DT-830

INFRARED IMAGING NONLINEAR NODE DETECTOR
OPERATION MANUAL

1 Nonlinear node detector body
2 Headphones
3 Backup lithium ion battery
4 AC-DC adapter(with type-c cable)
5 Charger
6 Second-order sample

DT-830

红外成像式非线性节点探测器
操作手册

1 红外成像式非线性结点探测器主体
2 耳机
3 备用锂离子电池
4 AC-DC适配器(带type-c连接线)
5 充电器
6 二阶试样

产品结构示意

01 天线：位于检测设备头端显示屏背面，用于测试信号的收发

02 探照灯：用于照亮被检测区域，有助于发现隐藏的物体或者让操作者判断检测区域，以防漏测

03 红外摄像头：红外成像取景窗口，完成被测物体的红外成像功能

04 头端显示：用于综合显示设备发射功率大小，天线接收到的二次谐波和三次谐波信号强弱，同时显示查找结果及被测物体红外成像显示；

05 伸缩杆：用于延长头端天线的伸缩范围，支持最长1.45米；

06 喇叭扬声器：用于输出声音提示；

07 中控面板显示：用于设备系统设置和操作监控；

08 开关：控制设备是否启动，按下设备上电启动工作，长按设备关机；

09 Type-c接口：用于外接标准AC-DC适配器进行设备供电；

10 耳机插孔：用于连接耳机设备进行声音告警；

11 充电指示灯：当用适配器给设备充电时，充电指示灯显示为红色，充满时显示为绿色，电池仓内未放置电池时，充电指示灯显示为红绿交替；

12 电池舱：安装设备的电池组件；

02
01
07
03
04
05
06
08
11
10
09
12

非线性节点探测器的使用场景

1.政府保密单位

　　国家政府机关如公安、司法、监狱、教育、部队、大型央企、保密单位等对信息安全和泄密防范有非常严格的要求，在重大会议之前保密部门必须对高级别会议室、首长会谈办公室、外宾接待室、保密场所等进行安全检测，防止有窃听、秘拍等违规设备隐藏在不宜发现的地方，最终导致会议信息泄露，导致重大机密信息和技术泄露，给国家和单位造成无法挽回的经济损失。

2.大型活动安保检查

　　在国家、各地市政府发起组织的大型国际峰会、商业洽谈等大型活动现场，为了保证各国政要、商业领袖及参会人员的人身安全及信息安全，组委会需要委派专业的安检团队提前进行所有场所的安全检查并进行严格封锁，非线性节点探测器被用于检测窃听器、秘拍设备、录音设备、遥控爆炸装置等违规设备，确保活动现场安全。

3.商业组织保密检查

　　大型商业组织如上市公司、跨国公司、行业协会等为了确保商业机密不外泄，都需要对内部的高级别会议室、董事长办公室及商业谈判场所进行严格的信息安全检查，防止手机、窃听器和其他SIM卡设备藏匿在墙内或者不容易被发现的角落，确保在进行重要会议、重大商业决策、商务谈判等活动中不被窃听、不被偷录，不被监控、保证商业机密信息安全。

4.教育行业防作弊检查

　　在高考、中考、公务员考试、高校阅卷等场所，非线性节点探测器可以在考场的入口进行防止考试作弊设备通过藏匿在考生耳朵、眼镜或者身体的其他部位带入考场，保证公开选拔的公平和公正性。

5.个人住所或者酒店房间隐私保护检查

　　为了确保个人隐私安全，在个人住所、酒店房间、商场更衣室、洗手间、娱乐场所等私人空间，非线性探测器可用来对周围环境进行安全检测，确保没有隐藏针孔摄像机、窃听器、录音笔等电子设备，确保个人隐私安全。

