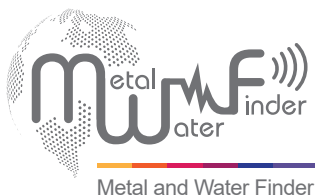




The user manual for MF 1200 Active
Four searching systems .



Contents	Page	1
Safety information	Page	2
Technical specification	Page	3
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Main control unit	Page	7
Settings	Page	10
Start work	Page	17
— Line Tracker System	Page	17
— HandHeld LRL System	Page	24
— iON Sensor System	Page	33
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The operating in high voltage areas would limit the results and performance



The cell signal interferes with the device signal, so turn off the cell while operating



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 opeartin e.g.: Rings,watch, belt....



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



For devices that work on replaceable batteries, use good quality batteries to work longer hours.



- ❖ 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:

Multiple Search Systems:

- 1- Long Range Locator (Hand-held)
- 2- Long Range Locator (Line Tracking)
- 3- iON Sense

Search Principle:

- 1- Digital Frequency Signal Processing (DFSP)
To receive the electrostatic fields of target.
- 2- Digital Frequency Signal Processing (DFSP)
To receive the electrostatic fields of target.
- 3- Processing the ionic levels in the field.

Operating Processor:

MICROCONTLLER PIC18 & ARM 7

Operating Frequency:

- 1- From 1 KHz to 30 KHz
- 2- From 1 KHz to 30 KHz
- 3- 20.000 MHz

Power Rating:

7.4 V / 6000 mAh

Power Consumption:

Max power @ 150 mAh

Battery Endurance:

15 Working hours

Charger:

5.1 V DC / 3 Amps

Display:

3.2 " TFT LCD Display, 16 bit color depth
CDMA GPU @ 48 MHz

Targets:

Gold - Gold ore -Silver - Copper - Brass - Bronze - Iron -
Groundwater - Voids and cavities - Gems

Target Discrimination:

YES

Selective Target Mode:

YES, selective target search mode or auto search for
discovered targets

Search Depth:

40 Mt with Selective Depth control system in the depth menu. and 450 m for water.

Search Distance:

2000 Mt with Selective Distance Control system in the distance menu.

Search Results:

1- Signal and Guidance towards the target location
 2- Signal and Guidance towards the target location
 3-Visual data with digital information about the target size and location

Bluetooth:

NO

Wireless communications:

YES

Smart Auto guiding System:

no

Audio notifications:

YES

Vibration notifications:

YES ,For Ionic System

Operating Temperature:

From (5° F) to (140° F) / From (-15 °C) to (60 °C)

Storing Temperature

From (5° F) to (140° F) / From (-15 °C) to (60 °C)

Humidity:

Store and operate within 90% humidity ratio

Weight:

7.75 Lbs (3.5Kg) with all the Accessories, 12.25 Lbs (5.5 Kg).

Dimensions:

mm 185X135X53

Case Dimensions:

mm 440x520x180

Main Unit

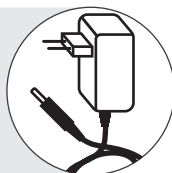
The Main Control Unit for the device to set the search and device parameters. Communicate with the other search systems via wireless link.



Charge Adapter

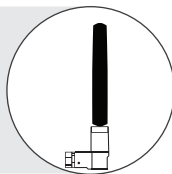
This charger is used to recharge the battery, make sure the power switch is on before starting the search or a screen would appear on the display prompting doing so.

Ratings: input 100-240v AC 50-60Hz 0.4A - Output:5v DC 3A 15W



Wireless Antenna

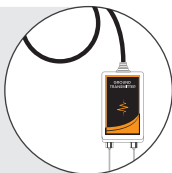
Antenna for boosting the signal for transmitting the data to the other search systems.



Ground Transmitter

Connect this unit to the Main unit and plant it in the ground to send the waves and reinforce the signal.

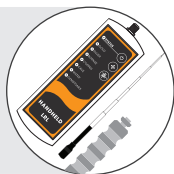
The ground transmitter should be connected for both systems to work.



Hand-held Unit

The LRL unit consist of the main unit, transceiver antenna, and the grip.

The unit runs on 4xAA batteries.



Line Tracker and Antennas

Connect the cable to the rods and the Line Receiver.

Use this unit with the Line Tracking search method.

The unit runs on a 9v battery.



Verification Unit and iON Sensor

This unit is for detecting the ionic fields of the precious metals.

This unit is set by the Main Unit Wirelessly.

