艾都慧测

ADMT安卓屏系列产品

ADMT SERIES PRODUCTS

找水仪器

GROUNDWATER EXPLORATION

操作手册

OPERATION MANUAL

中国制造 • MADE IN CHINA

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Contents

Software version: Aidu Water V7.1

This manual applies to the following instruments：

Series / Model	Single Channel	16 Channels	32 Channels
Basic Type	ADMT-300SX	ADMT-300SX-16D	ADMT-400SX-32D
	ADMT-600SX	ADMT-500SX-16D	ADMT-600SX-32D
	ADMT-1200SX	ADMT-1200SX-16D	ADMT-1200SX-32D
	ADMT-3000SX	ADMT-2000SX-16D	ADMT-3000SX-32D
		ADMT-3000SX-16D	ADMT-4000SX-32D
Professional Type	ADMT-200AX	ADMT-200AX-16D	
	ADMT-500AX	ADMT-500AX-16D	

1 Instrument Overview

The ADMT Android screen series product is a smart instrument that integrates data acquisition, real-time imaging, and data synchronization with multiple terminals. Equipped with 10-inch (7-inch for single channel), measurement board, and 1/16/32 channel MN electrodes input access. After data collection is completed, the instrument can check the data and form graph immediately.

Single channel series adopt 1 channel input measurement, equipped with 10m MN standard measuring line;16 channel series adopt 16 channels input measurement at the same time, equipped with 16 channels MN input large line; 32 channel series adopt 32 channels input measurement at the same time, equipped with two 16 channels MN input big line. Both support MN electrode and TT probe measurement mode can be switched, data superposition filter can be set, can be equipped with wire electromagnetic probe through MN input or wireless Bluetooth connection to the gold hoop for data collection.

The 16 or 32 channel series respectively support 1-16,1-32 channels, and

multi-channel simultaneous input measurement, which solves the defect of the MT method field source changing at any time, can obtain a relatively stable field source, and repeat measurement consistency is very good. Through multi-channel simultaneous input measurement, big data of high-density measurement can be obtained, which breaks through the depth limitation of traditional high-density electrical method, and enables the maximum exploration depth to reach 5000 meters.

It is also possible to use three or more 32 channels of instruments in wireless networking to become 96 channels,128 channels,256 channels and 512 channels for large data collection, which greatly improves the accuracy of field data collection.

ADMT series products have obtained a number of invention patents (patent

numbers:201310205318.9, 201110454869.X, and have been awarded the Shanghai High-tech Achievement Transformation Project since they went on the market. In practice for nearly 20 years, we have extensively compared the test with the artificial direct current method instrument, and obtained very good abnormal curve consistency. In some areas with poor grounding conditions, the abnormal curve is more realistic than the artificial direct current method instrument. Getting the general recognition and support of our customers.

2 Main Features

2.1 Accurate and efficient:

Using 1-16, 1-32 channels to input measurement at the same time, to solve the defects of MT electrical field source changes, the accuracy rate is greatly improved, and the accuracy rate is 30-60% higher than that of the general single channel.

2.2 Smart and convenient:

Standard 7/10 inch touch screen for real-time drawing, and intercommunication with mobile phone or tablet computer, PC computer for data processing and drawing.

2.3 Depth adjustable:

Optional depth within the maximum depth range of different models.

2.4 Channel optional:

1,1~16,1~32 Any channel selection.

2.5 Flexible input:

It can input 1,1-16, 1-32 channels of MN electrodes, and the MN spacing is flexibly variable from 1-5meters. Electromagnetic sensor input can also be used to solve the measurement of special formations.

2.6 Advanced and stability:

Multiple innovative designs obtained multiple invention patents.

3 Introduction of the working principle of the instrument

The AIDU series instruments use natural electromagnetic field of the earth as the working field source to study the electrical structure inside the earth. According to the principle that different frequencies of electromagnetic waves have different skin depths in the conductive coal, the surface is measured from high frequency to The low-frequency Earth electromagnetic response sequence studies the difference in electrical variation of geological bodies at different depths in the subsurface and determines the occurrence of underground geological bodies.

3.1 Electromagnetic wave propagation theory, Helmholtz equation

Ground electromagnetic waves are sent to the ground, and the propagation of electromagnetic waves in the earth and soil follows the Maxwell equation. If it is assumed that most of the subterranean geotechnical soil is non-magnetic and is uniformly conductive macroscopically, there is no charge accumulation, then the Maxwell equation can be simplified to:

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

(1) where k is called the 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 a complex number,

let k = b +ia, where: a is called the phase coefficient and b is called the absorption coefficient. In the electromagnetic frequency range measured by the ADMT series of natural electric field geophysical instruments (0.1 Hz to 5 kHz), the displacement current can usually be ignored, and K is further simplified as:

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

3.2 Wave group resistance and resistivity

A magnetic field with a change in the Helmholtz equation induces a changing electric field, and 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 surface electric field and the horizontal component of the magnetic field. In the case of uniform earth, this impedance is independent of the polarization of the incident field and is related to the earth resistivity and the frequency of the electromagnetic field:

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

5)The formula can be used to determine the resistivity of the earth:

3.3 Skin depth

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

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

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

It can be seen from the above equation that the penetration depth of electromagnetic waves is related to frequency and resistivity. The frequency is certain, the higher the resistivity, the greater the penetration depth, the higher the resistivity, and the lower the

frequency, the greater the penetration depth.

4 Instrument Instruction and Main Parameters

4.1 Single channel instrument instruction

Figure 1

4.2 16 channels instrument instruction

Figure 2

4.3 32 channels instrument instruction

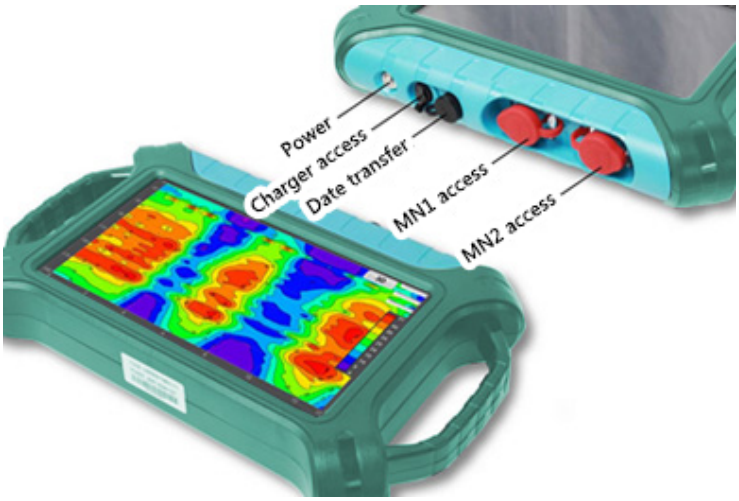


Figure 3

4.4 Main parameters of basic model

Model / Parameter	ADMT-300SX-X	ADMT-600S-X	ADMT-1200S-X	ADMT-3000S-X
Maximum depth(m)	≤300	≤600	≤1200	≤3000
Channel input	1 Channel MN input			
Channel option	1			
Optional depth(m)	100-300	100-600	100-1200	100-3000
Deep stratification	10-60		10-80	
Connection type	Serial port, Wifi, Bluetooth 4.0, USB(optional 4G communication)			
Display	7 inch IPS wide-angle 178 ° visual touch screen			
Operating system	Android 13			
CPU	RK3568			
GPU	Mali G52			
Main function	Depth optional, real-time 2D/3D mapping, battery removable			
Measure model	MN/TT			
Frequency range(HZ)	1-8K		0.01-8K	
Frequency-selective filtering	Preset frequency selection and intelligent frequency selection, analog + data filtering 1-16 overlay options			
Resolution ratio	0.1mV±5%		0.01mV±2%	
Sampling time（s）	30-280		60-900	
Battery power consumption	600mA/H			
Main engine weight	1.6kg			

Table 1

4.5 Main parameters of basic model 16 channels

Parameter \ Model	ADMT-300SX-16D	ADMT-500SX-16D	ADMT-1200SX-16D	ADMT-2000SX-16D	ADMT-3000SX-16D
Maximum depth(m)	≤300	≤500	≤1200	≤1200	≤3000
Channel input	16 simultaneous input, standard maximum electrode spacing 2.5m, optional maximum electrode spacing 5m/7.5m/10m				
Channel input	1-16				
Optional depth(m)	Maximum depth in optional 100/200/300/400/500/600/800/1200/2000/3000m				
Deep stratification	10-80				
Connection type	Serial port, Wifi, Bluetooth 4.0, USB(optional 4G communication)				
Display	10 inch IPS wide-angle 178 ° visual touch screen				
Operating system	Android 13				
CPU	RK3568				
GPU	Mali G52				
Main function	Depth optional, real-time 2D/3D mapping, battery removable				
Measure model	MN/TT				
Frequency range(HZ)	1-8K		0.01-6K		
Frequency-selective filtering	Preset frequency selection and intelligent frequency selection, analog + data filtering 1-16 overlay options				
Resolution ratio	0.1mV±3%		0.01mV±2%		
Sampling time（s）	60-3600		120-5400		
Battery power consumption	800mA/H				
Main engine weight	1.85kg				

