PQWT-L Multi-Sensors Water Pipeline Leak Detector Operation Manual

Production

PQWT-L Multi-Sensor Water Pipeline Leak detector is the latest generation of intelligent water leak detector independently developed by Hunan Puqi Geologic Exploration Equipment Institute, This device is equipped with a triangle sensor, square sensor, medium sensor and large sensor. It is suitable for water leakage detection of outdoor water pipe, fire pipe, heating system, indoor water pipe, and underground heating floor pipe. By collecting and analyzing leakage signal, it solves the problem of pressure pipe water leak.

Working Principle

PQWT-L Multi-Sensor Water Pipeline Leak detector collects leaking sound signal through its sensor, collected signal will be processed by host machine and displayed on the host machine screen in the form of visual spectrum and signal bars. At the same time, the sound will also be output to its earphone through the host machine. Water leakage point can be found out easily through the combination of "listening to the abnormal sound" and "observing the abnormal signal bars"

Components

1. Strap buckle

2. USB Charge interface(5V) : used for host machine charging and computer connection

3. SD card interface: for system upgrade

4. Five-core air plug: used to connect the sensor

5. USB interface: expansion interface

6. Headphone jack: used to connect headphone

7. Reset button: Host system reset, shutdown

8. Microphone: used when recording human voice

9. Indicator: switch indicator and charge indicator

10. Switch button: for host machine on/off

12. Right knob switch: clockwise volume +, counterclockwise volume -, press to turn on/off sound

13. Left knob switch: clockwise gain +, counterclockwise gain -, press to turn on/off sound

PQWT-L2000 (Middle Sensor)

PQWT-L3000 (Middle Sensor + Square Sensor)

PQWT-L4000 (Middle Sensor +Triangular Sensor)

PQWT-L5000 (Middle Sensor +Square Sensor & Triangular Sensor)

PQWT-L6000 (Large Sensor + Middle Sensor)

PQWT-L7000 (Large Sensor + Middle Sensor+ Square Sensor & Triangular Sensor)

Parameters

Model	PQWT-L2000	PQWT-L3000	PQWT-L4000	PQWT-L5000	PQWT-L6000	PQWT-L7000
Measuring area	Outdoor Pipeline	Indoor+outdoor pipeline	Indoor+outdoor pipeline	Indoor+outdoor pipeline	Outdoor Pipeline	Indoor+outdoor pipeline
Sensor	Middle Sensor	Middle +Square Sensor	Middle + Triangular Sensor	Middle+ Triangular +Square Sensor	Middle+ Large Sensor	Large+Middle+ Triangular +Square Sensor
Frequency Range	1-10000HZ					
Gain	10 levels adjustable					
Volume	10 levels adjustable					
Operating Mode	General Detection;　Locating Mode					
Display	7 Inch HD digital touch LCD screen					
Charting hours	7-8 hours					
Working hours	15 hours					
Charger	5V 2A USB					
Languages	English. Spanish, French, Arabic, Turkish, Italian					
Input Power	Around 2w					
Working temperature	（-20℃~ +50℃）					
Weight (Host Machine)	0.7Kg					

Operation Instruction   (PQWT-L7000 as an example)

1. Connect the strap to the host machine;

2. Connect the air plug of the sensor cable to the host machine air plug. There are white small dot on the air plug, align them and insert.

3. Connect the earphone to the host machine by earphone line;

4. Long press and hold "Switch Button" button to boot and enter the boot interface, as shown in Figure 1 below:


5. Enter the host machine main interface (**Indoor and outdoor**), as shown in Figure 2 below:

Select appropriate sensor according to different **outdoor** detection environment:

Medium Sensor is suitable for outdoor normal environment, Large Sensor is suitable for outdoor noisy environment,

Select appropriate sensor according to different **indoor** detection environment:

Triangular sensor is suitable for most indoor environments such as floor detection; Square sensor is suitable for narrow spaces such as walls and cabinets;


