512HZ Sonde and Locator

User Manual

Congratulations on the purchase of your new Locator. The locator is specially designed to detect buried water pipes, sewer lines and other pipeline. The pipe location system includes **the** locator and 512HZ transmitter. Please read this user manual carefully before using this tool outdoors. Failure to understand and follow the contents of this manual may result in electrical shock, fire and/or serious personal injury.

WARNING

Electric shock hazard:
Do not expose tool to rain or moisture.
Use toll only for intended purpose as described in this manual
Failure to observe these warnings could result in severe injury or death.

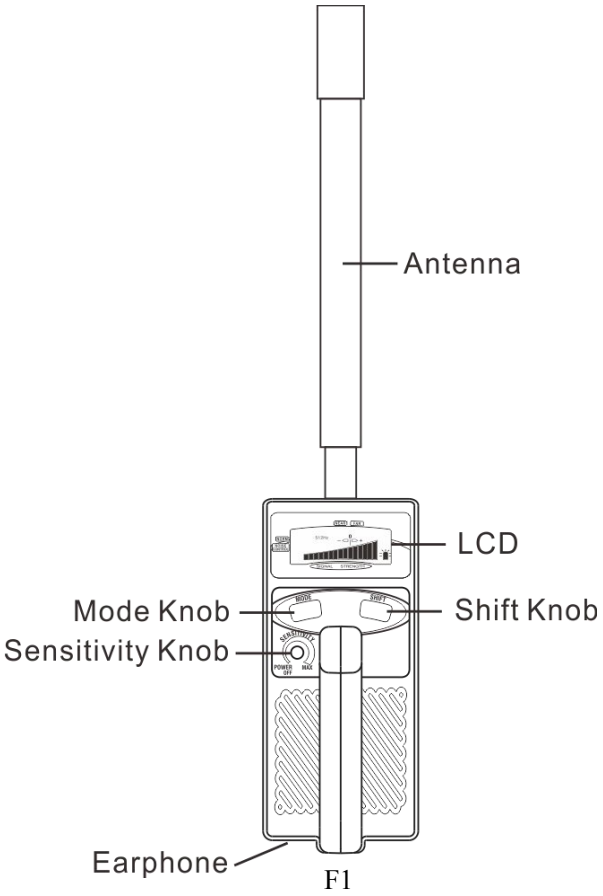
DISCLAIMER OF LIABILITY

The PRODUCTS CO. SHALL NOT BE LIABLE TO DISTRIBUTOR, RESELLER, OR ANY OTHER PERSON FOR ANY INCIDENTAL, INDIRECT, SPECIAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES, OR INJURY OF ANY TYPE WHATSOEVER, AND CAUSED DIRECTLY OR INDIRECTLY BY PRODUCTS SOLD OR SUPPLIED BY The PRODUCTS CO.

Contents

Specification

Frequency	512HZ
Power Supply	6 AA alkaline batteries
Static Current	<65 mA
Operation Mode	NORM/NOISE CONTROL
Sensitivity Grade	NEAR/FAR
Sensitivity Adjustment	Continuous adjustable
Signal Strength Indicator	LCD display 15 levels and level 10 is set to “0”
	Speaker or headphone (not included)
Low Voltage Prompt	7.2V
Size	580 x110x110mm
Weight	about 800g
Operation Temperature	0-50℃



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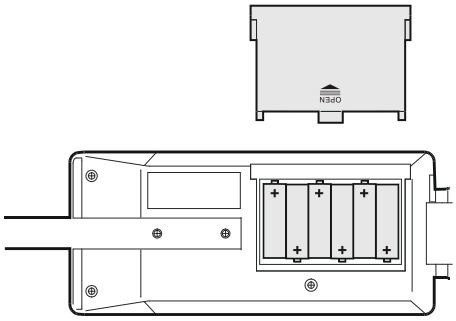
Battery

Please use 6 AA alkaline batteries.