Table 2

4.6 Main parameters of basic model 32 channels

Model / Parameter	ADMT-400SX-32D	ADMT-600SX-32D	ADMT-1200SX-32D	ADMT-3000SX-32D	ADMT-4000SX-32D
Maximum depth(m)	≤400	≤600	≤1200	≤3000	≤4000
Channel input	32 simultaneous input, standard maximum electrode spacing 2.5m, optional maximum electrode spacing 5m/7.5m/10m				
Channel option	1-30				
Optional depth(m)	Maximum depth in optional 100/200/300/400/500/600/800/1200/2000/3000/4000 m				
Deep stratification	40-160				
Connection type	Serial port, Wifi, Bluetooth 4.0, USB(optional 4G communication)				
Display	10 inch IPS wide-angle 178 ° visual touch screen				
Operating system	Android 13				
CPU	RK3568				
GPU	Mali G52				
Main function	Depth optional, real-time 2D/3D mapping, battery removable				
Measure model	MN/TT				
Frequency range(HZ)	1-8K		0.01-6K		
Frequency-selective filtering	Preset frequency selection and intelligent frequency selection, analog + data filtering 1-16 overlay options				
Resolution ratio	0.001-7K				
Sampling time (s)	120-7200		160-9000		
Battery power consumption	900mA/H				
Main engine weight	2.0kg			2.2kg	

Table 3

4.7 Main parameters of

Professional Electromagnetic Groundwater Detector

Model / Parameter	ADMT-200AX	ADMT-500AX
Maximum depth(m)	⩽200	⩽500
Channel input	1 Channel MN input	
Channel option	1	
Optional depth(m)	100-200	100-500
Deep stratification	10-100	
Connection type	Serial port, Wifi, Bluetooth 4.0, USB(optional 4G communication)	
Display	7inch IPS wide-angle 178 ° visual touch screen	
Operating system	Android 13	
CPU	RK3568	
GPU	Mali G52	
Main function	Depth optional, real-time 2D/3D mapping, battery removable	
Measure model	MN/TT	
Frequency range(HZ)	1-8K	
Frequency-selective filtering	Preset frequency selection and intelligent frequency selection, analog + data filtering 1-16 overlay options	
Resolution ratio	0.1mV±2%	
Sampling time（s）	100-360	
Battery power consumption	700mA/H	
Main engine weight	1.6kg	

Table 4

4.8 Main parameters of

Professional High-density Groundwater Detector

Parameter \ Model	ADMT-200AX- 16D	ADMT-500AX- 16D
Maximum depth(m)	≤200	≤500
Channel input	16 simultaneous input, standard maximum electrode spacing 2.5m, optional maximum electrode spacing 5m/7.5m/10m	
Channel option	1-14	
Optional depth(m)	5-200	60-500
Deep stratification	10-100	
Connection type	Serial port, Wifi, Bluetooth 4.0, USB(optional 4G communication)	
Display	10.1 inch IPS wide-angle 178 ° visual touch screen	
Operating system	Android 13	
CPU	RK3568	
GPU	Mali G52	
Main function	Depth optional, real-time 2D/3D mapping, battery removable	
Measure model	MN/TT	
Frequency range(HZ)	1-8K	
Frequency-selective filtering	Preset frequency selection and intelligent frequency selection, analog + data filtering 1-16 overlay options	
Resolution ratio	0.01mV±2%	
Sampling time（s)	40-3600	
Battery power consumption	900mA/H	
Main engine weight	1.85kg	

Table 5

5 Login and Registation

5.1 System introduction and network connection

After turning on the instrument power supply, the screen displays: system setting, serial port connection, instrument setting, file browsing, new measurement (Figure 4).

Figure 4

When using this instrument for the first time, it is recommended to send a mobile phone number to verify login and register an account in a network environment before login and use. The mobile phone number or registered account after login is a cloud data management account, and you can log in this account on your mobile phone or computer to realize data synchronization and analysis. The instrument has no network and can only use basic measurement and mapping functions.、 After the instrument is connected to the network, click the icon on the upper left or click "User Login" in the system Settings to log in and register (Figure 9). You can choose two login methods: "Mobile number login" and "Email login". It is recommended to select "Mobile number Quick login" and enter the mobile number and send the password

to log in. You are advised to obtain the password once and save it for the next login or login from another device.

Special tips: Be sure to connect the WiFi network or mobile phone WiFi hotspot to keep the instrument network unblocked to send the verification code and login to be effective, such as not connected to the network or the network anomaly will prompt the verification code failure.

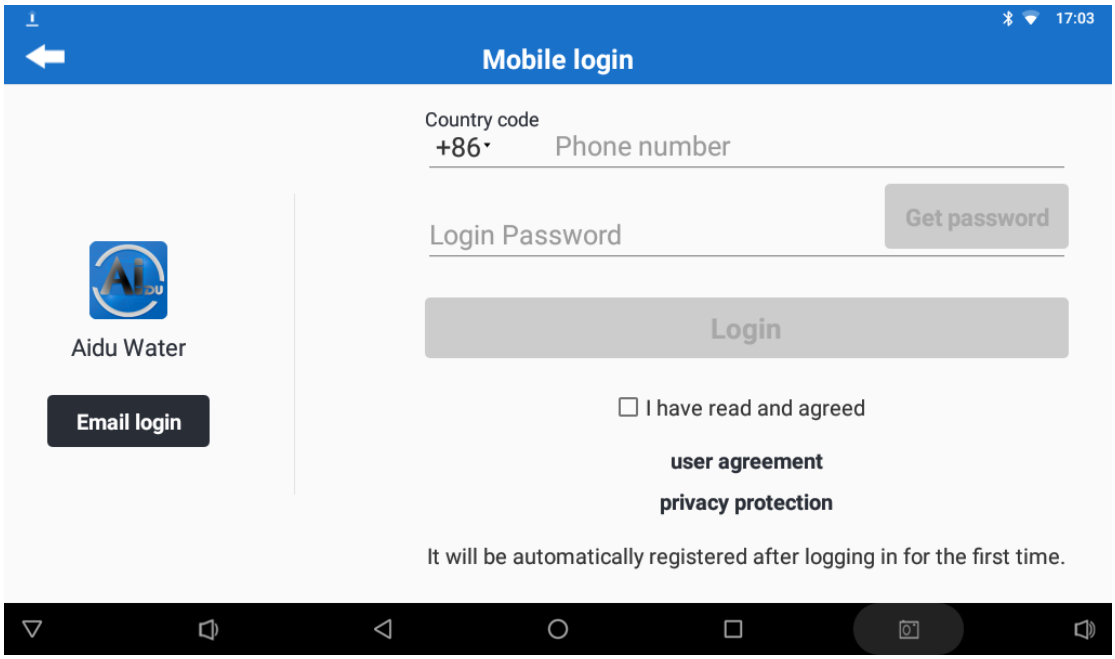


Figure 9

6 Instrument Connection and Setup

6.1 Instrument connection

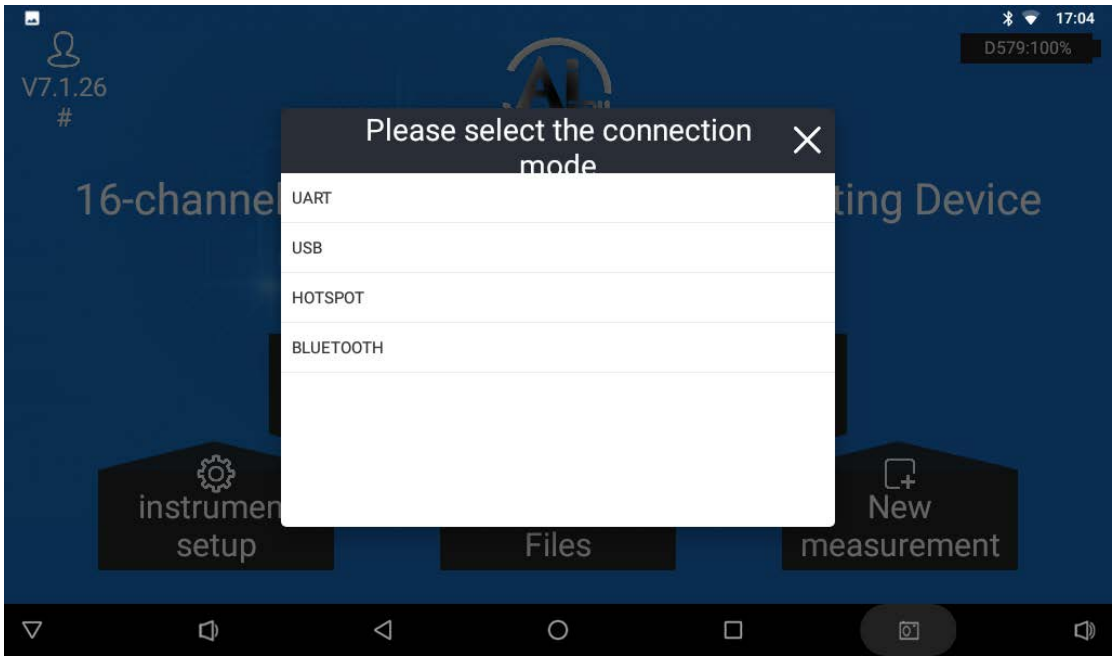
Four kinds of instrument connection methods are provided in Aidu Water APP. ADMT screen series water search instrument uses serial port connection, and it is necessary to confirm that the connection mode is set to serial port connection when using.

6.2 Instrument setting

Display the instrument model, ID number, data processing parameters and measurement parameters in the instrument setup page.

