

## PQWT PQWT-S500

# PQWT S500 Groundwater Finder Detector Instruction Manual

Brand: PQWT | Model: PQWT-S500

## 1. INTRODUCTION

The PQWT-S500 is a professional instrument designed for underground water detection, primarily used by well drillers, drilling companies, and geologists. It utilizes natural electric field frequencies to measure resistivity differences in underground rock, mineral, or groundwater formations. This manual provides detailed instructions for the setup, operation, and interpretation of data from the PQWT-S500.

### Key Features:

- Professional instrument for underground water search.
- Optional depth ranges: 100m, 150m, 300m, 500m.
- Operational Principle: Uses natural electric field as electromagnetic field work source, based on resistivity differences.
- Automatic curve and profile map drawing with one key after data collection, showing water depth and location.
- Multi-language operating system (English, French, Spanish, Arabic, Russian, Polish, Portuguese, Chinese).
- User-friendly interface and high-speed CPU control.
- Automatic measurement and data storage.
- Data saved automatically after power off.
- Stores 999 measuring lines and 999 measuring points per line.
- Rechargeable batteries with over 12 hours standby time.

## 2. PRODUCT COMPONENTS

The PQWT-S500 package includes the following components:

- **Host Machine:** The main unit with a 7-inch HD touch screen.

- **Special Cable:** For connecting electrodes to the host machine.
- **Alloy Electrodes:** Used for ground contact during measurement.
- **Charger:** For recharging the built-in batteries.

# 5 Water Finder Advantages



01



## SIMPLE AND EASY TO OPERATE

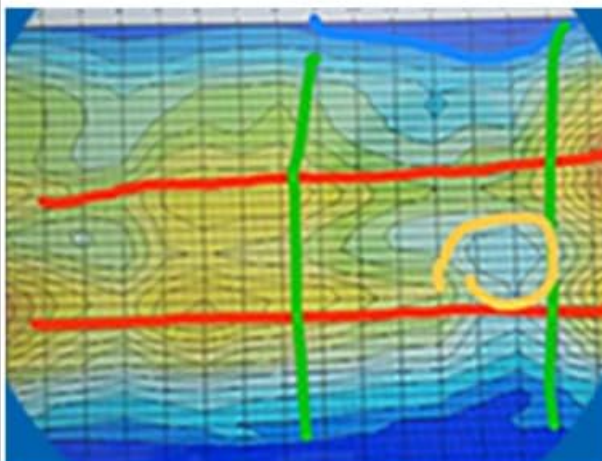
No experience, 15 minutes to learn how to operate

02



## EXPLORATION OF MULTIPLE TERRAINS

Adaptable to a wide range and complex terrain exploration  
150/ 300 meters selectable depth



03



## THE PROFILE REFLECTS THE AQUIFER AND DEPTH

Figure 2.1: PQWT-S500 Host Machine and Accessories. This image displays the main unit, electrode rods, copper electrodes, electrode cable, and MN connector, along with the battery holder on the back of the device.

