艾都慧测

找水金箍棒

GOLDEN-ROD GROUNDWATER DETECTOR

操作手册

OPERATION MANUAL

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Contents

1. Instrument Overview

Golden Rod Groundwater Detector on the basis of the traditional MT electrical geophysical exploration theory, the golden groundwater detecor is developed by referring to the advanced geophysical prospecting instrument design at home and abroad, combined with advanced technologies such as the Internet of Things and AI. The data acquisition circuit and algorithm have been accumulated for nearly 50 years of technology iteration, and can remove the terrain and ground environment interference in most parts of the world. The special MN (electrode) and TT (electromagnetic probe) two measurement modes can be switched to measure, and MN (electrode) measurement can be used as far as possible in some places with particularly large interference, which can greatly solve the problem of interference in field data acquisition. Obtained a number of national patents (201110454869.X, 201310205318.9, 202121767124.4, 202121767138.6, etc.). In particular, the invention patent "Geophysical exploration method and measuring device for correcting the Earth Electromagnetic field Source" solves the problem of field source changing at any time.

Since the company went public in 2016, it has been deeply supported and trusted by the majority of users around the world, and also collected some shortcomings and hopes to improve, so in 2024, it upgraded the new water searching golden groundwater detector, and optimized and upgraded in many aspects: Improve the measurement accuracy and optimize the measurement frequency accuracy, which can

greatly improve the measurement accuracy of the instrument, optimize the MN electrode grounding performance, and improve the stability of data acquisition; The depth stratification mode is added, which can be divided into 5, 10, 20 meters three depth intervals to meet the different needs of users for depth stratification; The depth section selection is added, and the measurement start and stop depth can be set to meet the special needs of users who only need to measure a certain depth; Add data processing function, set data processing parameters according to the model, and automatically generate 2D, 3D and slice graphs; Add AI automatic analysis function, online AI automatic analysis function, 24 hours online data analysis.

The golden groundwater detector is mainly used to find water, relatively shallow hot springs, etc., and can also be used for hydrogeological exploration, prospecting and some engineering geophysical exploration work.

Through WiFi wireless connection to control the host, mobile phones and tablets (currently only support Android and HarmonyOS) device terminal to set relevant parameters, data acquisition, data processing, fast inversion calculation, 2D/3D automatic mapping, AI automatic analysis, etc. It can also share data between the PC and the cloud server through the WEB side to realize various data processing functions of the collected data on the APP side.

2. Main Features

(1) Improve accuracy and stability: Optimizing measurement frequency

accuracy can greatly improve instrument measurement accuracy, optimize MN electrode grounding performance, and improve data acquisition stability;

(2) Increase the depth interval optional: divided into 5, 10, 20 meters three depth interval optional, can meet the user's different needs for depth stratification;

(3) Increase the depth layer mode: increase the depth segment selection, can set the measurement depth, stop depth, to meet the special needs of users only need to measure a certain depth;

(4) New software: with its own data processing function, automatically generate 2D, 3D and slice graphs, and online AI automatic analysis function, 24 hours online data analysis.

(5) Add offline measurement key: completely wireless connection through WiFi, no need to connect any cable, even in the absence of mobile phone and tablet connection to achieve offline measurement

3. Operating Principle

Based on the MT electromagnetic method, the golden groundwater detector is simplified and upgraded. It uses magnetotelluric field as a field source to study the electrical structure of the earth's interior. Based on the principle that electromagnetic waves of different frequencies have different skin depths in conductive media, the earth's electromagnetic response sequence from high frequency to low frequency is measured at the surface to study the electrical variation differences of geological bodies at different depths

underground. Determine the occurrence state of subsurface geologic bodies.

3.1 Theory of electromagnetic wave propagation, Helmholtz equation

Electromagnetic waves from the ground are transmitted to the ground, and the propagation of electromagnetic waves in the soil follows Maxwell equation. If it is assumed that most of the underground soil is non-magnetic and conducts electricity uniformly on a macro level without charge accumulation, then Maxwell's equation can be simplified as follows:

$$\left.\begin{aligned}\nabla^2 H + k^2 H = 0\\ \nabla^2 E + k^2 E = 0\end{aligned}\right\} \qquad (1)$$

k is called wave number (or propagation coefficient)

$$k = [\omega^2 \mu\varepsilon - i\omega\sigma\mu]^{\frac{1}{2}} \qquad (2)$$

Considering that the propagation coefficient **k** is complex, **let k=b+ia**, **a** is called the phase coefficient and **b** is called the absorption coefficient.

In the electromagnetic wave frequency range of this product (**0.01Hz-8KHz**), the displacement current can usually be ignored, then **K** is further simplified as:

$$k = -i\omega\mu\sigma \qquad (3)$$

3.2 Wave resistance and resistivity

With a changing magnetic field induced by the Helmholtz equation, we have a magnetoelectric relationship:

$$\frac{E}{H} = -\frac{i\omega\rho}{k} \qquad (4)$$

The surface impedance Z is defined as the ratio of the horizontal components of the surface electric and magnetic fields. In the case of uniform earth, this impedance is independent of the polarization of the incident field, and is related to the ground resistivity and the frequency of the electromagnetic field:

$$Z = \frac{E}{H} = \sqrt{\omega\mu\rho}e^{i\pi/4} \qquad (5)$$

Formula (5) can be used to determine the resistivity of the earth.

$$\rho = \frac{1}{5f}\left|\frac{E}{H}\right|^2 \qquad (6)$$

3.3 Skin depth

In non-magnetic media, the skin depth formula is:

$$\delta \approx 503\sqrt{\rho/f} \qquad (7)$$

From the above formula, it can be seen that the penetration depth of electromagnetic wave is related to frequency and resistivity. With a certain frequency, the higher the resistivity, the greater the penetration depth; with a certain resistivity, the lower the frequency, the greater the penetration depth.

4. Instrument overview

The golden groundwater detector is named the Golden cudgel for its appearance is very similar to the golden cudgel of Sun Wukong in

the Chinese mythology story (Figure 1), which is mainly used for searching for water. It is highly integrated with acquisition circuit, MN electrode, TT sensor, high-performance lithium battery, switch button, charging port (Figure 2).

Figure 1

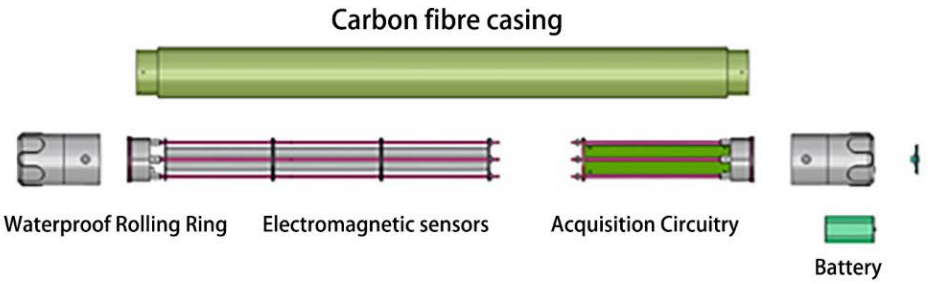

Figure 2

Model / Parameter	ADMT-3H	ADMT-3H2	ADMT-8H2	ADMT-3H3	ADMT-8H3
Maximum depth	300m	300m	800m	300m	800m
Depth interval	5/10/20 (m)				
Battery function	7.4V2600mAH lithium battery, power consumption 140mA				
Connection type	WIFI, Bluetooth				
MN electrode	100*95*30 mm ,4 alloy electrodes				
Main function	Optional start and stop depth range, depth interval can be set, 2D/3D automatic drawing, AI analysis, online and offline measurement				
TT electromagnetic induction coil (mm/w)		300/4	300/4	450/8	550/8
TT electromagnetic induction core (KmH/m)		80	100	100	120
Work environment	Plug ground measurment	Any ground			
Frequency range (HZ)	1-8k				
Measuring mode	MN	MN/TT			
Resolution ratio	0.1mV±5%			0.01mV±1%	
Sampling time (S)	14-420	14-420	14-700	14-420	14-700
Main host weight (kg)	0.8	1.9	2.6	2.6	
Main host size (mm)	340*71	650*71		790*71	
Shipping weight (kg)	4	5.6		6.5	
Shipping size (cm)	53*21*18	77*21*18		92*21*18	

Figure 3

5. Introduction to the main page of the operating software

Figure 4

5.1 Firmware Information

Displays the software app version number, and the firmware version of the water-finding gold band.

5.2 Battery level

Display the power level of the main control unit and the gold band device, alternately scrolling, "SYSTEM: power percentage" indicates the current power level of the main control unit; when the gold band device is connected, it displays 'ID number: power percentage'.

5.3 Central region

Display the product name and model. The product name and model are empty when used for the first time. The last connected product name and model are displayed by default after the device is initialized.

5.4 System settings

Mainly includes user login, personal information, scan code login, device binding, language, Bluetooth, WIFI, mobile data, screen brightness and other system functions, according to actual needs to use, some functions may not be used for the time being.

5.5 Connected mode

There are four connection modes. The Golden Cudgel supports two modes: WIFI connection and Bluetooth connection.

5.6 Instrument setting

Connect devices, measurement mode, depth gap mode, stacking times, start depth, end depth, measurement starting point, measurement point increment and other operation functions.

5.7 Files

You can see the files that have been measured or downloaded on the account, and you can delete the files, cloud (share, download, delete), backup, view, draw and other operation functions

5.8 New Measurement

Create a new project or select an existing project to continue measuring.

5.9 System Control Bar

From left to right, they are: hide system control bar, increase volume, return, return to desktop, function keys (to view programs currently running the day after tomorrow), screenshot key, and increase volume.

6. Initial setup

6.1 Select operation host or software installation

Directly open the "Aidu Water Search" APP on the operating host. If you use your mobile phone or tablet to connect with the Cudgel stick, scan the QR code (FIG. 5) or enter the download link

(http://d.aidush.com/uy) to download the "Aidu Water Search" APP. After the installation is complete, open the software to use (Figure 6).

Figure 5

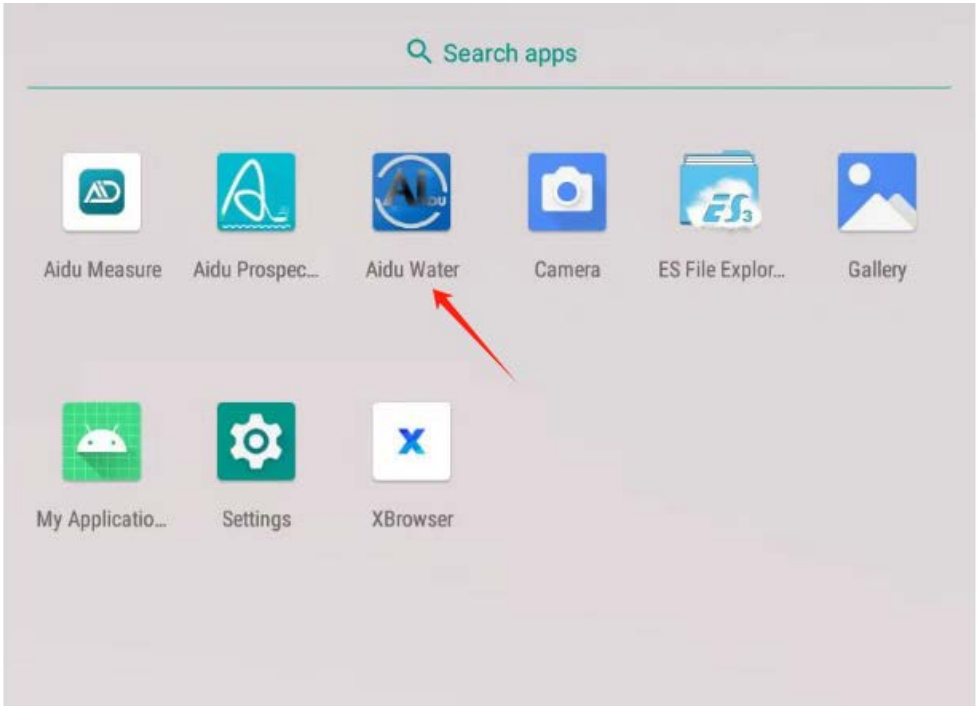

Figure 6

6.2 Initialization flowchart

For the first time, initial connection registration should be performed, as shown in the following flowchart (Figure 7)

