discory
迪斯凯瑞

N6-D Undergroud pipeline locator

Instructions

Haian Discory Detecting Instrument CO.,Ltd

Foreword

Thank you for using N6-D underground pipeline amperemeter detector. It is great honor to service for you. In order to make sure that you can use this instrument as soon as possible, the instrument is equipped with manual.

This manual is an important part of instrument. It can provide you a safety guideline. Please read this manual carefully before use our instrument. And after read please keep this manual in a good way.

HaiAn Discory Detecting instrument CO.,Ltd reserves the right to improvement and innovation of the instrument without prior notice. If any problem during using, customer can connect us by following ways.

1、Service tel：400-012-6866；

2、E-mail：postmaster@dscr.com.cn ；

3、Our web side：http://www.dscr.com.cn。

Thank you!

Catalog

一、Instrument Introduction

（一）Features (a) of the instrument

1, flat design, keyboard, a multi-purpose keys.

2, no additional wiring, press the measure key to automatically measure the transmit power, the transmission voltage, emission current, grounding resistance and other parameters.

3, for detecting the signal strength of the whole process, carried out by the internal circuit normalized so that the leak size coating and insulation resistance value of each test section comparable.

4, the voltage controlled oscillator frequency technology, the signal intensity of the reaction tube bit and missed the point more clearly.

5, audio, showing the value, analog bar cursor, displays the signal strength and more intuitive.

6, easy to operate, simple to use, easy to understand.

7, small size, light weight, easy to carry, more suitable for field testing.

8, when the lack of voltage the instrument automatically shut down, automatically cut off when the internal power supply, energy-saving effect is remarkable.

(二) the instrument functions and buttons Introduction

1, a transmitter: a transmitter for transmitting electromagnetic signals of a specific frequency to underground pipes, to establish a single line - underground pipeline detection field of the earth loop. Its function is schematically shown in Figure 1.

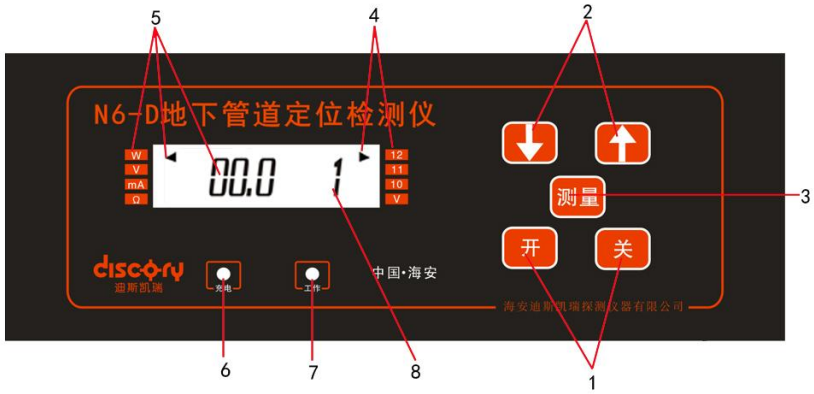


Figure 1 a schematic view of the transmitter panel

(1) open the key: To turn the transmitter power;

(2) ↑ ↓ key: Used to increase or decrease the transmitter power;

(3) the measurement key: used to measure the transmitted power W, emission voltage V, the emission current mA, grounding resistance Ω;
(4) battery voltage display, the cursor to the right side corresponds to the number, the cursor on the corresponding 12V, the charge level is sufficient;
(5) emission measurements and cursor position W, V, mA, Ω in a measured value, the LCD display values correspond;
(6) Charging indicator, the indicator light when charging, fully charged when the light goes out;
(7) work lights, work lights, work lights off when not;
(8) display stalls, press ↑ ↓ keys to adjust the position in the 1-9 range adjustment file.
2, the instrument probe: probe instrument and probes are used together to detect the location of the pipeline, to the depth. Its function is schematically shown in Figure 2.