产品特点

▶ **国产替代**：完全自主知识产权，不受国外技术进口限制，可快速定制特性和优化算法，安全性有极大保障

▶ **快速判断隐藏物体类型**：通过红外成像功能可以快速、直观判断被测电子产品的外型，协助检测人员快速判断隐藏电子产品类型

▶ **半导体识别能力强**：支持二次三次谐波信号强度检测，能快速有效的识别含有半导体的器件和设备

▶ **高灵敏度**：特别对SIM卡类设备具有很高的灵密度，确保秘录、手机类通讯设备可快速被检出

▶ **误报率低**：内置优化雷达探测算法大幅提升检测能力，误报率极低

▶ **安全可靠**：设备特性满足电磁辐射要求，对人体绝对安全

▶ **操作灵活简单**：界面简单直观，按键少简洁，便于人工操作

▶ **高性价比**：全球最具性价比，节约开支且性能优良

基本性能参数

类型	参数	技术指标
非线性结点参数	产品工作频段	2400MHz
	工作电压	7.4V
	频率范围	2.404GHz - 2.472GHz
	接收 2nd~3rd 谐波范围	4.808GHz-4.944GHz，7.212GHz-7.416GHz
	最大发射功率	4W（ERIP）
	接收灵敏度	≤-140dBm
	接收动态可调范围	30dB
	工作时间	5.5 小时（正常模式）
热红外成像参数	红外成像点阵	160x120,连续扫描
	像素	12µm
	热成像灵敏度	<50mK(0.050℃)
	FOV-水平	57°
	FOV-对角	71°
	红外镜头类型	f/1.1
整机参数	电池类型	锂电池
	充电时间	2.5 小时/块
	交互界面	屏幕显示接收谐波信号强度
		支持音频提示，可连接耳机
		支持振动提示
		显示被测物体红外成像
	探测距离	GPS 模块：400-500mm 手机：180-220mm
	产品尺寸	750（L）*114(W)*108mm(H)
	外箱尺寸	700（L）*330(W)*180mm(H)
	产品重量	1.5kg
	工作温度	标配电池：-20℃~60℃ 选配电池：-30℃~60℃
	工作湿度	不大于 85%，无凝结水

操作说明

• **电池，使用说明、更换、回收**

　　本设备已经配备了可充电的锂离子电，标准配置为6400MA大容量电池，也可选配适用于超低温状态下工作的超低温电池（具体电池参数见上表）。配备专用的充电器，充电时间约2.5H/块；适配器支持220V/110V电压输入；
更换电池方法：
　　1.打开电池舱门；
　　2.拔出电池；
　　3.插入新电池，注意电池的方向；
　　4.关闭电池舱门；
注意：
　　1.为保证电池的工作质量，当设备长时间不用时，请取出电池，并将电池存放在25℃~30℃常温环境存放；
　　2.当电池达到使用寿命或者人为损坏无法使用时，请将电池送到专门的废旧电池回收站或者园区专门的电池回收桶进行回收，禁止随意丢弃或者和其他废旧物品混合处理，污染环境。

• **充电说明**：

　　设备支持使用Type C接口进行电池充电，设备头端的显示屏上会有充电状态提示。正常开启设备前应拔掉充电器和电缆。
　　应注意：
　　插上充电线后，要确认充电指示灯是否发亮，其中：
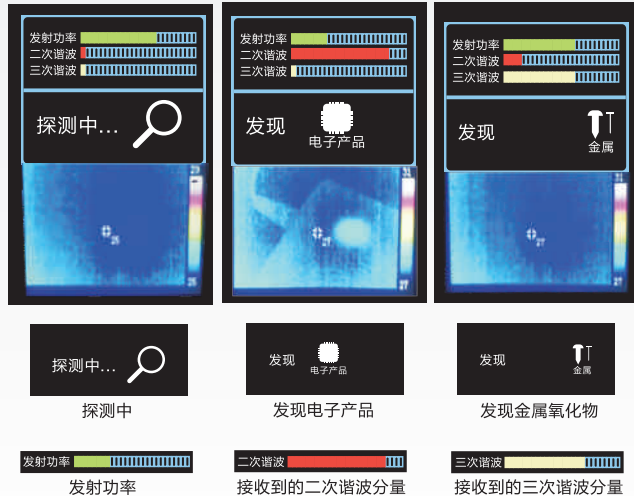　　①充电指示灯为红色时，则表示设备正常充电
　　②充电指示灯为绿色时，则表示设备已充满电