There are two different Settings for instrument Settings based on

networking and login status. Before setting this parameter, ensure that the serial port connection mode is set and the device is properly connected. It is recommended to set up the instrument after the wiring is completed and the instrument is connected.



6.2.1 Unlogged account

When the account is not logged in, the parameters for data processing and AI analysis are set by default based on the local model and cannot be changed.

"Sampling channel number": The instrument will automatically detect the number of channels connected to the measurement line, and select the number of measurement channels according to the need.

"Measurement Mode": Select the corresponding measurement mode according to the connected measurement accessories, select "MN" mode when measuring with the line, and select "TT" mode when measuring with the probe.

"Overlay times": After clicking, you can set the overlay times when the instrument is measured.

"Measurement Depth": You can set the start and end depth of the current

measurement, and the maximum depth can be set according to different models.

After setting the above four items, click Settings, it will automatically jump to the new measurement page.

6.2.2 Logged in account

After logging in, users can set parameters for data processing and AI analysis, either using the default parameters set by Aidu or adjusting parameters according to local conditions.

（1）Data processing: Download → device model → Aidu just parameters if necessary → Save Settings.

When setting parameters, you can synchronize parameters to download the default parameters of all bound devices in the login account.

Click "Save configure" to save the current parameter scheme to the server after modifying the parameter value.

Click "Update configure" to delete the currently selected custom scheme;

Click "Delete configure " to modify the parameter values of the current configuration scheme.

Parameter description:

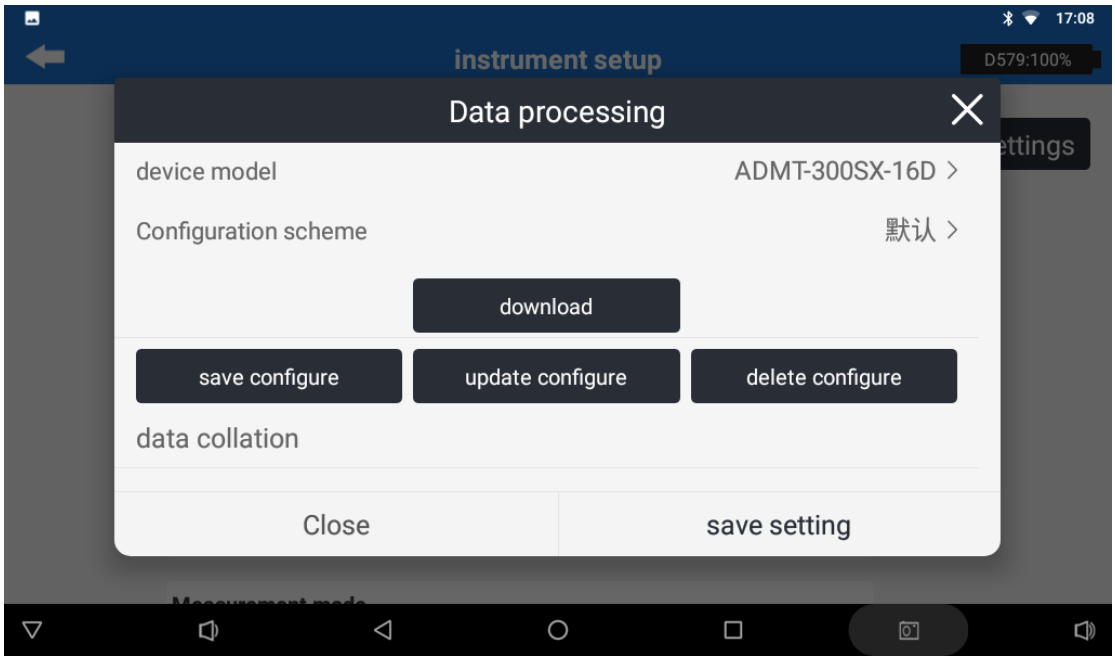
[Data correction] is to remove part of the abnormal measurement point data that is too high or too low caused by environmental interference or other interference in the measurement process. The larger the amplitude of the correction value, the larger the fluctuation range of the corrected data. For example, if the correction amplitude is 0.2 or 0.3, the revised data may fluctuate within 20% or 30% of the original data; The larger the input value of the corrected threshold, the greater the deviation of the data after the bad point correction. If the correction threshold is too large, the data is prone to obvious deviation; If the threshold is too small, the corrected data may differ greatly from the true data. And the data correction is divided into X, Y, Z three axis correction, X is the horizontal direction, generally refers to the measurement between points, Y is the vertical direction,

generally refers to the depth or measurement line direction, Z is the dimension of the overall data.

[Data collation] is the overall filtering processing according to the three dimensions of X, Y and Z, set to 0 for no sorting, set to 1 for sorting, X is the horizontal direction, generally referring to the measurement points, Y is the vertical direction, generally the depth or measurement line direction, Z is the dimension of the overall data.

[Data smooth] Data smoothing can reduce the peak and valley values between adjacent data, smooth the curve and reduce the noise, so that the image effect is more smooth and smooth, you can choose 3 points, 5 points, 7 points, 3 times 5 points, 3 times 7 points and other smoothing methods, according to the need to choose.

[Apparent resistivity inversion] In the inversion of apparent resistivity, the original data are normalized and modeled, and the original measured electric field or electromagnetic value is reversed according to a certain model algorithm to perform the formation resistivity, which is not the real resistivity, similar to resistivity, so it is named "apparent resistivity", which can also be understood as apparent resistivity. Inversion model selection is generally 0.1-0.9 model data, the larger the model value is, the faster the formation apparent resistivity changes, the model coefficient is generally set to 1, and this step is not performed when 0 is set.



(2) Set AI analysis: data download → select device model → Aidu just parameters if necessary → Save Settings

(3) Set "Number of sampling channels", after clicking, the channels will be automatically detected, and then select the required number of channels.

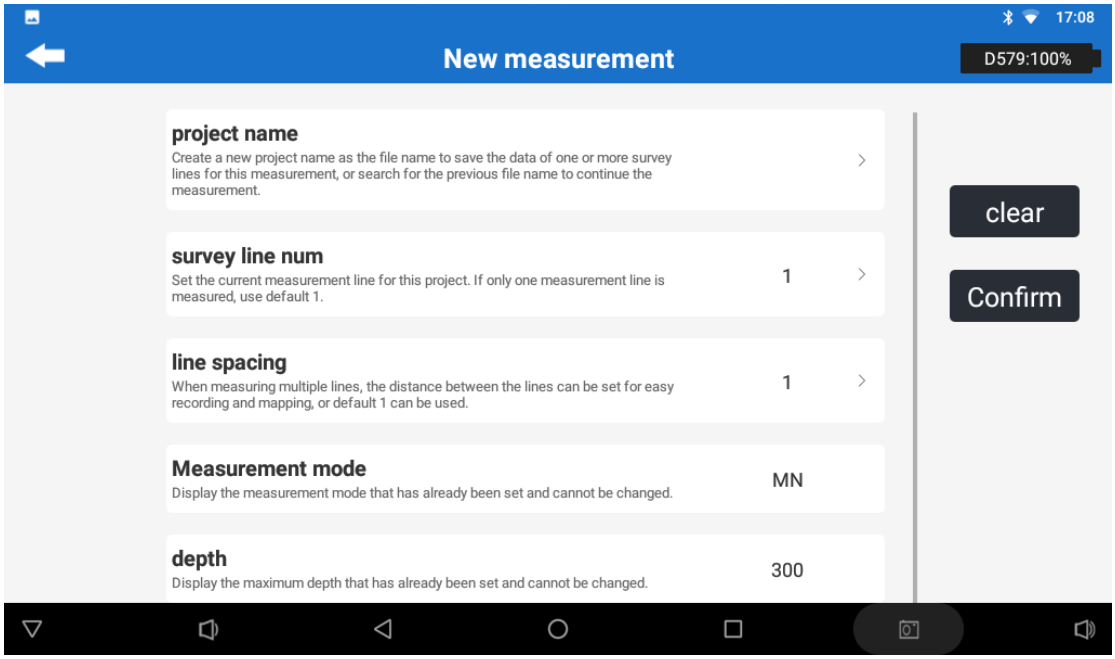
(4) Set "Overlay times" : select the preset value in the pop-up window.

(5) Set "Start Depth" and "End depth" : Select the default value in the pop-up window.

(6) After setting, click "Setting" and "Confirm" to enter the new measurement page.

7 New Measurment

(1) Set the name of the new project: Enter the name in the pop-up window or click "Select item" to select the previously used project.