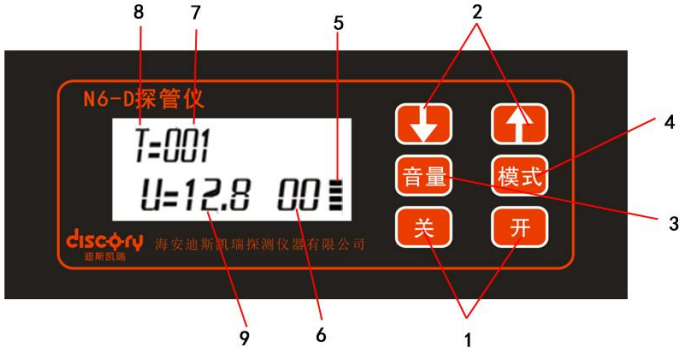


Figure 2 a schematic view of the probe instrument panel

(1) OFF ON key: after plugging the probe plug, for opening or closing the probe instrument power supply;

(2) ↑ ↓ key: Used to increase or decrease the receiver sensitivity of the probe instrument, within the 0-50 range adjustment;

(3) Volume Jian: is used to adjust the size of the probe instrument receiver volume;

(4) Mode key: For mutual conversion between T and QT represents the sensitivity of amplification and normalized in order to detect more distant and complex environment;

(5) Analog bar cursor, consistent with the value, volume, change in signal intensity;

(6) show sensitivity values between 0-50 adjustment;

(7) the signal strength indication, between 0-1000 change;

(8) mode to display the values of T or QT;

(9) Built-in battery voltage display position.

(三) technical specifications of the instrument

(一) Transmitter Technical Specifications:

1. Transmitting power: 0-25W automatic adjustment
2. Transmission frequency: 1K ± 0.1HZ
3. Impedance matching: 0-500Ω, automatic matching
4. Transmission Distance: 0.03-5km, can be progressively moved to 5km outside
5. Power supply: 12V NiMH battery pack
6. Operating temperature: -10 ℃ ~ + 50 ℃
7. Control system: Analog signal control
8. Adjustment system: digital keyboard control
9. Weight: 2.8kg(Without battery)
10. Dimensions (mm): 267×220×105

(二) detector technical indicators:

1. Sensitivity: -65db
2. To position deviation: ≤10cm
3. Detection depth: ≤5m
4. Power supply: 9.6V Ni-MH battery
5. Working temperature: -10 ℃ ~ + 50 ℃
6. Display: Digital Display
7. Weight: 1.1kg
8. Dimensions (mm): 165 × 110 × 68

二, The method of operation of the instrument

（一）the use of the transmitter

1, the transmitter connection

(1) the output cable into the transmitter "OUT" socket, press the "ON" key to boot.

(2) the red alligator clip connected to the output line of the magnet and the magnet attached to the pipe. The other end of the line and then the red pistol output connector and ground line black pistol plugs to connect the ground wire and the other end of the black alligator clip to the ground rod, with the pipeline to open 90 degrees, into the ground.

2. Select the location of the transmitter launch wiring

Try to avoid multi-drop center, such as metering stations, joint station, gathering stations where network extending in all directions, not only signal attenuation fast, and when the target line when buried deep in the ground receiver receives the signal is weak increase the difficulty of detecting pipeline should be possible to select a single line at the transmitter signal is applied, so that the signal transmission is unidirectional or bidirectional transmission, the current concentration, probe leak effects are better.

3, the transmitter grounding

The transmitter can have three ground wiring:

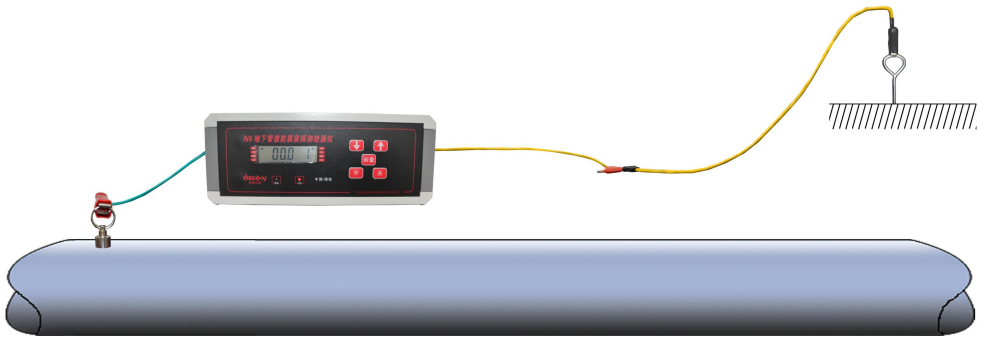
(1) Ground unilateral: only the target line while grounding the grounding connection point is a pipe and the pipe perpendicular to the strike direction 10-20M at the ground rod into the ground, dry place need watering moist. See Figure 4.

(2) Bilateral Ground: the ground wire transmitter leads to two, namely access to the pipeline on both sides of the earth, this method symmetrical magnetic field distribution, probe, sounding very accurate, but to check the grounding effects are the same on both sides the method is based on measuring key when viewed grounding resistance side, the other side of the grounding wire disconnected. Observing other end of the resistor is the same on both sides of the grounding resistors are equal, the effect was the same. When the grounding resistance range, by playing deep or

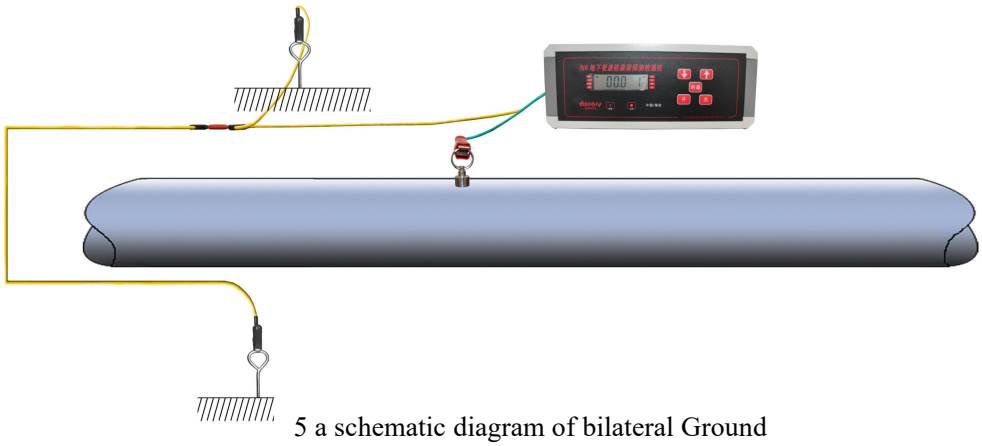
shallow ground rod pull, but also through water ways to make both sides equal grounding effect. (See FIG. 5)

(3) long-range ground loop method: This method is the transmission line connected to one end of the pipe to the ground line extended to the other end of the pipe. When working on the pipe to form a loop. This method only in solving particularly complex pipe network when using the probe. Loop method to pipeline and ground wiring as a transmission circuit from wire and pipe must be more than 10 times the depth of the pipeline, otherwise they will be too close to detect the effect of pipeline bits. Remote loop method wiring, piping on the strongest signal. (See FIG. 6)

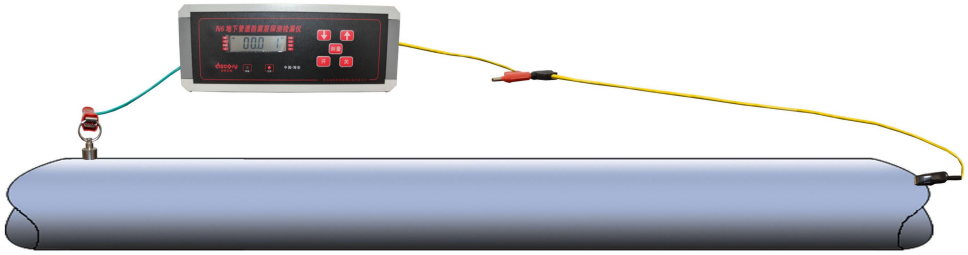
Further, when the pipe ends are reserved manifold not well grounded, not when the probe signal may be added at the end of a ground line, called ground loop method wiring away. (FIG. 7)



