



Model: AR924+

# Metal Detector

## Instruction Manual



Version: SZ924+-1-00

### 1. Introduction

Thank you for choosing Smart Sensor Metal Detector. This unit adopt latest electronic technology provide with ground balance function which can eliminate the effect caused by "Mineralization reaction", besides the metal type mode can identify that the detected subject is ferrous or non-ferrous metal, enhance the effectively detect depth & accuracy. It is easy to operate with big probing depth、accuracy appointed、high resolution features. In order to take full advantage & functions of metal detection, please read carefully before using this manual.

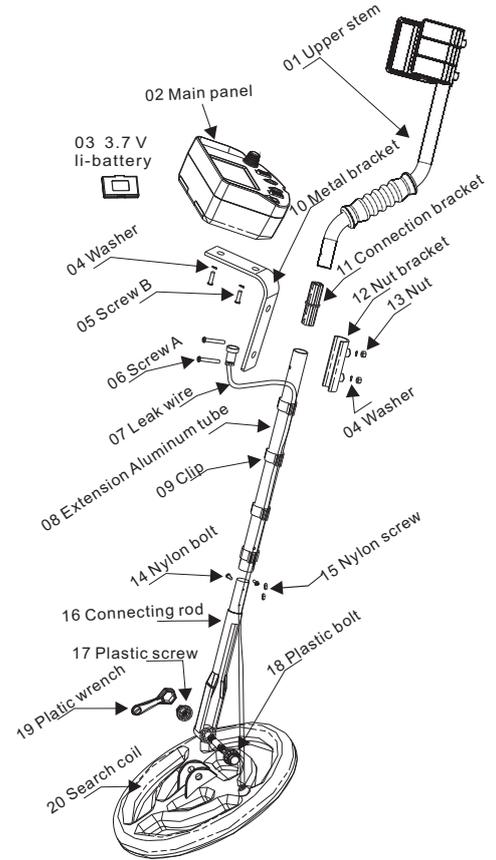
#### 1.1 Application

Except for the military purpose, This unit also suitable for following fields:  
Police quick searching  
Metal object detection in material, fuel, food stuff  
Metal object detection on mail, baggage  
Hunting buried pipe, cable  
Relic & Mineral hunting  
Cache treasure & mineral hunting

#### 1.2 Mineralization reaction

The kinds of the minerals which consist of soil can make unit send signal. When using old type metal detector, the signal changed with distance between sensor and floor, if use sensor scan the rough floor, the signal change a lot. on the complex soil place, the signal caused by soil is much bigger than metal, this phenomenon named "Mineralization reaction".

### 2. Assembly diagram



### 3. Parts and assembly diagram

#### 3.1 Parts

While purchasing, check the package contents carefully:

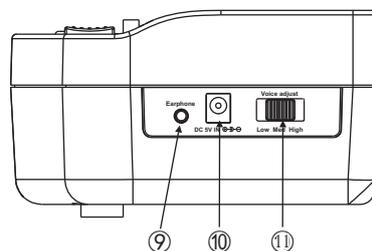
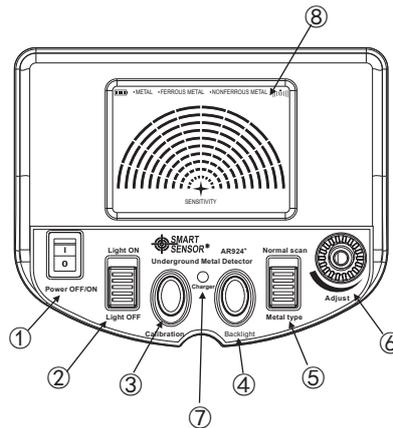
- <01>Upper stem\*1PCS
- <02>Main panel\*1PCS
- <03>3.7 V li-battery\*1PCS
- <04>Washer(M5.0)\*4PCS
- <05>Screw B (M5.0\*14PM)\*2PCS
- <06>Screw A(M5.0\*33PM)\*2PCS
- <07>Lead wire\*1PCS
- <08>Extension Aluminum tube\*1PCS
- <09>Clip\*3PCS
- <10>Main panel metal bracket\*1PCS
- <11>Conection bracket\*1PCS
- <12>Nut bracket\*1PCS
- <13> Nut (M5.0) \*2PCS
- <14>Nylon bolt
- <15>Nylon screw
- <16>Connecting rod \*1PCS
- <17>Plastic screw
- <18>Plastic bolt\*1PCS
- <19>Plastic wrench\*1PCS
- <20>Searh coil\*1pcs

If any parts miss before purchase, please consult your dealer.