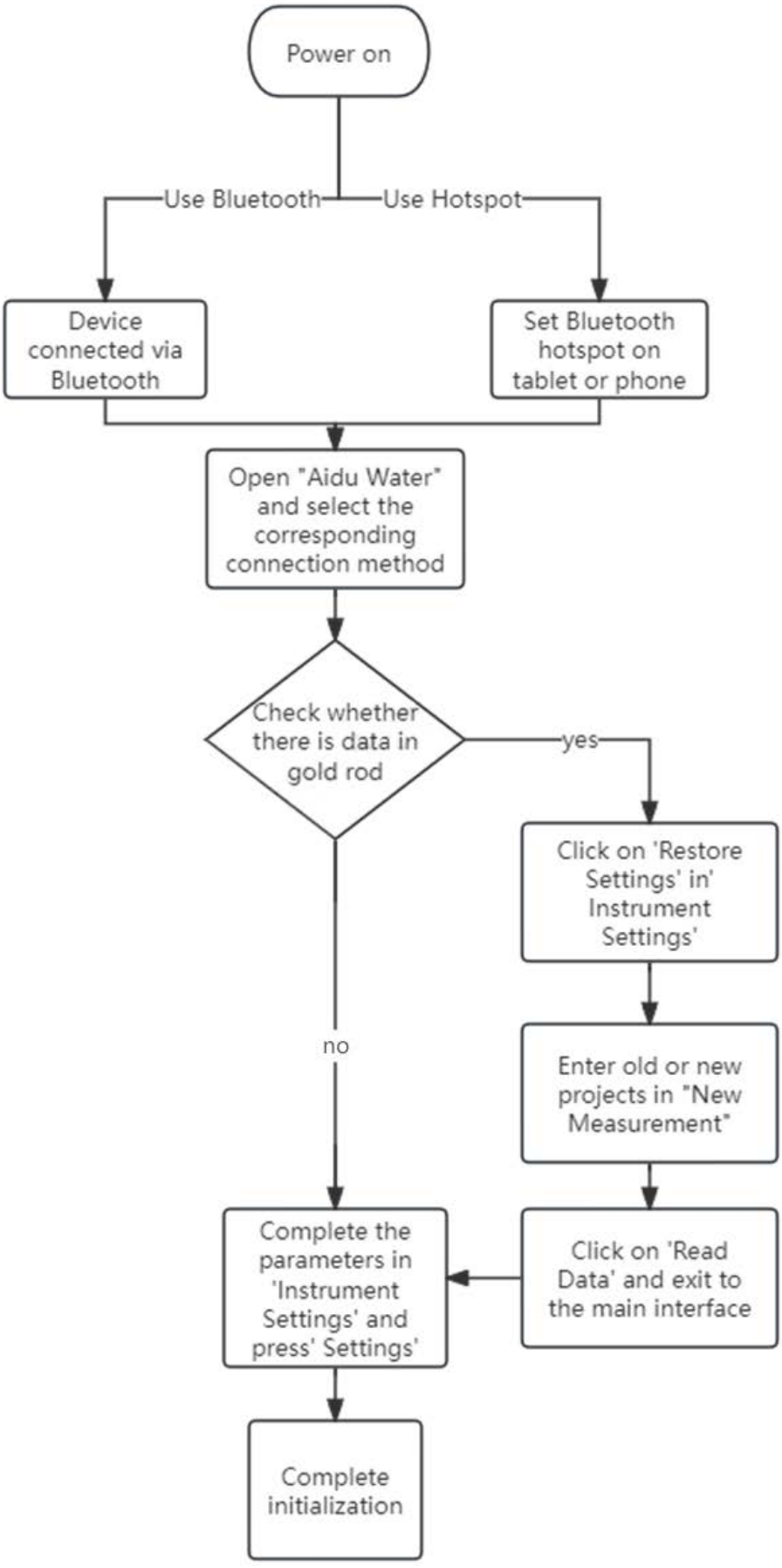
Power on
Use Bluetooth
Use Hotspot
Device connected via Bluetooth
Set Bluetooth hotspot on tablet or phone
Open "Aidu Water" and select the corresponding connection method
Check whether there is data in gold rod
yes
no
Click on 'Restore Settings' in' Instrument Settings'
Enter old or new projects in "New Measurement"
Click on 'Read Data' and exit to the main interface
Complete the parameters in 'Instrument Settings' and press' Settings'
Complete initialization

Figure 7

6.3 WIFI hotspot settings

On the main interface of the software, select System Settings → WiFi hotspot → Set hotspot → Set WLAN hotspot (Figure 8) → Set network name to the full name of the instrument model (e.g. ADMT-3HT) → Security: WPA2 PSK→ Password: 88888888→ Save → Enable WLAN hotspot → Return to the previous interface → Select WiFi connection. It may take 1-3 minutes for the connection to succeed. Or open the personal hotspot Settings in the system Settings and follow the above procedure to set the hotspot.

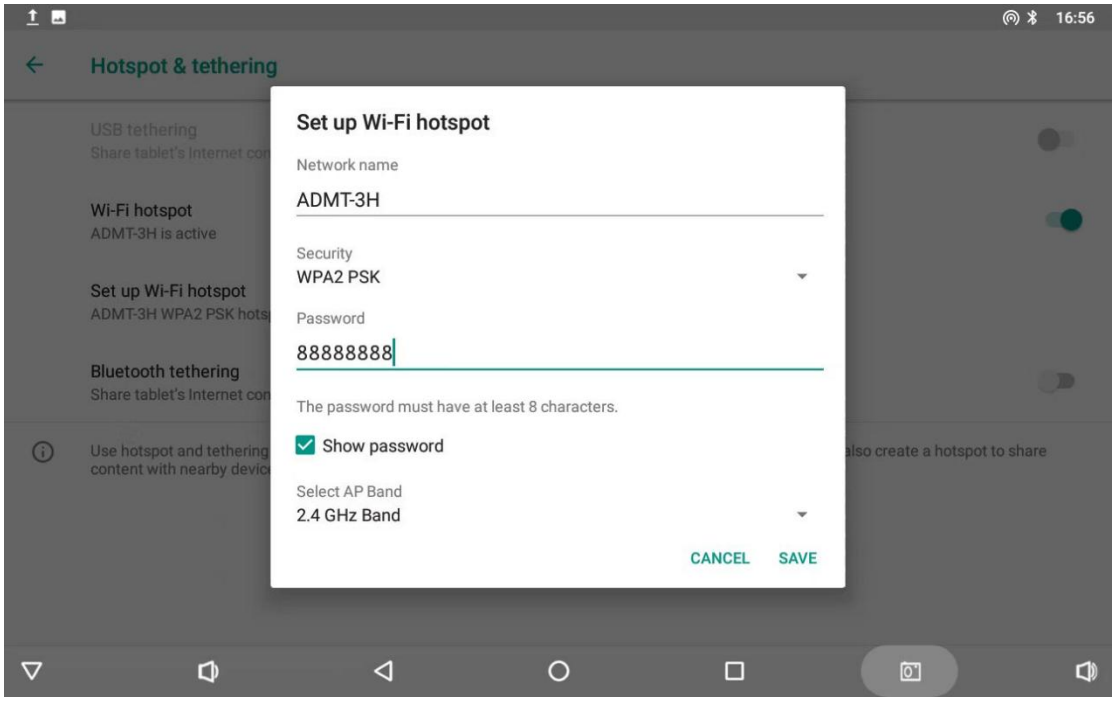

Figure 8

6.4 Bluetooth pairing

On the main screen of the software, select System Settings → Bluetooth → Enable Bluetooth → Return to the main screen of the APP → Select Bluetooth connection → Click Search → Select device to

pair → Confirm. It may take 1-3 minutes for the connection to succeed.

Or open the Bluetooth function in the system Settings and set it according to the above process.

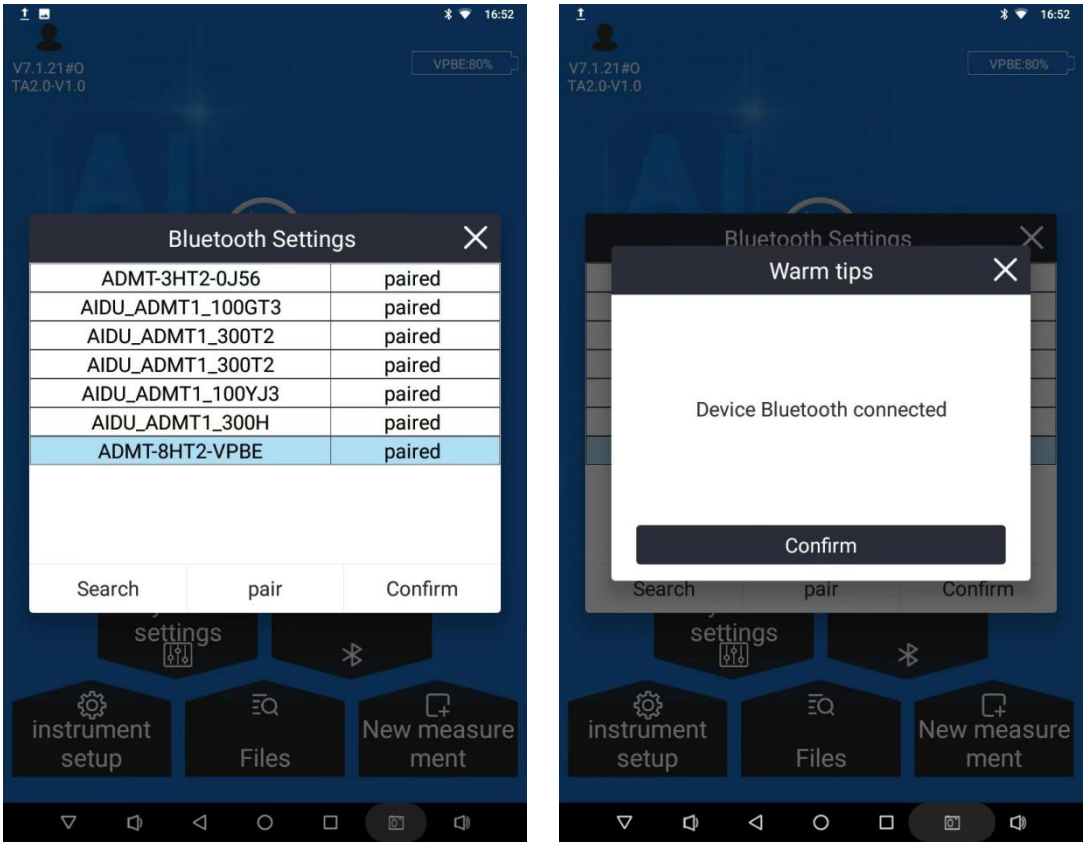

Figure 9

6.5 Connect the golden groundwater detector

WiFi connection: After the personal hot spot is set and turned on, long press the power button on the panel at one end of the golden stick to turn on the red light to steady on, indicating that the power is successfully turned on, and the WF light (blue light) blinks slowly. Select WiFi connection in the connection mode of the main interface of the APP (Figure 9), wait for about 10-30 seconds, the

APP will automatically jump to the instrument setting interface, and the blue light on the golden groundwater detector panel will be steady on. The version number, hoop, and specific model are displayed in the central area of the main screen. The initialization is successful.

Bluetooth connection: Turn on the Bluetooth function of the host, long press the WF\BT button on the water searching golden stick panel to switch to Bluetooth mode, and the BT light (yellow light) blinks slowly. Select Bluetooth connection in the connection mode of the main interface of the APP (FIG. 9), wait for about 10-30 seconds, the APP will automatically jump to the instrument setting interface, and the yellow light on the golden groundwater detector panel will be steady on. The version number, hoop, and specific model are displayed in the central area of the main screen. The initialization is successful.

Figure 10

6.6 Daily connection to golden groundwater detector

After initialization, daily connections are much easier.

WiFi connectio ress and hold the power supply (red light) on the panel at one end of the golden groundwater detector until it is steady on, and the WF light (blue light) blinks slowly. On the main screen of the software, select System Settings →WiFi hotspot → Enable WLAN hotspo t → Return to the main screen of the APP → Select WiFi connection. Wait for about 10-30 seconds, the APP will automatically jump to the instrument setting interface, and the blue

light on the golden groundwater detector panel will be steady on, so that the connection is successful.

Bluetooth connection: Press and hold the power supply (red light) on the panel at one end of the golden groundwater detector until it is steady on, and the BT light (yellow light) blinks slowly. On the main screen of the software, select System Settings → Bluetooth → Enable Bluetooth  Return to the main screen of the APP → Select Bluetooth Connection. Wait for about 10-30 seconds, the APP will automatically jump to the instrument setting interface, and the yellow light on the golden groundwater detector panel will be steady on, so that the connection is successful.

7. Easy to operate and use

7.1 Instrument setting

After daily connection according to (6.6), first check whether there is any data in the golden groundwater detector. The specific operation method is as follows:

Click "Recovery Parameters" in "Instrument Settings" → Return to the previous layer → Enter the project name and measurement line number in "New Project" at will or according to your own habits → click "Read data". If there is measurement data that has not been read before reading the data description, confirm whether it is the data that needs to be kept to keep the record; If the data is not read, it means that there is no data on the golden cudgel, and the relevant parameters can be reset for a new measurement task.