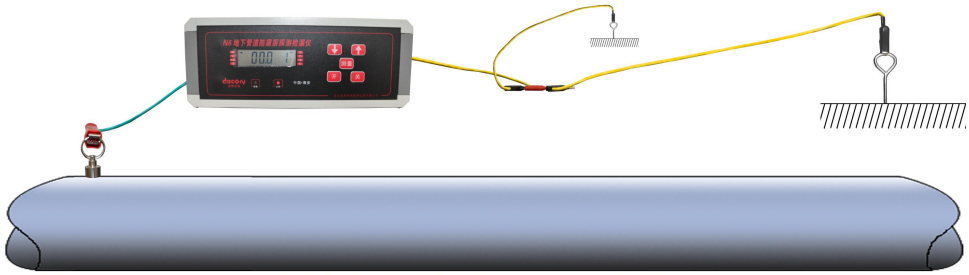
4 a schematic diagram of unilateral Ground



5 a schematic diagram of bilateral Ground



6 schematic ground loop method



7 Ground Loop schematic diagram far

Precautions:

(1) can not hit the ground unpreserved water pipeline or other metal top of the line, or the ground beneath the pipeline may have misjudged a strong signal to the target line.

(2) If there is a pond in the vicinity of the vertical line from the detection site, ditches, grounding wire of the building, lightning rod grounding, poles or other conductive cable means, using them is a very convenient choice.

(3) Check the ground loop resistance, loop resistance should be between a few ohms to one hundred ohms, when the loop resistance is too large, then the signal can not get over the target line, it can be used for watering the earth, increasing the number of ground-level playing deep grounding rods and other measures to reduce resistance.

For as the Gobi desert, frozen soil, the soil is too dry environment, can prepare one or several 1-2m irons, deep plunge into the ground as far as possible, pour brine, so that the ground effect is more ideal.

4, the ground distance and direction

The location and distance from access point will affect the emission from

the probe, in particular a large number of damaged pipeline corrosion, too close, current flows from the emission point and the nearest ground constitute a loop, not the distance transmission. Ground and pipes, too close, current flows from the ground and from the launch point near constitute a loop, not the distance transmission. Ground farther and pipes, better detection.

5, select the transmitter power

The initial stage, the transmitter power of 5-10W to meet the test requirements, with the extension of the test distance, and gradually increase the transmission power, so you can save power, but also to meet the needs of time remote measurement of electricity supply.

(二) the use of the probe instrument

1, pipeline location detection and gain adjustment

Probe will probe plug into the socket probe instrument receiver, turn the receiver on, adjust the gain by the ↑ ↓ keys to adjust the sensitivity level, so that the meter showed some static signal, if in the vicinity of the transmitter signal is too strong, and the gains to the minimum when the signal is still strong on the need to reduce transmitter power.

When selecting a peak detection method, the probe parallel to the earth, to the transmitter connection point as the center, 10-20M is the radius of the circular probe, when the receiver receives from small to large, from large to small and then when the signal indication 1000 reaches T =, adjust the gain in this endless exploration continue to do, a small receiver - big - small changes in the signal, the maximum point is the location of the pipeline.

When choosing a zero value detection method, the probe is perpendicular to the ground plane, adjust the gain, the transmitter connection point 10-20m around the circular probe, has received signals big - small - big changes, small point is the location of the pipeline.

2, the pipeline to detect

Trend line detection There are several ways:

(1) two first-line method: stuck after the pipeline location, connect the transmitter signal line connection point and anchor point is the trend

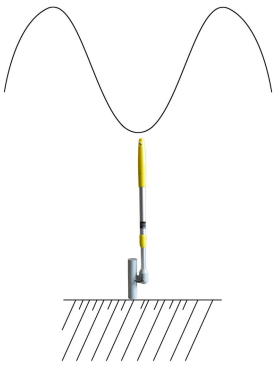
line.