#### 4 Features

- ① Power OFF/ON
- ② Torch light switch
- ③ Calibration button
- ④ Backlight

- ⑤ Normal scan and metal type mode selection
- ⑥ Sensitivity adjustment button
- ⑦ Charging indication
- ⑧ LCD
- ⑨ Earphone jack
- ⑩ Charging port
- ⑪ Voice adjustment switch



### 5. Specification

Max. Detection depth	1.5m (50CMx50CMx1.2CM aluminium board )
Detectable indication	Audio( $\geq 75$ dB) and light indication
Detection mode	Ground balance/ discrimination
Signal frequency	7.1KHz
Power supply	3.7V(lithium battery)
rechargeable battery	√
charge voltage	DC 5V
Low battery indication	√
Product net weight	1.77 kg
Product size	30x30x123.5 cm

### 6. Operations

The operation is same as Sapper detect landmine, when detect, keep 10-15cm from the floor and canning in the horizontal level to avoid lowering the actual detect depth.

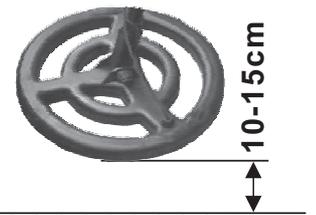


figure 4

#### 6.1 Ground balance calibration:

There are two calibration methods.

##### 6.1.1. Auto calibration:

The auto calibration is just to turn the unit on. When Calibrate by this method, Fan-shaped stripe , calibration , and star shape will display on LCD.

### 6.1.2. Manual calibration

Manual calibration have following two methods:

a. On the status of ground balance, press " calibration " key, release it quickly (not exceed 2 seconds). It is equal to auto calibration.

b. On the status of ground balance, press "calibration" key(exceed 2 seconds), Fan-shaped strip will displayed on LCD. This method is always used while detecting. It is easy to operate, and will enhance the accuracy.

### 6.2. Eliminate Mineralization reaction

There are two method to eliminate mineralization reaction: auto and manual.

#### 6.2.1 When adopts auto elimination,

Before power on, turn the ADJ knob left, then, turn on the unit, after ground balanced, approach the sensor to the floor, about 10-15cm from it. If the fan-shaped bars icon is increasing or more than 6 bars, repeat the adjustment as above method, the auto adjustment will be finished until there are only 2 or 4 bars on LCD when take up and down the sensor.

#### 6.2.2 When adopts manual elimination,

Hold the "calibration" key for more than 2 seconds and turn " adjustment" button left slightly at same time, release "calibration" key until ground balance completed, approach the sensor coil about 10-15cm from floor for testing. If the fan-shaped bars increasing or more than 6 bars, it should be repeat the adjustment until reaching same effect as auto elimination. Then, the mineralization reaction largely eliminated.

Operations as below:

a. Slide switch to Metal Type.

b. Power on and after auto calibration ,slowly sweep the coil above the metal being located, the detector gives out audio sound with increasing bar graphs. If the LCD display "nonferrous metal" means the target is nonferrous metal; if display "ferrous metal" means the target is ferrous metal. Thus, you can distinguish the metal target by LCD display. Also detect back and forth around the place of metal located is needed. Eliminate the effect maximum caused by soil structure or any other elements to enhance the accuracy of the detection. (note: Ferrous: containing, pertaining to or made of iron; Non ferrous therefore does not, eg: copper, aluminum, gold and so on)

Cautions:

a. If the target is a ferrous metal board, a special phenomenon will happen: When the coil approach the wage of the target, the detector will response as located a ferrous metal; when the coil right above the centre of the target, the detector will response as located a non-ferrous metal.

b. While in the operation process, when the coil being disconnected with the main panel, the detector will give out alarm sounds "BI BI" with bar graphs blinking on LCD and no star icon display, please check up the connection of lead wire.

c. Please use Normal scan to detect the target, then switch to Metal type to discriminate ferrous/ non ferrous metal. Use higher sensitivity levels (turns the ADJ knob at clockwise) before turn on the unit for detecting.