Click "Instrument Settings" to confirm that the connected device is online (device ID number appears and the green light is on), select measurement mode → Interval mode → Start depth → end depth → Stack times → Settings, and after clicking Settings, the message "Settings saved successfully" will be displayed.

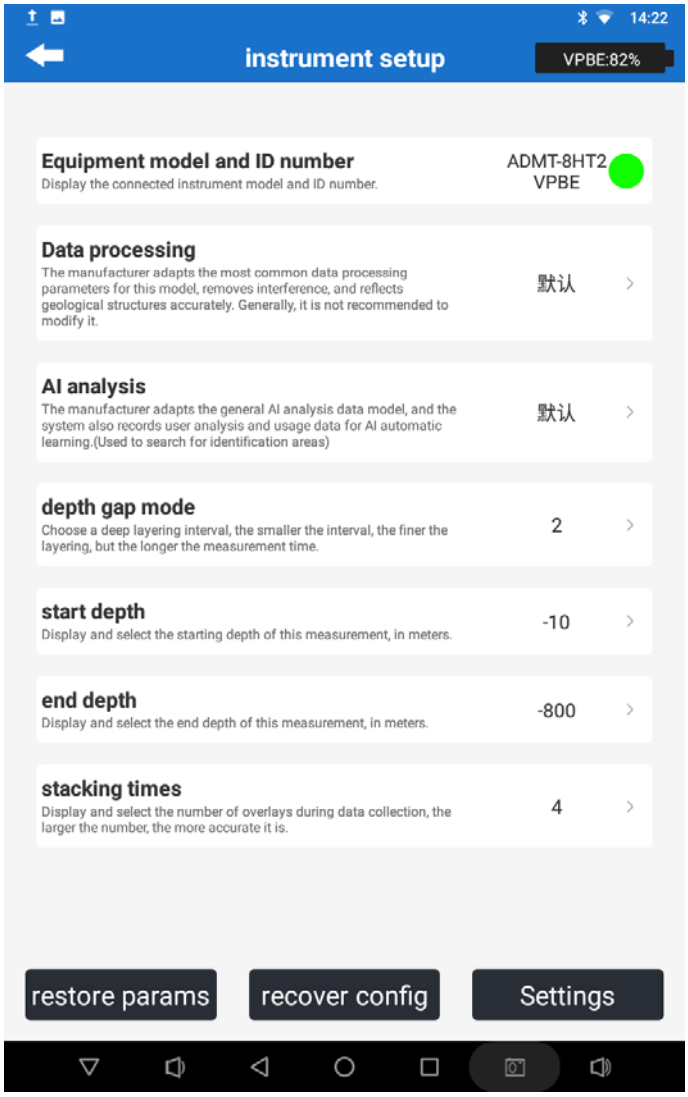

Figure 11

It supports two operation modes of "online measurement" and "offline measurement". "Online measurement" refers to the use of the APP operating software on the host, mobile phone or tablet computer

to set relevant parameters, and directly perform data measurement, data reading, data processing, drawing analysis and other functions. "Offline measurement" means that after controlling the APP operating software on the host, mobile phone or tablet computer to set the relevant parameters, the operation is no longer performed on the host, mobile phone or tablet computer, but the "measurement" button on the golden groundwater detector is used to measure, and the measurement is connected to the operating host, mobile phone or tablet computer after the measurement is completed. One time reading data and complete data processing, drawing analysis and other functions.

7.2 Online measurement

After the completion of "instrument setting", directly "New Measurement" (Figure 12) measurement data. In the page, you need to enter the name of the new project and the number of measurement lines, select the spacing of measurement lines and measurement mode, and click "Confirm" to enter the measurement interface.

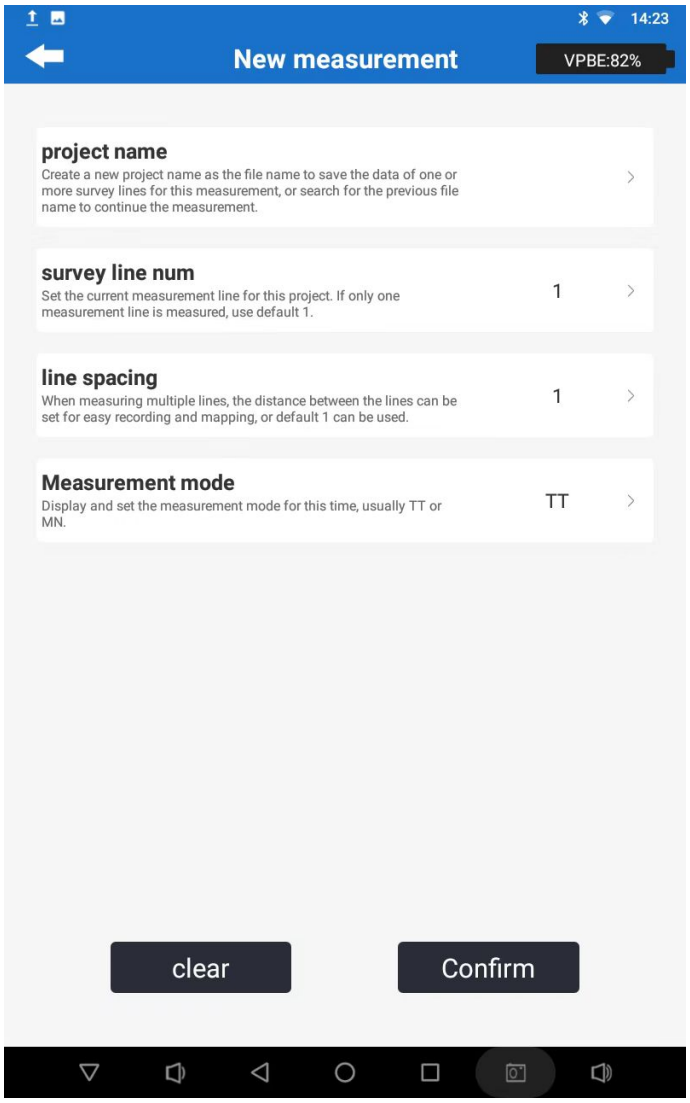

Figure 12

Enter the project name and measurement line number in "New Project" → Enter the measurement page (Figure 13) → click "Instrument Self-test" → click "Data collection" → The measurement will be completed when the progress bar is completed.

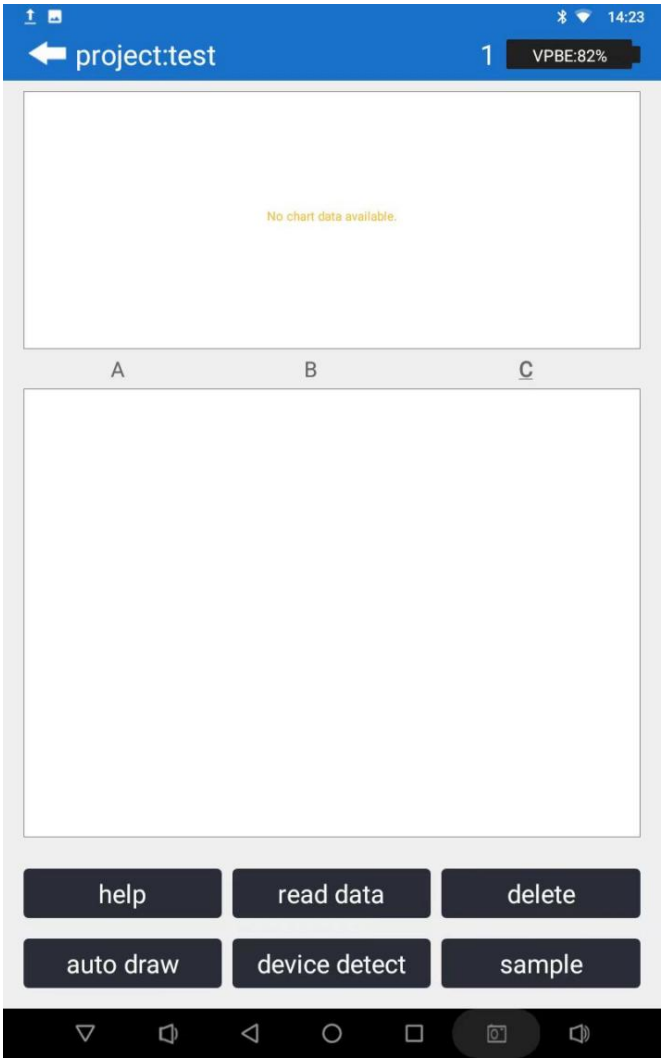

Figure 13

Read data: Read the current measurement data in the cudgel. After the measurement can be completed online or offline, the data can be read consistently.

Delete: Deletes the data read from the previous entry. If multiple entries are read, the last entry is deleted.

Auto drawing: Jump to the drawing analysis page, automatically draw the vertical profile of the previous data, and you can also progress other related operations of the drawing.

Device detect: Instrument self-test can insist on whether the connection channel is effectively connected, or other related functions.

Sample: The instrument is clicked after the arrangement of the measuring point is completed to collect data.

7.3 Read data

Under the "Online Measurement" mode, after confirming that the current profile measurement has been completed, directly click the "Read Data" button to retrieve all the profile measurement data at once.

Under the "Offline Measurement" mode, after establishing a routine connection as described in Section 6.6, click "Restore Data" in the "Instrument Settings" → then enter any project name and survey line number in "New Project" (either randomly or based on personal preference) → click "Read Data" to retrieve all the current profile measurement data at once.

7.4 Off-line measurement

After the "instrument setting" is completed, you can turn off or not connect the APP software. Use the "Measure" key at one end of the Golden groundwater detector to realize offline measurement. After long press the "Measure" key, two prompt sounds will be emitted, and the measurement light MEAS (green) will blink, indicating that the measurement is underway. When the golden stick gives two prompts again

and the measurement light MEAS (green) stops blinking and is steady on, it means that the measurement point has been measured. You can move down to the next measurement point and repeat the measurement until the measurement of the entire section data is completed.

7.5 Simple operation flow chart

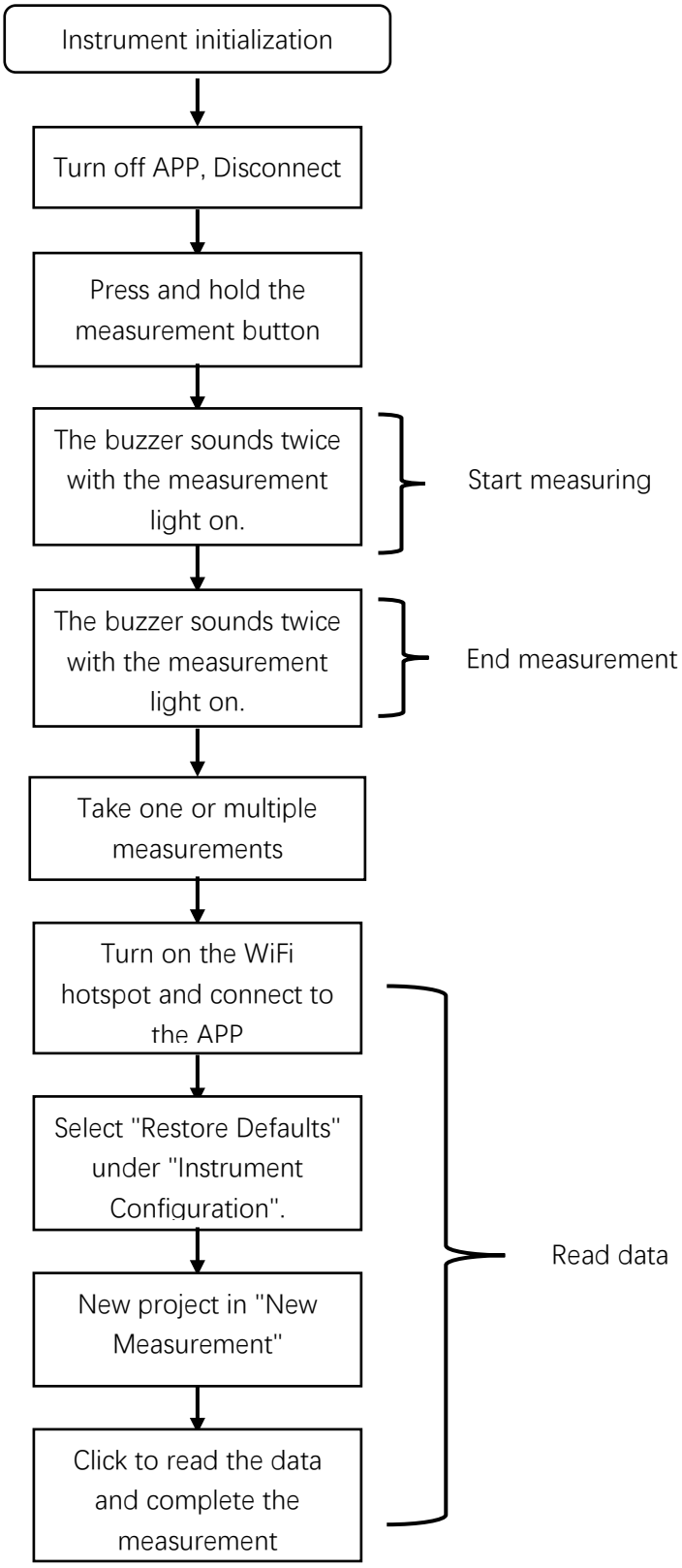

Figure 14

7.6 Simple operation precautions

1、During the measurement process may exit the APP software interface or the software background process is interrupted, you can judge whether the measurement is finished by the measurement light MEAS (green) on the panel of the golden groundwater detector will blink or stop. Generally, the measurement is still in progress when it blinks, and the long light is the end of the measurement.