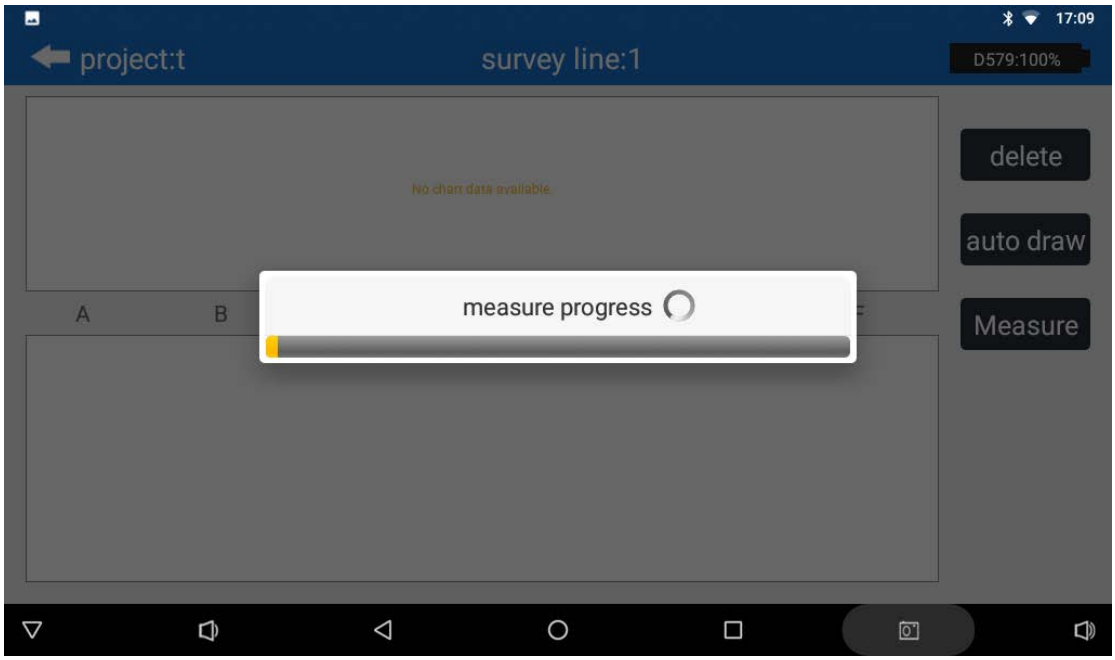


(2) Set the number of measuring lines, measuring line spacing.

(3) Click "Confirm" to enter the measurement page.

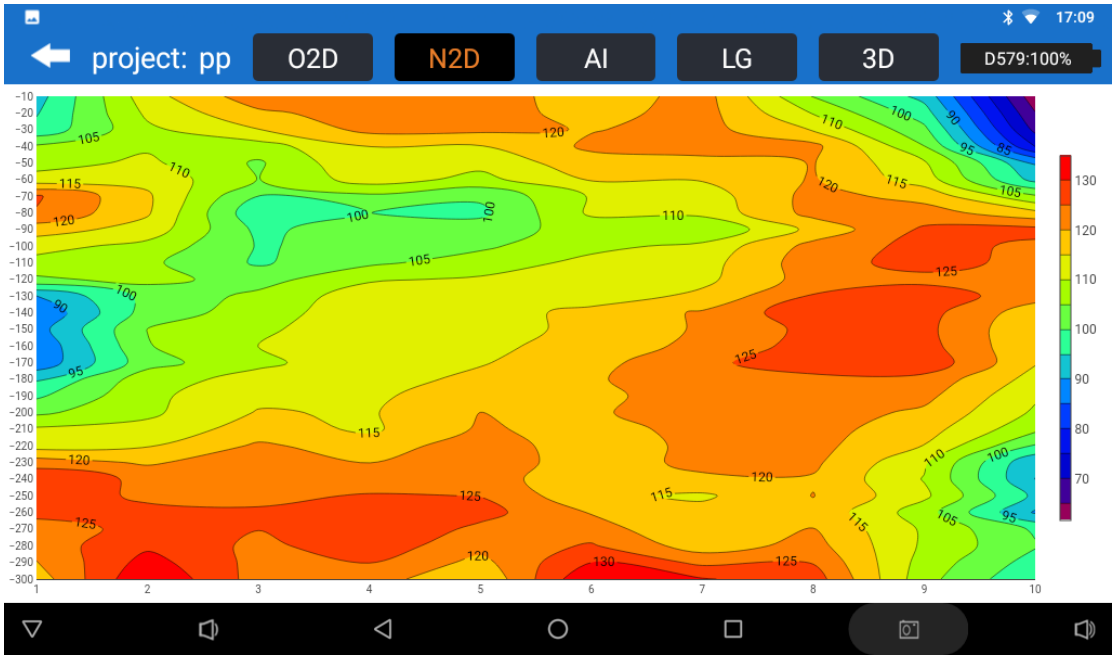
(4) Clicking "Measurement" will first conduct channel detection to detect the channel connection. The connection status of all channels is displayed in the channel detection pop-up window. Red indicates that the channel is disconnected and you need to check the channel connection. Blue indicates that the channel is connected properly and can be measured normally.

(5) Click "Confirm" to perform the measurement. The line chart of the current measurement result is displayed at the top and the data is displayed at the bottom. ABCDEF represents "measurement point number", "measurement depth", "apparent resistivity", "Device ID number", "current channel number" and "total channel number" respectively.

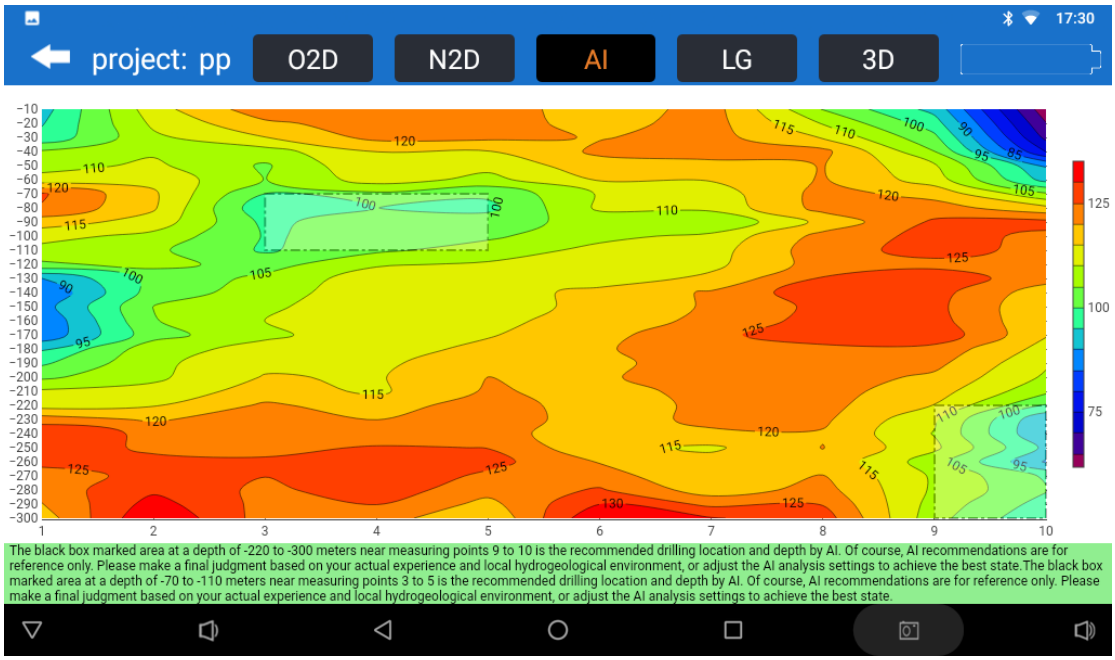


(6)After completing the measurement, you can click "Automatic drawing" to enter the drawing page.

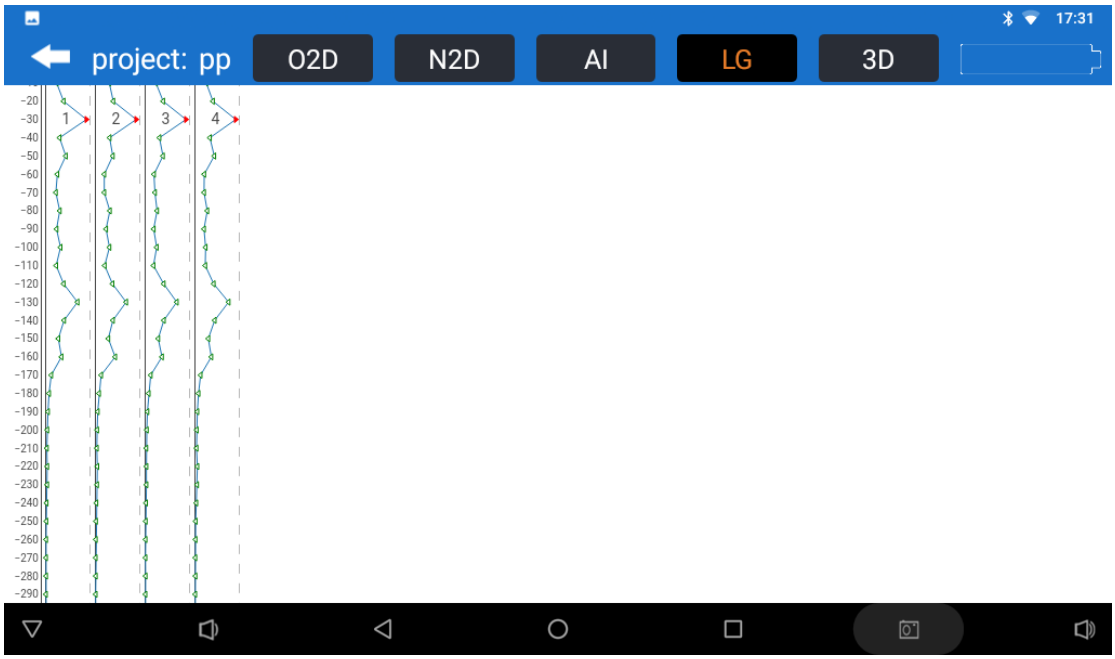
①"O2D" is the old contour map, "N2D" is the new contour map. You can click the button to draw vertical contour map or plane contour map.



