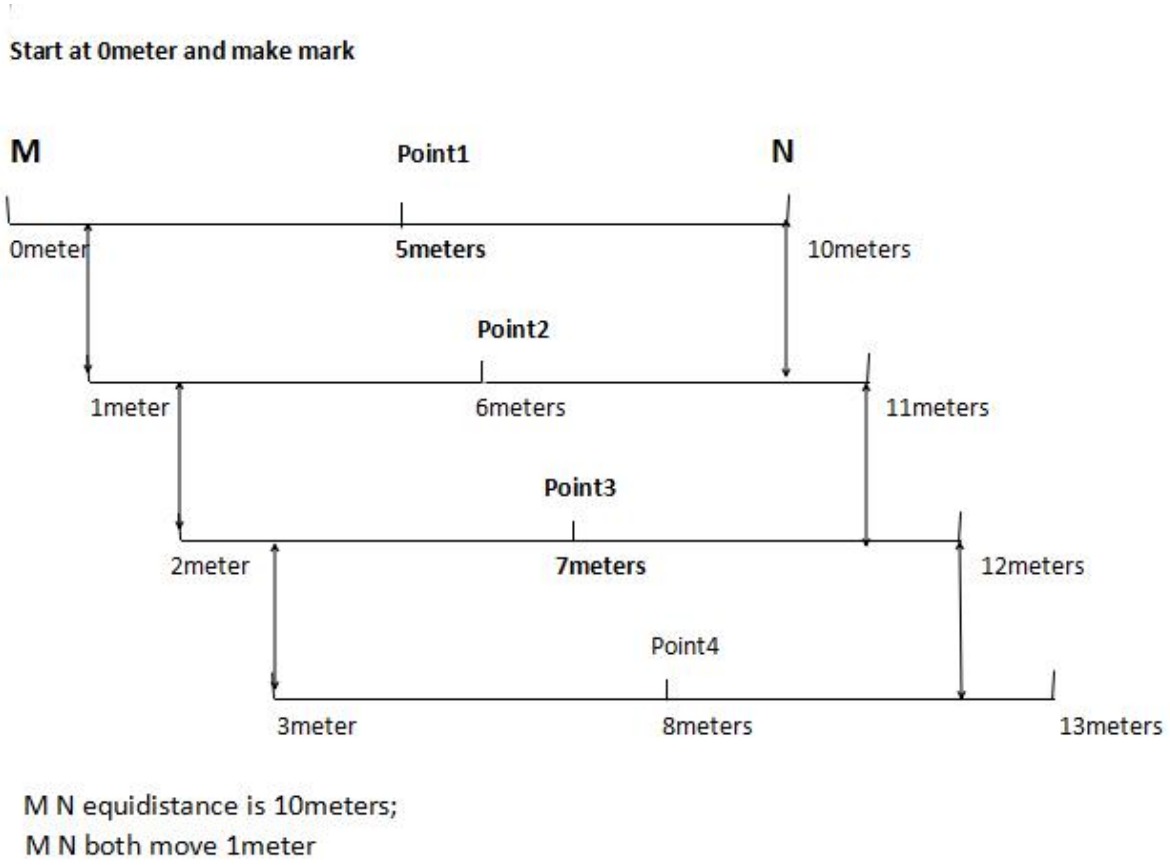
Operation Process

1. Read the operation manual and operation video in the USB disk, or the operation video on our official website:
http://www.pqwtcs.com/NewsDetail.aspx?nid=3643&classid=273

- **Wiring direction & Location**

Take the tape of 10 meters distance and mark the start place of 0 meters. The M N two electrode bar equidistance is 10meters, both M N will move 1meter after finished measure the point 1. And M N Electrode equidistance wiring as below:



M N equidistance is 10meters;
M N both move 1meter

(Note: It is better to measure and tap at 10Meters of M N equidistance, and both M N move 1 meter, because the water detector was designed at 10meters of M N equidistance, and M N both move 1meters. changing the MN equidistance has the effect on the depth of measurement)

How to calculate the meters on the ground, according to the point in the profile map?
Example: what meters on the ground at Point 4 in the profile map?