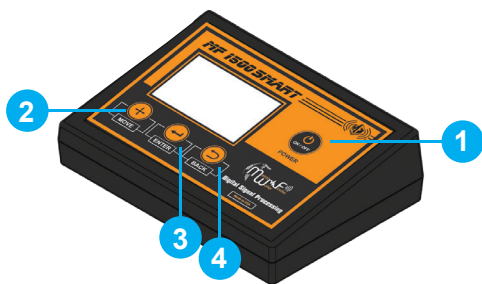


Headphones

Connect to the Main unit headphone jack or the Verification Unit.



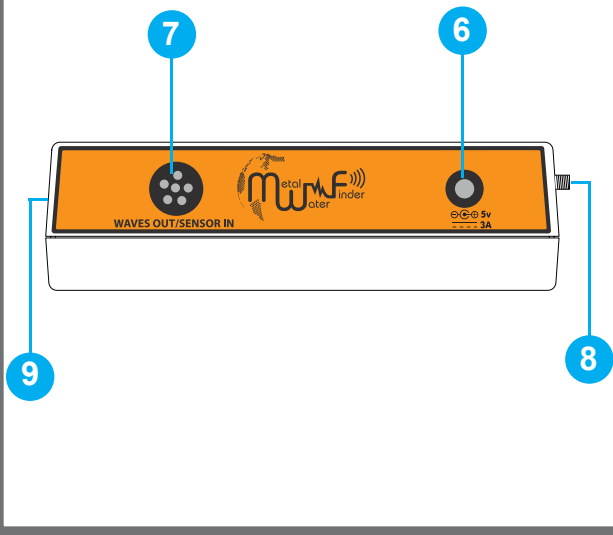
Front View



- 1 Power Button
- 2 Move Button
- 3 Enter button

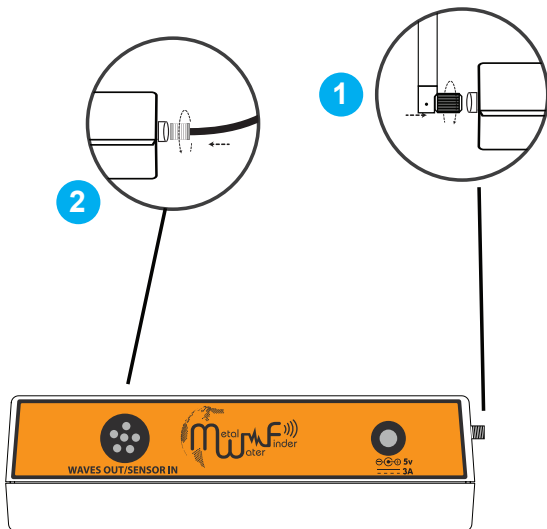
- 4 Back Button

Back View



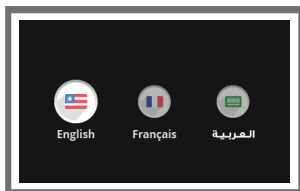
- 6 Charger Jack
- 7 Ground Transmitter Connector
- 8 Wireless antenna connection Jack
- 9 Headphone Jack

Assembly



- 1 Connect Wireless antenna connection like drawing
- 2 Ground Transmitter Connector. Connect when using Long Range Locator system or Line Tracking.

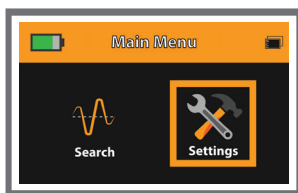
- ❖ Turn on the device by press and hold the power button in th front.
- ❖ The device will start and show a loading screens ,Then show the main menu.
- ❖ Note: The first run for the device you will be prompted to choose the system language.



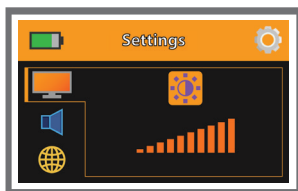
- ❖ Use the (Move) button to navigate through menus on the display and press (Enter) to select or confirm. Press (Back) to go to the previous Menu

❖ Settings Menu

To access the Settings Menu select the gear icon in the Main Menu and press (Enter) to the settings.

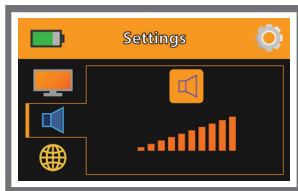


- To set the screen brightness select the icon and press(Enter) to change the brightness from 10% to 100%.



❖ Settings Menu

- To set volume select the Speaker icon and press (Enter) to change the Volume from 1 to 5 or mute.



