PT-801

NONLINEAR JUNCTION DETECTOR
USER MANUAL

1. Nonlinear junction detector host
2. Headphone
3. Backup battery
4. AC-DC adapter(with type-c cable)
5. Charger
6. Electronic sample

Schematic Diagram of Product Structure

01 **Antenna**: Transmitting and receiving radio signals.
02 **Searchlight**: Helping operator to detect objects in dark area.
03 **Head-end display**: Displaying Tx power, 2nd harmonic signal, 3rd harmonic signal, detect result, IR imaging in real time
04 **Extension rod**: Maximum extension rod length is up to 1.45 meter.
05 **Horn speaker**: Supporting sound warning.;
06 **Central control panel screen**: Displaying control menu.
07 **Switch**: Control the device to switch on and off,press and hold the device for 3 seconds
08 **Type-c interface**: Charging by AC-DC adapter.
09 **Headphone jack**: Supporting 3.5mm headphone.
10 **Charging indicator light**: The light shows red color when it is charging; the light turns to green after the battery is fully charged. The light will flick in red and green color if there is no battery in compartment when charging.
11 **Battery compartment**: Use to install battery.

devices from hiding in the wall or hard-to-find corners, and to ensure that important meetings and meetings are being held. Big business decision-making, business negotiation and other activities are not eavesdropped, not recorded, not monitored, to ensure the safety of business secrets information.

4. Cheating Prevention in Education Industry Examination

In places such as college entrance examination, high school entrance examination, civil servant examination and college marking, non-linear junction detectors can be used at the entrance of the examination room to prevent cheating devices from being brought into the examination room by hiding in the examinee's ears, glasses or other parts of the body, so as to ensure the fairness and fairness of the open selection.

5. Privacy Protection Inspection of Personal Residence or Hotel Room

In order to ensure the safety of personal privacy, non-linear junction detectors can be used to detect the security of the surrounding environment in private space such as personal residence, Hotel room, shopping mall changing room, toilet, entertainment places, to ensure that there are no hidden pinhole cameras, eavesdroppers, recording pens and other electronic devices to ensure the safety of personal privacy.

Usage scenarios of Nonlinear Junction Detector

1. Government Secrecy Department

State government organs such as public security, justice, prisons, education, troops, large-scale central enterprises and secret-keeping units have very strict requirements on information security and leak prevention. Prior to the major meetings, the secret-keeping departments must conduct security tests on high-level conference rooms,head leader's meeting offices, foreign guests; reception rooms and secret-keeping places, so as to prevent the hiding of illegal equipment such as eavesdropping and secret shooting from being inappropriate places. Findings eventually lead to the leakage of conference information, major confidential information and technology, and irreparable economic losses to the state and units.

2. Security Inspection of Large-scale Activities

In order to ensure the personal safety and information security of politicians, business leaders and participants, the organizing committee needs to appoint a professional security inspection team to conduct security inspection in all places ahead of time and strictly block them. Nonlinear Junction Detectors are used to detect eavesdroppers and secret photographs equipments, recording equipments, remote control explosive devices and other illegal equipments to ensure the safety of the activity site.

3. Confidentiality Inspection of Commercial Organizations

Large commercial organizations such as listed companies, multinational corporations, trade associations and so on, in order to ensure that business secrets are not leaked, need to carry out strict information security checks on internal high-level conference rooms, chairman's offices and business negotiation venues, to prevent mobile phones, eavesdroppers and other SIM card

Basic Performance Parameters

parameter	Technical index
Product working frequency band	2400MHz
Working voltage	7.4V
Frequency range	2.404 GHHz - 2.472 GHz
Receiving 2nd~3rd signal Harmonic Range	4.808 GHz-4.944 GHHz, 7.212 GHz-7.416 GHz
Maxium transmit power	4W (EIRP)
Receiving sensitivity	Less than -140dBm
Receiving dynamic adjustable range	30dB
Battery Working Time	5H(Typical)
Battery type	Lithium battery
Charging time	2.5H/Block
Interactive interface	The screen displays the intensity of the received harmonic signal
	Audio prompts are supported and headphones can be connected.
	Supporting Vibration Tips
Detection distance	GPS module: 400-500mm Mobile phone: 180-220 mm
Product size	750(L)*114(W)*108mm(H)
Outer box size	700(L)*330(W)*180mm(H)
Product weight	1.5kg
working temperature	-30℃-55℃
Working humidity	No more than 93%, no condensate