- Press the “OPEN” on the battery cover following the direction of the arrow; pull out the battery cover and insert 6 AA batteries into the compartment as indicated by the polarity symbols marked inside the compartment. (Fig.2)



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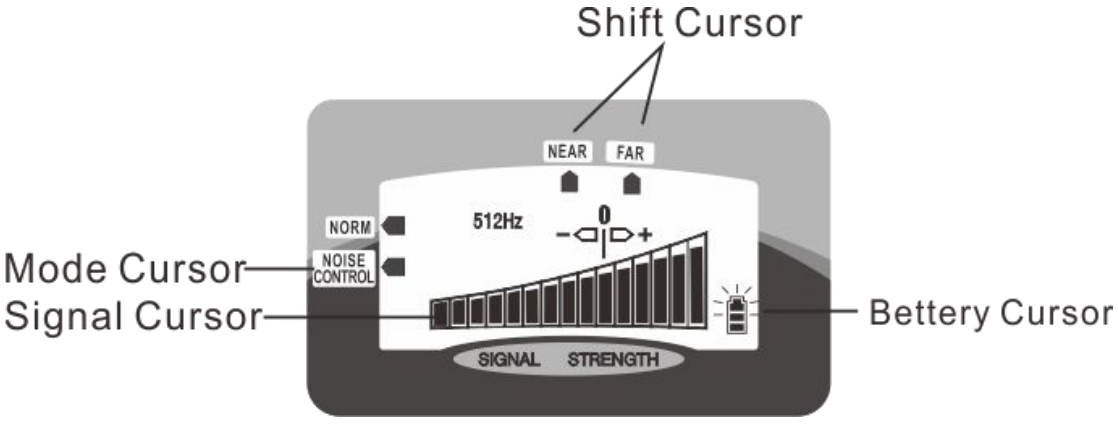
- Put on the battery cover and a “KaTa” tone can be heard.
- 6 AA alkaline batteries can last for about more than 30 hours. If you don’t use the tool for a long time, please remove the batteries from the battery box.
- Please don’t mix the new batteries with old one when in use.

Antenna, Panel controller and LCD



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1) Antenna

The antenna is installed in the plastic pipes to receive the 512HZ signal and indicate the direction. It is a very important and sensitive part. Please be careful and do not use it as a lever or stick to dig anything underground.

2) Power switch and sensitivity adjustment knob

The knob is used to adjust the sensitivity as well as the power switch. Switch the knob and press the SHIFT button at the same time to adjust the locator sensitivity. Switch the knob counterclockwise to the maximum and then the power is off. Switch the knob clockwise to the maximum and the sensitivity reaches the highest. During locating, please adjust the sensitivity often and make sure that the signal strength on the LCD points to the position of “o”.

3) The MODE button

The locator has two operation modes: NORM and NOISE CONTROL. On the LCD screen, it is displayed as the operation mode cursor. In the place where there is interference, please choose NOISE CONTROL. Please be aware that in most city places there is different degree of interference. In the NORM mode, the sensitivity is the highest but the anti-interference strength is poor.

4) The SHIFT button

On the LCD screen, the NEAR and FAR option button is displayed as the sensitivity grades cursor. During locating, when the receiver is far away from the transmitter and the signal is weak, please choose FAR to improve the sensitivity. When the receiver is close to the transmitter and the signal is strong, please choose NEAR. Usually, please select FAR to locate the signal first. To pinpoint the location, please select NEAR when the locator is close to the transmitter and the signal is too strong and the LCD intensity cursor cannot be adjusted to the position of “0”.

5) Operation mode cursor

Press Mode button and the operation mode is changed between NORM and NOISE CONTROL. The boot norm is NORM. In the place where there is interference, please select NOISE CONTROL.

6) Sensitivity grades cursor

Press SHIFT button and sensitivity grade is changed between NEAR and FAR. The boot norm is NEAR.

7) Signal strength cursor

It indicates the relative strength of the received signal, which is divided into 15 levels. The more the article number is, the stronger the signal is. Grade 10 is labeled as “0”. During locating, please press shift button and switch the sensitivity knob at the same time according to the strength of the signal to make

sure the signal strength stays at “0”, which is the most favorable strength to observe the change of the signal strength.