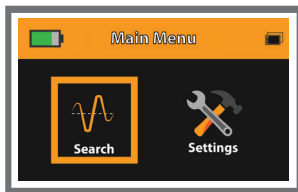
- To change the System language select and press(Enter) the device will load the language and display the menus in the designated language.



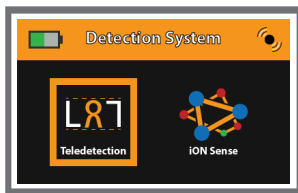
- ❖ Press (Back) to exit the Settings Menu and go back to the Main Menu.

Starting the Search

To start the search process select the Search option from the Main Menu to access the search systems.



The search systems will appear on the display:
Select the Long Range System



After selecting the Long Range System two options will appear on the screen (Line Tracking-Hand-held LRL)

These systems are the remote sensing methods.
Select a method to start with and press (Enter)

❖ Target menu

Metal Menu : contains the following objectives (Gold - Silver - Copper - Bronze)



Water Menu : contains the following objectives (All Type - Salty - Mineral - Natural)



Gem Menu : contains the following objectives (Diamond - Emeral - Meeority - All Gems)

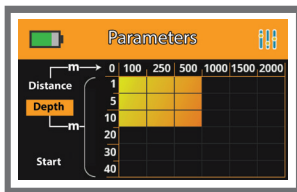


Cavity Menu : contains the following objectives (Cavity)



❖ Starting the Search

- After selecting the desired target type, the system will move to the list of criteria. Then specify the distance and depth parameters by using the (Move) button to move between the values of the distance and the depth
- When you have finished selecting search options go to the start option and press the (Enter) button to go and select the search method



- Select the desired search method and press the (Enter) button to confirm



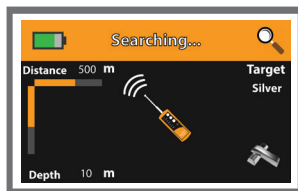
- ❖ Note:
Make sure that the (Hand-held LRL) Unit or the (Line Tracker) is turned on and working before confirming the start of the search

- Select the desired search method and start searching

❖ (Line tracker) search interface

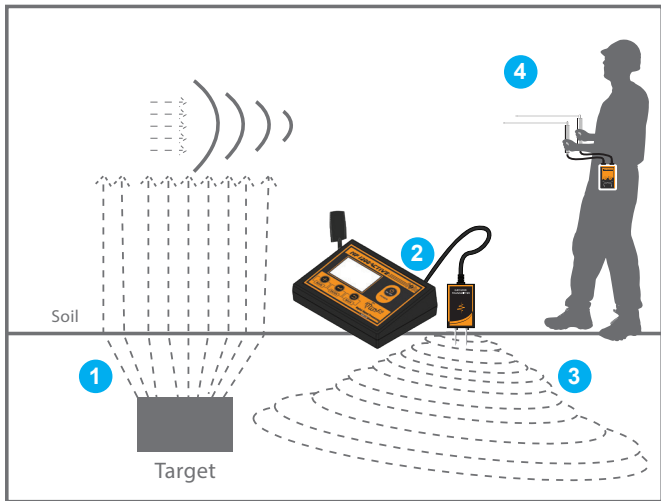


❖ (Handheld LRL) Search Interface



A diagram for a line tracking exercise. It features a central white square with a dark grey border containing the text "Line Tracking" in blue. This square is flanked by two dark grey rectangular blocks. Below these blocks are two horizontal white lines, one above and one below, extending across the width of the diagram.

Line
Tracking



- 1** The Target is affected by the earth electrostatic and magnetic fields
- 2** The tuning and transmitting unit transmits a electro-frequency waves to determine target location
- 3** The out waves spread through the earth which stimulate the formed fields around the target identify it and forming a power lines
- 4** The line Tracker device receives the power lines that connected to the target to determine the location

If you selected the Line Tracking search method, make sure that the Line Tracker is switched on and the indication LED is on then the Main Unit will send the start command to the Line Tracker with the selected parameters.

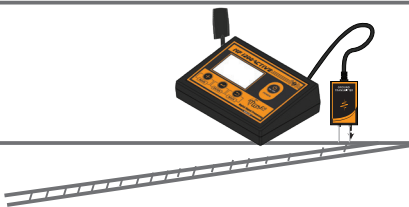
Note:

If there is Target, the device would form a frequency power line between the Target and the device.
If there is no target in the search area there would be no connection between the device waves and the selected target type.