 Sensor detecting

 Battery

10:07:56 **Time**
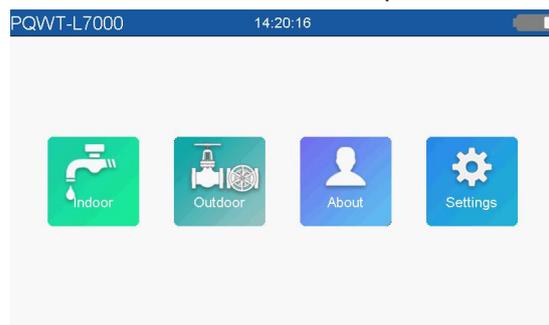
6. If you are detecting the indoor pipeline leakage, click and enter the **"Indoor"** mode interface. There are three functional interfaces **"General Detection", "Locating"**, and "**Recording"**, as shown in Figure 3 below:
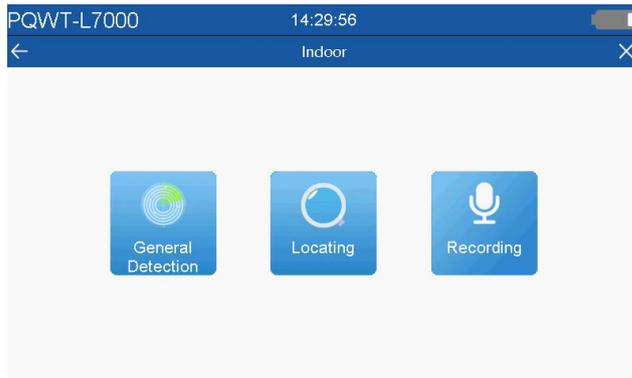
7. If you are detecting the outdoor pipeline leakage, click and enter the **"Outdoor"** mode interface. Select the corresponding measurement environment parameters, the default parameters are: **Soft, Plastic.** Choose according to the red font prompts and the actual measurement environment. As shown in Figure 4 below. (Note: The selected measurement parameter cannot be modified after entering the census or **Locating** interface. Please select according to the actual situation.)

8. According to the detecting environment, click and enter the **"General Detection** of **"indoor" and "outdoor",** as shown in Figure 5; 6 below:
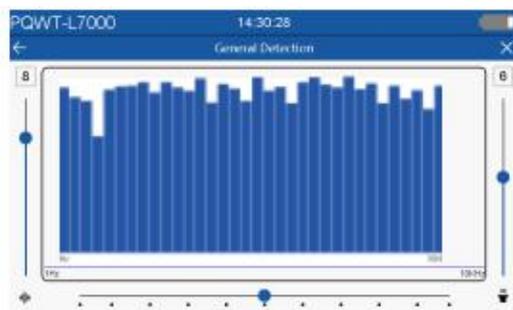
Gain: The default gain is level 8

Volume: The default volume is level 6

Mute

Left Slider: Gain adjustment, Slide up to increase the gain, Slide down to decrease the gain.

Right Slider: Volume adjustment, Slide up to increase the volume, Slide down to decrease the volume.

Bottom Slider: Timbre adjustment, 11 levels adjustable, The default is in the middle frequency, Please adjust the slider according to different indoor detection environment till the sound is clear.

Note: Turn on the knob switch to receive sound, and detect the point along the pipeline. In the process of leakage detection on the "**outdoor**" network, because the pipeline covers a large area, the leakage can be surveyed from the valve well or fire hydrant.

In the "**indoor**" leak detection process, because the pipe is not long, you can directly check from the starting position of the pipe. Pay attention to the sound volume in the headset and observe the spectrum change on the screen. When the spectrum on the instrument' screen is high and the sound in the headset is significantly increased, the area can be identified as a suspected leakage area and marked.

8. Click " ← " to exit the **General Detection**, and click to enter the **Locating** of **indoor and outdoor** mode. as shown in Figure 7; 8 below:
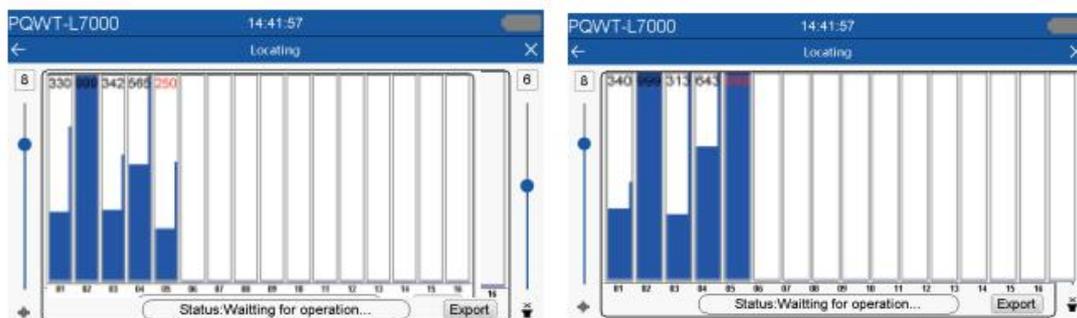