2、 In the process of measurement, click the measurement (online measurement) and the measurement key of the water searching golden groundwater detector panel (offline measurement) on the APP software interface, which can be used cross-over. When you click the measurement button on the APP interface, if the cudgel is being measured, the APP will prompt "Busy".

3、After the measurement, the data is stored inside the golden groundwater detector and will not be automatically uploaded to the APP software. You need to manually click "Read data" to upload the data to the APP software side.

4、During the measurement process, the operating host, tablet or mobile phone is out of power, but there is still power, you can continue to use the "offline measurement" method for measurement, and then connect to read the data after the operating host, tablet or mobile phone is charged.

5、 The golden groundwater detector in the measurement process is interrupted or crashed, the current measurement data will be lost,

but the previous data will be retained.

8. Drawing analysis

8.1 Drawing function entry mode

AIDU WATER APP there are two places where you can enter the drawing analysis function. The first is to directly click the "Automatic drawing" button to enter the drawing analysis function after reading the data on the "New measurement" interface; Second, in the file browsing page of the main interface of the software, select a file and click the "drawing" button to enter the drawing analysis function.

8.2 Plane and vertical contour maps

Contour map can draw vertical section, plane contour map. After entering the drawing function in the first way above, a "vertical profile" of the current and most recent file is displayed directly (Figure 15). In the upper menu bar, "O2D" and "N2D" respectively indicate the old 2D drawing and the new 2D drawing. Click the button (such as "N2D") to select the plane and vertical contour map, and select different survey lines to draw.

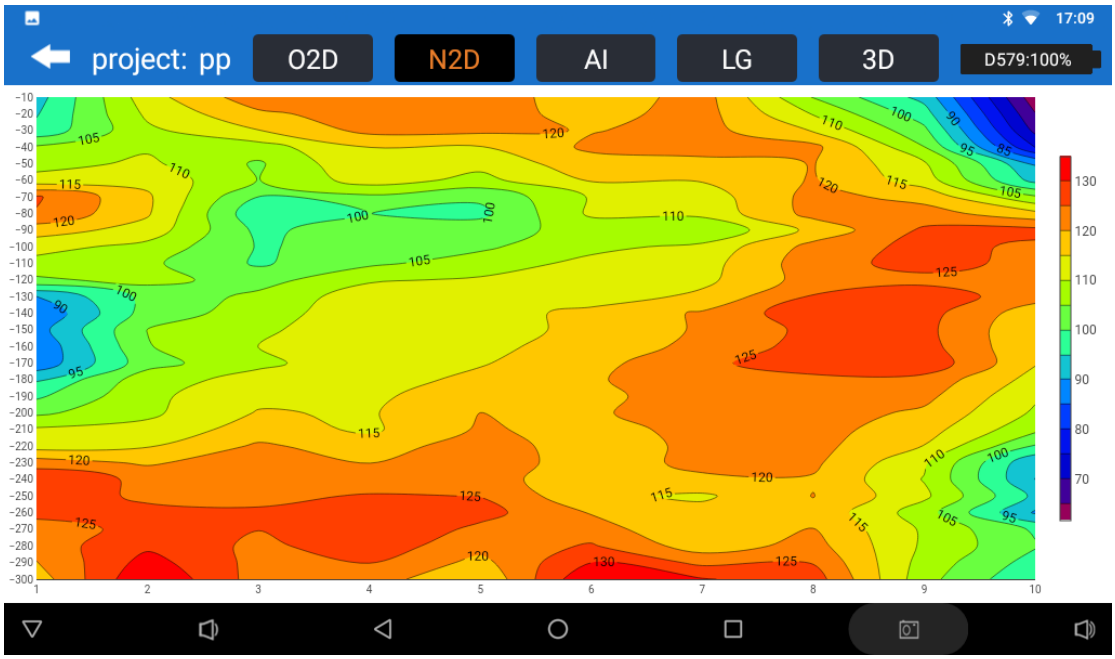

Figure 15

By default, the vertical contour map of the first survey line in the current project file is displayed. Click the corresponding drawing button "N2D" in Figure 15 and select different survey lines to draw. Clicking on the "N2D" mode contour map will display the XYZ value (X- measuring point number, Y- depth, Z- specific value) at the point of clicking. Drawing requires at least 1 survey line and at least 6 survey points on each survey line to be mapped.

Figure 16

The plane contour map of all survey lines in the current project file is presented (Figure 16), and different depth graphs can be selected under the file. The XYZ value (X- survey point number, Y- survey line number, Z- specific value) will be displayed in the contour map. Generally, at least 2 measuring lines and at least 6 measuring points per measuring line are required to make a planar contour map.

8.3 Planar and Vertical Curve Graphs

Click "LG" to draw a graph. The plane curve shows the specific depth data curve of all lines in the current project file (Figure 17). Different depths can be selected under the file.

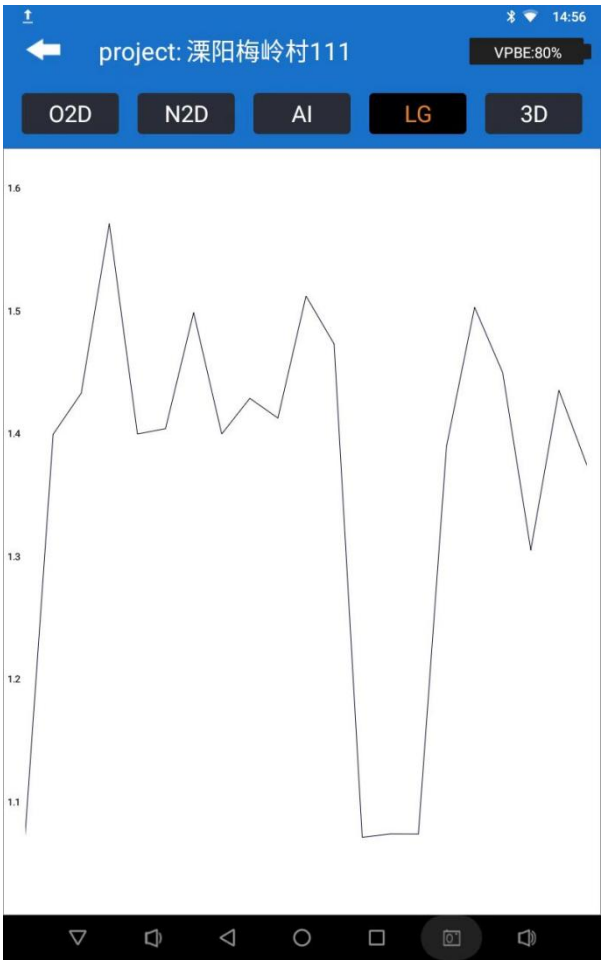

Figure 17

Vertical curve You can select measurement lines and points to draw a vertical curve.

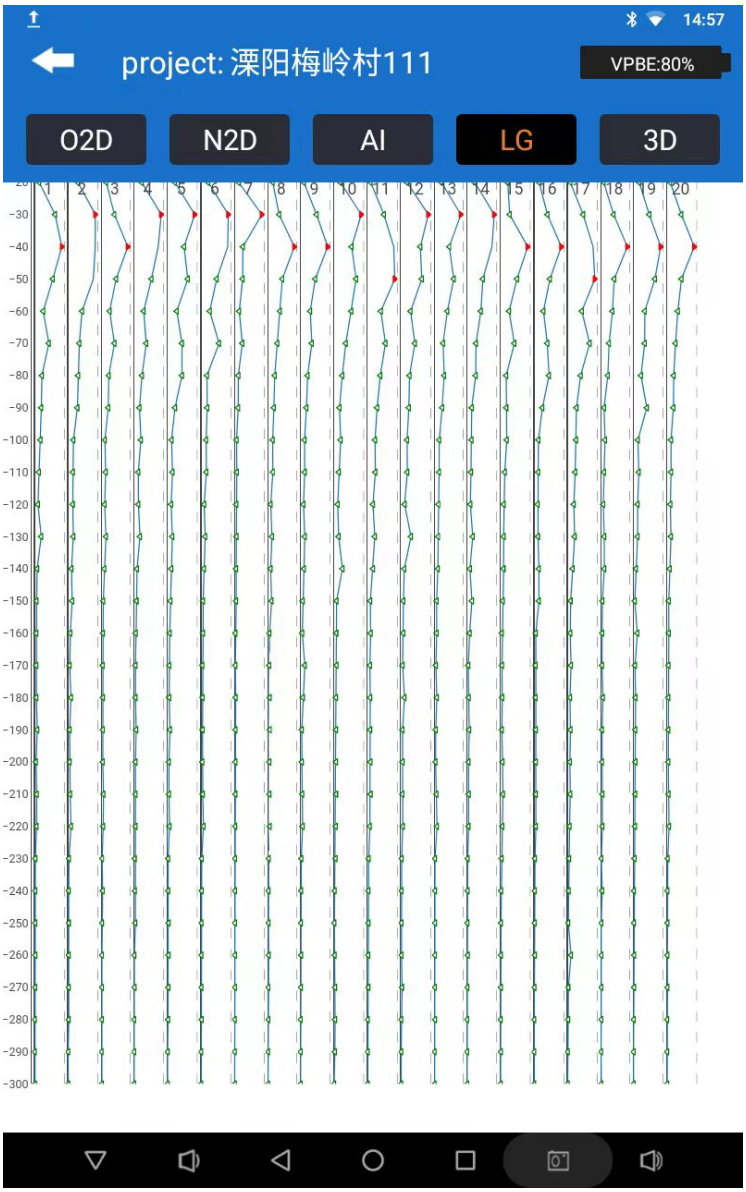

Figure 18

8.4 AI automated analysis

Click the "AI" button to enter the AI analysis parameter setting interface, select the device model, the parameter type used, the drawing type (plane, vertical), customize the value range of the marked area, the number of marked areas, etc. Click OK to start drawing automatic analysis.

"Data Download", you can download the latest AI analysis parameters (login account is required), the "default" is the ideal analysis parameters set for a certain model of the company's products.

The "Add" function is used to manually add AI analysis parameters belonging to your account. All our analysis algorithms have been concentrated into a percentage representation. Generally, the smaller the percentage, the lower the percentage, the higher the percentage, the higher the percentage, the higher the percentage, and so on. In this way, the later AI analysis will be analyzed according to this setting, which will be more accurate. You can also set the tag area to 1 so that only one optimal tag area is displayed.

The Delete function deletes the set of AI analysis parameters.

AI parameter Settings are also performed in the "Instrument Settings" interface -> "AI Analysis".

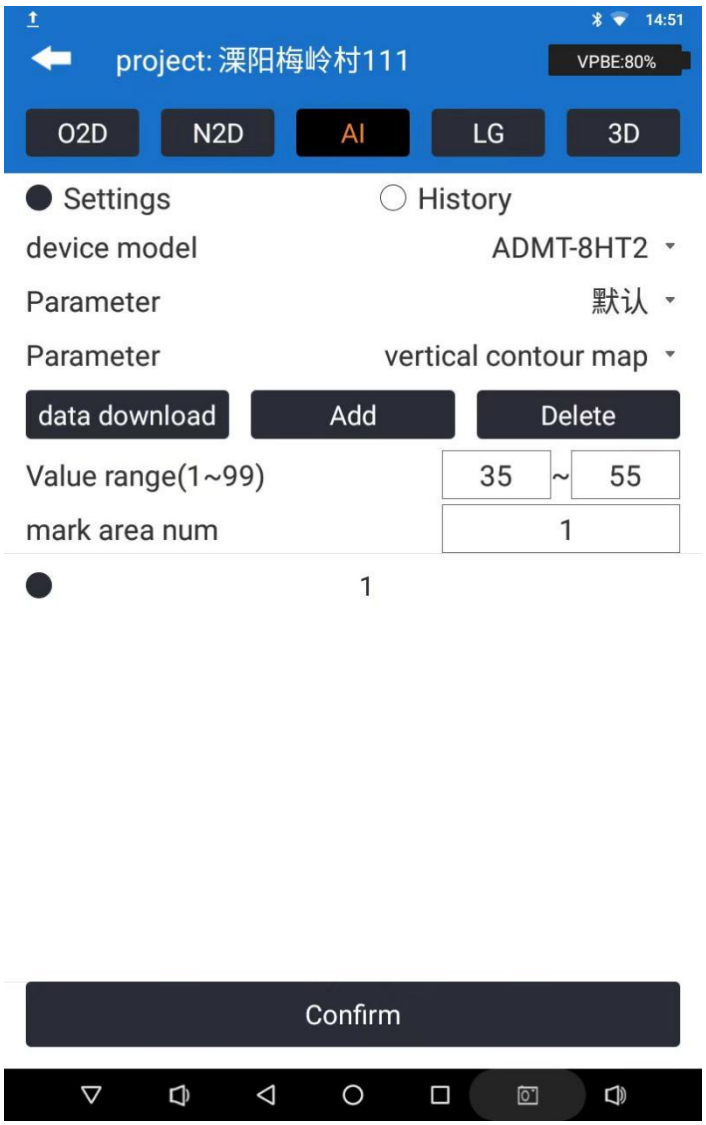

Figure 19

After confirming the parameters, enter the AI analysis result of the data in the file (FIG. 20). At the bottom, it will prompt "Abnormal area in the black (red) box near the measuring point xx-xx and the depth of XX-XX meters is the abnormal area" and other prompts. Generally, AI will suggest 1-2 areas for you to choose from, and you can make a comprehensive judgment and make a decision based on your experience and the actual hydrogeological environment.