(2) Steering probe method: After the pipe stuck position detection personnel as the center position, the angle of the probe to the probe uniformly parallel, then this point do annular plane probe, probe to the sound value of the minimum angle is shown pipeline route.

(3) step sweep method: This method uses the minimum detection method, each probe to a minimum point, further forward, stand on it, and then stuck a minimum point, then move further, and stood on it, so cycle times, the last one is the smallest point of connection to the pipeline, therefore, also known as multi-point connection method. This method of pipe bend and bend pipe laying area stretching more applicable.

After the pipeline location stuck performed conventional exploration pipeline, it can be used two ways: Zero peak value method and method. The selection method in detecting zero value, while the probe forward, while for the S-shaped swing probe to see whether the value shown on both sides symmetrically. Asymmetric detect small staff moved to the side showing the value of sound, in order to maintain always directly above the target line. Zero value detection method is shown in Figure 8.

The selection of the peak detection method, the probe and the probe is perpendicular and parallel to the ground line to the ground plane with a 90 °, this time in the signal line directly above the strongest received. Peak detection method is shown in Figure 9



8 zero value detection method schematic

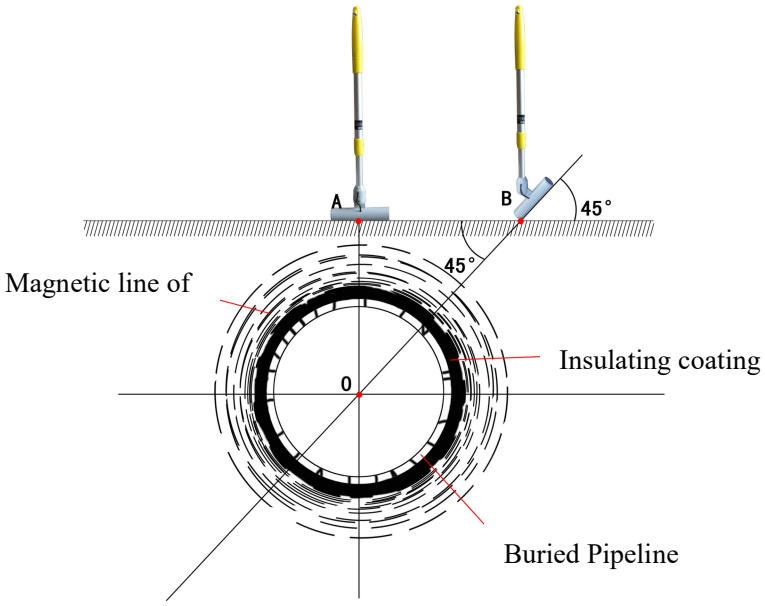
9 analysis probe schematic

When detecting the peak method, the receiver sensitivity gain adjustment values should be displayed at T = 300-800 around, easy to observe the

situation along the pipeline at the time of the anomaly detection. Phenomena will react by changing the values out: weak pipeline coating intact slow; poor pipe coating decay fast, frequent need to increase the gain to compensate for attenuation value; bifurcation sudden decay; turn signal disappears need to go back five steps, as ring probe; before and after the breakage was also damaged due to different sizes and have different apparent change in size; valve on the pipe clamp, weld also have varying degrees of change.

（三）, the depth probing pipeline

Pipeline depth detection method using 45 ° method. When using 45 ° sounding method, the first tube position to explore in the future to make a mark directly above A, then the probe to the orientation angle of 45 °, with the pipeline to move the vertical plane, when moved to the minimum value of the signal , and then to make a mark B, shown in Figure 10, Figure known, the central pipe is O, such as an isosceles triangle △ ABO, so AB = AO, is buried deep in the pipeline.