Soil



Target
Location



If there is Target, power lines would be formed by the device and the target

Soil



If there is no target the device would not form any power lines

Then rotate around the ground transmitter unit

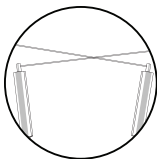
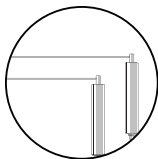
A- If there is target in the search area a signal will be received which is represented by the intersecting of the antenna at some point which is the power line direction point between the device and the Target location.

B- but if the user rotates a full circle and no intersection happened, then the selected search target does not exist in the search area.



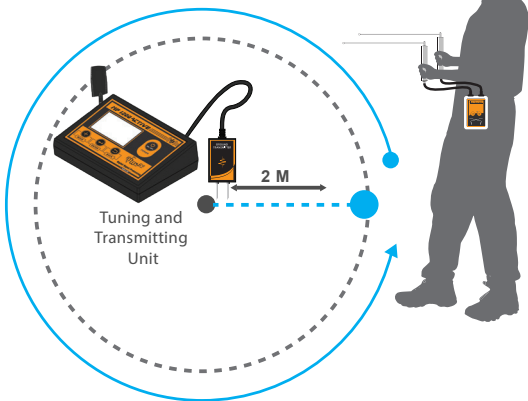
B

No Target Exists



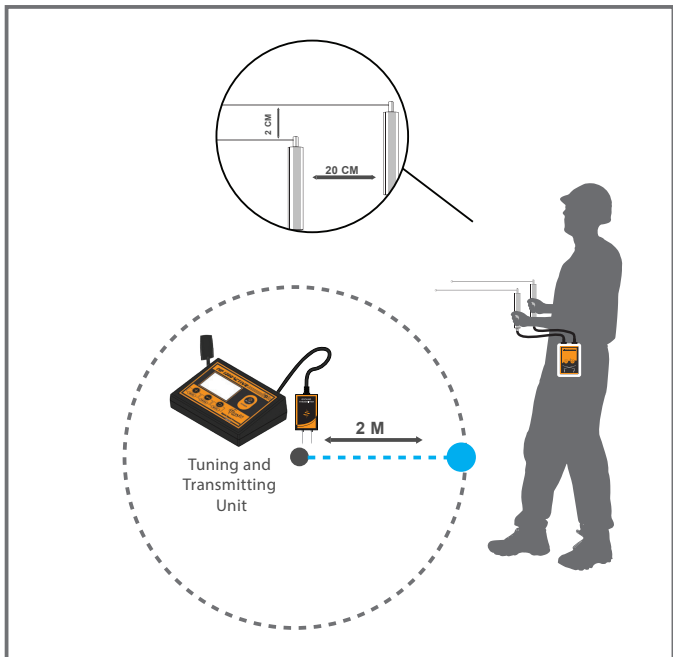
A

There is Target



How to locate Target (Stage one):

After setting and configuring the receiving device for search, fasten the Line Receiver Device on the belt or put it in pocket then measure a two meters distance from the ground transmitter unit which transmits the waves then hold the receiving antennas horizontally to the ground. hold an antenna in each hand with a 25 cm distance between and make sure that the right antenna is 2 cm above the left antenna as shown in figure



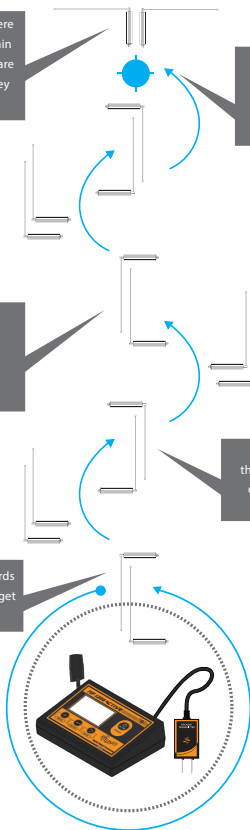
when passes the target point there will be no more intersecting again which means that the antennas are beyond the target point and they will turn back .

the midpoint between the last intersecting point and the first rotation point is the target point

walk and track the power line through the intersection of the antennas over the power line

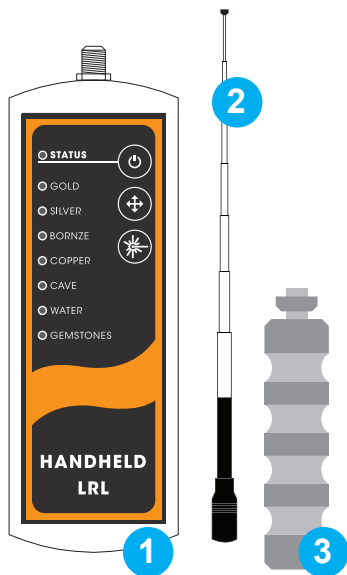
the antennas will get parallel and open when exit the power line