1. M N=10M and both M N move 1meters, Point 4 is at 8meters on the ground.
(point number +4meters)

2. M N=10M and both M N move 2meters, Point 4 is at 11meters on the ground.
(point number * 2 + 3meters)

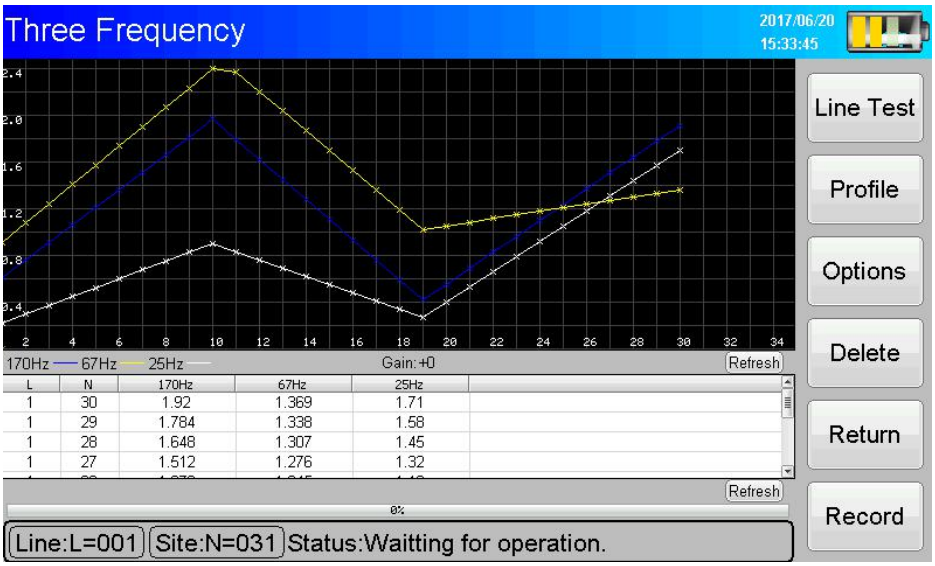
Measurement:

Preparatory work

Insert the both MN into soil (or cross these two connected copper electrodes and put them together), click on the " Line Test " in 3 modes below of operation screen and hold on 2-3seconds, if the detection indicator (green) light, it's Line normal. Without green light, It is a cable fault, need to repair or replace the cable.
(For dry land or stone surface land, we will suggest clicking "Line Test" to check machine working line before each point measurement)

1, Single Frequency:
In Single Frequency each depth option is corresponding with one frequency, could choose the depth according to your demands of which depth level you wanna do the geological survey. If choose "50m", the curve you will get is at the 50m. It is for rough detection, and it is very quick. After finding the low-value area, then could use profile survey to measure.

2,**Three Frequency: (General testing)**
> For three frequency, 170hz for shallow level, 67hz for middle level, 25hz for deep level, but can't judge the depth. For measuring the large area, you can use triple freq to measure firstly, to find the low-value area, It only takes 5s for one point. then use profile survey to measure.



Using the three frequency and forming the curve like above, then find out the abnormal point of high value or low value; Choose the **high value of point 10 or lower value of point 19** to make the profile survey measurement.

3, Profile Survey:(Accuracy measurement, using profile survey for finding underground water)

Tips before Measurement :

1. Avoid the high-voltage(above 1000v) power lines/ signal tower around the measurement place.
2. The Two electrode bar doesn't touch the underground metal when measurement.
3. Be far away from the highway, train

The measurement point:
It is better to measure at least 15 points for each line and no more than 30 points for each line. (15 points show the completed geological structure)

The "Gain+1/+2":
The Gain function only works for weak electrical signal
The general measurement, It doesn't need to increase the "Gain" function, and keep the "Gain:0"
The situation to use the Gain+1/+2 function:

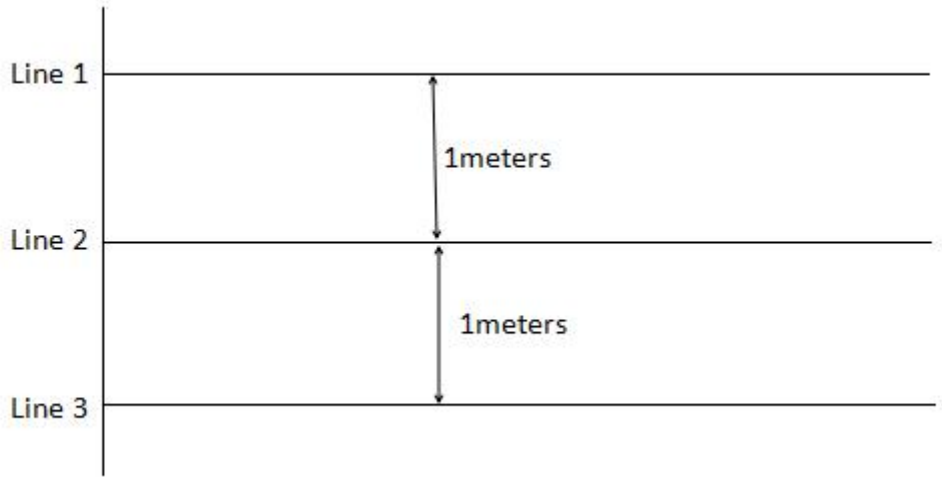
Please check the data when it is 0 number at measurement, then you should increase the "Gain:+1" function, or increase the "Gain:+2" (The data is zero after increased the "Gain:+1". (Each line testing must keep the same Gain function)

Export : The function of saving the profile map / save the curve graph.
"+": Enlarge the profile map/ curve
" -": Zoom down the profile map/curve

The situation to use the "Process" function :
Automatic form the profile map in the instrument, it needs the "process" function when the original profile map with full of blue.

Due to lacking the experience, at beginning of using the machine, Please send us the profile map, curve graph after finishing the measurement, tell the local rock name (or take the picture of rock). We will give the suggestion for picking the better drilling borehole.

For measurement, we recommend the measurement way like below:
Each measurement area is 3 parallel line at the same start, and each line is 1meters



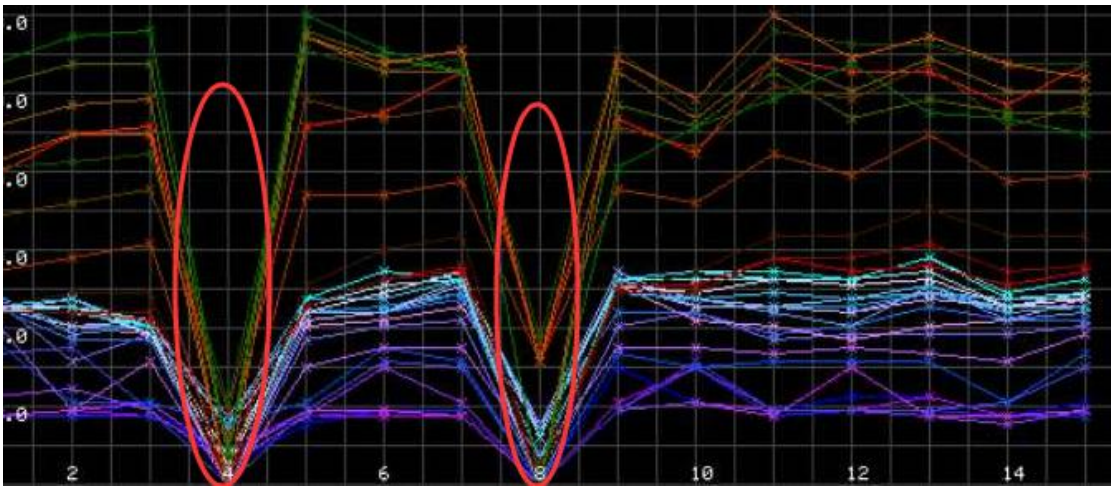
(The three parallel line show the similar profile map of the underground geological structure, this is better to pick the borehole point)

◆ How To Analyze The Data

After finishing detecting, How to analysis the Curve graph and profile map to point out the drilling location for reference?