10 Pipeline 45 ° method bathymetric map

Probe sounding when selecting a single line intermediate straight section, the ground is not usually the height of injustice to be corrected, the probe into the pipe at 45 ° on both sides of the vertical direction as sounding pipes, ranging from pipe on both sides of the minimum point

position and distance described intermediate positioning point margin of error, with both sides of the distance divided by the sum 2 averaged depth. Transmitter near the pipeline, three, four at the corner, and the other line and position the lap and cross the line parallel to the general should not exist as a sounding choice locations.

4, the detection signal factors

4.1 pipe: pipe good conductivity and transmission distance.

4.2 diameter: smaller diameter transmission distance, large diameter pipeline transmission distance close.

4.3 depth: shallow buried pipeline, strong signal, buried deep, the signal is weak.

4.4 Distance: Pipeline testing long distance, large power attenuation, pipeline testing short distance, the signal is strong.

4.5 connector: insulating flange joints if the signal does not pass in the past, the impact of the pipeline probe.

4.6 conduit: conduit or pipe periphery has steel shield the magnetic field, the signal becomes weaker.

4.7 Coating: coating quality is good transmission distance, a large number of damaged coating, an alternating current signal leakage to earth, attenuation speed.

4.8 near line: If the target line and cross lap or equalizing line is connected, it will signal the shunt.

4.9 geoelectric conditions: Dry desert slow decay, the detection distance; pipeline located in river marshes decay quickly detect from the past.

4.10 Transmitting power: low power transmitter, transmission distance close, far away and vice versa.

4.11 receiver gain: Gain increased exploration far away, otherwise close.

4.12 Circuit Status: Loop good strong signal circuit difference signal is weak, so the short branch office or an insulating material wrapped manifold end signal is weak, should be intact end coating transmit signals form a loop from one end of the earth coating damage.

4.13 pipe: branch too will divert part of the current, generally after the branch, the gain should be increased in order to continue exploration,

but not in front of this judgment is the pipeline terminal.

三, the instrument Caution

1. Instruments in use should note the following:

(1) line sounding right or not, largely depends on the accuracy of the positioning plane. Near the branch pipeline and other pipeline lateral, the magnetic field is superimposed, the measured data where each line is the result of superposition, relative to a single line, the magnetic field distortion occurred, so the measure should be selected in the depths intermediate line segment a single line, the length of the straight section should be greater than 5 times the depth of the pipeline.

(2) test and line pipe casing should have better contact with the laying of new lines should be compacted soil after a period of time in the casing, with full access to the pipeline after leak detection, otherwise ineffective.

(3) instrument should be used when lateral leak method, that is at the top of the pipe member probe walking, walking inspectors left the pipeline so that the pipeline leak detection line perpendicular direction, and the value of the leak detector display the maximum sound, the location of the probe member is leak location.

(4) Leak detection of two lines must have a good contact with the human body. The human body can not collide with the shield layer, the core wire and shield can not collide, otherwise it will cause the leak detector malfunction.

(5) The transmitter is preferably ground line do not cross on top of the other lines or the other line, in this case, the transmitted signal will be coupled to other pipelines, may cause mistracking.

(6) probe instrument receiver at work, sometimes in the absence of detection of the pipeline to have a pipeline of illusion, the illusion generally have the following characteristics can be distinguished exclude:

① false premises does not match the measured signal strength and the actual position of the line;

② peak method and the zero value method measured line positions do not coincide;

③ change the transmitter transmits a signal injection point or grounding wire grounding point, the illusion will disappear.

(7) pipeline depth measurement is the center, the depth of the line at the top of subtracted radius line. Pipeline plane positioning and sounding dumb broad point of large diameter are to be amended to take dumb center position of the positioning and sounding pipes.

2. Charging Precautions

(1) Before using the instrument, transmitter, probe tester, leak detector must be fully charged again. When instrument unused for long periods, should be placed in a cool dry place, once a month enough electricity for all of the battery pack to prevent the loss of electricity damage.

(2) transmitter charging cord into the first transmitter output "Output" jack and the 220V power cord into the transmitter "220V Input" jack charged. Charging indicator light red, fully charged light green.