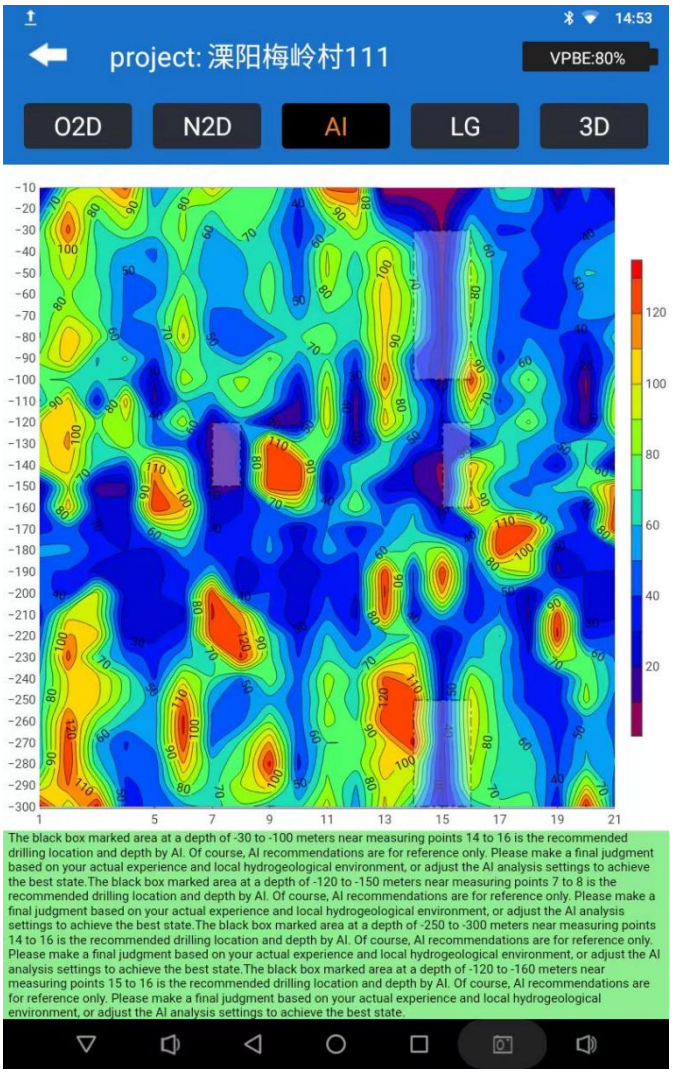

Figure 20

9. Instrument setting

After connecting the instrument, enter the instrument setting interface directly from the main interface of the APP software (Figure21)

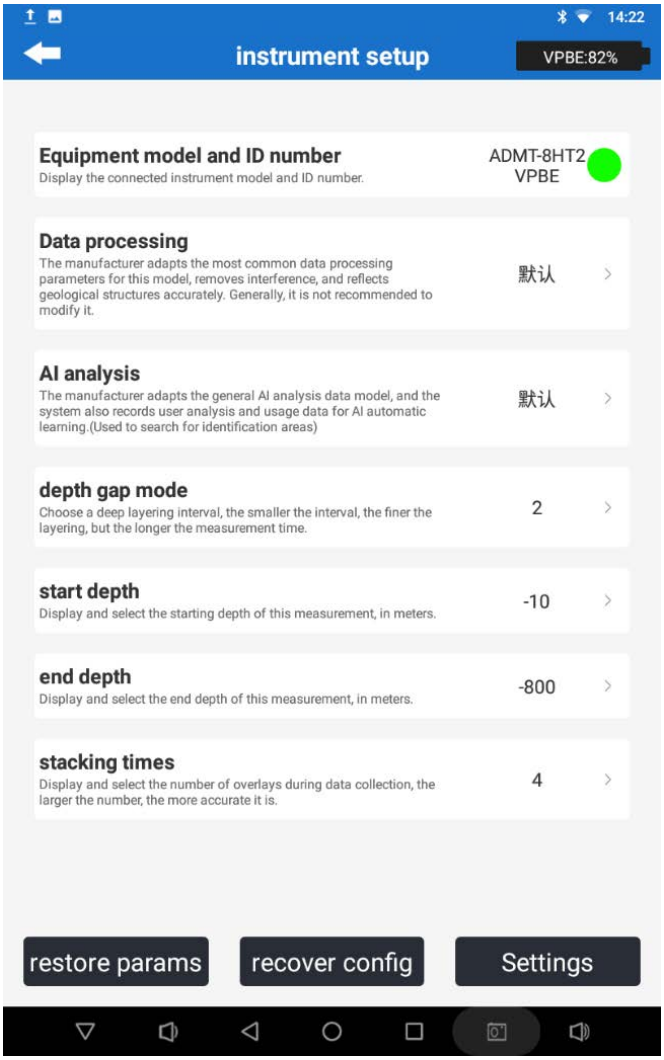

Figure 21

9.1 connecting device

The ID number and connection status of the connected device are displayed. The green light indicates that the connection is normal, and the red light indicates that the connection is disconnected.

9.2 Data processing

Select a data processing protocol; detailed specifications will follow in subsequent sections.

9.3 AI analysis

AI analysis parameter settings.

9.4 Interval mode

After the upgrade of the golden stick, there are three depth interval modes to choose, "1" mode is 5 meters interval, and the measurement depth is -5, -10, -15... To carry on; "2" mode 10 m interval, measuring depth according to -10, -20, -30..... To carry on; The "3" mode is 20 meters apart, and the measurement depth is -20, -40, -60... To proceed. The default value is 2.

Each layer depth measurement time is about 7 seconds, for example, the minimum depth is -5, the maximum depth is -300, select the mode "1" need to measure 30 layers, so the measurement time is about 210 seconds.

9.5 Start depth

You can select a start depth within the maximum depth range of the hoop, and any start depth in any mode of 1, 2, or 3. Generally, the default value is the minimum depth in mode 2 of the model.

9.6 End depth

The end depth can be any depth within the maximum depth range of the tracking rod, but cannot be the same as the start depth. Generally, the default value is the maximum depth value under the model mode "2".

9.7 Stacking fold

Generally, the higher the number of times you select, the more accurate the data will be, but the longer the measurement time will be. The default value is "4", and the optional range is "4-16". Users can adjust the value as required.

9.8 Factory data reset

Restore to factory default settings.

9.9 Recovery parameter

You can read the parameters set last time in the golden groundwater detector.

9.10 Setting.

Click the "Set" button to complete the settings, and transfer the current interface parameters Settings to the device.

10. Data processing

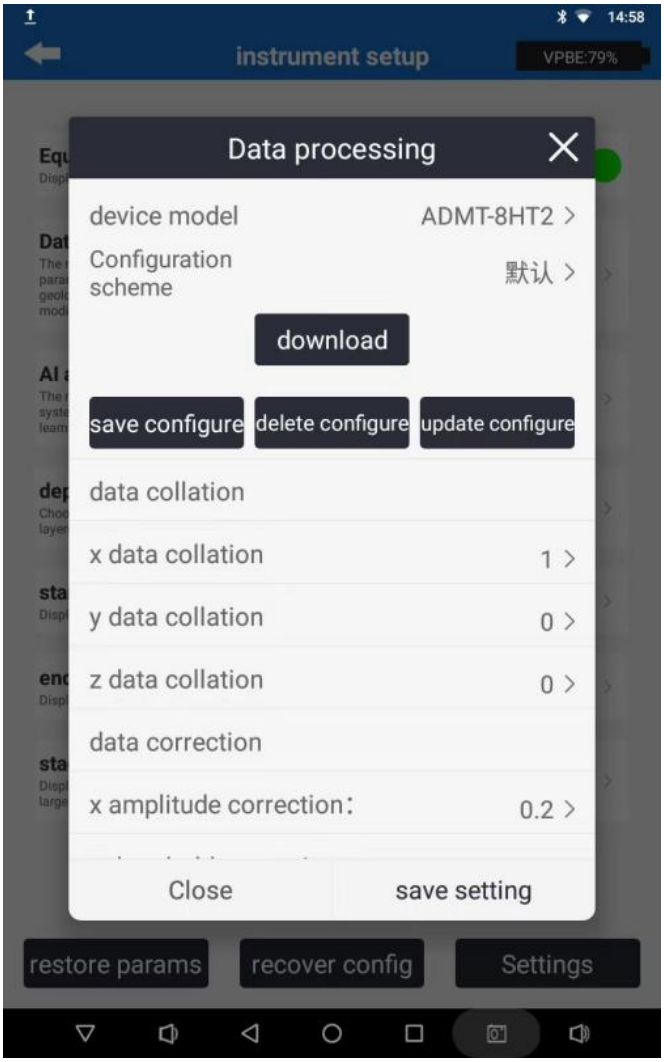

Figure 22

10.1 Equipment model

After the APP software connects to an instrument model, the software will automatically identify the instrument model; You can also select the current device model after the device is bound in Device Binding under User Information. Aidu water upgrade after more compliance with the principles of geophysical exploration, according to the different uses of different instruments, different depths and other application scenarios to set different data processing methods,

in principle, the data processing method of each instrument model is not the same.

10.2 allocation plan

In addition to providing "default" parameter settings according to different models, you can also customize the detailed settings of data processing parameters, which can better meet the user's local hydrogeological environment and personal use habits. Of course, the need to set parameters is generally required to be very skilled in the use of this type of instrument or relatively very professional, generally not recommended to use, the use of "default" is better.

10.3 Synchronization parameters

Downloading the latest parameters that the company matches for the model in the cloud for data processing will make the data processing work more accurate.

10.4 Configure user-defined parameter schemes

You can add, modify, and delete user-defined parameter schemes.

10.5 Save settings

Save the current data processing parameter Settings for use in data and graph analysis. For all data processing parameters, whether downloaded, automatically matched or customized, click "Save Settings" to save the settings.

11. System settings

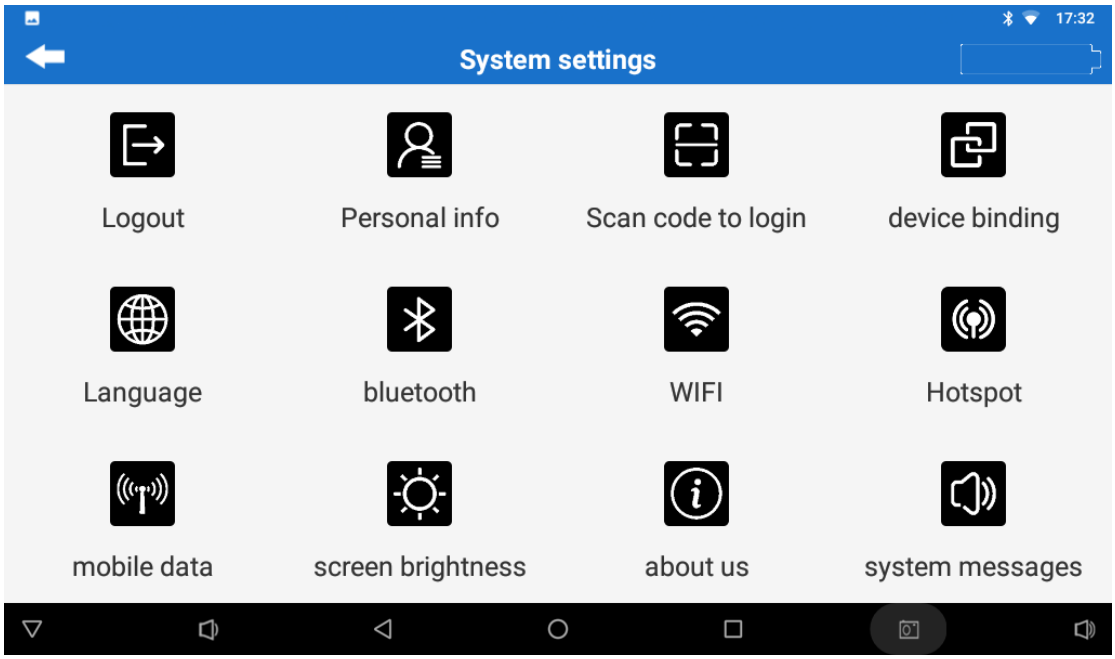

Figure 23

11.1 User login/logout

User login: Enter the mobile phone number, get the login password, enter the mobile phone SMS login password can directly log in, login requires reading and agree to the user agreement and privacy protection policy, if you have not registered before, login is registered.