### 3. SETUP INSTRUCTIONS

#### 3.1 Site Preparation and Wiring

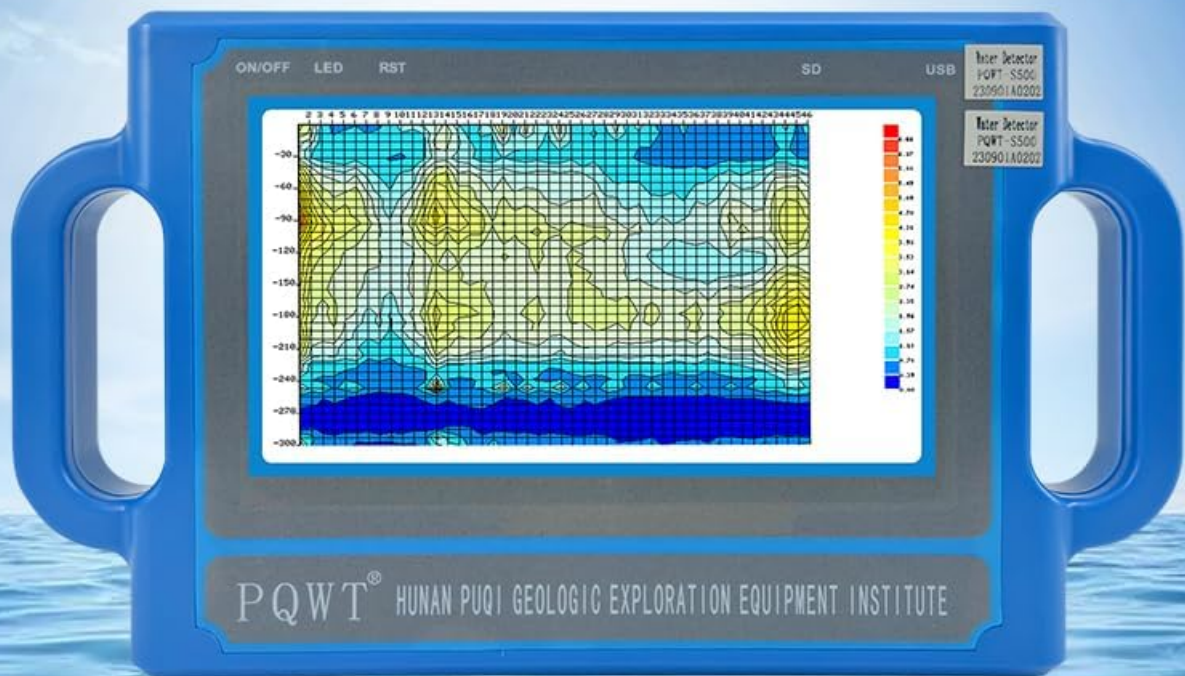
1. Select a suitable measurement area. The geophysical wiring can be vertical or net-shape for open areas.
2. Use a 50-meter tape measure to lay out a straight line in the exploration area.
3. Mark the starting point (0 meters) on the tape.
4. Insert one electrode near the host machine at the 0-meter position.
5. Insert the second electrode at the 10-meter position on the tape.

PQWT-S500

# AUTOMATIC MAPPING WATER FINDER

## Well Finding Tools

Well Finding Tools / automatic mapping / expert guidance  
Fast measuring speed / quality assurance



**Principle:** Using the natural electric field frequency selection method, the instrument automatically draws a geological structure profile and analyzes the underground water-bearing structure by collecting the changes in the underground potential difference (resistance).

Figure 3.1: Initial setup showing the tape measure and electrode placement for the first measurement point.

### 3.2 Instrument Power-On

1. Connect the special cable to the host machine and the electrodes.

2. Long press the start button on the host machine to power it on.
3. The system will start and display the main interface with six options: "Single Frequency", "Three Frequency", "Profile Survey", "File Explorer", "Settings", and "Services".

## 4. OPERATING INSTRUCTIONS

### 4.1 Profile Survey Measurement

1. From the main interface, select "Profile Survey" to enter the measurement interface.
2. Click "Options" and choose the desired measurement depth (e.g., 150m, 300m, or 500m) based on your exploration requirements. Confirm with "OK".
3. Perform a "Line Test" to ensure the electrode connections are normal. A green test light indicates a normal connection.
4. For the first measurement point, ensure the electrodes are placed at 0m and 10m. The measurement point is considered to be at 5m.
5. Click the "Record" button to begin data acquisition for the first point. The instrument display will show "Recording Freq1 data..." and then "Record Completed" with a voice prompt.
6. Move both electrodes forward simultaneously by 1 meter. The new positions will be 1m and 11m, making the second measurement point at 6m.
7. Repeat the "Record" process for each subsequent measurement point, moving the electrodes forward by 1 meter each time.

Your browser does not support the video tag.

**Video 4.1:** PQWT-S Series Water Detector Operation. This video demonstrates the step-by-step process of setting up the equipment, performing a line test, selecting measurement parameters, and recording data points for a profile survey.