The antennas will intersect towards the power line leading to the Target location

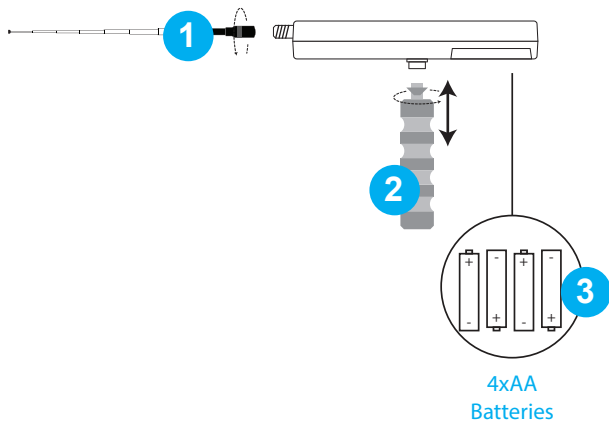


Rotate around the device
with 2 meters radius

Hand-held Long
Range
Locator



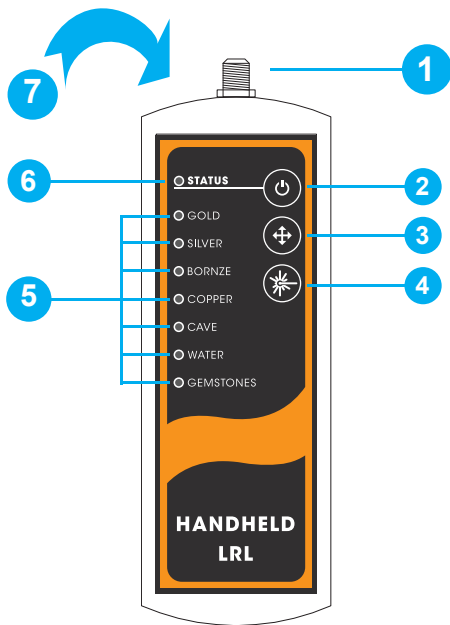
- 1 Hand-held LRL Unit
- 2 Transceiver Antenna
- 3 Handling Grip



- 1** Plug the antenna to the jack in front of the Handheld LRL Unit.
- 2** Connect the grip to the socket in the bottom of the Unit.
- 3** Put 4xAA Batteries in the battery compartment and pay attention to the polarity.

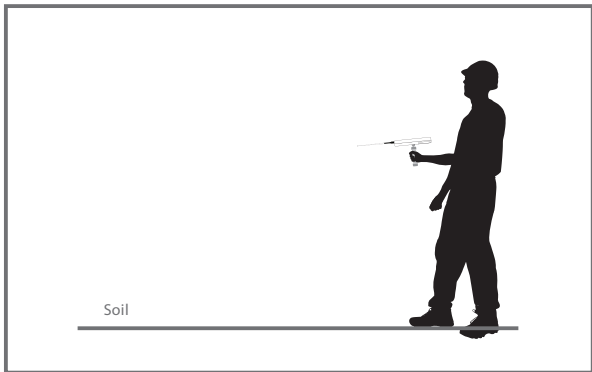
Note:

For the best product life use High quality batteries and remove them before storage.

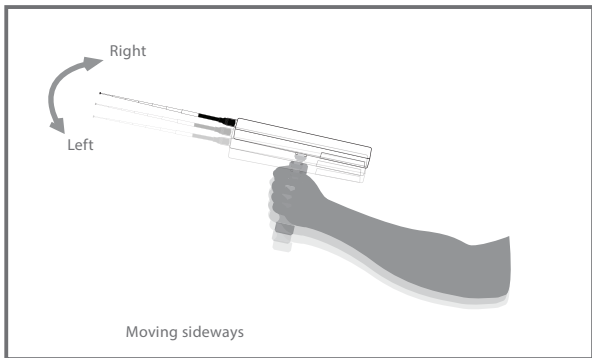


- | | | | |
|---|-------------------------|---|-------------------|
| 1 | Antenna Jack | 5 | Status indicator |
| 2 | Power Button | 6 | Target LEDs |
| 3 | Target Selection Button | 7 | Laser Pointer Out |
| 4 | Laser Button | | |

- ❖ The user must carry the device by grip horizontally slightly sloped towards ground as shown in the figure below



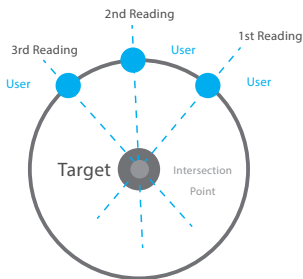
- ❖ Then stimulate the device's waves and output fields by moving the device right and left slowly then stop the device.