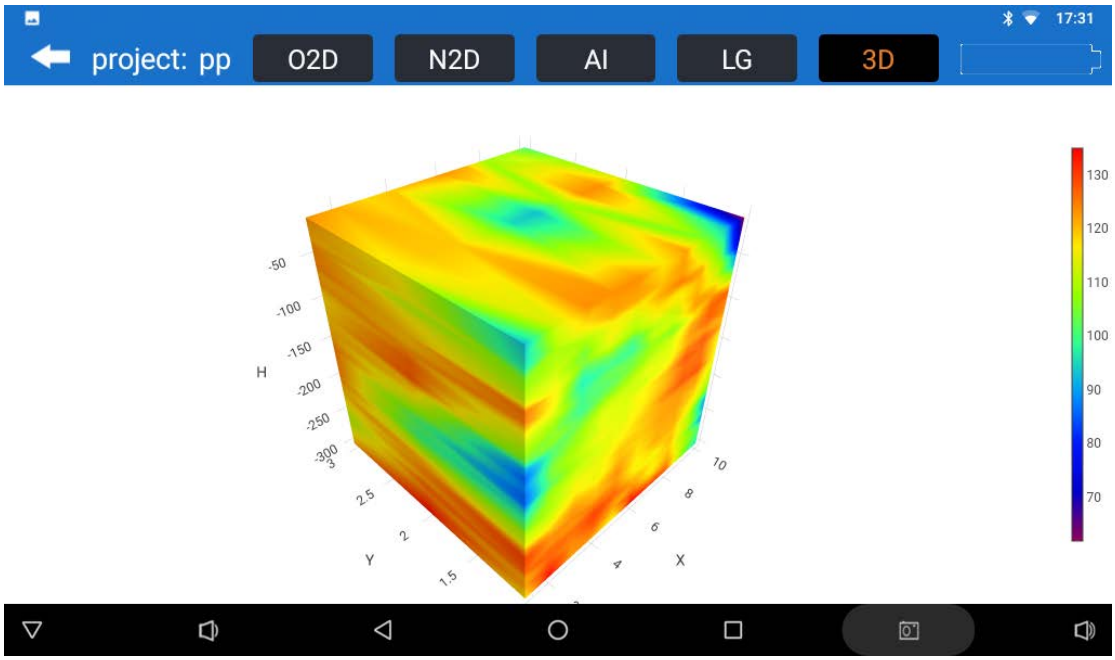
②"AI" is the mapping of AI analysis. After entering, parameter analysis of AI analysis needs to be performed first, and the measurement line can be selected, and the data of AI analysis in the past can be loaded by selecting history;

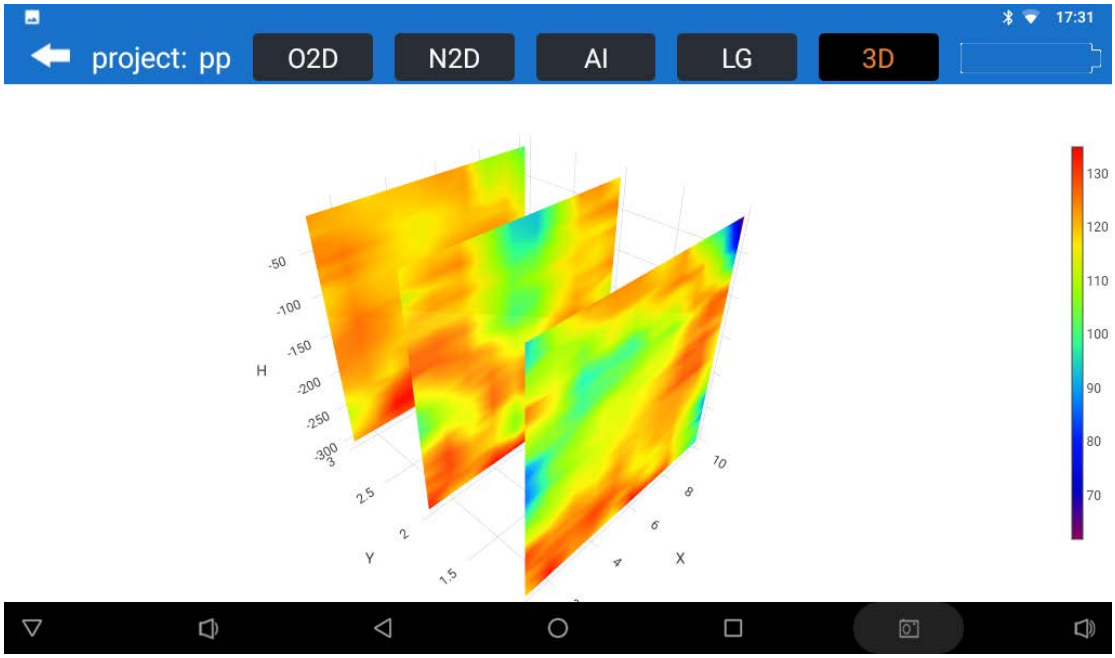


③"LG" is a graph line, you can choose a plane graph line or vertical graph line, you can choose the measurement point number to be displayed for drawing;



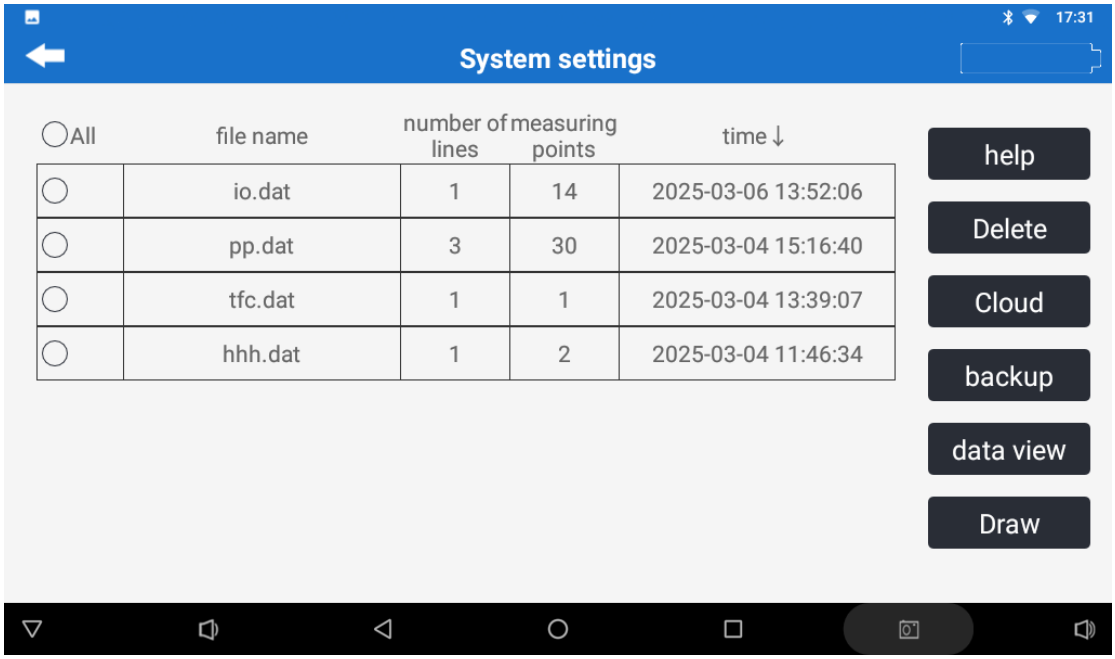
④"3D" is 3D contour map, you can choose 3D map or 3D slice map, in the 3D slice map need to choose according to the sounding or measuring line or measuring point increment to slice.


17:31
project: pp
O2D
N2D
AI
LG
3D
H
-50
-100
-150
-200
-250
-300
3
2.5
2
1.5
Y
4
6
8
10
X
130
120
110
100
90
80
70

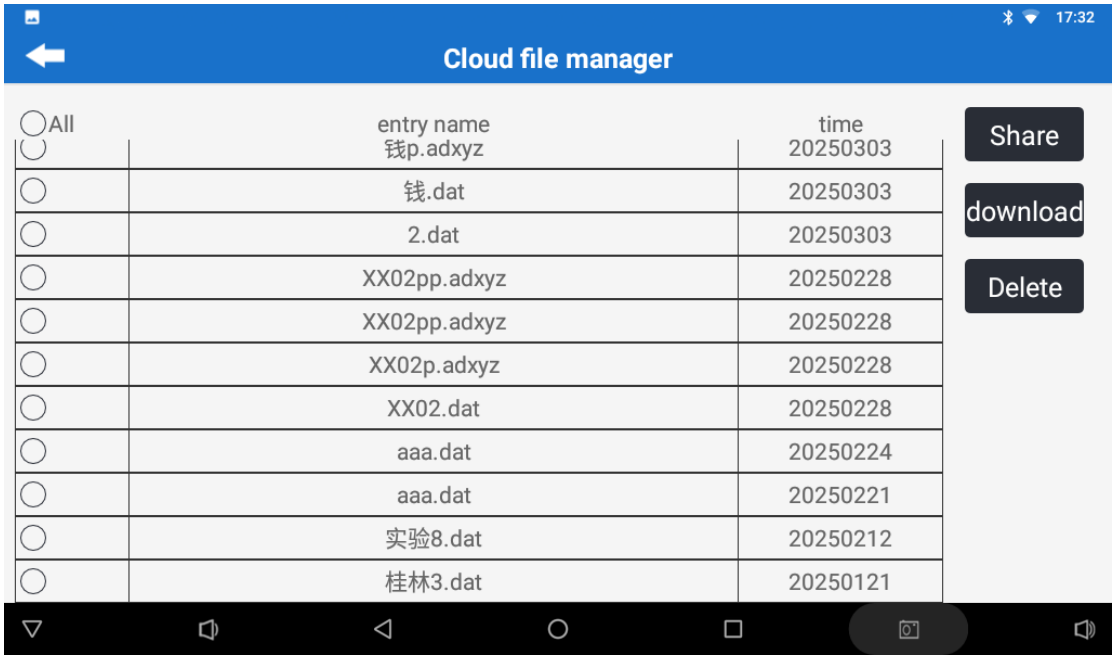

17:31
project: pp
O2D
N2D
AI
LG
3D
H
-50
-100
-150
-200
-250
-300
3
2.5
2
1.5
Y
4
6
8
10
X
130
120
110
100
90
80
70