8) Low battery prompt

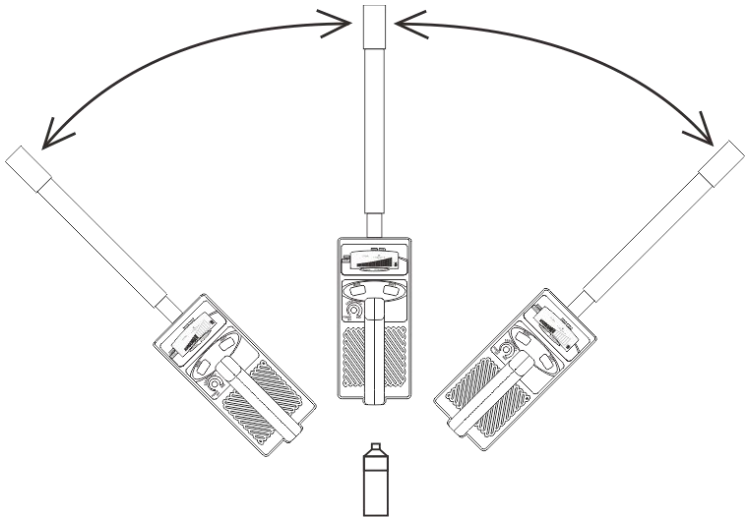
It indicates the battery power and it is divided into 3 levels. When the battery power reaches 7.2V, the cursor will only indicate level 1 and the battery power cursor will blink. At this time please change the battery.

Quick-start

Get a 512HZ transmitter ready in a big room for moving test or choose outdoors to practice locating.

1) Let the locator “know” the transmitter.

Equip the transmitter with batteries and put it on the ground. Turn on the locator and walk close to the transmitter, you will receive the signal, the speaker will sound tones and the LCD strength signal will begin to display. In order to distinguish whether the received signal is the interference signal, you can take out the battery of the transmitter. If the signal of the locator disappears, it means the signal you received is from the transmitter and the locator has located the transmitter. Repeated test for several times and listen to the tones of the speaker or the headphone carefully, you will be familiar with the frequency of transmitting signal to distinguish it from the interference signal.



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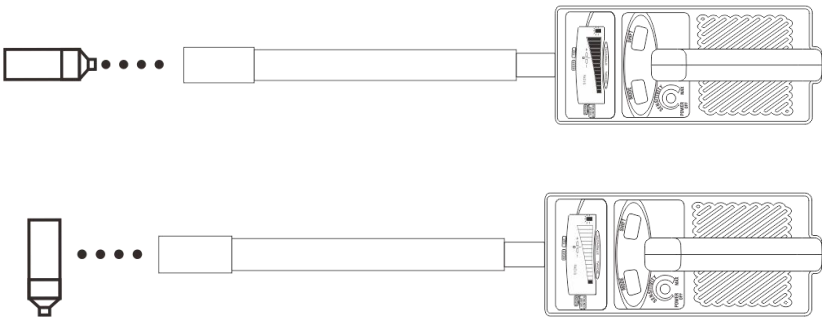
2) Looking for zero and peak signal

Equip the transmitter with batteries and put it on the ground. Turn on the locator; handhold the locator on the waist and let the antenna parallel with the ground with 1 to 2 meters above from the transmitter and move in all directions.

When the locator antenna is parallel with the long axis of the transmitter; the

speaker tone is loud; the signal strength on the LCD will turn stronger and moving the antenna will weaken the signal strength, it is the peak signal at the moment. When the locator antenna is vertical with the long axis of the transmitter; the speaker tone is very light; the signal strength of the LCD will drop abruptly and even there is no signal, it is the zero signal at the moment.

In fact, you can locate zero signals in many locations. In general, the zero signal position is accurate and the peak signal position is blurred. During locating, it is necessary to look for zero signal and peak signal. Practice makes perfect.