Product Characteristics

- **Domestic substitution**: Completely independent of intellectual property rights, not limited by foreign technology import, can quickly customize features and optimize algorithms, with great security guarantee
- **Strong semiconductor detect ability**: Support the second and third harmonic signal strength detection, and can quickly and effectively identify devices and devices containing semiconductors.
- **High sensitivity**: Built-in high-gain antenna, large detection distance, especially for SIM card devices with high sensitivity, to ensure that secrets, mobile communications equipment can be quickly detected
- **Low false alarm rate**: The built-in nondestructive detection algorithm greatly improves the detection ability, and the false alarm rate is very low.
- **Safety and reliability**: The characteristics of the equipment meet the requirements of electromagnetic radiation and are absolutely
- **Safe for human body.Flexible operation**: The interface is simple and intuitive, with few buttons and easy manual operation.
- **Human-computer interaction interface is friendly**: Support visual graphical interface, vivid display of power emission level and second and third harmonic graphics, easy to operate
- **High cost performance**: The most cost-effective, cost saving and excellent performance in the world.

1 When the charging indicator is red, it indicates that the device is charging normally.
2 When the charging indicator is green, the device is fully charged.

3. Antenna in head

The head of the device is a transceiver antenna module. When the device is powered on, the antenna can scan the device transmit power and the received second and third harmonic signals, and finally display whether a nonlinear junction is found, and determine whether a suspicious electronic product is found.

4. Screen in head

Nonlinear junction detect interface Display the specific signal emission intensity and received second and third harmonic signal intensity. The detection progress is shown at the top. When the electronic equipment is detected in the target area, the second harmonic component is stronger than the third harmonic component. If metal oxide and other non-electronic equipment are detected, the third harmonic component is stronger than the second harmonic component.

Hesd screen interface

When the device detects the existence of non-linear nodes in the antenna coverage range, it will display whether the electronic products or metal objects are detected according to the detection results

Operational Instructions

1. Batteries, instructions for use, replacement and recycling

The equipment has been equipped with rechargeable lithium-ion battery, and the standard configuration is 6400ma large capacity battery, and the ultra-low temperature battery suitable for ultra-low temperature operation can also be selected (see the table above for specific battery parameters). Equipped with special charger, charging time is about 2.5h/piece; adapter supports 220V / 110V voltage input;

Battery replacement method:

1. Open the battery compartment door;
2. Press the battery eject button to remove the battery;
3. Insert a new battery and pay attention to the direction of the battery;
4. Close the battery compartment door;

Be careful:

1.In order to ensure the quality of batteries, when the equipment is not used for a long time, please take out the batteries and store the batteries in room where temperature of environment is between 25℃ to 30℃.

2.When the battery reaches the service life or is damaged artificially, please send the battery to a special waste battery recycling station or a special battery recycling bin in the park for recycling. It is forbidden to discard the battery at will or mix it with other waste materials to pollute the environment.

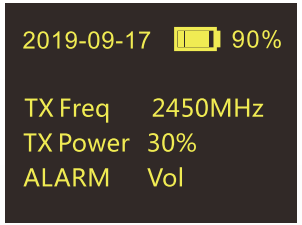
2. Charging instructions:

The device supports battery charging using the Type C interface, and there is a charging status prompt on the display at the head of the device. Unplug the charger and cable before turning on the device normally.

Should pay attention to:

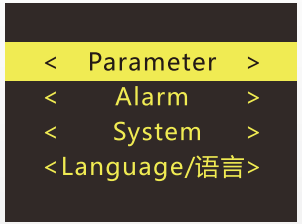
After plugging in the charging cable, make sure that the charging indicator light is on, where:

• 5. Central control screen



Date: Year-month-day
Battery status: Display current remaining battery level
Transmitting Frequency: Display the current actual transmission frequency of the device
Transmiting power: Display the current actual transmitting power value of the device
Alarm mode: Display the current alarm mode of the device, including sound,vibration,and headphone mode.

Click the menu button to display the main interface:



In detection state

Found electronic products

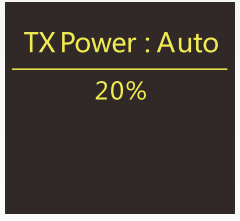
Found metallic oxides

Transmitting power level

Received the second harmonic component

Received the third harmonic component

Automatic selection interface:

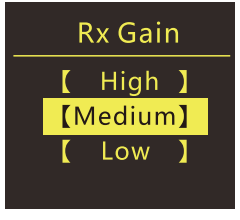


Enter the automatic selection interface: The device automatically adjusts the transmitting power and displays the maximum transmitting power of the current device. The operator adjusts the maximum transmitting power through the central control direction button. The up and down keys are stepped by 5%, and the left and right buttons are stepped by 5%.