User logout: Logs out of the current account.

11.2 Personal information

View the personal information of the current account.

11.3 Scan entry

Use the control host, mobile phone or tablet computer with camera to scan the code to log in to Aidu data processing system

http://web.aidush.com, please select "Aidu water" account when logging in.

11.4 Device binding

You can bind the connected device model to the login account or unbind it.

11.5 Language settings

Switch software language Settings, English and Chinese are optional

11.6 Bluetooth setting.

Enable the function of controlling the system Bluetooth Settings in the host, mobile phone or tablet.

11.7 WIFI setting

It is used to turn on the system WiFi function in the host, mobile phone or tablet computer. It is needed to set the name and password of the WiFi hotspot during instrument initialization.

11.8 WIFI hotspot

It is used to turn on the function of controlling the system WiFi hotspot in the host, mobile phone or tablet computer. After initialization, this function is often entered to turn on the WiFi hotspot during daily connection, because there is an automatic protection mechanism in the Android or HarmonyOS system, which will

automatically turn off after not using the WiFi hotspot connection for a long time.

11.9 Mobile data Settings

It is used to open the mobile data switch setting function in the control host, mobile phone or tablet computer. If the control host supports 4G Internet access, you can choose to control the use by yourself.

11.10 Screen Brightness

It is used to turn on and control the screen brightness and quenching time in the host, mobile phone or tablet computer.

11.11 About us

Displays APP version, user agreement and privacy policy details.

11.12 System messages

You can query system messages.

12. File browser

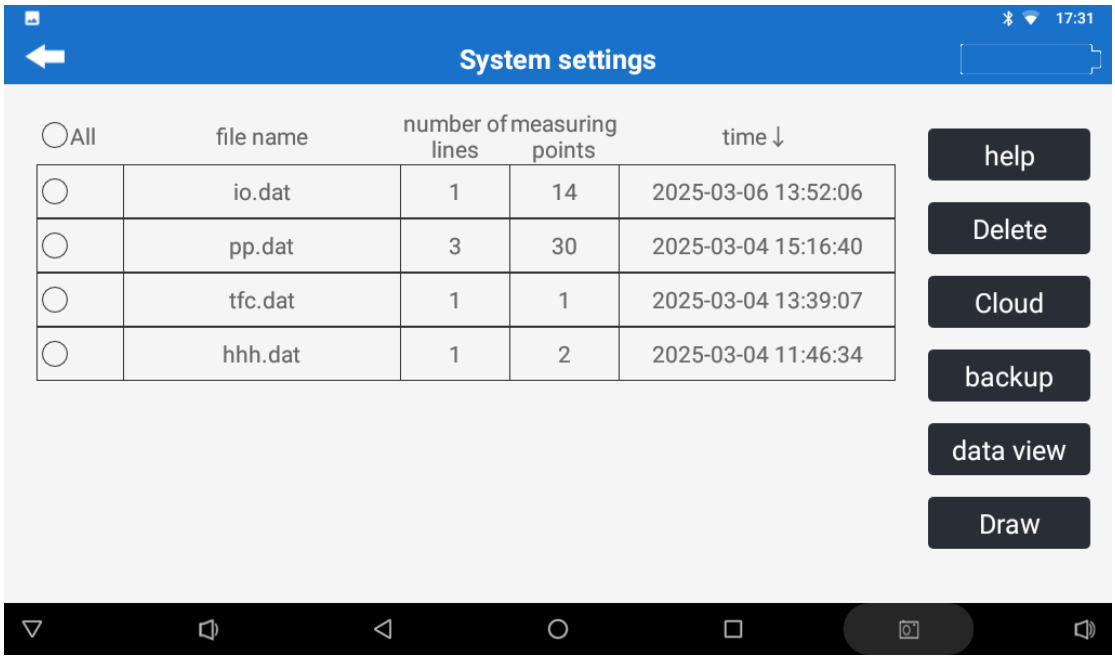

Figure 24

12.1 Listed files

You can view the details of the file name, project name, number of measurement lines, number of measurement points, and time of the stored file. You can select or select the file for other functional operations.

12.2 Help

Help you can query relevant help information, if any.

12.3 Delete

After selecting the file to be deleted, clicking "Delete" will prompt "Are you sure to delete the selected file?" Cannot be recovered after deletion.

12.4 Cloud

Enter the cloud interface (Figure 25), you can share cloud files with other users, download cloud files or delete cloud files.

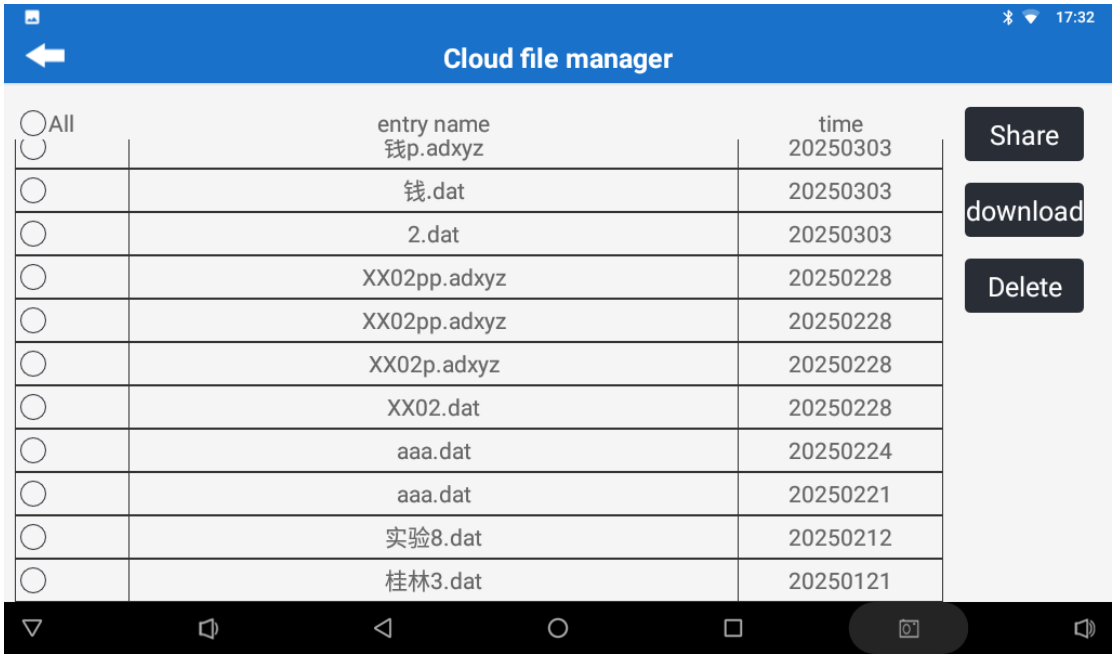

Figure 25

12.5 Backup

Select a file and click Back Up to back it up to the cloud.

12.6 View

After selecting the file, click View File to enter the current measurement file and view the data.

12.7 Drawing

After selecting the file, click on the drawing, you can enter the "drawing analysis" interface of the corresponding file, refer to the drawing analysis in Chapter 7.

13. Aidu WEB intelligent data processing system

13.1 Aidu WEB data processing system login

Use a browser to access Aido data processing system (http://web.aidush.com), select the account type of "Aido looking for water", and log in with the same phone number and password as the instrument or mobile phone, so that all data under the account can be shared, or you can scan the code through the Aido exploration APP in your phone to log in (Figure 26-29).

Figure 26

Figure 27

Figure 28

Figure 29

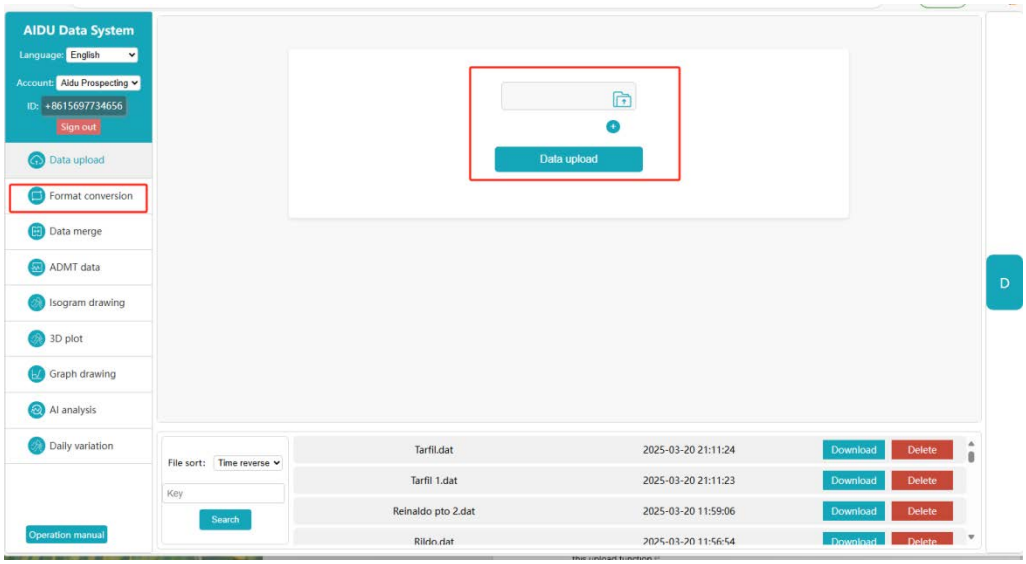

Figure 30

13.2 Data upload

After selecting "Data Upload" on the left, you can select data files in the computer to upload in the folder icon in the middle. Click +  to select multiple files. After clicking "Data Upload", the data will be uploaded to the cloud database of the current application type of the current account. If it is the data in the instrument, generally select data backup, it will be automatically saved in the data file list at the bottom, without using this upload function.

13.3 Data format conversion

Click "Format conversion" and select "Old file conversion adxyz" to convert the.DAT file of the original Aidu old instrument data into.adXYZ file (the data column of the.DAT file of the old instrument data is the frequency and the line is the measurement point data) into.adXYZ file, which can be operated by the website function; After selecting "New File conversion ADXYZ", select the file to be converted. You can choose which column of X, Y, and Z data column is to be composed of the converted file, and you can also select the depth and range of measurement points. Select "R2D Data conversion" to convert the selected file to the inversion data format required by the Swedish Res2dinv high-density instrument. After selecting "Download" the data, the Swedish Res2dinv software can be used for further inversion mapping. After selecting "VOXLER Format Conversion", you can turn the selected file into VOXLER 3D software to draw 3D drawings.

The _xyz.DAT file that has been used for AI analysis or mapping in the Aidu device or APP can be directly used for Web AI analysis (Figure 31-32).