• **头部天线**

　　设备的头部是收发天线模块，当设备上电后，天线可以扫描设备发射功率和接收到的二次、三次谐波信号，并最终输出是否发现了非线性节点，并判断是否发现可疑电子产品

• **头部显示内容**

开始测试界面：显示具体的信号发射强度和接收到的二次谐波及三次谐波的信号强度。最上方显示检测进展；当检测到目标区域存在电子设备时，其2次谐波分量会比三次谐波分量大，如果检测到金属氧化物等非电子设备时，收到的3次谐波分量大于2次谐波分量。

红外显示界面：当被探测区域存在热源时，设备可使用热成像摄像机在显示屏幕上体现其位置以及轮廓。此功能是作为探查隐蔽的窃听，窃视设别的重要辅助。

头端屏幕界面

探测中…

发现 电子产品

发现 金属

当设备检测到天线覆盖的范围有非线性节点存在时，就会根据检测结果显示检测到电子产品还是金属物品，并根据检测到的温度特征成像出发热范围轮廓，用于定位检测到的可疑电子产品。

探测中…
探测中

发现 电子产品
发现电子产品

发现 金属
发现金属氧化物

热成像显示区域

发射功率
发射功率

二次谐波
接收到的二次谐波分量

三次谐波
接收到的三次谐波分量

• **5．中控屏幕显示内容**

2018-10-24 59%

发射频率 2450MHz
发射功率 40%
告警方式 声音振动

日期：年-月-日
电池状态：显示目前电池的剩余电量
发射频率：显示设备目前的实际发射频率
发射功率：显示设备目前的实际发射功率
告警方式：显示设备目前的告警方式，包括声音，振动和耳机模式

点击菜单键后显示主界面：

< 参 数 设 置 >
< 警 告 设 置 >
< 系 统 设 置 >
<语言/Language>

A.参数设置

参数设置

【发射功率】
【发射频率】
【接收增益】

参数设置：对设备工作参数进行设置，包括发射功率设置，发射频率设置，接收增益设置；
发射功率：对设备的发射功率进行选择，包括手动和自动两种模式；
发射频率：手动的对设备的发射频率进行选择；
接收增益：对设备的接收灵敏度进行设置，包括高、中、低。

1、发射功率

发射功率

【手动选择】
【自动选择】

手动选择模式：可以人为选择发射功率。
自动选择模式：设备根据被测物的实际距离选择合适的发射功率，确保最佳检测结果。

自动选择界面：

发射功率:自动
20%

进入自动选择界面：设备自动进行功率调整并显示当前设备最大发射功率，操作人员通过中控方向按键调整最大发射功率，上下键步进5%，左右键步进5%。

手动选择界面：

发射功率:手动
35%

进入手动选择界面，并显示当前设备发射功率：操作人员通过中控方向按键进行功率调整，上下键步进5%，左右键步进5%。

2、发射频率选择界面：

频率选择:手动
2443 MHz

进入自动选择界面：设备自动进行功率调整并显示当前设备最大发射功率，操作人员通过中控方向按键调整最大发射功率，上下键步进5%，左右键步进5%。

3、接收增益

接收增益

【高】
【中】
【低】

高：代表高增益，检测距离最大；
中：代表中等增益，检测距离适中；
低：代表低增益，检测距离近。

发射功率快捷调整：
在中控初始界面时，操作人员可通过上下键直接对发射功率进行调整。

发射频率快捷设置：
在中控初始界面时，操作人员可通过OK键直接对发射频率进行设置。

```
<    参数设置    >
<    警告设置    >
<    系统设置    >
<语言/Language>
```

告警设置：对设备的告警音量，告警门限，震动模式和声音模式进行设置。

```
告警设置
────────
【告警音量】
【告警门限】
【振动模式】
【声音模式】
```

告警音量：对设备探测的告警音量大小进行调整；
告警门限：手工设置2次谐波和3次谐波的接收灵敏度门限，达到此门限即报警；
振动模式：设置设备振动告警的强弱，分三种档位，分别是振动关、振动弱和振动强
声音模式：设置设备的声音告警模式，分为正常模式，耳机模式，关闭模式

```
告警设置:振动模式
────────
【关】
【弱】
【强】
```

进入告警门限设置：操作人员通过中控方向按键进行震动模式选择振动关、振动弱、振动强。

```
告警设置:声音模式
────────
【正常】
【耳机】
【关闭】
```