In the case of a located target, the device will receive signal and a reading that will divert the device from the normal track to another track which is the target point track, then the device will steady at the same direction, in the meantime rotate fully around the direction that the device went toward until reaching the opposite and notice the track change once more and go toward the target.

then get 30 m sideways from the first reading point and stimulate the device's waves and steady the device and wait for the result if the target is legit the device will rotate towards the same point again therefore the target have been confirmed.

For more accurate reading and determining repeat the step from different points, and if all the tracks intersect in a point then it is the target point.



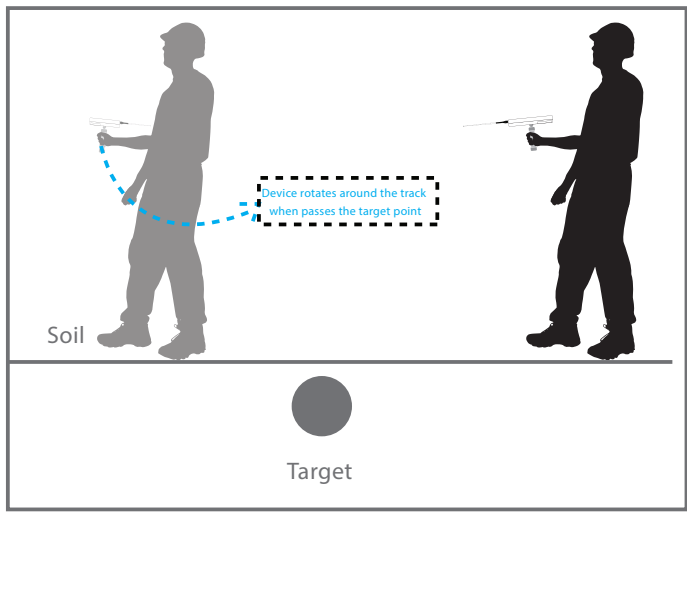
To estimate the target distance select different distance value and repeat the step above.

The successful steps indicates the approximate target distance.

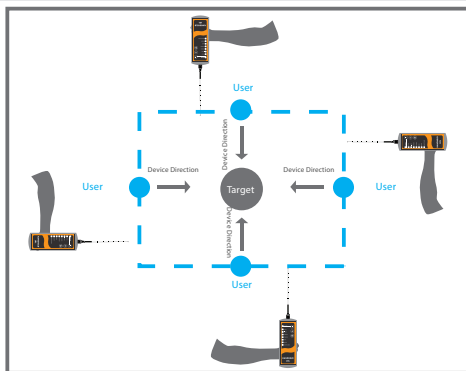
Repeat the process for accuracy.

How to Locate Target

- ❖ After ensuring multiple readings towards the target. Start walking in the same direction holding the device normally . until you reach the passing point you will notice that the device rotates around the normal track towards the point. Rotate with device slowly and start walking towards the target slowly until you reach the point where the device rotates right and left then you have located the target point.



- ❖ There is another way to locate the target point more accurately, (Square method) take 4 different readings for the target from 4 angles forming a square 3 m from target point the intersection point of the for readings is the target point.