2、Transmitting frequency interface:

Enter the transmission frequency selection: The operator inputs the frequency through the central control direction button, the upper and lower keys are stepped by 1MHz, and the left and right keys are stepped by 5MHz.

3、**receiving gain**

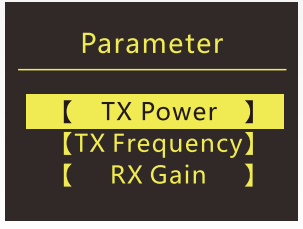


High: Represents high gain, maximum detection distance;
Medium gain: Middle detection distance;
Low: Represents low gain, minimum detection distance

Quick adjustment of transmitting power:
The operator can directly adjust the transmitting power by using the up and down keys at main menu page.

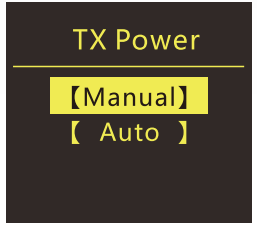
Fast transmission frequency setting:
When the initial interface is controlled, the operator can directly set the transmission frequency with the OK button.

A. Parameter setting



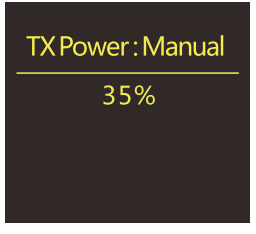
Parameter setting: Set the working parameters of the device, including the transmitting power setting, the transmitting frequency setting, and the receiving gain setting.
Transmitting power: Select the transmitting power of the device, including manual and automatic modes.
Transmitting frequency: Manually select the transmitting frequency of the device.
Receiving gain: Set the receiving sensitivity of the device, including high, medium, and low level

1、Transmit power

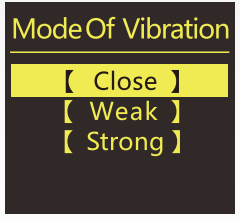


Manual selection mode: You can manually select the transmitting power
Automatic selection mode: The device selects the appropriate transmission power according to the actual distance of the measured object to ensure the best detection result.

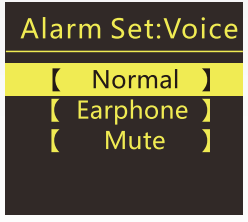
Automatic selection interface:



Enter the manual selection interface and display the current device transmitting power: The operator adjusts the power value through the central control direction button, the up and down keys are stepped by 5%, and the left and right keys are stepped by 5%.

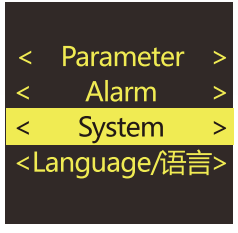


Enter the alarm threshold setting:the operator selects the vibration mode through the center control direction button.

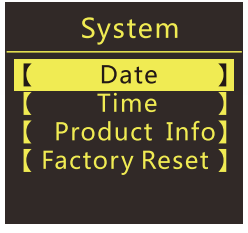


Enter the sound mode setting: The operator selects the sound mode through the center control direction button
Normal mode(If the earphone is not plugged in, it is the alarm sound of the device; if the earphone is plugged in, it is the alarm sound of the earphone.)
Headset alarm(Without headphones, there is no sound alarm. Headphones are sound alarms)
Turn off all audible alarms

C.System settings



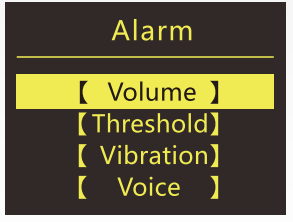
System Settings: Operate system information of the device,including setting date and time,viewing product information and restoring factory settings.



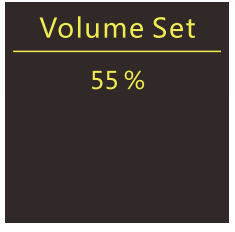
Date setting: Set the system date.
Time setting: Set system time.
Product Information : Display product version information,serial number,date of manufacture and battery voltage value.
Restore factory settings: Restore the system information of the device to the factory state.

B.Alarm settings

Alarm setting:Set the alarm volume, alarm threshold, vibration mode and sound mode of the device.



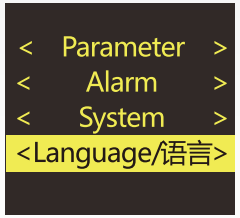
Alarm volume: Adjust the alarm volume of the device.
Alarm threshold: Alarm threshold: manually set the receiving sensitivity threshold of 2nd and 3rd harmonic signal. When this threshold is reached, the alarm is started.
Vibration mode: Set the strength and vibration of the equipment vibration alarm,divided into three gear positions,namely vibration off,weak vibration and strong vibration.
Sound mode: Set the sound alarm mode of the device, which is divided into normal mode, headset mode, and off mode.