进入声音模式设置：操作人员通过中控方向按键进行声音模式选择。
正常：开启扬声器（未插耳机为设备告警声音，插耳机为耳机告警声音）；
耳机：耳机告警（未插耳机则无声音告警，插耳机为耳机声音告警）；
关闭：关闭所有声音告警。

```
音量设置
────────
55%
```

进入告警音量设置：操作人员通过中控方向按键进行音量设置，上下键步进1%，左右键步进5%；
告警音量快捷设置：在中控初始界面时，操作人员可通过左右键直接对告警音量进行设置。

```
告警设置：门限
────────
20 %
```

进入告警门限设置：操作人员通过中控方向按键进行告警门限设置，上下键步进1%，左右键步进5%。

C.系统设置

```
＜  参数设置   ＞
＜  警告设置   ＞
＜   系统设置   ＞
<语言/Language>
```

系统设置：对产品的系统信息进行操作，包括设置日期、时间，查看产品信息及恢复出厂设置。

```
系统设置
【   日期   】
【   时间   】
【产品信息】
【恢复出厂】
```

日期设置：设置系统日期；
时间设置：设置系统时间；
产品信息查看：显示产品版本信息，条码，出厂日期及电池电压；
恢复出厂设置：将设备的系统信息恢复到出厂状态。

```
产品信息
版本: V04.09
SN: 0108011909
    000049
日期: 2019-09-09
```

进入产品信息查看：中控显示界面显示产品版本信息，条码以及出厂日期。

```
系统设置:恢复出厂
【   确定  】
【   取消  】
```

进入恢复出厂设置：操作人员通过中控上下按键确认是否恢复出厂设置（设备确认恢复出厂设置后会自动重启）。

```
系统设置:日期
2018-10-24
```

进入日期设置：通过上下键改变数字大小，通过左右键调整年、月、日。

```
系统设置:日期
16:54:33
```
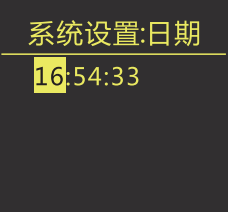
进入时间设置：通过上下键改变数字大小，通过左右键调整时、分、秒。

D.语言设置

```
＜  参数设置   ＞
＜  警告设置   ＞
＜  系统设置   ＞
<语言/Language>
```

语言设置：对系统显示语言进行设置。

```
Language/语言
【Chinese/中文 】
【English/英文 】
```

进入语言设置界面：操作人员通过中控方向按键对显示语言进行选择中文或英文。

中控按键操作区域

开关：长按3秒开关机；

菜单：返回上一层菜单或进入主菜单的按键；

探照灯：头端照明灯的开关；

OK：确认回车键，对每次操作进行确认；

上下按键：菜单方向按键，同时兼顾数字增加/减少按键；

左右按键：菜单方向按键，同时兼顾数字增加/减少按键；
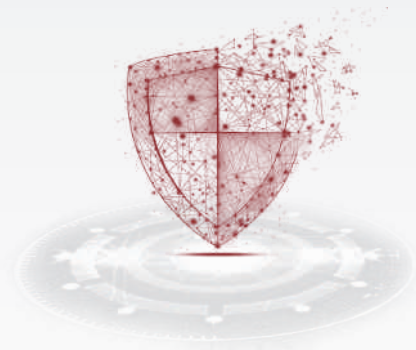
常见问题解答

1. 如何处理无法开机？
1）检查是否有安装电池，没有则安装电池；
2）检查电池是否有电，电池电量小于2格则建议先充电后使用；
3）长按电源键3秒开机；
4）机器不工作时建议把电池从机器中取出。

2. 如何确认电池剩余电量？
答：按电池上方按钮，电池电量指示灯显示电池剩余电量。

3. 如何调节转轴力度？
1）扳手拧松机米螺丝；
2）扳手拧紧M4的内六角螺丝；
3）扳手拧紧机米螺丝。

4. 如何处理告警时喇叭没有声音？
1）检查机器告警方式是否是声音，如果不是则先选择声音；
2）检查机器音量设置是否大于30%，如果＜30%则调大音量；
3）恢复出厂设置。