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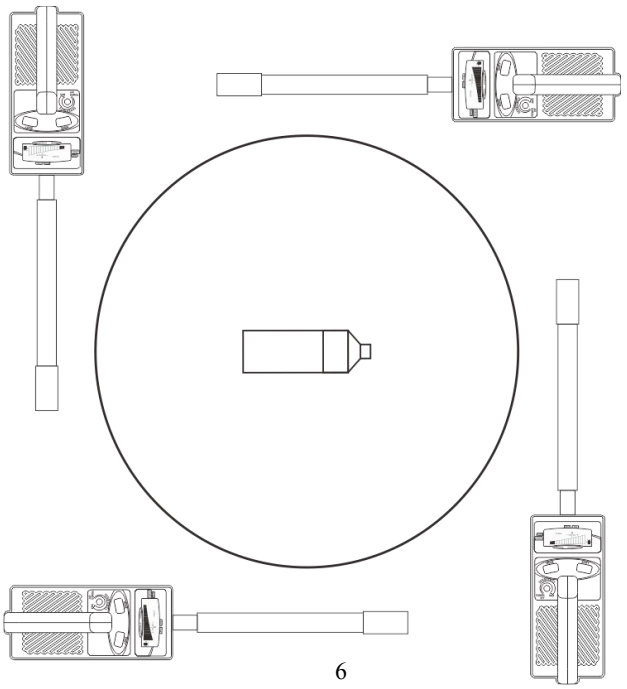
Now please walk around the transmitter in a 1.5 meters circle to experience the zero signal and the peak signal. Please handhold the locator on the waist and let the antenna parallel with the ground. When walking around the transmitter, you will locate two zero points and two peak points. When the antenna is vertical with the long axis of the transmitter, it will show the zero signals. When the antenna is parallel with the long axis of the transmitter, it will show the peak signal. The intersection of the peak location and the zero location is the position of the transmitter. The link between zero points is the direction of the long axis of the transmitter.



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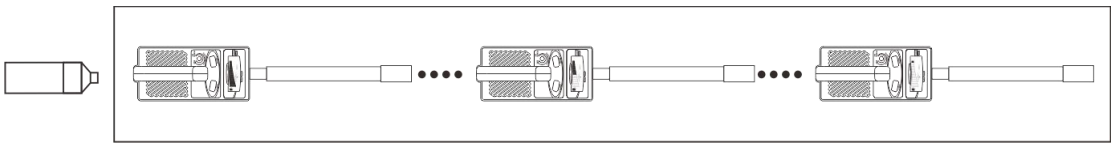
During locating, both the above are very important steps.

3) The maximum receiving distance

Equip the transmitter with batteries and put it on the ground. Turn on the locator; set the MODE button to NORM and SHIFT button to NEAR. Handhold the locator on the waist and let the locator antenna be parallel with the long axis of the transmitter. Adjust the sensitivity knob, the speaker tone is loud, and the signal of the LCD is strong and it may be full. Adjust the knob to reduce the sensitivity and the signal strength on the LCD is adjusted to the position of "0". Hand-hold the locator and stay away from the transmitter along the long axis of the transmitter; the signal strength on the LCD will drop and the tone will be light. Adjust the sensitivity knob to keep the signal strength stay in the position of "0".

When it is far enough away from the transmitter, it is impossible to keep the sensitivity signal stay in the position of "0". In this case, please press SHIFT button to keep it in FAR status to improve the receiving sensitivity and keep the signal in the position of "0". When the sensitivity knob is switched to the maximum and LED signal shows only level 1-2 and the tone is very light. The distance at the moment is the maximum receiving distance in the air.

You can also operate the locator in the opposite direction. Move close to the transmitter slowly and observe the receiving distance. Adjust the SHIFT and sensitivity knob to keep the signal strength in the position of "0".Until the signal strength is the strongest and the center of the antenna of the receiver is right above the transmitter.



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4) Locating

Equip the transmitter with batteries and put it on the ground with a piece of paper or a board covered. The transmitter cannot be seen. Turn on the locator and handhold it on the waist. Set the switch to FAR and the locator should be able to receive the signal. Walk back and forth to find the direction that makes the signal stronger. Adjust the sensitivity and keep the signal strength in the position of "0". Continue to move the locator towards the direction where the signal turns stronger. When you feel that you have already reached the position where the signal is the strongest and when you move towards any other direction, the signal all turns weak. Under the antenna front 10cm away is the location of the transmitter.

Move the transmitter to another location to look for the peak point once again, and observe whether it will return to the same location.

Basic operation

Before basic operation, you have some preparation work to do.