Enter the alarm volume setting: The operator can set the volume through the central control direction button,the up and down keys step 1%, the left and right buttons step 5%.
Quick adjustment of alarm volume:
The operator can directly set the alarm volume by using the left and right buttons at main menu page.

Enter the alarm threshold setting: the operator uses the central control direction button to set the alarm threshold. The up and down keys are stepped by 1%,and the left and right buttons are stepped by 5%.

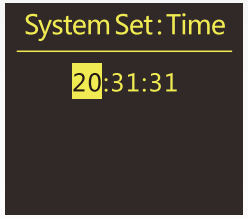
D.Language settings



Language setting: Set the system display language.

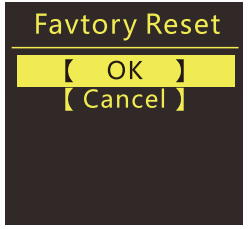
Enter the language setting interface: The operator selects the display language through the central control direction button.

Enter the date setting: Change the number size by the up and down buttons,and adjust the year,month,and day by the left and right buttons.



Enter time setting:Change the size of the number by the up and down keys,and adjust the hour,minute and second by the left and right buttons.

Enter product information view: The central control display interface displays product version information, serial number and date of manufacture.



Enter the factory reset setting: The operator confirms whether to restore the factory settings by pressing the up and down buttons(the device will automatically restart after resetting the factory settings).

Switch: Long press for 3 seconds

菜单 **Menu**: Enter menu or return to previous menu

Searchlight: Switch on or off headlights

OK **OK:** Confirm each operation.

Left and right buttons: Menu direction button, and digital increase/decrease button;

Up and down buttons: Menu direction buttons, and increase/decrease buttons;

Central control button operation area

Q: Under what circumstances will the machine auto shutdown?
A: When the battery power is lower than 10%, the machine will prompt that the 'Will Shutdown', and it will auto shutdown after 5 seconds.

Q: If you don't use it for a long time and you don't take out the battery, you may not be able to turn it on and you can't charge it. How to deal with it?
A: You can take the battery out and charge it with the charger. Reload the battery to work properly. At the same time, it is recommended to remove the battery when it is not used for a long time.

Q: Why does the TX Power displayed at the headend change?
A: When the transmit power is set to automatic selection, the transmit power automatically adjusts the transmit power according to the detected signal strength; if it is not desired to change the transmit power, it can be set to manual mode.

Q: Why is the date at the handle not accurate?
A: The system date can be changed, it may be changed during use, and it can be changed according to actual situation if necessary.

Q: **How to detect target electronic products that are far away?**
A: Use the telescopic rod to bring the probe closer to the target area when the target is farther; or increase the TX Power or increase the rx Gain.

Q: How to use shortcut keys during testing?
A: 1. Press the up and down keys in the initial interface to quickly adjust the TX Power;
2. Press the left and right keys in the initial interface to quickly adjust the volume;
3. Press the OK key in the initial interface to enter the TX Frequency adjustment interface.

Q: How to deal with the scenes where the second and third order alarms are present at the same time?
A: Manually turn down the transmit power, or set the transmit power to automatic selection.

FAQ

Q: How to handle it can't boot?
A: 1. Check if there is a battery installed, if not, install the battery;
2. Check if the battery has power. If the battery power is less than 50%, it is recommended to use it after charging;
3. Press the power button 3 seconds to boot;
4. It is recommended to remove the battery from the machine when the machine is not working.

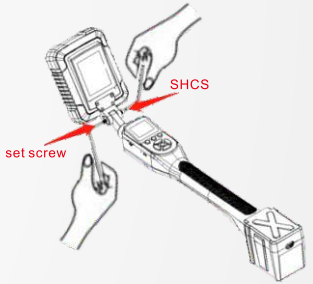
Q: How to confirm the remaining battery power?
A: Press the battery top button and the battery level indicator shows the remaining battery power.

Q: How to adjust the shaft strength?
A: First loosen the set screw with a wrench; Next, tighten the M4 socket head cap screws with a wrench; Finally tighten the set screw with a wrench.

Q: How to handle the alarm when the speaker has no sound?
A: First check if the machine alarm mode is sound, if not, select the sound first; Then turn up the sound.

Q: The machine sound is small, how to deal with?
A: First turn up the volume, then check if the horn is blocked, and if it is, remove the occlusion

Q: **If the proximity test has a false positive, how to deal with it?**
A: Method 1: Manually select to reduce the TX Power or reduce the RX gain; Method 2: The TX Power is set to automatic selection.



Protecting Privacy and Security