5. 机器声音较小，如何处理？
1）调大音量；
2）检查喇叭孔是否被遮挡，如果是则去掉遮挡物。

6. 如果近距离测试有误报怎么处理？
答：方法一：手动选择调小发射功率或者调小接收增益；
　　方法二：发射功率设置为自动选择。

机米螺丝

内六角螺丝

7. 机器在哪些情况下会自动关机？
答：在电池电量低于10%时，机器会提示电量严重不足，5秒后会自动关机。

8. 长时间不使用，且没有把电池取出来，有可能会出现无法开机且无法充电的现象，怎么处理？
答：可以将电池取出来用座充进行充电，重新装入电池即可正常工作。同时建议长时间不使用时，将电池取出保存。

9. 头端显示的发射功率大小为什么会变化？
答：当发射功率设置为自动选择时，发射功率会根据检查到的信号强度自动调整发射功率大小；如果不希望发射功率发生
　　变化，可设置为手动模式。

7. 手柄处显示日期为什么不准？
答：系统日期可以更改，有可能在使用过程中被更改，如有需要可根据实际情况更改。

10. 如何探测距离较远的目标电子产品？
答：当目标较远时可使用伸缩杆，使探测头靠近目标区域；或者调大发射功率或者调大接收增益。

11. 测试过程中如何使用快捷键？
1）在初始界面下按上下键即可快捷调节发射功率；
2）在初始界面下按左右键即可快捷调节音量大小；
3）在初始界面下按OK键即可进入发射频率调节界面。

12. 如果出现二阶和三阶报警同时满格存在的场景该如何应对？
1）调小发射功率；
2）发射功率设置为自动选择。

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.

set screw

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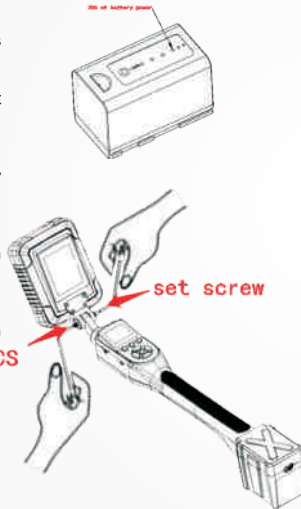
Q : Under what circumstances will the machine auto shutdown?
A : When the battery power is lower than 10%, the machine will prompt that the 'Will Shutdown', and it will auto shutdown after 5 seconds.

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.

Central control button operation area

Switch: long press for 3 seconds

Menu: Enter menu or return to previous menu

Searchlight: switch for headlights

OK : Confirm each operation.

Up and down buttons: menu direction buttons, while taking into account the digital increase/decrease buttons;

Left and right buttons: menu direction button, while taking into account the digital increase/decrease button；

KEEP A SECRET
让隐私永远安全

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Mode Of Vibration

【 Close 】
【 Weak 】
【 Strong 】

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

Alarm Set:Voice

【 Normal 】
【 Earphone 】
【 Mute 】

Enter the sound mode setting: the operator selects the sound mode through the center control direction button.
Normal mode(The earphone is not plugged in as the device alarm sound,and the earphone is in,the earphone alarm sound.)
Headset alarm(No sound alarm when no headphones are plugged in,plug in headphones for earphone sound alarm)
Turn off all audible alarms.

B.**Alarm settings**

<   Parameter   >
<   Alarm   >
<   System   >
<Language/语言>

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

Alarm

【 Volume 】
【Threshold】
【 Vibration】
【 Voice 】

Alarm volume: adjust the alarm volume of the device.
Alarm threshold: manually set the receiving sensitivity threshold of 2nd harmonic and 3rd harmonic. When this threshold is reached, the alarm is reached.
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.

Volume Set

55 %

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%.
Fast adjustment of alarm volume: When the initial interface is controlled,the operator can directly set the alarm volume by using the left and right buttons.

Alarm Trip

20 %

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%.

