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# Non-Linear Junction Detector

## FJT-C-56

Operation manual



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## **Overview**

To clarify the basic principles and method of use of portable non-linear junction detector and proper operation of the device, it is necessary to study this manual before using the device.

Note: This device is the latest high-tech products in this filed. It adds new features which can not only detect electronic detonating device containing PN junction, but also could detect dangerous goods containing metals particularly can detect a strong all-metal shield camouflage explosives and dangerous goods. Especially in the field of security, you can change the traditional detection mode. But if you use metal detectors and non-linear junction detectors at the same time not only to put in double the manpower and add the search procedure for the detection of work greatly reducing the detection efficiency. However this device is fully complementary to this bottleneck described above. It enhances the search speed space, space and special circumstances, while increasing the receiver sensitivity adjustment function, suitable for use in a variety of complex environments and can in practice precise Looking probe target.

## **Purpose**

It can search all semiconductor component circuits regardless of their functional status and the target object containing a metal material.

It can effectively search for any type of radio microphone (listening devices), remote control, cable telephone line microphone and loudspeaker hidden electronic detonating devices, and various explosive objects containing metallic shine.

It can effectively guarantee to search on the internal components and defensive structures (floors, ceilings, walls, squares, playgrounds) .Freely telescopic antenna and a wide range of basic parameters of the device regulator ensure that the implementation process to facilitate the search and precise positioning, and can also search for signals received second and third harmonic and metal detection sync signal, the display shows the signal strength and buzzer enhance metal detector synchronization signal.

## Technical Parameters

### *Technical Data Overview*

1. At maximum power and sensitivity mode, the range of the analog detecting is not less than 50cm. Analog Devices select Normal random configuration diode (the transparent body packer). Random adjustable metal detector sensitivity by adjusting the different state environment mode and therefore will appear on the host instrument metal warning signal, the device through the side of the probe knob to adjust the balance between work, at rest stops 1-3S not appear toot voice prompts. This reaction will make most of the land mine automatically discharged and will not messalarm in the detection process. Max. distance for metal detector is (5 g metal) 30cm.It is currently the most advanced using digital processing technology and precisely accurate and correct.
2. Built in fixed high-capacity lithium batteries can be rechargeable 1000-1500 times.
3. Power consumption of the device does not exceed 10W
4. Sustainable controlled power play not less than 6 hours and has long standbymode and without a license battery management.
5. The operation buttons (except the power switch) are located on the display which is easy for operation. The display is LCD touch screen with rear-projection light source which can be used to highlight the day innormal light.
6. Standard equipment including package less than 5.2 kg Package
7. Limit temperature range:  $-20^{\circ}\text{C}\sim 60^{\circ}\text{C}$ 。
8. Relative humidity: when the temperature is  $25^{\circ}\text{C}$ , not more than 80%.

### *The receiver / transmitter module Technical Data*

#### 1.transmitter

- a) Transmission frequency: 2400.5MHz -- 2485.5MHz;
- b) Signal form: Pulse duty cycle of 5% Pulse width: 500us
- c) Transmitter power:3.7W (peak)

#### 2. Second harmonic receiver

- a) Receiver frequency: 4801...4971MHz;
- b) Receiver Sensitivity: -140 dBm。

#### 3. Third harmonic receiver

- a) Receiver frequency: 7201.5...7456.5MHz;
- b) Receiver Sensitivity: -140 dBm。

### ***Technical data of Antenna system***

1 antenna

- a) Transmitting antenna: Frequency 2400.5...24850.5MHz, gain >7dB, antenna VSWR <1.5;
- b) Second harmonic receiving antenna Frequency: 4801...4971MHz, gain >7dB, antenna VSWR <1.5;
- c) Third harmonic receiving antenna: Frequency 7201.5...7456.5MHz, gain >7dB, antenna VSWR <1.5

### ***Instrument configuration***

Module-Receiver-conveyor 1pcs, antenna system, display panel, the junction detector charger, two lithium batteries, case and using manual.

### **Structure and Function**

Portable non-linear junction detector includes an antenna system, a portable transceiver apparatus. A receiver can be a transmitter of modulated twice, three times the signal frequency. In the radio transmitter signal - non-linear electronic device (semiconductor) component changes the transmission again, and the device also returned by the probe to detect metal objects come to sound through the probe signal processing system prompt and sharp high-frequency beep was to the operator.

### **Host Operating Panel**







1. <Transmit> transmit antenna interface (It has blue color, the cable connector connected there also have blue color. Pay attention to recognize when connecting).
2. <Receive> Receive Antenna Interface
3. <Power indication> blue light for Power switch indicates when the host has power; when the blue lights off, the host has been powered off or the built-in battery is depleted.
4. <Power> Main switch. Press the main switch, the host power is turned on, the blue light should be lit. if not bright, the battery should be charged.
5. Battery charging (round) at the bottom of the host should be seated while charging.

## Display Function Introductions

LED indicator **TX1** displays the power intensity and adjustment level. Its strength indicates target power level;

LED indicator **RX1** display secondary signal strength level. When this appears, it means target comprising a semiconductor device. Signal strength characterize the target distance and the antenna in the target number of semiconductor devices.

LED indicator **RX2** displays third signal level. The signal indicates the target including corrosive metal source (such as rusty metal), its signal and the second harmonic signal together constitute the basis for objective analysis.

2. "  " Battery status display. When it constantly flashing, it means the battery needs to be recharged.
3. "  " Select button to select the sound alarm mode. You can also choose silent mode. Sound alarm mode is beep.
4. "   " adjusting button "  " Increase button, "  " Decrease button.

## Operating Manual

### ***Introduction of safety measures***

Prohibit the antenna system pointing people in the head. The distance between the antenna module and the human eye should be not less than 1 m; and avoid prolonged stay in the main directional antenna system time lobe region.

### ***Work preparation***

Take out the equipment module from the standard instrument box. The scalable operating lever is adjusted to the desired length.

Turn on the power switch, the display is lit indicating that the host has entered the work state. But if it is not lit, the host need to be promptly charged.

### ***Operation sequence***

1. Before the device is powered, please confirm antennas and hosts transmit and receiving cable is rightly connected.
2. Turn on the power, the display lights up, turn on, If finding the target, LED lights automatically displayed according to the signal strength. LED indicators show the first acts of power intensity adjustment, the second row of the second harmonic intensity and the third row acts of third harmonic intensity.
3. Observe the LED lights Secondary and third signal display. If the signal level of the third harmonic significantly exceeds the second harmonic, it is likely that the signal source has metal corrosion characteristics.
4. With built-in high-capacity stationary lithium battery, it fully charged can work continuously for more than 6 hours. When the power indicator on the display panel flashed, it means the battery has undervoltage and need to recharge. When charging, the charger socket plugged into the first host side of the socket, the other socket and the charger plug is connected(220V).At this time the charger indicator (red) lights indicating that it is charging. Charging time is about 3 hours. Red light means charging, green light means float or stopped and then charge 1 more hour, it's much better.

Note: Do not exceed 5 hours for charging, If the device isn't used for long time, please charge it every month in order to ensure that the battery life.

Note: Do not frequently open or close the instrument. Or it may result in notto be opened in a short time. If it happened, please charge immediatly about an hour, the problem can be resolved