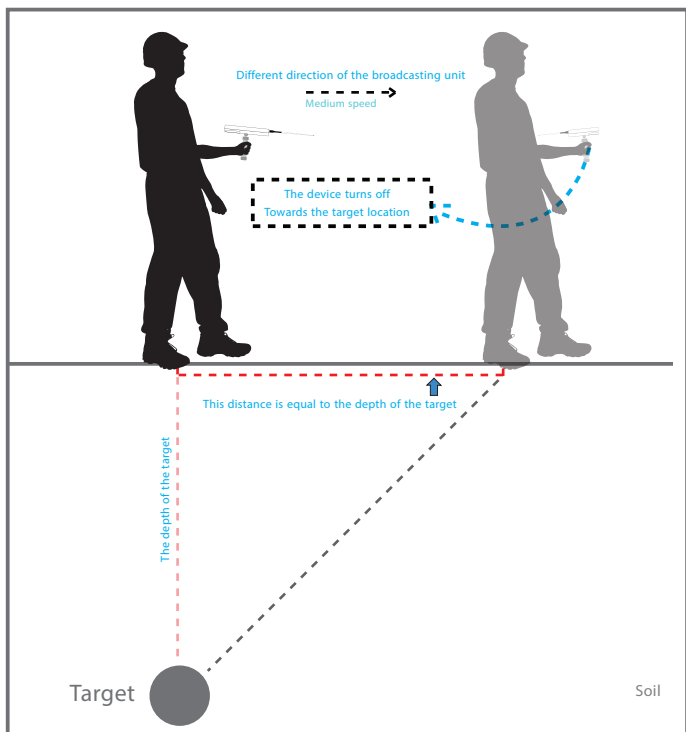


The user can see the approximate depth of the target by going back to the main menu, Select the search settings again, and changing the depth level through the depth list. For example, if the depth specified is the first time 5 meters we reduce the depth to 3 meters and enter the information, And we move away from the target location 20 meters and carry the device and wait for reading the target location, if there is a reading of the target site here we know that the depth may be between 3 meters, and we do this process to reduce the depth until we know the approximate depth of the target.

- Second method of depth determination:

After confirming the point of the target, we reduce the search distance to the lowest level and maintain the depth of the search to the highest level and complete the steps of work, and stand in the detection unit specified above the target directly and we go in a different direction of the transmission unit at medium speed until the unit circumvent the target location and measure the distance resulting from this The point to the target location is the depth of the target

How to Locate Target Depth





iON
Sense

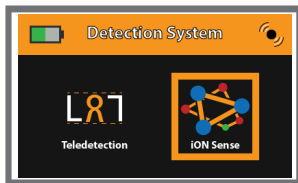
Verification Unit

This unit will detect the buried metals by sensing the ionic fields that formed around the metal in which the sensor will locate the metals location and beep in the area of the detected field.

This unit implement the ionic detection system. In which the device will identify the metals and burials ions underground that formed from being buried for a long period of time

Search Operation:	Metals and Burials Detection
Search System:	iON sense
Operating Processor:	Microcontroller
Processor Frequency:	20.000 MHz
Processing Type:	Digital Signal Processing (DSP)
Indicators:	Visual indicator (10 Bargraph LED) and Sound Indicator

If you selected the iON Sense search method, make sure that the Verification Unit is switched on and the indication LED is on



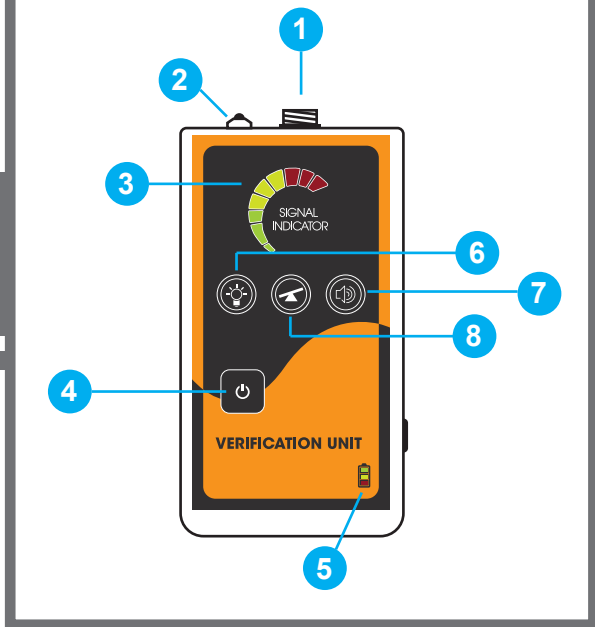
Select the target type for the search from the target menu then press "Enter". Then press Start "Enter" again to confirm the target and start the search.



The "Verification Unit" will switch on and set to the selected target from the main unit wirelessly.