Automatic selection interface:

TX Power : Auto

20%
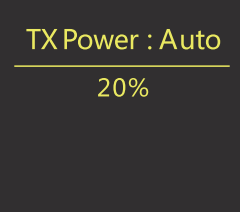
Enter the automatic selection interface: the device automatically adjusts the transmit power and displays the maximum transmit power of the current device. The operator adjusts the maximum transmit power through the central control direction button. The up and down keys are stepped by 5%, and the left and right buttons are stepped by 5%.

2、Transmitting frequency interface:

Freq Select : Manual

2443 MHz

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

3、receiving gain

Rx Gain
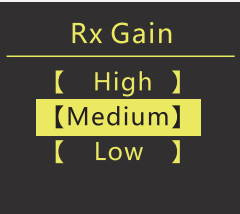
【 High 】
【Medium】
【 Low 】

High: Represents high gain, maximum detection distance;
Medium gain: middle detection distance;
Low: Represents low gain, close detection distance.

Fast adjustment of transmit power:
When the initial interface is controlled, the operator can directly adjust the transmit power by using the up and down keys.

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

【 TX Power 】
【TX Frequency】
【 RX Gain 】
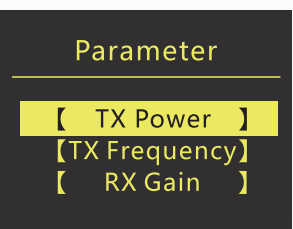
Parameter setting: Set the working parameters of the device, including the transmit power setting, the transmitting frequency setting, and the receive gain setting.
Transmit power: select the transmit power of the device, including manual and automatic modes.
Transmitting frequency: manually select the transmitting frequency of the device.
Receive gain: Set the receiving sensitivity of the device, including high, medium, and low.

1、Transmit power

TX Power
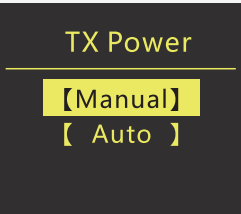
【Manual】
【 Auto 】

Manual selection mode: you can manually select the transmit 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:

TX Power : Manual

35%
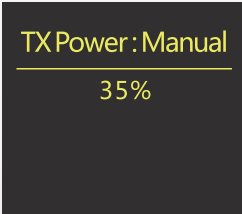
Enter the manual selection interface and display the current device transmit power: the operator adjusts the power through the central control direction button, the up and down keys are stepped by 5%, and the left and right keys are stepped by 5%.

• 5. Central control screen display content

2019-09-17　　90%

TX Freq　　2450MHz
TX Power　30%
ALARM　　Vol

Date：Year-month-day
Battery status：Display current remaining battery
**Transmitting Frequency**：Display the current actual transmission frequency of the device
Transmit power ：Display the current actual transmitting power state 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:

< 　Parameter　 >
< 　　Alarm　　 >
< 　　System　 >
< Language/语言 >

Hesd screen interface

发射功率
二次谐波
三次谐波
探测中…

发射功率
二次谐波
三次谐波
发现　　电子产品

发射功率
二次谐波
三次谐波
发现　　金属
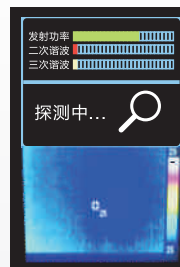
Searching…
In detection state

Found　　Oxides
Found metallic oxides

Found　　Electronics
Found electronic products

TX Power
Transmitting power level

RX2
Received the second harmonic component

RX3
Received the third harmonic component

When the device detects that the range covered by the antenna has a nonlinear node, it displays whether the electronic product or the metal object is detected according to the detection result, and images the starting heat range contour according to the detected temperature characteristic, and is used for locating the detected suspicious electron product.

Thermal imaging display area

Should pay attention to :
After plugging in the charging cable, make sure that the charging indicator is lit, where :
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. Detection transceiver
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 output whether a nonlinear node is found, and determine whether a suspicious electronic product is found.
4. Head display content
Start testing the 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 larger than the third harmonic component. If metal oxide and other non-electronic equipment are detected, the third harmonic component is larger than the second harmonic component.
Infrared display interface: When there is a heat source in the detected area, the device can use the thermal imaging camera to reflect its position and contour on the display screen. This feature is an important aid for detecting covert eavesdropping and sneak peeks.