Step1, First observe the **curve** to find the "V" "L" "W" "A"(measuring point display regular a lot of falling curves, lower potential difference data, and mark the position number. (The horizontal line of Curve is measurement point, The vertical line of the curve is underground material's potential difference data(could regard as resistivity value)

From the below Curve, finding the "V", Which is a lot of falling, the low value is low potential difference data and high probability for water. The below case is at point 4 and point 8.



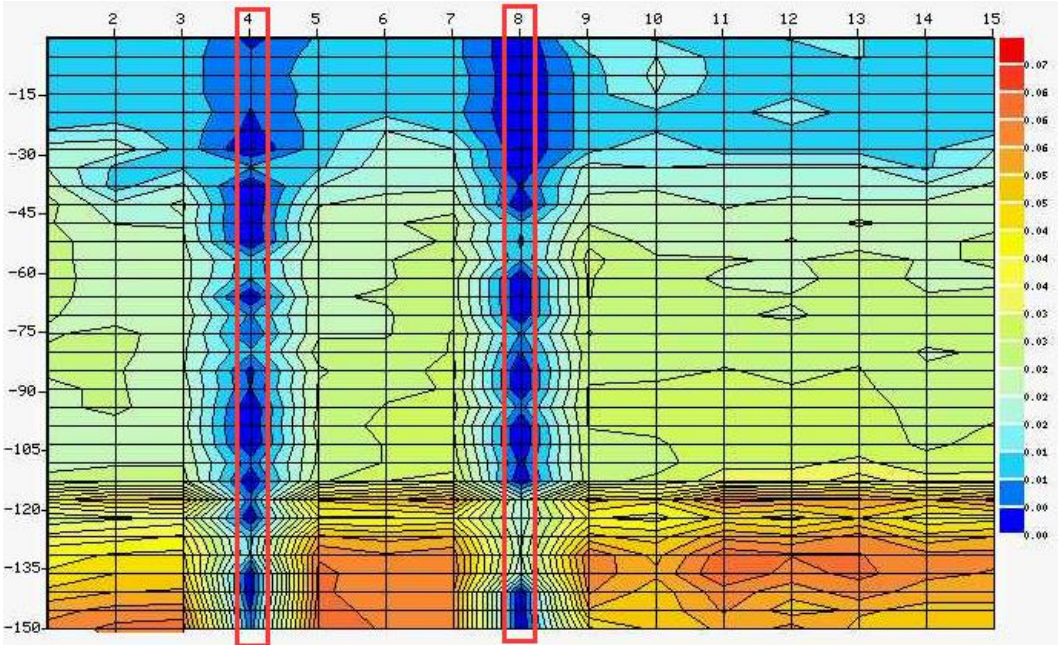
Step 2, We will observe the profile map, (The horizontal line of profile map is measurement point, The vertical line of profile map is measurement depth)

1. Blue, light blue just meaning it is low resistivity, like water, soft mud, and some metal mineral are all low resistivity, so not just this kind of color is water;
2. Yellow means the middle resistivity, like rock or something;
3. Red means the high resistivity, like the cavity or hard rock;

So not each color could stand for anything, the map just could help us to analysis the geological structure, need to combine the local geological, that's the reason
We hope before using this machine, pls measure the drilled well at local, give us for reference, so that the accuracy could be improved.

As we all know, if it is a whole rock, the water will not gather into the underground.
So when we find the crack/fracture between the two rock, there is the high probability to find the water deep underground.
You also can find the rock perched is broken there, and there is the blue between them(the water will easily save at the crack of rock). It will be the water well drilling position at the edge of the mass rock.

From the below Map,
blue stand for low-value, high probability for water
Yellow stand for middle-value, high probability for rock
Red stand for high-value, high probability for the cave or hard rock.
Point 4 & 8 are in the crack of the rock, the crack area is most easy to gather the water. (the Whole rock will not save the water), So combine the Curve and map, the Point 4 & 8 are best chose to drill well.



Hunan Puqi Geologic Exploration Equipment Institute
湖南普奇地质勘探设备研究院

Case Share :

Jixi City, Heilongjiang Province

Instrument type: PQWT-TC300

M N Electrode equidistance: 10 m Point distance : 1 m

Analysis: Customer had drilled the water well at the points 8, Touch the water at 60meters, the final well 150 meters, with the water quantity of 24 cubic meters/hour