8 Folder Browsing

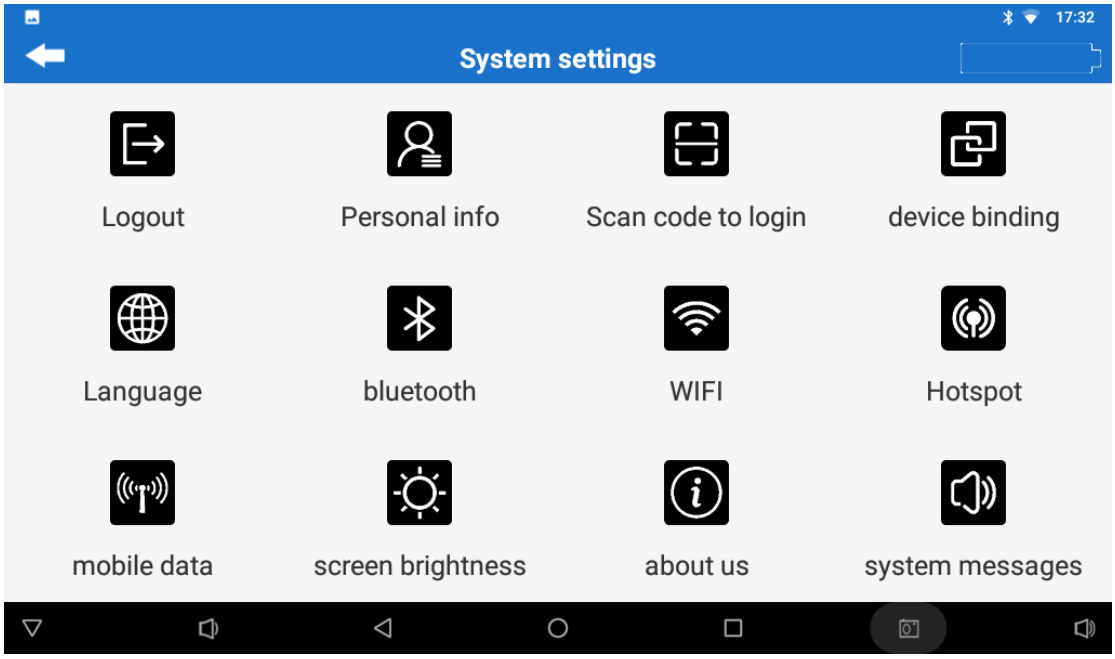
(1) You can select the file for drawing, "Backup" - backup data to the cloud and "Data View" - view the data of the selected file.



(2) In "Cloud", you can view the files saved in the cloud and delete or download them to the local computer.



9 System Setting



On the system Settings page, you can set user accounts, device information, language, and host functions.

In the three function keys on the top row, you can log in to the user account, log out of the login, set personal information, and scan the code to log in to the web page.

Device Binding: Manually bind the current device to the login account or unbind all devices bound to the account.

"Language": Aidu Water APP provides ten languages for users to choose, you can adjust the display language in the software.

"Bluetooth", "WiFi", "WiFi hotspot", "mobile data" and "Screen brightness" : set the corresponding functions of the device, and mobile data is only open to 4G devices.

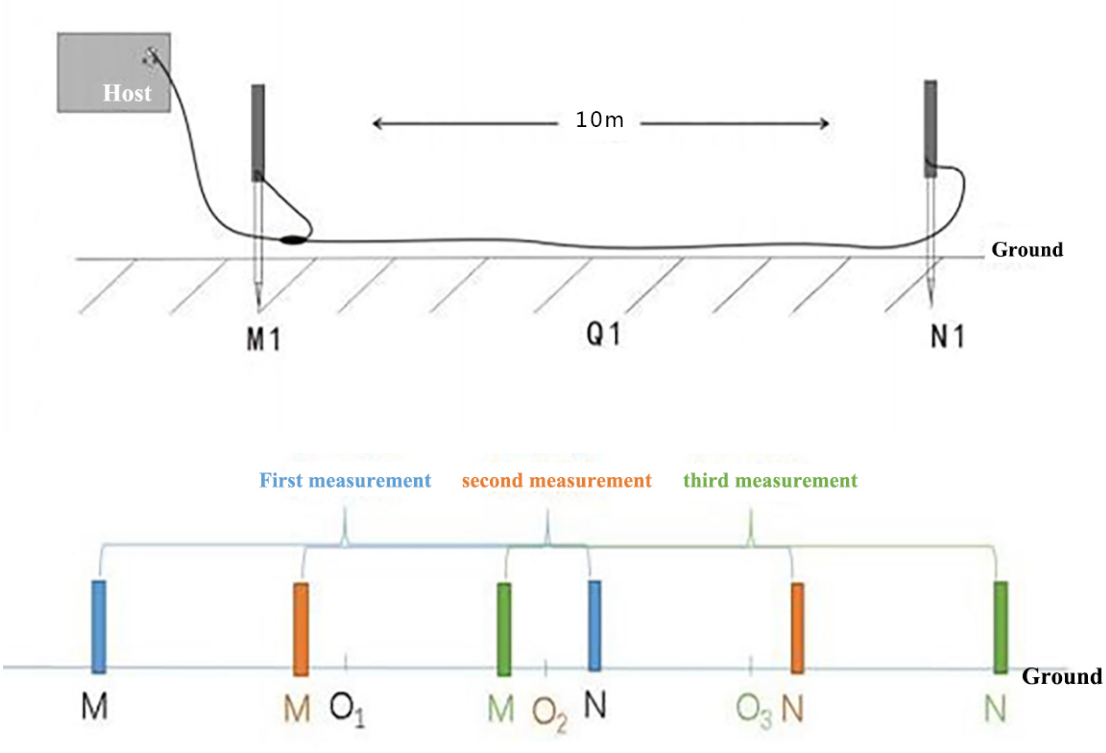
"About Us": Introduce Aidu Water Search APP and update the software version.

System Messages: View official notifications for the Aidu system.

10 Instrument Field Connection Method

10.1 Single channel connection mode

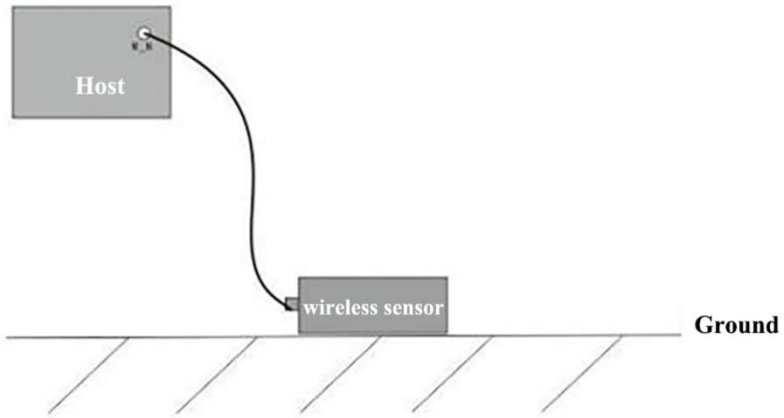
Wired electrode connection method: After the instrument is turned on, connect the instrument as shown in the figure above (Figure 19), insert the M、 N measuring electrodes into the ground, and start sampling. The measuring point position is the center position of the two M 、 N electrode rods. After the sampling of this point, the M 、 N electrodes are moved in the same direction at a certain point distance to conduct sampling and measurement of the second measuring point (Figure 20). And so on until the entire section is measured.