6.2.3 Note: before manual calibration, press " calibration " key, release it when ground balanced.

### 6.3 Identify / Reject Metal

According to specific conditions, adjust ADJ knob to eliminate unwanted metal target. For example, when you hunting in an area with many buried metal nails, it is easy to occur improper detection reading. In such case, pre-set a metal nail on the ground, hold the search coil scan above the nail, if the detector responds as fan-shaped bars icon increasing with sound alarms, just keep pressing CALIBRATION button more than 2 seconds and turning ADJ knob to the left slightly at the same time. Then try to sweep the snail again after ground balance, the adjustment will be completed until there is only 2 or 4 fan-shaped bars displayed. Sometimes, it need to take many adjustments on ADJ knob to reach the best result, also take secular time to accumulate preferable detection experience.

Identify / Reject metal operation similar with Mineralize elimination. We recommend you take time to explore with fund experience for proficient operation and successfully hunting.

### 6.4 Metal Detection

There are Metal Scan & Metal Type modes available during the metal detection.

#### 6.4.1. Metal Scan:

This mode with the technology to eliminate Mineralization Reaction and preferable sensitivity. Whenever indoor/outdoor we recommend to choose this mode, after a target is found, choose Metal Type mode to discriminate ferrous and nonferrous metal. Detector will produce audio signal and illuminate with cursor on LCD when metal is detected.

d. Whatever use normal scan or metal type mode, when there is 6 or more than 6 bar graphs icon on LCD, please adopt manual ground balance adjustment mentioned above. You should adopt manual ground balance the detector regularly, keep it eliminate interference by electromagnetic or mineralize soil promptly. At the course of hunting, eliminate Mineralization reaction & identify / reject metal operation also aid you for desirable search results.

e. Metal detector produce their own electromagnetic fields, so if detecting with friends, keep each metal detectors at least 10 meter apart.

f. Many household appliances and facility emit electromagnetic energy, which can interfere the detector, this detector is not adapt to indoor use.

### 7. Light

7.1 When the light is needed, just slide the switch to ON position.

7.2 In dark environment, press " backlight " key to activate, and press again, backlight off.

8. When LCD display icon "  ", please replace the batteries to ensure excellent sensitivity and precise detection.

### 9 Charging

9.1 Connect adapter to 110V-240V AV power, plug the DC charger into charging hole. See figure 5:

9.2 When charging, the power light is red.

9.3 The green power light means the power is full.

9.4 When charging, red power light keeping blinking means battery over-temperature protection.

Operation as below:

a. Turn on the power, power light on, slide switch to Normal Scan, then turn on the sensitivity key to the maximum, and keep the search coil 70-80cm from floor.

b. Bar graphs will keep scanning from left to right for 2 times on LCD, when the bar graphs gradually fade out only remain the left bar graphs indicated auto balance completed, LCD display "sensitivity" with star icon.

c. Keep holding the search coil sweep along the floor. When a target being detected, the metal detector will produce audio sounds and increasing bar graphs on LCD as well as spread to the right. When LCD display 10 bar graphs with "METAL TYPE" icon means metal detected. Once buried target is indicated by a high tone response, continue sweeping the coil over the target in a narrowing side-to-side pattern to enhance the accuracy.

d. In the hunting process of Metal Scan mode, merely need to adjust ADJ knob. mostly just eliminate mineralization & identify / reject metal operations requires turning ADJ knob.

#### 6.4.2. Metal type

This mode is designed to discriminated ferrous metal and nonferrous metal. According to LCD indicator to select desired / (reject unwanted) metals. As metal type modes without ground balance function, can not eliminate mineralization interfere, make sure to moving the coil slowly at a constant height.

the battery is wrong if blinking for a long time.

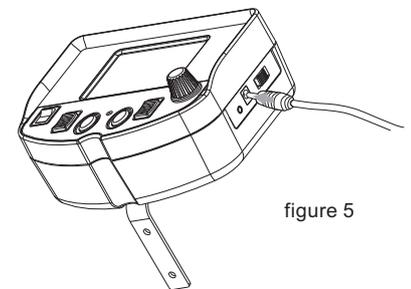


figure 5

### 10. Battery installation

Open battery compartment cover, and insert into 3.7V\*1 li-battery into compartment, then close the compartment door. See figure 6 :

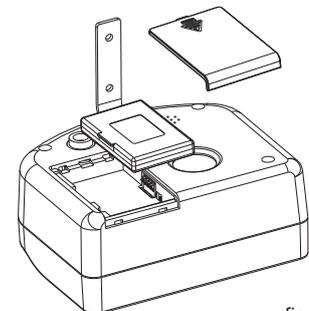


figure 6