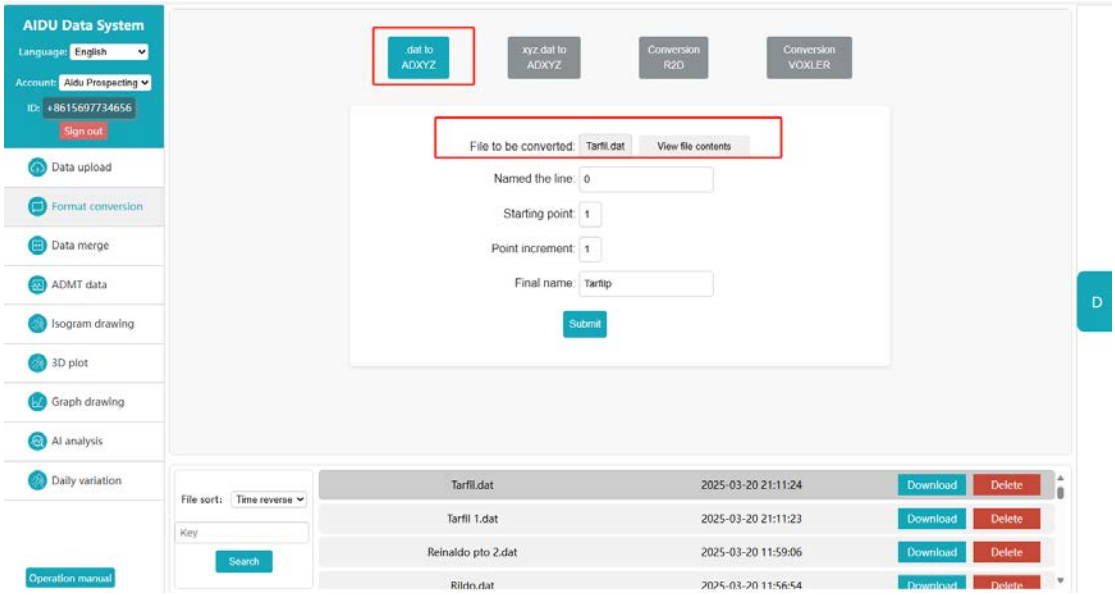

Figure 31

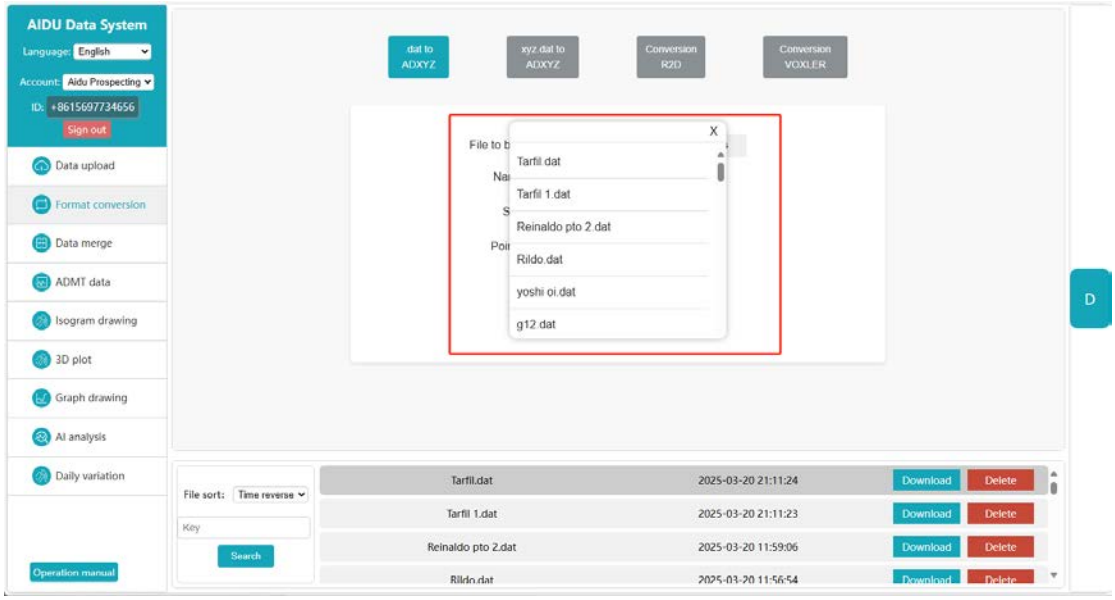

Figure 32

13.3 Data merge

Data merging is divided into section data merging and survey area

data merging.

Profile data merging can combine multiple measurement files into one profile data. The specific operation is to select the name of the first file to be merged by clicking "Click to select File" under profile data merging. You can click plus ⊕ to add the dialog box of "Click to select File" to select other files. Reset the measurement starting point and measurement point increment, you can default to 1, and set the new file name, click "submit" to complete the merger, and display the new file name in the front end of the data line after completion, the new file will be a complete profile file.

Survey area data merging can combine multiple survey line (profile) data files in the survey area together, so as to draw 3D map and plane profile, etc. The specific operation is to select the name of the first file to be merged by clicking "Click to select File" under the menu of survey area data merging. You can click plus ⊕ to add "Click to select file" dialog box to select other files. Until the files that need to be merged are selected in order, redefine the measurement starting point, measurement point increment, first line number, line spacing, new file name and other parameters, and then "submit" to perform the merger, and display the new file name at the front end of the data line after completion, and the new file is a merged complete test area file. The measurement starting point and point increment can be 1 by default, the first measurement line number can be 0 by default, the measurement line spacing can be

1 by default, or the vertical distance between two adjacent measurement lines and the name of the new file can be customized, and the line spacing between each measurement line can be automatically increased.

13.4 ADMT data processing

The ADMT data processing function can process the original data of the instrument, and the files that can be processed adxyz files.

13.5 Contour mapping

The specific operation is to select the "Draw contour map" function on the left, click the name of the file that needs to be drawn, and then draw the contour map. The default value is "classic contour map". You can switch to "New contour map" in the upper right corner and then select the file plot. If the measurement area data file can be switched between "vertical contour map" and "plane contour map", how to obtain the measurement area data file can be obtained by setting each measurement line during instrument operation and measurement, or by referring to the measurement area data merging function in Article 14.4 of this manual.

13.6 Plot a graph

Select "Draw Graph" to draw a variety of styles of graph. The specific operation is to select the "Draw graph" function on the left, click the name of the file that needs to be drawn and draw a

graph. You can switch the multicolor line chart, gray line chart and gradient line chart in the upper right corner to switch different types of graph.

13.7 AI automated analysis

Click the "AI Automatic Analysis" function on the left, and then select the adxyz or xyz.DAT file, you can also modify the AI analysis effect in the right operation bar of the page. Accounts that have connected to the instrument in Aido Instrument or Aido APP are automatically bound to the instrument, and the bound instrument will be displayed by default in "Device Model" (Figure 33).

If the account is not bound to an instrument, you need to manually enter the instrument model in "Model Search". After manually entering Model Query, you can select a recommended configuration in Configuration Name, or enter a desired value in Value and Number of Target Areas.

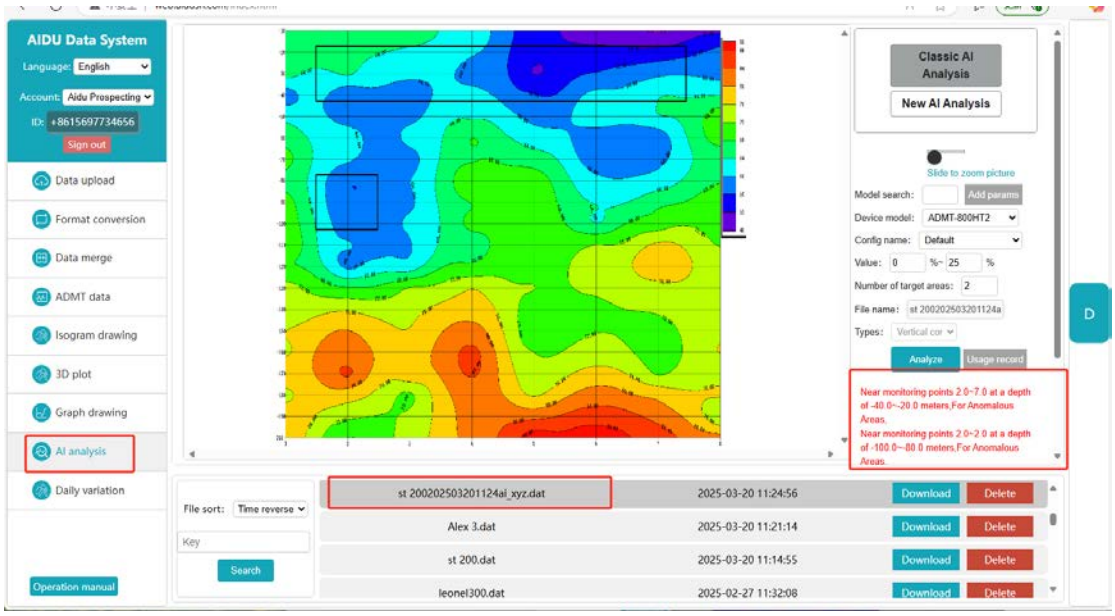

Figure 33

To record whether the AI analysis results are valid, click "Usage Record" in the right operation bar, and select "valid" and "invalid" after the analyzed data file (Figure 34).

If the analysis results are consistent with the actual situation, the check box is valid, then the system will record effective data, the more effective and accurate data is recorded, the more accurate AI analysis will be.

If no, check "invalid" and a prompt box will pop up. You can manually adjust the analysis results to be consistent with the actual results, and then record again to be effective. If no adjustment is made, no record will be recorded (Figure 35).

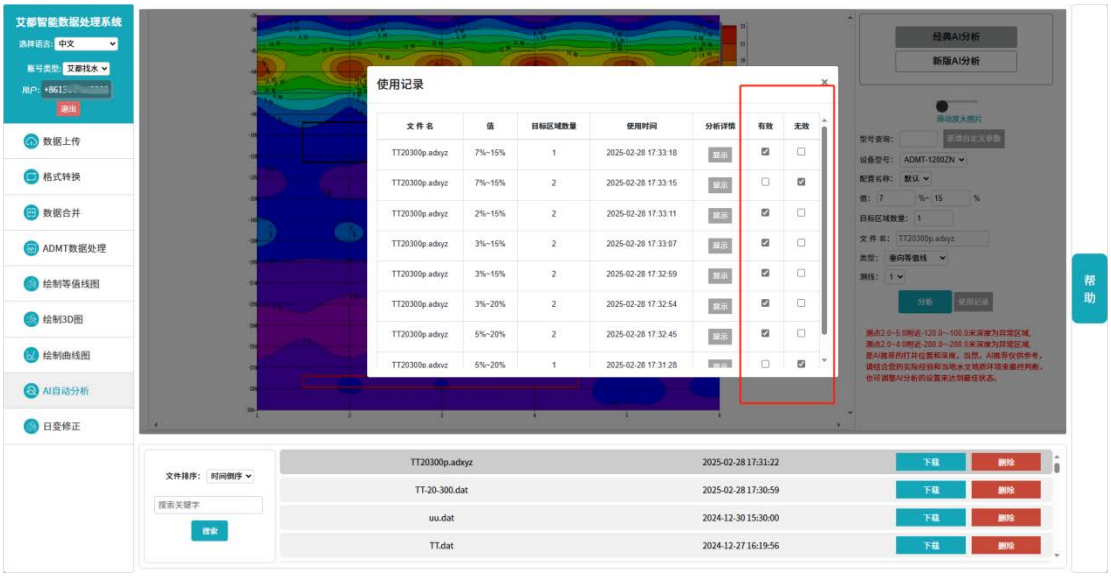

Figure 34

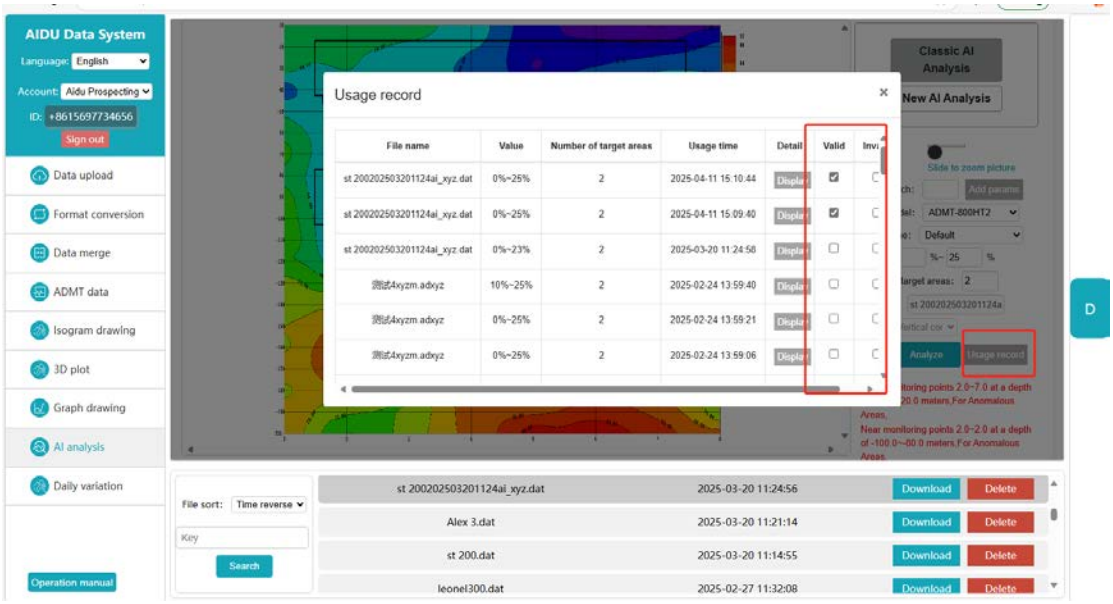

Figure 35

14. The usage of MN and TT two measurement modes

14.1 MN electrode mode measurement method

The MN metal electrode of the cudgel rod is connected well, and the instrument initialization and daily connection Settings are described in Chapters 4 and 5 of this manual.