Operational Instructions

1. Batteries, instructions for use, replacement and recycling
This device is equipped with rechargeable lithium-ion battery. The standard configuration is 6400MA large-capacity battery. It can also be equipped with ultra-low temperature battery suitable for working under ultra-low temperature conditions(see the table above for specific battery parameters).Equipped with a dedicated charger, charging time is about 2.5H/block; 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 temperature environment of 25℃ ~30℃.
2. When the battery has reached its service life or cannot be used by man-made damage, please send the battery to a special waste battery recycling station or special battery recycling barrel in the park for recycling. It is forbidden to discard the battery at will or mix 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.

Basic Performance Parameters

TYPE	parameter	Technical indicators	TYPE	parameter	Technical indicators
Nonlinear node detector parameters	Product working frequency band	2400MHz	Interactive interface		The screen displays the intensity of the received harmonic signal
	working voltage	7.4V			Audio prompts are supported and headphones can be connected.
	frequency range	2.404 GHHz - 2.472 GHz			Supporting Vibration Tips
	Receiving 2nd~3rd Harmonic Range	4.808 GHz-4.944 GHHz, 7.212 GHz-7.416 GHz			Display infrared imaging of the measured object
	Maxium transmit power	4W（ERIP）	Machine parameters	Detection distance	GPS module: 400-500mm
	Receiving sensitivity	≤-140dBm			Mobile phone: 180-220 mm
	Receiving dynamic adjustable range	30dB		Product size	700（L）*330(W)*180mm(H)
	Battery Working Time	5.5H(Typical)		Outer box size	700（L）*330(W)*180mm(H)
Thermal infrared imaging parameters	Infrared imaging lattice	160x120,Continuous scanning		Product weight	1.5kg
	Pixel	12μm		working temperature	Standard battery：-20℃~60℃
	Thermal imaging sensitivity	<50mK(0.050℃)			Optional battery：-30℃~60℃
	FOV-level	57º		Working humidity	No more than 85%, no condensate
	FOV-diagonal	71º			
	Infrared lens type	f/1.1			
Machine parameters	Battery type	Lithium battery			
	Charging time	2.5H/Block			

Product Characteristics

► **High positioning accuracy**：
The product adopts 2400MHz radio frequency detection technology, and has high precision positioning characteristics.

► **Semiconductor recognition ability is strong**：
Built-in spectrum analyzer supporting second and third harmonic detection 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.

► **The false alarm rate is low**：
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**：
Supporting automatic and manual mode of transmission power, easy to operate manually

► **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 world's most cost-effective, cost-saving and excellent performance

4. Cheating Prevention in Education Industry

In places such as college entrance examination, high school entrance examination, civil servant examination and college marking, non-linear node 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.

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5. Privacy Protection Inspection of Personal Residence or Hotel Room

In order to ensure the safety of personal privacy, non-linear 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.

Use Scene of Nonlinear Junction Detector

1. Government Secrecy Units

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'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. 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 Events

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. Equipment, recording equipment, remote control explosive device and other illegal equipment 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 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.

Schematic Diagram of Product Structure

01 **Antenna**: It is located on the back of the display screen at the head end of the testing equipment and is used for transmitting and receiving test signals.

02 **Searchlight**: Used to illuminate the detected area, help to discover hidden objects or let the operator judge the detection area in order to prevent leakage detection.

03 **Infrared camera**: infrared imaging framing window, complete infrared imaging function of the measured object

04 **Head-end display**: Use to synthetically display the transmitting power of the device, the second and third harmonic signals received by the antenna, and display the system information such as the search results.

05 **Telescopic rod**: used to extend the telescopic range of the head-end antenna, supporting up to 1.45 meters;

06 **Horn speaker**: used to output sound prompts;

07 **Central control panel display**: for equipment system setup and operation monitoring;

08 **Switch**: Control the device to switch on and off, press and hold the device for 3 seconds

09 **Type-c interface**: for external standard AC-DC adapter for equipment power supply;

10 **Headphone jack**: used to connect headphone equipment for sound alarm;

11 **Charging indicator**: When charging the device with an adapter, the charging indicator is red, and when it is full, it is green. When the battery is not placed in the battery compartment, the charging indicator is get red and green alternately.

12 **Battery compartment**: Battery assemblies that install equipment to work properly