First of all, distinguish whether there is interference source. Don't turn on the transmitter but turn on the receiver first instead. Set the SHIFT button to FAR and switch the sensitivity knob to the maximum and walk back and forth in the operation area to observe whether the receiver can receive any signal. If there is interference source in the operation area, please set the MODE button to NOISE CONTROL. If the interference signal disappears, please select NOISE CONTROL in the process of operation. If the interference signal can't be eliminated, please remember the location of the interference source and the signal feature in order not to misjudge the interference signal as the transmitter signal.

Secondly, the power of the batteries in the transmitter must be adequate. The working current of the transmitter is large. Once you used it for a time, the electricity is often in shortage .It is difficult to change battery when the transmitter has been in the pipe. It is the better to use the new batteries so as not to bring some unnecessary trouble to locating.

1) Locating

Put the transmitter into the pipeline. Handhold the locator on the waist and let the antenna be parallel with the ground. Set the SHIFT button to FAR and adjust the sensitivity knob and move the locator back and forth in the area where you expect the transmitter stay and pay attention to the tone of the speaker and the changes of the signal strength. Move the locator toward the direction where the signal turns strong and turn down the sensitivity. Set the SHIFT button to NEAR at the appropriate time and make the signal strength stay in the position of "0" all the time until you reach the location where the signal is the strongest: that is: every time you move the tool, you will get a lower signal. Please take a note of the location.

Repeat the location steps in the other direction. If you always return to the same location, this is the rough location of the transmitter in the pipeline.

2) Determine the direction of the pipeline

Upon completion of the first location step, find out the peak position and you can walk around the peak in a circle with the radius of about 1.5 meters circle. Try to find the two zero points and the connection between two zero points is just the direction of the current pipeline.

Push the transmitter into 2 to 3 meters. In the same way, you could figure out the direction of the next section of the pipeline.

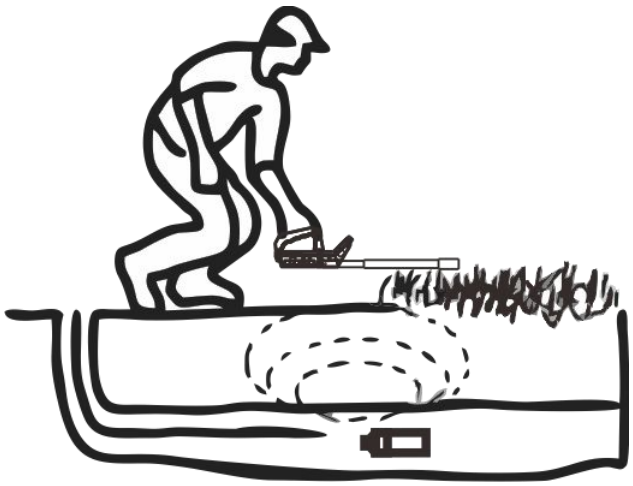
3) Determine the depth

By the previous operations, you have determined the peak position; found out the two zero points and pointed out the direction of the pipeline. Next you could determine the depth.

Walk along the connection from the peak point to the zero point to the location

which has the maximum receiving distance; handhold the locator on the waist; set FAR; adjust the sensitivity to the maximum. When you get the signal, bend down to make sure the locator stay as close and parallel to the ground as possible and continue to walk towards the peak point. During walking, please adjust the sensitivity to make sure the signal strength stay in the position of “0” and switch to the “NEAR” shift when necessary. At the certain point before reaching the peak point, you will find that the signal drop suddenly. When you continue to move forward, the signal will go up suddenly. You will find the point which is called “Front Null”. Record the location of the Front Null and make a confirmation repeatedly.

Continue walking through the peak point, you will find the peak signal. Keep moving in the same direction and you will find another point where the signal drops suddenly known as the “Back Null”. Please record the location of the Back Null and make a confirmation repeatedly. The distance from “Front Null” or “Back Null” to the peak point is roughly equal. The distance is the general depth of the transmitter.



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The situation of the underground pipeline in the city is very complicated and the soil underground is varied. There maybe all kinds of cables and conductors around. The material of the pipe is also different and the interference may be almost everywhere. All the above factors will all influence locating pipes accurately. Only through practice again and again and accumulating experience can we pinpoint the locating.