(3) instrument probe, the charge leak detector: 9.6V charger will probe instrument is inserted, the leak detector jack. When the charger red light, green light after fully charged. Probe tester, battery voltage automatically prompted a symbol Lb off below 8.5V when using the leak detector, which automatically shut down.

四, this manual Terminology explained

1, coating damage point: Yiming coating leak, leak coating iron point, point corrosion coating, coating pinholes.

2, location: at the point of the ground line projection, the connection of a plurality of dots called to the pipeline route.

3, the peak method: Yiming maximum method, the sound signal is shown on the maximum value of the target line.

4, zero-value method: Minimum Yiming Law, dumb-point method, the valley value method, the target line signal indication the smallest sound.

5, blind: within a certain range around the transmitter, transmitter field more than once within the target line in the area of secondary field. Size range by the transmission power, transmitter placement, ground positioning.

6, the target line: the transmitter is connected to the signal line need to probe to find the line.

7, coupling: inductive signal applied to the target line to a nearby pipeline or other metal facilities.

8, signal: the detected magnetic field lines in alternating current, or potential difference between the leak two points.

9, the probe: a built magnet coil device, its displacement and rotation angle can be positioned to the underground pipeline, fixed depth, the rate of decline observed signal, and can assess the merits of coating damage point size.

10, the receiver: receiving the transmitter signal to the load on the pipeline and the leak detector probe instrument.

11, gain: Yiming sensitivity.

12, the coating: refers to the pipeline coatings.

Packing list

Packing Date: y m d

No.	Name	Item No.	Quantity	Picture
1	transmitter		1	
2	Probe instrument		1	
3	Probe		1	
4	Output lines		1	
5	Ground wire		1	
6	Ground rod		2	
7	Small rasp		1	
8	magnet		1	
9	220Vpower cable		1	
10	9.6Vcharger		1	
11	Fuse 2A		2	
12	random document		1	Manual certificate

The supervisor: Packing: Check:

Certificate of inspection

Hai Yi (word) No. 325th

Manufacturer: Haian Discory Detecting lnstrument CO., Ltd

Product name: Undergroud pipeline locator

Specifications:

Factory no.:

Test conclusion:

Executive director :

Test :

Verification :

date: y m d

validity period: one year

warranty card

date y m d

Product name	Underground pipeline amperemeter detector	Purchase date	
model		No.	
Quantity		Customer name	
tel		tel	
add		Zip No.	

Repair records

Repair times	1	2	3
trouble			
situation			
Repair date			
Repair personnel			

warranty card:

一、 the warranty period: 1 year

二、 the warranty conditions: customer used instrument normally, and In the warranty period

三、 Paid repair: (1) no warranty card or invoice

(2) remove Voluntarily

(3) improperly secured,

(4) Man-made damage、Natural disasters or improper operation of irresistible cause

(5) over the warranty period

四、Users should keep a good this card, this card shall not be altered。

五、With the card and certificate of inspection to repair

六、 after-sales service telephone: 400-012-6866.

七、Address:#159 TanGangLu HaiAn JiangSu China

service

dear customer:

thank you for using our product, Quality is our lifeblood of a brand, develop on credit, good service is our purpose.

Our commitment

1、our production process strictly implement the ISO9002 international quality standard system

2、24hours service

3、provide training

4、one year warranty, life-long maintenance

5、provide technical support and spare parts replacement

6、pay attention to the feedback and suggestions

7、The on-line service, online interpretation

After-sale service

1、 24hours hot-line （400-012-6866）

We guarantee 4 hours to solve the problem, after we received your phone call

if solving problem on site is necessary. We guarantee 24 hours on the main city, and 48-72 hours on others

if hardware failure, we guarantee solving problem after 2days

2、 E-mail service （postmaster@dscr.com.cn）

reply not over 12 hours

3、 web side（www.dscr.com.cn）

Introduction and connection

4、 fax（0513-88931551）

reply not over 4 hours

5、 Emergency service

we will arrive at the customer scene in the shortest time

Address:#159 TanGangLu HaiAnZhen JiangSu China
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Fax：+86-513-88931551
Website:Http：//www.dscr.com.cn
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