【**Locating**】 which is mainly used to locate the leak points in suspected leakage areas.

(1) Signal of 16 points can be displayed on the screen, click any position in the spectrum bar, and the signal value will be displayed on the top of the spectrum bar.

(2) 16 signal bars in total from left to right, the detection should start from the first point.

(3) The spectrum bar has thick and thin bar. The thin bar is the instantaneous noise of the environment, which changes with the detection environment.

The thick bar is the sound from the underground, we mainly observe the thick bar signal.

(4) Click any position in the spectrum bar and a blue bar will appear. The signal value will appear above the bar and the color is red. The instrument starts to detect the stability signal.

(5) After the thick bar is stable, click any position in the spectrum bar again to lock it, the signal value changes from red to black, and the detection at this point is completed.

Click any position of the locked spectrum bar again can refresh and detect the point again to confirm.

(6) The same method is used to collect and compare signal of different points in this area. The detecting mode can collect 16 points, and we can compare the spectrum bar of each point directly . As shown in Figure 8 above, When the detected point has the highest thick spectrum bar, and the signal value is the biggest, it can be judged as suspected leaking point.

(7) Click Export to create images of each point detected in "Locating" mode, and export to SD card status bar with export progress prompt.

(8)

Others

1. In the **"Indoor" &"outdoor"** detection mode, the recording is mainly used to collect the leakage sound on the spot, so as to save the data, as shown in Figure 9 below
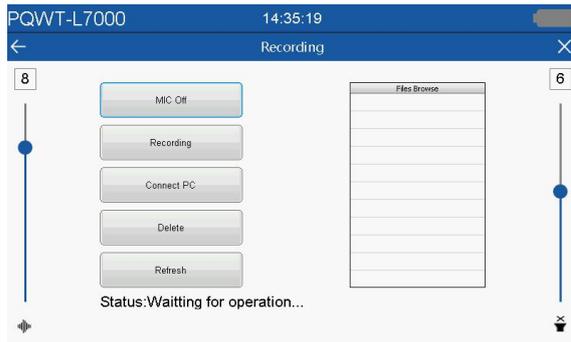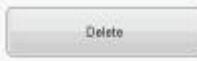
 Click to turn on/ off the mic phone, the operator's voice can be recorded, convenient to distinguish the recording location and make records
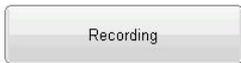
 After connecting to the computer via USB cable, click to connect to the computer to delete the recording file.

 Click the Recording button to start recording, and click again to stop recording and refresh the list of files

 Refresh the file list after recording

Recording file list.

 The status bar displays recording instructions

2. Click and enter the interface "Settings", Adjust the host machine of Date Settings, Time Settings, Brightness Settings and Language. As shown in Figure 10 below

Wireless transmission: It can be received by USING FM radio or mobile phone headphones with FM radio function. It is convenient for multiple people to listen at the

same time, and it needs to be adjusted to the same frequency

3. Click and enter the interface "About", Check the host machine information, Please contact us if you need the after-sales service supporting. As shown in Figure 11 below

PQWT-L7000	14:29:15	
←	About	✕
Product Name:		Pressure Pipeline Leakage Detector
Model:		PQWT-L7000
Voltage:		3.38V
Current:		597mA
Hardware Version:		Ver1.0
Software Version:		PQWT 6.0.200921
Website:		www.pqwtcs.com
Address:	No.769 Qingzhuhu Road Kaifu District,Changsha,Hunan,P.R.China.	
Email:		info@pqwtcs.com

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