### 4.2 Data Interpretation

1. Once a line measurement is finished, the screen automatically displays a curve chart.
2. Click "Profile" to view the automatically generated profile map.
3. Use the "+" or "-" buttons to adjust the map as needed for better visualization.
4. The profile map indicates areas of low resistivity (blue/light blue) which typically correspond to water/mud, middle resistivity (yellow) for rock, and high resistivity (red) for caves.
5. The horizontal axis represents the measure point, and the vertical axis represents the detection depth.



**PQWT-S150/S300/S500**

One button Underground Water Detector

Let us industrial intelligence!

**Figure 4.2:** Example of a Profile Map and Curve Graph. This image illustrates how to interpret the generated maps, showing resistivity levels and potential water locations.

### 4.3 Measuring Multiple Lines

If you need to measure the next line, adjust the line number in the "Options" menu (e.g., to "002") and repeat the measurement steps.

## 5. IMPORTANT CAUTIONS

- The electrode rod must not be shaken, and the copper electrode must not touch metal objects during recording.
- It is recommended that one measurement line should include more than 15 points for accurate results.
- The instrument is strictly prohibited for use during thunderstorms.
- Wiring should avoid areas with high voltage lines and significant ground drop.

## 6. SPECIFICATIONS

Specification	Detail
Model	PQWT-S500
Measuring Depth	0-100m / 0-150m / 0-300m / 0-500m
Measuring Frequency	Single frequency, three frequency, 36/40/56 frequency
Power Supply	#26650 Battery*2 DC12V 4000mAh Built-in Battery
Measuring Range	0mV-2000mV (automatic range switching)

Measurement Accuracy	0.001mV
Measurement Channel	8 channels
Unit of Measurement Data	Electric field components of different frequencies $\Delta V_s$ (mV)
Channel Gain	0-500,000 times
Languages	English, Spanish, French, Arabic, Russian, Polish, Portuguese, Chinese
Power Consumption	About 4W
Display	Industrial-grade 7-inch high-definition digital touch LCD screen
Working Hours	6-8 hours
Item Weight	13.62 pounds (Host weight: 0.65KG, G.W: 6.9KG)
Product Dimensions	7.87 x 15.75 x 18.11 inches
Operating Temperature	-10°C to +50°C
Relative Humidity	≤ 85%

## 7. MAINTENANCE

To ensure the longevity and optimal performance of your PQWT-S500 Groundwater Finder Detector, follow these maintenance guidelines:

- Keep the instrument clean and free from dust and moisture.
- Store the device in its protective case when not in use.
- Regularly check all cables and connections for wear or damage. Replace any damaged components immediately.
- Ensure electrodes are clean after each use to maintain good ground contact.
- Charge the batteries fully before extended storage and periodically during storage to prevent deep discharge.

## 8. TROUBLESHOOTING

This section addresses common issues you might encounter with the PQWT-S500.

- **No Power:** Ensure the battery is charged. Check the power cable and connections.
- **Line Test Failure (No Green Light):** Verify all electrode connections are secure and the electrodes are properly inserted into the ground. Ensure no metal objects are touching the electrodes.
- **Inaccurate Readings:** Ensure proper electrode placement and spacing. Check for environmental interference (e.g., high voltage lines, large metal structures). Ensure the ground is sufficiently moist for good conductivity.
- **Screen Unresponsive:** Try restarting the device. If the issue persists, contact customer support.

## 9. WARRANTY AND SUPPORT

The PQWT-S500 Groundwater Finder Detector comes with a comprehensive warranty and dedicated support.

- **Warranty:** The host machine is guaranteed for two years. The cable is guaranteed for one year. The charger and charging stand are guaranteed for one month.
- **Technical Support:** Professional user groups offer free service. Users can send pictures of their data to the "geophysical water detecting exchange platform" through mobile phones and communicate online with specialists in hydrogeology for assistance with data interpretation and well completion rate improvement.

For further assistance, please refer to the contact information provided by PQWT.