After the device is turned on, select the measurement depth, measurement mode select MN electrode, insert the installed MN metal electrode into the ground, and start to collect data in online measurement or offline measurement mode, and record the location of the water searching golden rod. After completing the first measurement 01, move to the second measurement 02, and so on for the third measurement 03, 04, 05, 06,... Until the entire section is measured (Figure 36). The distance between 01 and 02, 02 and 03 is called the point distance, and the point distance is generally ≤ the

size of the exploration target in meters.

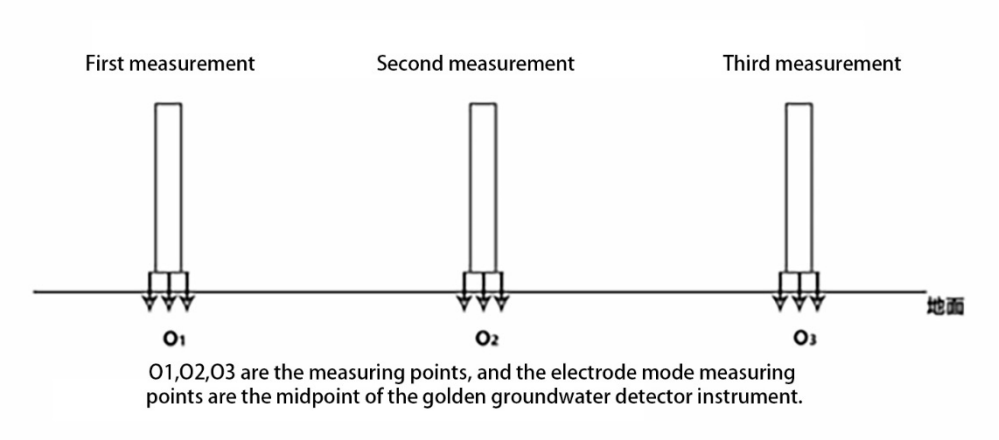

Figure 36

14.2 TT electromagnetic probe measurement mode

After the device is turned on, select the measurement depth, the measurement mode select the TT probe, lay the device flat on the ground and start the online measurement or offline measurement for data collection, record the center position of the device O, after the first measurement O1, move to the second measurement O2, and so on to the third measurement O3, O4, O5, O6,... Until the entire section is measured (Figure 37). The distance between O1 and O2, O2 and O3 is called the point distance, and the point distance is generally ≤ the size of the exploration target, in meters.

Of course, it can also be measured vertically like the MN electrode mode (FIG. 38), the installed MN metal electrode can be inserted into the ground or placed on the ground (MN metal electrode is not needed, which is mainly fixed or flat), and data collection can be started in online measurement or offline measurement mode, and

the location of the water golden rod can be found at the measuring point and recording point. After completing the first measurement 01, move to the second measurement 02, and so on for the third measurement 03, 04, 05, 06,... Until the entire section is measured. The distance between 01 and 02, 02 and 03 is called the point distance, and the point distance is generally ≤ the size of the exploration target, in meters.

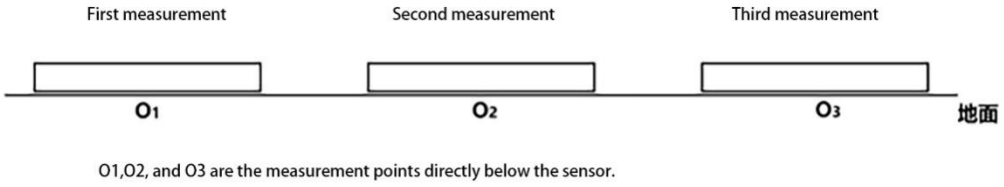

Figure 37

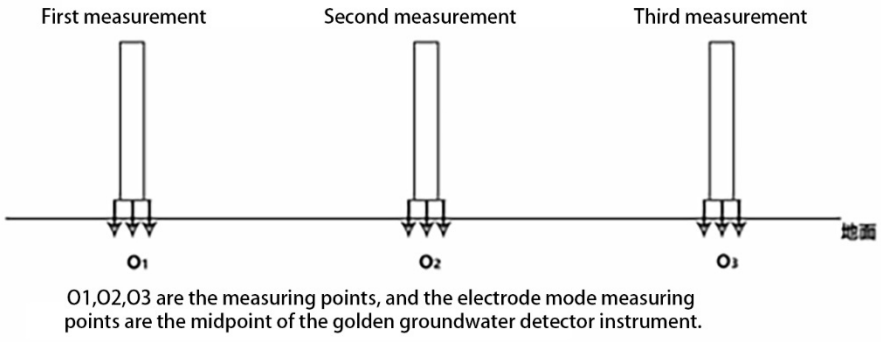

Figure 38

15. Field survey line layout method

The layout of survey line is a very important link in the exploration, and the quality of survey line layout will directly affect the measurement accuracy and improve the anti-interference ability.

The basic principle is that the direction of the survey line is best to explore the direction of the target body vertically, and the linear section is as straight as possible, the circular section is as round as possible, and the ground is as flat as possible. According to the actual terrain and geomorphology, different line layout methods are selected.

15.1 Parallel layout method straight section

Linear section is the most common layout method, and multiple linear sections are parallel to form multiple linear sections.

This method can quickly interpret the direction of the exploration target. First, assume and interpret the direction of the exploration target,

One or more lines can be arranged in the vertical exploration direction of the target object (as shown in Figure 39). Generally, 2-3 lines can be arranged to quickly track the direction of the abnormal body, and multiple lines can be arranged according to the length of the exploration target object, The direct distance of each straight section is called the line distance, and the line distance is generally ≤ the length of the exploration target, The unit is meters.

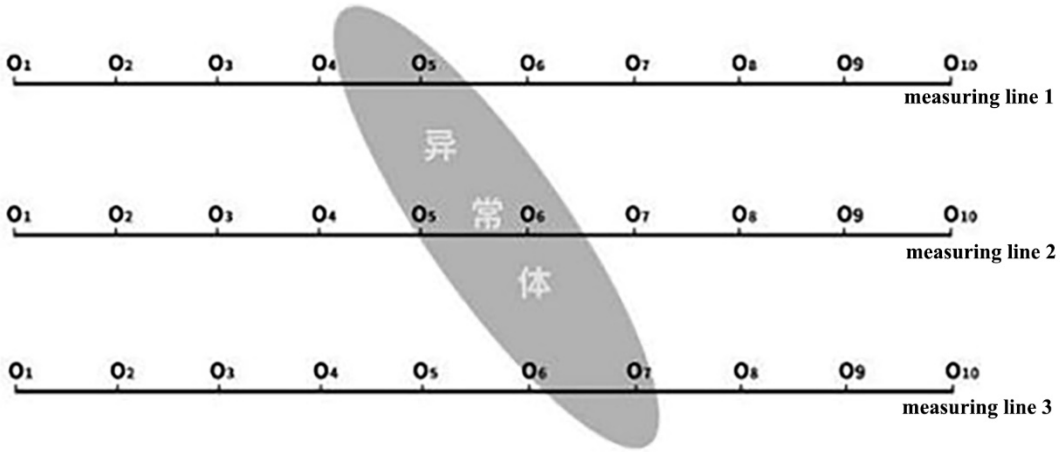

Figure 39

15.2 Layout method of cross or diagonal cross of straight section

After measuring one straight section, it is found that there are abnormal bodies or limited sites and it is difficult to lay multiple straight sections.

The second straight section can be laid with a cross section (as shown in Figure 40) or a diagonal cross section (as shown in Figure 41). Combining the abnormal areas of the two straight sections can confirm the existence of the exploration target repeatedly, and can also assist in judging and confirming the general direction of the exploration target.

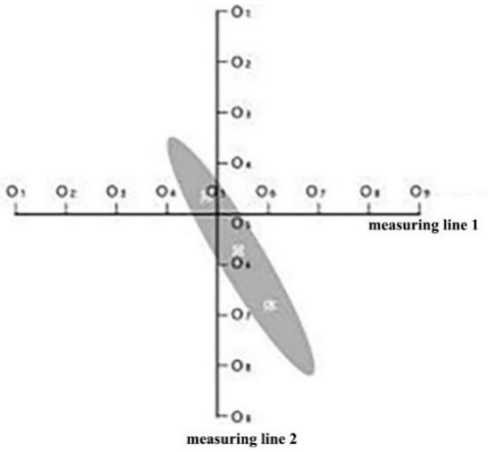

Figure 40

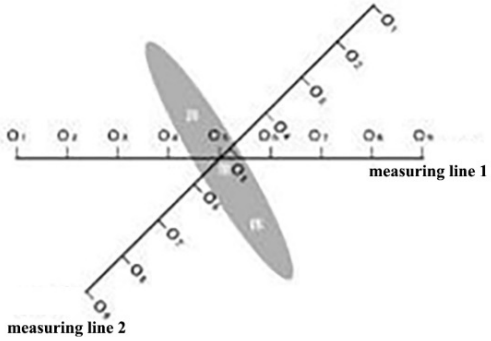

Figure 41

15.3 Layout method of circular section

When the survey site in some areas is really small or there are spot disturbances such as transformers and signal towers nearby, a circular (FIG. 42) or semi-circular (FIG. 43) section is laid to measure the site or disturbance as the center, and the direction and position of the exploration target object (water vein, mineral vein, etc.) can also be quickly tracked.

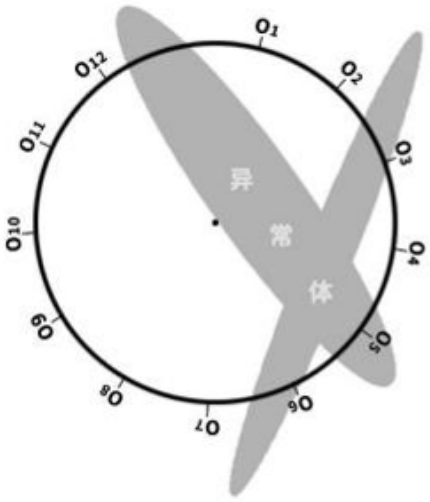

Figure 42

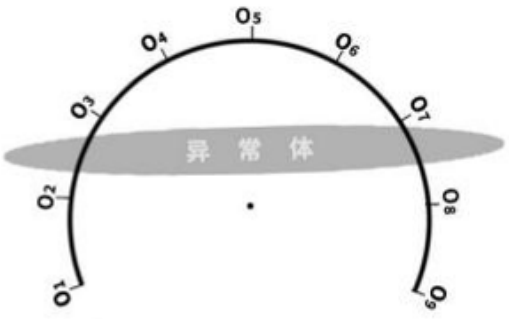

Figure 43

15.4 Several principles of field line layout

1. when measuring on the hillside, try to choose the same altitude layout, when it is not possible to equal height layout, try to choose the same slope or slow slope direction layout, the height difference between adjacent points is best not more than 2 meters.

2. the measurement line should be as far away from the high-voltage power lines and telephone lines as possible, when not far away, the wiring direction as parallel as possible.

3. When measuring, ensure that the M and N electrodes are in the same plane as much as possible, and the recording point is the center point of the M and N electrodes or below the device sensor.

4.in the same test area, the point distance should be kept the same as far as possible, and the line distance should be kept the same, which is convenient for recording and analysis.

5. MN electrode mode measurement as far as possible to maintain M, N electrode grounding consistency.

6. the layout of the measuring line should be as vertical as possible to the direction of the abnormal body, the straight section as straight as possible, the circular section as round as possible, and the ground as flat as possible. You can use a compass or a pole to determine the line as straight as possible.

7. when measuring on the hillside, try to choose the same altitude layout, when it is not possible to equal height layout, try to choose the same slope or slow slope direction layout, the height

difference between adjacent points is best not more than 2 meters.

8. the measurement line should be as far away from high-voltage power lines and telephone lines as possible, when it can not be far away, the wiring direction is as parallel as possible.

9. When measuring, ensure that the M and N electrodes are in the same plane as much as possible, and the recording point is the center point of the M and N electrodes or below the device sensor.

10. in the same test area, the point distance should be kept the same as far as possible, and the line distance should be kept the same to facilitate recording and analysis.

11. MN electrode mode measurement as far as possible to maintain M, N electrode grounding consistency.

16. Precautions for the use of the instrument

(1) Please check the battery power of the device regularly and charge it regularly. Keep sufficient power during working hours, and turn off the power promptly after work.

(2) Please use the original charger for charging, non original chargers may cause damage to the instrument.

(3) the equipment should be kept by a special person during transportation or use to avoid severe vibration, impact and water and moisture.

(4) after each work, keep the equipment and MN electrode clean, placed in a ventilated dry place.

(5) MN electrode or electromagnetic sensor is not connected or

disconnected, indicating a measurement failure, please check whether the line is connected.

(6) When the measurement data of each measurement point is small and the value is basically the same, it may be an instrument failure, please contact the after-sales service for confirmation.

找水金箍棒操作手册

GOLDEN-ROD GROUNDWATER DETECTOR OPERATION MANUAL

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