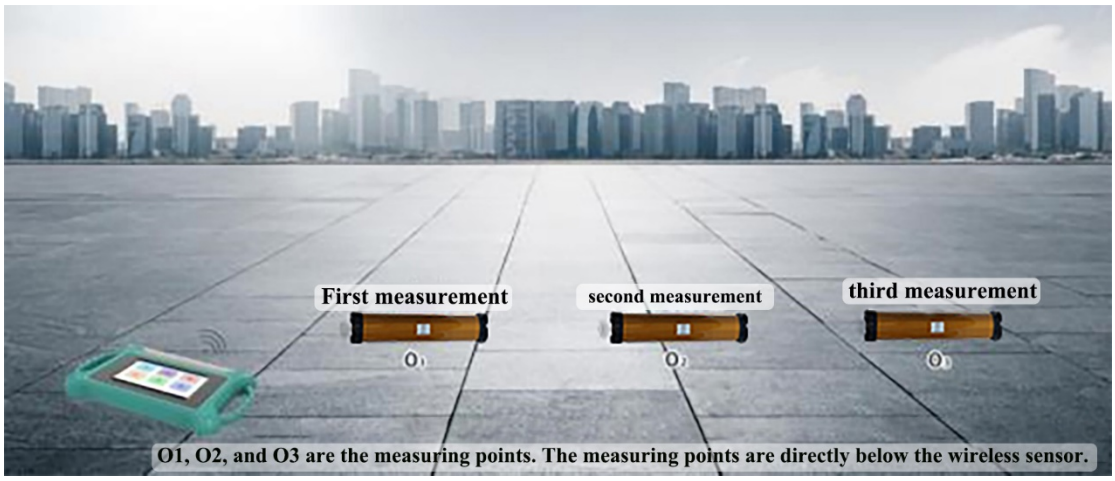
MN is the measuring electrode, O1,O2,O3 is the measuring point, and is the midpoint of MN.

Wired magnetic probe connection (optional): After the instrument is turned on, connect the instrument as shown in the figure above (Figure 21), place the sensor on the ground, and start sampling. The measuring point is directly below the sensor. The direction of sensors is not required, but the direction of sensors at each measurement point on a

measurement line must be the same. After the sampling of this point, the sensor is moved in the same direction with a certain point distance, and the sampling measurement of the second measuring point is carried out. And so on until the entire section is measured.

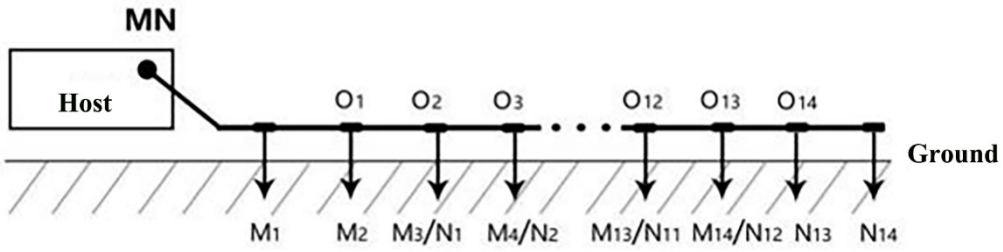


The wireless magnetic probe can also be configured. The connection method is as follows: After the instrument is turned on, the instrument connects to the master computer of the Cudgel rod through Bluetooth. The host of the cudgel rod is placed on the ground and sampling is started. After the end of sampling at this point, the golden rod host is moved in the same direction at a certain point distance to conduct sampling measurement at the second measuring point (as shown in Figure 22). And so on until the entire section is measured.



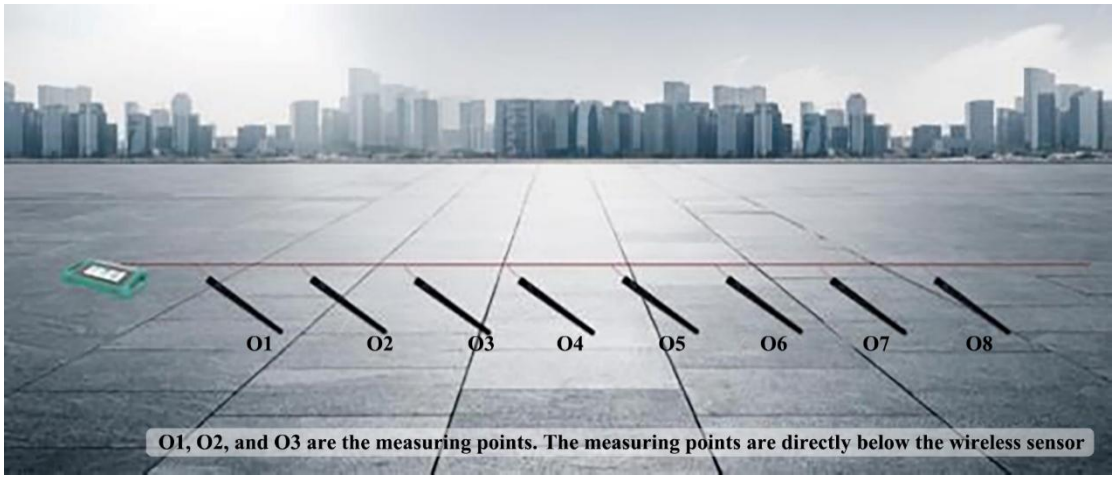
10.2 16 channels connection mode

Basic connection method of the 16-channel series: After the instrument is turned on, connect the instrument as shown in the figure above (Figure 23), lay out the measurement cable along the measurement line, insert the electrode into the ground, and connect the electrode to the measurement cable through the plugboard. Start sampling when ready. The 16-channel instrument can complete the data collection of 14 measurement points at the same time in one measurement, the measurement point is the center point of the MN electrode, that is, the second electrode is the first measurement point, the third electrode is the second measurement point, and so on, the last measurement point is at the penultimate electrode. After the measurement is complete, the sampling measurements of the second section can be carried out. And so on until the entire section is measured.



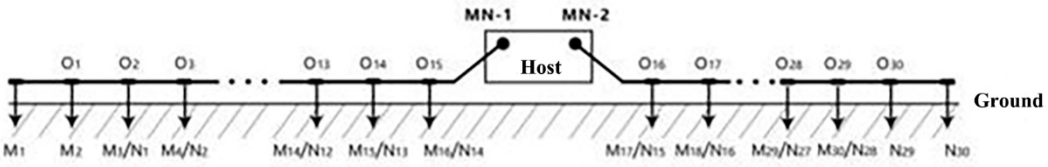
Connect the wired electromagnetic probe of the 16-channel instrument: After the instrument is started, connect the instrument as shown in the figure above (Figure 24). Lay the measurement cable along the direction of the measurement line, and lay the sensor flat on the ground. The direction of the sensor is not required, but the direction of the sensor on the measurement line must be the same. Connect the sensor to the measurement cable using a pluggable card. Start sampling when ready. The 16-channel instrument can complete the data acquisition of 8 measurement points at the same time, and the measurement point is

directly below the sensor, and the sampling measurement of the second section can be completed. And so on until the entire section is measured.