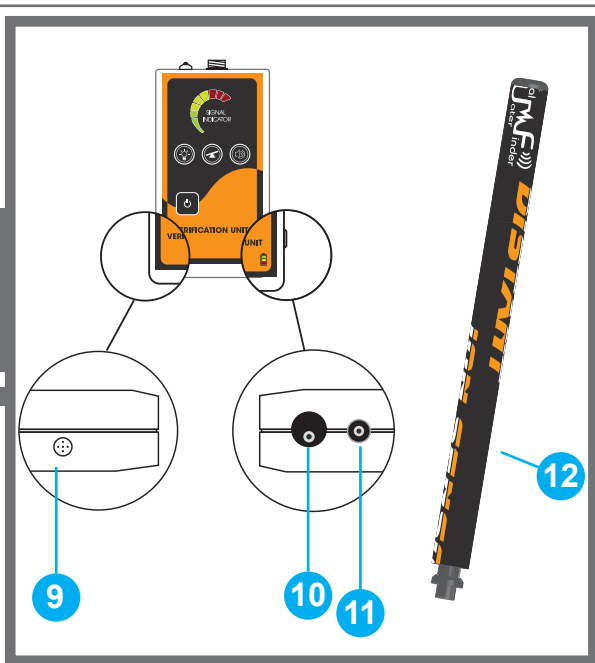
Note:

Make sure that the verification unit is switched on and within distance.



- 1 iON Sensor Connector
- 2 Flash LED
- 3 Visual Signal indicator
- 4 Power button
- 5 Battery indicator

- 6 Flash LED button
- 7 Volume button
- 8 Calibration button



- 9 Speaker out
- 10 Power Switch ON/OFF
- 11 DC in 5v-3A
- 12 iON Sensor: Connect to the iON Connector (1)



Power button: Press and hold to turn on the unit after switching the power switch ON.



LED flashlight button: press the button to turn the flashlight in the front of the unit for ease of use in night. Keep in mind that working with flashlight increases the power consumption and therefore less working hours.



Volume button: press the button to select the sound level



Ground calibration key: With this key, the user can adjust the unit to adapt to the terrain and environment in which the device operates. The device gives the normal and stable adjustment of the search tool for better results.

Note: We may start searching in an area where the device is issuing a signal in general

We press the calibrate key once and wait for the signal to stabilize

If this continues to sound in any direction we press the key again until we get a stable result and then go to the search area to determine the targets.

There are three levels to adjust the calibration if the device is not calibrated. You are located in areas where there is high noise from high voltage, etc.

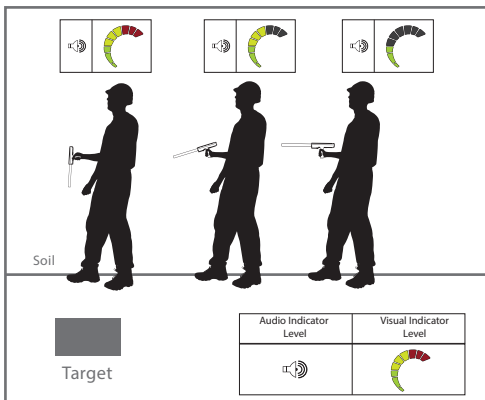
To use the Verification Unit ,First move away from suspected target location and calibrate the device by pressing the balance button, then start moving around the target location. The unit will react according to the target ionic field indicating sound and visual signals. The signal will increase when the unit is near the target.

Note:

The ionic field intensity depends on the metal type and the period that been underground.

Note:

The approximate depth of the target can be determined by using this unit. After the target point is determined, direct the target to the target and walk in any direction until the acoustic indicator is disconnected. We measure the distance from this point to the target point, which is the approximate distance to the depth of the target.



Caution



- Charge the battery immediately after use.
- When the battery is full disconnect the charger.
- Only use the charge adapter that is attached with the product.
- Charge and store the unit away from flammable objects.
- Turn the unit off after use and don't leave it idle.

Battery Status while charging

Description	LED Indicator
Flashing Red: The battery is starting to charge in first stage	
The red indicator stops flashing and the yellow start to flash indicating the start of the second stage of the charging process	
The yellow indicator stops flashing and the green start to flash indicates the third and final stage of the charge process	
All lights on full battery charge achieved disconnect the charger	

Battery Status while working

Description	LED Indicator
Battery at 100%	
Battery at 50%	
Battery at 25%	
Flashing Red: The battery is low and the unit will shut-down automatically	

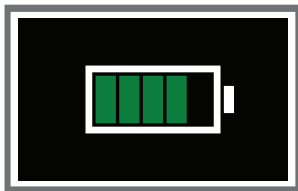
Charge Adapter for the Verification Unit :5V DC / 3-A 15W

Notes:

-The device will make a beeping sound when the battery is full and the charging is done, so disconnect the charger when the notification is heard.

-An indicator will show the charging progress in the upper corner while the device is working.

-To ensure the performance of the device is kept in best state, Turn the device off and remove any batteries before storing.



A series of horizontal dotted lines for writing notes.



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