search path towards the target by taking corrective indicators either left or right. With the launch of a voice alert.then we completely circumvent the direction to which the device is directed to, to the opposite parking point to notice the change of the device again and direction To the target location and trigger the alarm Constantly, Press the move key again to finish the installation then we move away from the first reading point to sideways, and we do the process of stand in another location away from the first point meters10 stimulation of the waves of the device again and install the device and wait for reading, in case the target is sure will go again to the same siteWe reinstall the reading by pressing the move key and be We have confirmed the existence of the target, and it is possible to do this method more than once in order to make sure the direction of the target is correct, by taking more than one reading from the device from different points, and if we notice theoretically that all the readings that we made are cut by one point It is a place and a target point



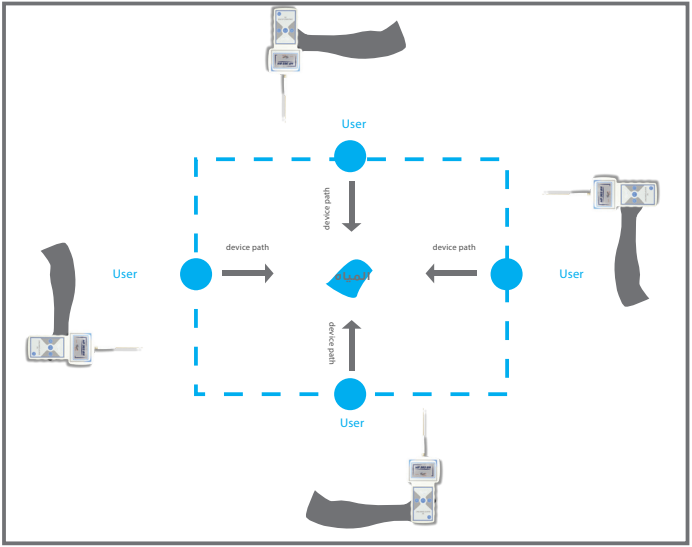
The user can know and estimate the distance of the target from the starting point of the search, and to do this we change the level of distance, and we choose a distance from the list of distances, for example if we had chosen at the beginning of the search distance of 500 meters, we reduce the distance to 250 meters ,and then press the key (Enter) again and the device starts to search and do the previous steps and at this time we hold the device and wait for reading if we received a reading of the target we have known that the target away from the search point distance of 250 meters It is also possible to re-these settings again ,and reduce the distance less to estimate after the target Better .and then we move to a challenge D target site location

How to locate water

- At first the user should point the antennas down towards the ground slightly
- After confirming more than one reading of the direction of the presence of water we press the move button to install the target path and we walk in the same direction and normal to carry the device.Note during which the device issued alerts to indicate that walking is in the right track towards the indicator. It is an arrow indicating the direction of the convolution to return to the right path, until we reach the point where we bypass the water site and we will notice that the device has automatically changed direction from its natural path to turn back to the location and the point of the water, here we also rotate with the device to the location of the water. Hey and we walk slowly and when we are directly above the water site we will notice the device will start to turn left and right and this indicates that we have identified the point of water



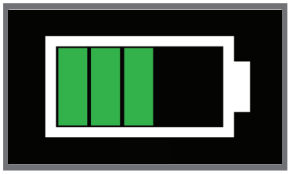
- There is another way for us to more accurately determine where the target is located
  We are the process of squaring the target site by taking four readings of the target point from four angles ,
  Square three meters from the target site, we will notice the intersection point of the four readings
  Theoretically it will be the midpoint of the target



The user can know the approximate depth of the target by returning to the main menu and setting the search settings again and change the depth level through the depth list, ie for example if the depth that was first meters and we enter the information, and away About 250 meters we reduce the level of depth to 100 selected meters and hold the device and wait for reading the target location, if there is a reading 20 the target location meters, and we do this process to reduce the 100 of the target site here know that the depth may be between level of depth until we know the approximate depth of the target

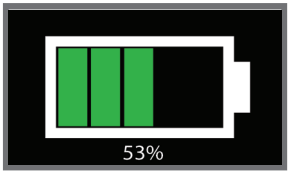
Main Unit

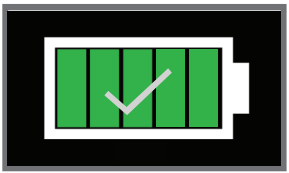
❖ When the device is put on charging in the case of extinguishing shows the charging screen is a battery that gradually increases periodically



Attached Unit

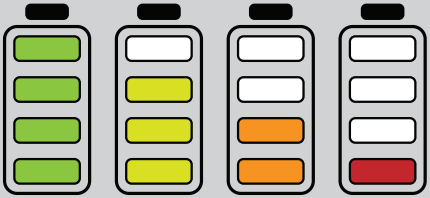
❖ When you put the device on charging in the case of extinguish the charging screen is a battery that gradually increases periodically and shows the percentage of the level of battery charge for ten seconds and then turns off the device can see the battery charge level during the charging process by pressing one of the three buttons (Enter - Back - Move) The display shows the charge level for five seconds and then turns off the device. When the battery is .full, the display shows a correct indicator ✓ inside the full battery





Attached Unit

❖ There are four cases for battery during the work that indicate how full the battery charge in different colors in order from empty to full (red - orange - yellow - green) as shown in the drawing



Warnings

Use the charger supplied with the device only and do not use other

Store the device and charger in a safe place away from flammable materials

Make sure to turn off the device after you have finished using the device or before storing it

Do not keep the charger connected to the device after the completion of the charging process

Metal and Water Finder

United States of America - illinois

www.mwf-usa.com
info@mwf-usa.com
+1 (708) 364 9602

Turkey - istanbul

www.mwf-metaldetectors.com
info@mwf-metaldetectors.com
+90 (212) 222 0946
+90 (212) 222 0947