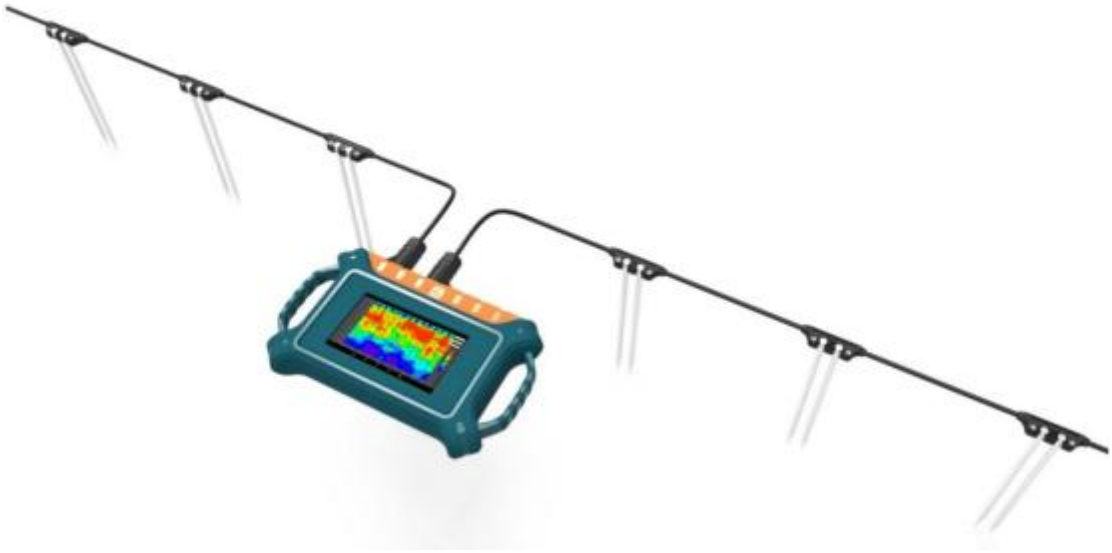


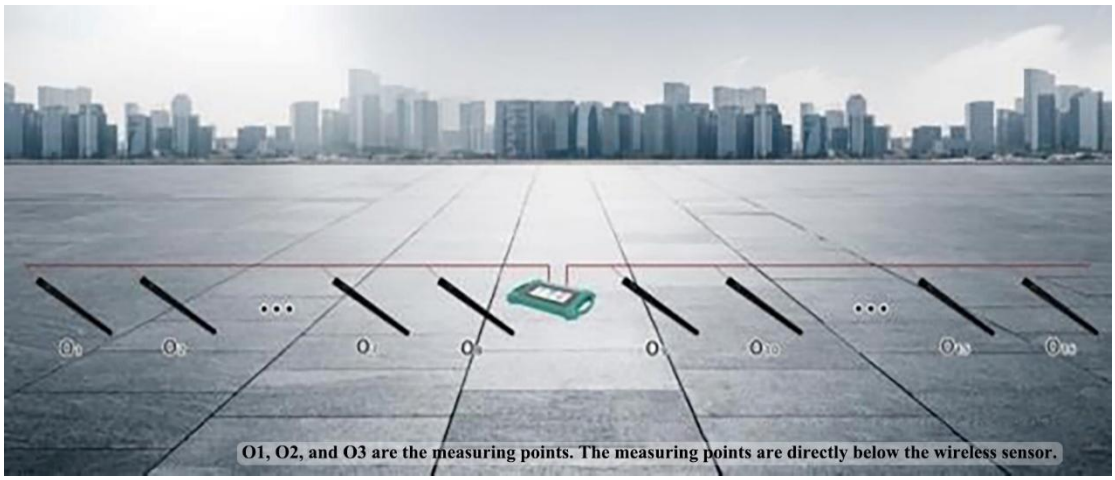
10.3 32 channels connection mode

Basic connection method for a 32-channel instrument: Lay two 16-channel measuring cables along the direction of the measurement line, place the instrument in the middle of the two cables, insert the electrodes into the ground, and connect the electrodes to the measurement cables through the plugboard (see Figure 25 and 26). Start sampling when ready. The 32-channel instrument can complete the data acquisition of 30 measuring points at the same time. Only one cable can be deployed, and the cable interface must be connected through port M N 1. The starting electrode of the measuring line is at the end of the MN 1 cable, and the measuring point is the midpoint of the MN electrode, that is, the second electrode at the end of the MN 1 cable is positioned at the first measuring point, the third electrode is positioned at the second measuring point, and so on, the last measuring point is at the second to last electrode. After the measurement is complete, a second section can be sampled and measured, and so on, until the entire section is measured.



32 channel instrument wired electromagnetic probe connection: After the device is powered on, connect the device as shown in the figure above (Figure 27), lay the measuring cable along the direction of the measuring cable, place the device in the middle of the two cables, lay the electromagnetic sensor flat on the ground, the direction of the sensor is not required, but the direction of each sensor on a measuring line must be the same, and connect the sensor to the measuring cable by removing and inserting a card. Start sampling when ready. The 32 channel instrument can complete the data acquisition of 16 measurement points at the same time. Only one cable can be deployed, and the cable interface must be connected through port M N 1. The starting point of the measurement line is the end of the M N 1 cable, and the position of the measurement point is directly below the sensor. Once the measurement is complete, the second section can be sampled. And so on until the entire section is measured.





11 On-Site Survey Line Layout Method

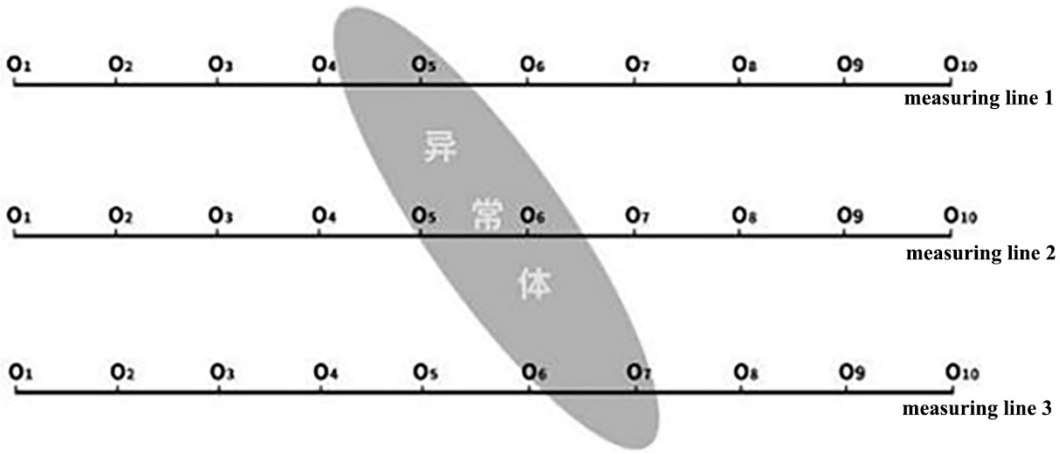
The layout of survey line is a very important link in the exploration, and the quality of survey line layout will directly affect the measurement accuracy and improve the anti-interference ability. The basic principle is that the direction of the survey line is best to explore the direction of the target 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.

11.1 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 28). 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.

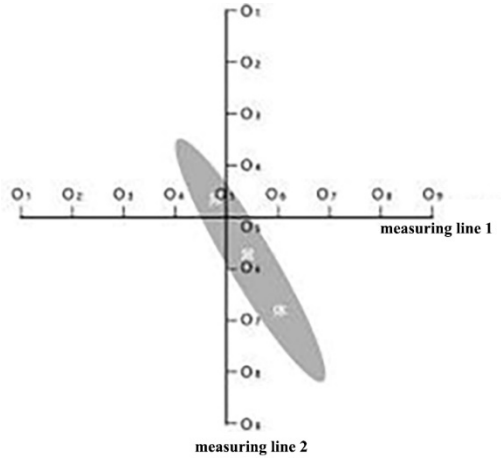


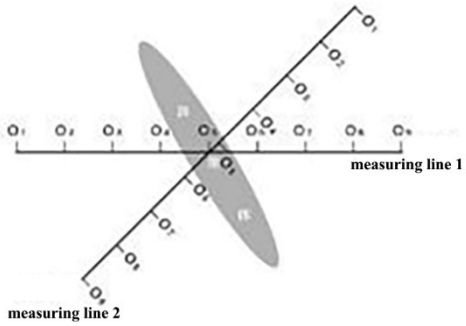
11.2 Layout method of cross or diagonal cross of straight section

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 29) or a diagonal cross section (as shown in Figure 30). Combining the abnormal areas of the two straight sections can confirm

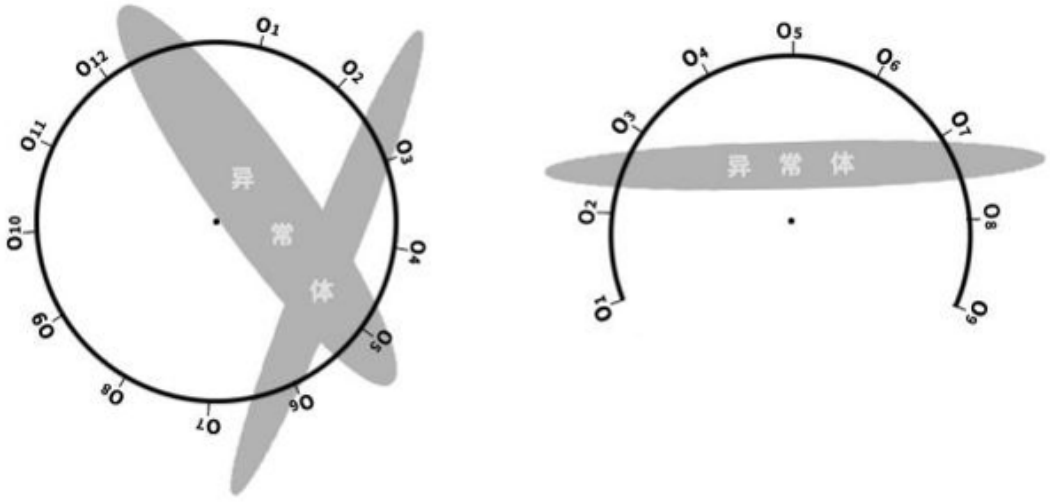
the existence of the exploration target repeatedly, and can also assist in judging and confirming the general direction of the exploration target.





11.3 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. 31) or semi-circular (FIG. 32) 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.



11.4 Multiple 32 channels are composed of 96-512 channels matrix high density method

In order to make the data acquisition more accurate and efficient, three or more 32-channel instruments can be used to form the matrix density measurement method. Contact the manufacturer separately for details.

11.5 Wiring principle

11.5.1 The layout of the survey line should be as vertical as possible to the direction of the abnormal body, the linear section should be as straight as possible, the circular section should be as round as possible, and the ground surface should be as flat as possible. You

can use a compass or a pole to determine the line as straight as possible.

11.5.2 When measuring on the hillside, try to choose the same altitude layout. When it is not possible to arrange the same height layout, try to choose the same slope or a slower slope direction layout, and the height difference between adjacent points should not exceed 2 meters.

11.5.3 The measuring line should be as far away from the high-voltage transmission line and telephone line as possible, and when it cannot be far away, the wiring direction can be parallel to it.

11.5.4 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 equipped sensor.

11.5.5 The point distance and line distance in the same measurement area should be kept the same as far as possible to facilitate recording and analysis.

11.5.6 When measuring MN electrode mode, ensure that the grounding of M and N electrodes is consistent.

12 Precautions for using the instrument

12.1 Periodically check the battery level and charge the device. Keep sufficient power during working hours, and turn off the power promptly after work.

12.2 Special personnel shall take care of the equipment during transportation or use to avoid severe vibration, impact and water and moisture.

12.3 After each work, keep the equipment and MN electrodes clean and place them in a ventilated and dry place.

12.4 The MN electrode or electromagnetic sensor is not connected or disconnected, indicating a measurement failure. Please check whether the cable is properly connected.

12.5 If the measurement data of each measurement point is small and

the value is basically the same, the instrument may be faulty. Please contact the after-sales service for confirmation.

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Aidu Exploration and Foundry Model

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